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Dates, Dromedaries, and Drought: Diversification in Tuareg Pastoral Systems

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This chapter is concerned with the traditional pastoral system, or systems, of the Tuareg, whose country extends along a north-south belt from the Maghreb to the Sudanese zone following meridians that join the Tassili of Ajjer, the Ahaggar and its Sahelian offshoots, the Aïr and Adrar of Ifoghas (Monod, 1968:284), to the banks of the Niger, the agropastoral zone of Gourma, Ader, and Damergou. This axis is delineated on the west and east by desert belts that isolate it from the land of the Moors and the Teda-daza, the latter often misnamed Toubou. These regions of "no man's land" form screens or filters between the Tuareg and the worlds of their neighbors, who inhabit similar environments.

It would be restrictive to conceive of Saharan pastoralism as simply a system of oases, dromedaries, and dates. Such a system is currently undergoing mutation and must be seen in historical context, as a model that has survived among some herdsmen but whose future viability is threatened. The analysis presented here centers on the pastoral system of Tuareg living in the septentrional or northern Sahelian zone, south of the Sahara and irrigated oasis culture, and north of the areas of rain-fed agriculture. Until the recent drought, animal husbandry developed and prospered in this area, along avenues of movement that, until the 1950s, were free of competition from rain-fed agriculture, even at its farthest limits. This northern Sahelian system of animal husbandry is contrasted with an agropastoral system involved in commercial exchange with Saharan oases, camels linking these isolated desert isles.

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TWO TRADITIONAL TUAREG PASTORAL SYSTEMS

Located between the 15th and 17th latitudes north, the Iwellemmeden Kel Denneg Tuareg today depend on animal husbandry for their livelihood (Figure 5.1). Their contemporary political arrangement was gradually established through successive, incremental adjustments. The centralized political leadership so created lent coherence to a territory where pastoral life could go on despite the insecurity of war and hand-to-hand combat. Both the diversity and the cultural cohesion of Tuareg society, constituted out of varied and complementary elements, involve the management of herds following practices still partially utilized despite the major changes experienced since the turn of the century. However, this mode of environmental exploitation represents an economic model whose global coherence seems now to have largely disappeared.

The Tuareg Kel Geres have been established south of these Iwellemmeden (between the 13 degrees 30 minutes and 14 degrees 30 minutes latitude north) since the 18th century. Although located on agricultural land,

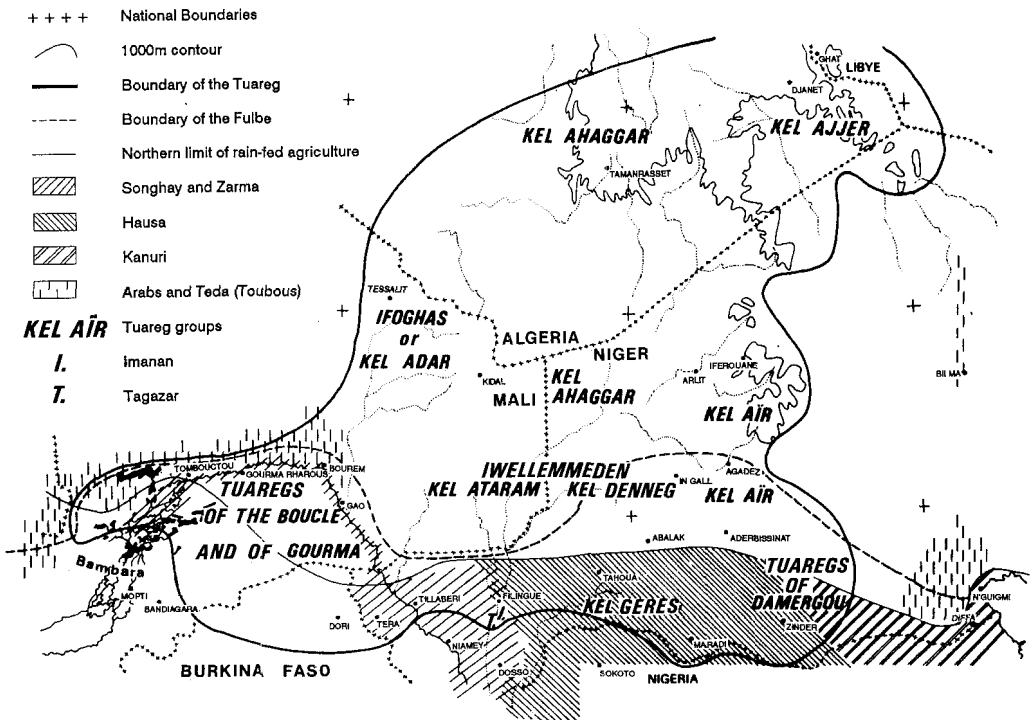


FIGURE 5.1. The Tuareg country and its surroundings (adapted from Bernus, 1981, p. 8).

they continue to exploit septentrional pastures through long summer migrations and have continued to participate in the caravan trade of the Agram and Kawar oases. The importance of their herds has forced them to leave cultivated zones during the rainy season, to return seasonally in a sort of yearly pilgrimage to the site of their origins.

The Environment

Iwellemmeden Kel Denneg country is located in the interior of the arid zone, as defined by the aridity indicators utilized by Unesco and MAB (Man and the Biosphere, 1977) for the establishment of their map on desertification.¹ According to this map, the total area receives between 150 and 400 mm annual rainfall and its geographical center about 250 mm. This of course represents a very low volume of precipitation, the effects of which on the vegetation have to be understood in terms of its distribution over time. All statistics correspond to relatively recent data (after 1920), since data for the end of the 19th and the beginning of the 20th centuries do not exist. Fundamental changes do not seem to have occurred in the last century: periods of "thin cows" (scarcity) and "fat cows" (plenty) have been cyclic. The irregularity of rainfall remains one major characteristic of the climate, the annual minima to maxima ratio being of the order of 3:12. This variability exists in time (interannual variation) as well as in space, considerable differences being registered between two nearby pluviometers in the course of one day.

This zone has a number of Sahelian characteristics:

"widely diffused vegetation, wide distribution of dead dunes, numerous winter ponds, images of above-ground termitariums, of earthy soils (and dirty, contrasting with the clean Saharan soils), development of seasonal grass-land pastures favorable to bovine husbandry and to the short-distance "beef and straw" [*du boeuf et de la paille*] migration, absence of brush fires, the critical role of food gathering (especially of wild Gramineae seeds). [Translated from Monod, n.d.]

It can be added that vegetation increases from north to south and that, although diffuse on the plateaus, it is more concentrated in the valleys between the dunes, as well as along the large fossilized valleys that cut across ancient cliffs, plateaus, and dunes.

North of this zone, beyond the territory traversed during the 9 months of dry season, are clay plains with waters rich in mineral salts and grassy pastures which in good years can feed prodigious herds. Tuareg herdsmen converge on this area in August and September with their herds, which drink the famous waters and feed off rich yet short-lived pastures. A return toward the septentrional zone of the south, with its ponds, water holes, and scarce fodder trees, is necessary by the end of September or the beginning of October.

The Kel Geres occupy the Ader Douchi and the Gober-Toudou, which in the south are contiguous to the Kel Denneg territories. This is a region of contrasts, between plateaus rendered immobile under a ferruginous hard layer and deep valleys that cut across them; the horizontal monotony of a plateau with its small trees contrasts dramatically with its indented edge, gullies overhung by ledges from which valleys with majestic trees can be seen. Wetter (500–550 mm annual rainfall) and more mountainous than the Kel Denneg country, the Ader is subjected to brutal floods and to extensive erosion. When the Kel Geres arrived in the territory they now occupy, valleys, now invaded by fields, were the site of a rich vegetation of grasses and trees which constituted high-quality pasture for the herds of these northern pastoralists.

The Kel Geres converge on the corridors used by the Iwellemmeden to reach the mineral waters and pastures south of Aïr. During the rainy season, these lines of movement, which cut across or follow one another, provide occasions for encounters with the Kel Denneg which in the last century led to occasional battles like that of Shin Ziggaren (1871), south of In Gall, remembered for its violence and bloodshed. If their summer pastures almost overlap (the pastures of the Kel Geres are located a little east of those of the Kel Denneg), their starting points are distinct, the more meridional or southern (Kel Geres) traveling twice as far from the agricultural zone to the beginning of the Sahara.

Political and Social Organization

Tuareg social and political organization has been described extensively, and it seems unnecessary to provide a detailed analysis here. After a brief résumé of its essential characteristics, I will outline the specific traits of the groups concerned and demonstrate the relations that exist between their systems of political and social organization and pastoralism.

Tuareg political organization involves the juxtaposition of “confederations” or *ettebel* (drum, a mark of power), within which a variable number of tribes, belonging to all levels of the social hierarchy, unite under the direction of an *amenokal*, a leader always chosen from the same aristocratic tribe. A similar model exists from Djanet to Timbuktu, from Tamanrasset to Madaoua: it varies according to the relative importance of the groups belonging to various social categories. Aristocratic warriors (*imajeghen*) almost always form a small minority among the freemen, whereas the relative number of vassals or tributaries, who are also warriors (*imghad*), and Muslims (*ineslemen*) varies considerably from one *ettebel* to another. The proportion of slaves, captives, servants, freemen, those bound by tradition to servile origins, grows rapidly as we enter the agropastoral meridional zone.

The *amenokal* of the Iwellemmeden Kel Denneg was always chosen from the Kel Nan, among whom the number of *imghad* was very small, that of *ineslemen* being large enough to give the latter considerable influence and

economic status. From these religious groups (*Kel Eghlal*) was chosen the *imam*, whose juridical and religious role was recognized by the entire *ettebel*. These religious groups were rivals of the aristocratic *imajeghen*, from whom they seized the leadership at the beginning of the 18th century. This double power, military and political on the one hand, religious and juridical on the other, often gave rise to confrontation, especially since most religious tribes carried weapons and partook in wars. How rivalries were born is related in a story retold in two different versions by the oral historians of each side, supported among the religious by Arabic sources (*tarikh*), sometimes ancient, sometimes reconstituted later.

The *amenokal* had a political role: he decided which campaigns to undertake and assembled warriors under his orders, using the beat of the war drum (*ettebel*) both for attacks far away and for defense against outside invasions. In the summer, groups moved toward the northern pastures guided by the *ettebel*, who had to give the sign of departure for migration to the salt cure.

Beside this supreme authority, each tribe was attached to one of the five or six suzerain tribes who considered themselves the owners of all goods. Their dependents, religious or tributary (*ineslemen* or *imghad*), contested this interpretation, affirming that they had control of the cattle they kept. The aristocrats, however, kept few herds for themselves: some cows for milk, animals for riding, and beasts of burden. They could claim needed animals at any time, and this right (*tarkept*) could not be challenged. The counterpart of this practice was the obligation of warriors to assure the protection of all their dependents (religious, vassals, freemen, or personal slaves). In cases of exaction by strangers, any man could claim the help of his protector in righting the wrong. These ties of dependency implied the acceptance of sovereignty when the suzerain had enough power to maintain order, to correct injustice, and to protect belongings and people. Payment was given both to the political (*susey*) and to the religious leaders in the form of a Koranic tithe (*tamesadeg*). These prestations in kind were sometimes followed by donations from leaders after victorious wars or in celebration or thanks for services provided. The booty or gifts distributed following a successful *rezzou* (raid) maintained social cohesion and tightened the bonds of clientage between chiefs and their dependents.

Animal husbandry was thus managed by tribes belonging to different levels of hierarchy. Camel husbandry in particular was handled by the suzerains, whereas in ancient times smallstock was undertaken by vassals, with until recently certain groups specializing in ovine production (the *Iberogan*, who were the vassals of the *Igdalen*). From the herd, animals were (and still are) chosen to be sacrificed to celebrate a birth, baptism, or marriage, or for a religious celebration. A young man found in the livestock herd the animals to be given to the family of his future bride. Whether dependents were indeed owners of their herds, as they claim, or simply managers, as the *imajeghen* maintained in order to justify their repossession of animals (*tarkept*), is of little importance since herds were well kept and well managed. On the other hand,

the number and value of animals given over to the care of serf-herdsmen were, and still are, known to their owners who kept them close at hand under careful surveillance since, like their keepers, they represent a store of capital.

Among the Kel Geres, the *amenokal* is chosen from the Tatamaqaret: this society has no tributaries and few religious leaders; beside the artisans, there are only suzerains and their slaves, as well as the mass of dependent agriculturalists (*ighalewen*):

Their political organization is complex. The tribe (*tawshit*) appears as a form of conjunction between two principles, the social and political mode of lineage articulation and the structure of hierarchy. It has some unique aspects among the Kel Geres, the union of *ighawelen* and *iderfan* around one (sometimes many) dominant *imajeghen* lineage to which craftsmen are bound by a relation of dependence and clientage. The tribe has a name, often a leader, and a brand borne by its cattle.

It is not, however, a political unit. As in other Tuareg groups, it is ruled by the *agholla*, sometimes called the group with the drum, the war drum being an essential although nonspecific attribute. The *agholla*, a war leader with political and juridical powers, remains, however, a member of a particular lineage occupying an important position in the group's lineage hierarchy. It is named by its own lineage *imajeghen* assembly, *ameni*.

The four *agholla* of the Kel Geres confederation exercise a type of collegial political power regarding their responsibilities for reciprocal control. The *agholla* of the Tatamaqaret serves a privileged role as leader of the confederation with the title of *ttebel*. [Translated from Bonte, 1975, pp. 170-171]

Thus, the political power of the supreme chief (*ettebel* or *tambari* among the Kel Geres) is less concentrated than that of the Kel Denneg, who have no *agholla*.

Almost all the livestock belong to the *imajeghen* whose slaves (*iklan*) care for them. In a country adapted to rain-fed agriculture, the Kel Geres society has created a true dichotomy between animal husbandry, with herds owned by an aristocratic minority and maintained by servile manpower, and an extensive rain-fed agriculture (millet, sorghum) in the hands of dependents, who must give away part of their crops to the *imajeghen*, the landowners.

Kel Geres and Kel Denneg Tuareg society is dominated by the ideology of the *imajeghen*, the aristocratic warriors. Men are part of a panoply of heroes and must at all time accomplish tasks at least as extraordinary as those of their ancestors. They have the opportunity to demonstrate their extraordinary skills in war and to be praised in songs, *les chansons de geste*, which are epic poems relating their achievements. Women help maintain this ideology and favor heroes: the warriors go to combat thinking of them, and all the poems chanted before the fight speak of the beloved. This aspect of society testifies that the past must never be forgotten.

This short exposé demonstrates that the Iwellemmeden Kel Denneg essentially exploited pastoral resources and that their economy was centered on animal husbandry, whereas the Kel Geres were situated in the agricultural zone. It remains to be asked how these systems function in the traditional framework. How could these two pastoral groups succeed in creating an equilibrated economic order while being threatened by a continuous state of insecurity?

THE IMPOSSIBLE CONFINEMENT

Previous statements might have suggested that the Iwellemmeden Kel Denneg pastoral system is closed, with a self-reliant economy, whereas the Kel Geres system is more open since it is supported by a caravan trade that relates it to the Sudanese zone (now northern Nigeria) and the Sahara. In fact, such an interpretation is inadequate with respect to the Kel Denneg: just like the Kel Geres, they could not live solely from the resources of their territory, through animal husbandry and gathering.

The Iwellemmeden Kel Denneg

We then have to ask what was the nature of the resources that the Kel Denneg had to seek outside their territory and, more precisely, where, with which population, and in which way these resources were obtained.

Prestations

In terms of nutrition, the Kel Denneg needed to acquire cereals (mostly millet and some sorghum), even though the consumption of these was small before the colonial period. Each *imajeghen* Tuareg group had some serfs or freemen (*iklan*, *iderfan*, *iklan-n-egef*) who cultivated on the pioneer fringe of the rain-fed agricultural zone to the south. These “colonists” of servile origin represented their masters’ cultivators by procuration: they gave part of their crops and maintained some of their masters’ stock. Further south, on similar territory in the septentrional part of the Ader, certain Hausa villages were controlled by the *imajeghen*, who claimed part of their crops.

Campaigns of Warfare and Raids

The campaigns led by the *amenokal* with the help of warriors sometimes provided significant booty, which was shared. *Rezzous*, involving rapid incursions aimed at raiding other’s goods, were common practice among the

imajeghen warriors, often assisted by the *imghad*. They would take possession of a village's crops, nomads with their fast horses always being able to count on the effect of surprise to take advantage of peasants bound to the agricultural calendar, with little freedom of movement. More often the *rezzous* targeted other nomadic groups, to steal slaves and cattle. Any successful *rezzou* could lead to a counter-*rezzou*, and this is why such an enterprise favored groups located at great distance, hence minimizing the risk of immediate reprisal.

Exchange

The Tuareg had excellent artisans who worked metal, wood, and leather, making and maintaining domestic and pastoral goods, as well as weapons and jewelry. However, since weavers were absent in the society, cloth and clothing were among the products that had to be bartered for or purchased. Blankets had to be obtained from the Maghareb and indigo-dyed cloth sought from near Kano, in the village of Koura. These were most often exchanged against animal products, although they were sometimes purchased with cowries, a shell currency used throughout Africa. In a society that favored large, beautiful clothing, requiring large amounts of cloth, the purchase of fabric constituted an important part of the budget. Products such as salt and tobacco were also obtained by barter at the markets.

Commerce

Except for the southern Kel Eghlal Enniger tribe, Iwellemmeden Kel Denneg were rarely involved in long-distance caravan trade. Only a few groups would buy salt from Tegidda-n-Tesemt or, more often, gather salty soil for resale in the southern markets.

The Kel Denneg lived essentially from dairy husbandry, pursued to serve their own needs. Extensive gathering of vegetable foods and particularly of wild seeds made it possible for them to minimize their need to purchase cereals. The food gathered was stored underground. A story tells that, in the course of the second half of the 19th century, the Kel Geres prevented the Kel Denneg from obtaining millet from the Ader. The *amenokal* Moussa ag Bodal (1848–1875) obtained captives who gathered large amounts of wild seed, with which he filled large leather bags: these were sent to the Kel Geres chief to demonstrate that the Kel Denneg were in no way dependent on millet and sorghum.

The Kel Geres

The Kel Geres who combined animal husbandry, agriculture, and caravan trading could, to a lesser extent than pure pastoralists, remain confined to their territory, fixed in the center of a region shared by crops and pastures.

Exchange and Trade

At their arrival from the Aïr during the 18th century, the Kel Geres did not reduce the size or change the composition of their herds: they kept their camel (male for transportation, female for milk) and bovine herds. Therefore, they had to rely on external grazing resources: southward, during the off agricultural season, to the fallow field of the Hausa, which they fertilized with manure, and northward, during the course of the summer salt cure, to utilize rich but ephemeral grassy pastures as well as mineralized waters. The valleys farmed by the colonists from the north restricted the number of pastures available. In fact, in the 19th century.

. . . the strata of *ighawelen* was considerably enlarged over the course of a generation of freed slaves, perhaps some previous *imghad* and some servile agricultural populations, until it represented nearly 80% of the population. (translated from Bonte, 1975, p. 194)

This led to accelerated agricultural development, with growing communities cultivating fixed areas. Further, caravan links allowed trading relations between Sokoto or Kano and Fachi and Bilma, in other words, between the Sudanese urban zone and the Saharan oasis, to be established. If they were the suppliers of cereals essential for the survival of the oasis, they also provided a variety of products, traded or bartered in the southern markets, which they exchanged against salt and dates.

Wars and Raids

Wars carried out by the Kel Denneg and Kel Geres often followed the same rules: conflicts revolved around the control of the north Ader villages and the disposition of a portion of their crops. Occasionally, the Kel Geres would ally with the Kel Denneg to face a common enemy, the Kel Ahaggar or Kel Ataram: enemies could become allies depending on circumstances.

When conducting long-distance raids during their distant migration for the summer salt cure or through involvement in caravan trading, the Kel Geres were liable to attacks from other Tuareg coming to steal their cattle or from Teda (Toubou) and Ouled Sliman Arabs seeking precious cargo:

The reallocation of camels was made necessary by the insecurity that prevailed after one left the Aïr. Arab and Toubou raids were frequent. Well in advance, scouts were sent around and to Djado and to Tibesti to ensure that no surprise attack was being planned. Despite these measures, caravans were often sacked. [Translated from Bonte, 1970, p. 213]

The Iwellemmeden Kel Denneg, and even more so the Kel Geres, had relations far beyond the limits of their pastoral territory. Neither group could

remain confined to a territory defined exclusively by the grazing grounds of their cattle without suffocating.

TRAUMA: FROM COLONIALISM TO INDEPENDENCE

The Multiple Consequences of the First Encounter

The colonial shock had asymmetrical consequences among the Iwellemmeden Kel Denneg and the Kel Geres. The latter, located in agricultural zones and without possible escape, were in the front line to face the arrival of the French. The confrontation was immediate, violent, and definitive, with the military initially aiming at controlling the agricultural zone. Among the Iwellemmeden Kel Denneg, the shock wave was broken into two successive tremors, that of the penetration (1899–1901) and then that of the revolt (1917), separated by a long pause, during which Tuareg warriors submitted but were not broken. For the Kel Geres, the meeting was violent; they were conquered, but not without having fought in two confrontations (April and June 1901) with a courage that surprised the French officers. From then on, it was either submission or exile: rebels escaped to Kanem (Tchad), from which they returned in 1903.

During that time the Iwellemmeden Kel Denneg refused to sustain any contact. The *amenokal* Mokhammed ag El Kumati remained confined to the septentrional territories, and neither were the French military received nor were their invitations honored; instead, several blacksmiths were sent to deal with them. Finally, without there having been a decisive confrontation, an agreement was signed, which concerned both the Kel Denneg and the Kel Geres, as was a submission act, which concerned only the Kel Denneg (December 31, 1901). Both acts were signed by a blacksmith. The *amenokal* died in 1903 at Afukada, south of In Gall, without ever having met the French authorities. Yet he had succeeded in rendering an apparent submission while avoiding violent confrontation, this being justified by the superiority of guns over his spears and swords.

The Kel Geres were broken during this first encounter, whereas the Kel Denneg surrendered only some of their power. However, the consequences soon became visible in the sociopolitical organization and economy of the latter.

- Among the Kel Denneg, if the *imajeghen* refused to collaborate with the invaders, their religious leaders and the Kel Eghlal, headed by the *imam* Abdul Karim, accepted first contact and then submission, and finally took on themselves the role of intermediary between the French and the *amenokal*. The bicephalous nature of power, political and military on the one hand, juridical and religious on the other, was not overlooked by the conqueror who supported collaborators against rebels and other hostile parties. The internal tensions of the society were thus exploited.

- The military authorities requested that the obligation to pay an annual tax in animals to the Tahoua captain be inscribed in the submission acts as well as the obligation to ensure that French goods would be transported by camel. In other words, the supreme chief had to pay in the name of the confederation a tax that effectively ensured the transfer of his suzerainty to the new authorities.
- Furthermore, the authorities eliminated, or tried to eliminate, Tuareg claims to part of the millet crop from the Ader villages. Associated with this was the aim of bringing them to submission by depriving the Kel Denneg of millet:

Even though this strategy did not have the economic consequences sought, it led to a dramatic political end: the severing of ties between the sedentary people and the nomads, which the latter would not accept as long as they still had a way to avoid it. (translated from Marty, 1975, p. 72)

- Lastly, following the death of Mokhammed ag El Kumati, a disagreement as to the nomination of the *amenokal* allowed the military to have some influence over an extremely delicate domain. The tax was changed from being for the whole of the confederation to involving each tribe (it was not yet personal) and was claimed primarily in cash. This led to considerable change in the economy and imposed on the administration tighter control of populations through a census that would be completed only after some years of work. The new forms of control led to fundamental social changes: the new tax implied monetization but also tighter control and therefore increased security; *rezzous* became rare. As a consequence, the protection provided by the *amenokal* and his *imajeghen* to all the nomads of the confederation was now ensured by the administration and its military representatives, who received, judged, and arbitrated complaints. Dependent tribes suffered less and less from the strictures of their suzerains (especially claims on their cattle) since the latter could no longer compensate for wrongs incurred by their dependents. The Kel Denneg perceived this transfer of responsibility as an unbearable loss, since they were never conquered through armed confrontation.

The Revolt and Its Consequences

The combined effects of war in Europe and a long severe drought in Sahelo-Saharan Africa encouraged a revolt among the Tuareg, which spread from west to east. Among the Kel Denneg, there was no decisive confrontation but a series of incidents that ended in the massacre of their main body of warriors, surprised and deceived by a bloodthirsty captain who killed them one after another without their having a chance to defend themselves (April 1917): this was murder without trial. From then on, resistance was broken among the Kel Denneg, even if the *amenokal* El Khorer remained free and the revolt continued

in the east, in a war of movement that resembled a crusade under the leadership of Kaosen and the Kel Air.

The Kel Geres remained on the reserve during this period, but, being close to English territory (Nigeria), they were viewed with suspicion. The 1906 border shift placed the Kel Geres under the control of the French, but they took advantage of the antagonism that then existed between the colonial powers. The Kel Geres remained outside the revolt, burned by their past defeats and conscious of their economic interests, which inhibited them from opposing the authorities.

Following the revolt, the colonial administration took action to prevent such events from being repeated. Even though facing a destroyed military power, impoverished by repression and drought, the administration sought to destroy the political and social structure of Tuareg society. The supreme body (*ettebel*) of the Kel Denneg was abolished; "groups" were created on the model of sedentary cantons, and each was given a portion of the now dissolved central power. Among the first six groups created in 1918, four came from suzerain tribes, one came from the rich religious tribe of the Kel Eghlal, detached from its suzerains as a reward for its collaboration, and a final one united the Arab tribes incorporated into the "confederation" in the second half of the 19th century. These groups were in constant flux until independence: tribes were detached from one to be attached to another; some groups were split to create new ones at their expense; two groups were formed by detaching religious leaders from their suzerains, giving the former autonomous authority. By providing punishment and reward, the colonial administration aimed at securing docility.

After the revolt, the aristocracy of the Kel Denneg, as with the Kel Geres, constituted only a small proportion of society. Except for the first, the geographical entities that were created on the model of sedentary cantons overlapped with one another, and it was not rare that two, three, or four groups shared the same water hole. Therefore, from previously existing relations of dependence, only relationships that were freely accepted survived within a new economic order that saw each tribe, each family, practicing animal husbandry for its own profit. However, personal relationships survived, and, at the ideological level, the prestige of the *imajeghen* remained in the eyes of all categories of the population, a model sustained through the memory of heroes whose achievements are still recalled and who remain the reference point for the whole society through collective nostalgia.

From Colonial Power to Independence

During these long years the colonial power, with civilians replacing the military, strengthened its control over Tuareg country: the administrators learned to know the people they administered by touring the country to obtain

censuses that became more and more precise. Tuareg chiefs were almost exclusively charged with the maintenance of order, the carrying out of decisions from the colonial authorities, and the collection of taxes. The *imajeghen* saw their initiative constantly undermined. The administration reduced or abolished their control over other tribes, who complained about their exactions (considered as such by the colonialists when practiced by the *imajeghen*, yet seen as justified for themselves), and favored the religious leaders at their expense.

Slavery, on which rested a great part of the Tuareg economy, was threatened: whereas war had allowed them to obtain some labor through conquest, the new colonial policy favored the servile population, which was allowed to glimpse a flicker of freedom. Slavery, however, posed a problem to an administration that hesitated between different and even contradictory attitudes:

On the one hand, the representatives from the French Republic, heirs of the Revolution and of Human Rights, could not but condemn these detestable practices. On the other hand, the administrator, often from the military, was confronted with a society to command, to organize on a new basis: he saw in the "White" Tuareg a chief who spoke to him as an equal, one who possessed authority. To abolish slavery would be to destroy the basis of a society that he is supposed to command, to pulverize authority and give leadership to groups of slaves who would be difficult to control. Instead of dealing with a traditional authority, he would have to deal with the blowing dust of small irresponsible leaders, who often could not be found since they were dispersed across a vast territory. [Translated from Bernus, 1981, p. 108]

However, nothing provoked a rapid liberation: attention was paid to complaints, and interventions were carried out in cases of conflicts, but opportunities for change were avoided as much as possible. Certain serf groups departed, but the most powerful chiefs maintained the groups associated with their prosperity in servility.

Even if the servile world was shaken, it was now much safer with the end of the *rezzous*. Peace was better assured, and the caravans of salt, which had been threatened by the attacks of the Teda and the Ouled Sliman Arabs, were protected by a French military escort that began in 1907. The French requisition of camels resulted in diminished use of caravans, until the revolt interrupted it completely. It started again in 1920 under more secure conditions, and the last Teda *rezzou* was thwarted in 1927. For the Kel Geres, the caravans represented a reopening of the salt trade and a continuous increase in commercial profits.

During this entire period, the veterinary services increasingly extended their activities and immunization campaigns helped repel epizootic outbreaks, allowing herds to multiply. At independence (1961), a Nigerian administration was substituted for the colonial administration without a blow and without any dramatic change in policy: the departure of servile groups continued and even accelerated on this occasion, without encouragement from the new authorities.

PASTORAL SYSTEMS BEFORE THE DROUGHT

It would have been difficult to analyze the range of Tuareg pastoral systems without having previously described the evolution of their society, subjected as it was to successive shocks, and the divergence of those who opposed, submitted to, were transformed by, and adapted to new circumstances. This analysis applies to the period before the drought, which began in 1969, and continues until today, when climatic conditions still allow the pastoral system to continue.

The Environment

The pastoral activities of the Iwellemmeden Kel Denneg were carried out in the regions between the 400- and 200-mm pluviometric lines, and extended into the Sahara up to the 150–100-mm lines in the course of the summer salt cure migration. Their territory is bounded on the west by the Malian frontier and on the east by a line through In Gall-Dakoro.

To the north and south of this territory, the vegetation thins and becomes impoverished in proportion to rainfall. To the south is a steppe of shrubs with prairies of annual vegetation and trees of varied species (*Acacia nilotica*, *Acacia ehrenbergiana*, *Acacia raddiana*, *Acacia laeta*, *Maerua crassifolia*, *Ziziphus mauritiana*, *Balanites aegyptiaca*, etc.); to the north, the vegetation is sub-Saharan but contracted, with trees becoming rare and reduced to a few varieties (*Acacia ehrenbergiana*, *Acacia raddiana*, *Maerua crassifolia*), with perennial grasses increasingly bunched, and with *Panicum turgidum* omnipresent. If the vegetal scenery becomes poorer along this south–north gradient, it is also locally modified, depending on topographic and edaphic conditions. Annual grasses develop freely on the terraces of fossil valleys and on slopes having limono-clayish soils, whereas perennials colonize the dunes. In the southern meridional and central zones, true forests occur in valleys, while on plateaus and dunes trees are widely dispersed.

Before the drought that started in 1969, agropastoralists estimated that, for the western part of the Kel Denneg territory, comparison between the actual number of animals and the forage available in the wet and dry seasons

. . . demonstrated that, globally, this area, located south of Tamesna, was not overstocked. However, given the limited number of permanent water holes, the stocking levels around these water points attained a certain limit, which cannot be exceeded. [translated from Rippstein & Peyre de Fabregues, 1972, p. 239]

In other words, the extra animals could be accommodated: the overstocking only appears in the few places where water bore-holes have been dug. For the eastern part of the territory,

. . . most of the forage in this region is, in all seasons, of high pastoral quality. Nitrogen needs are largely met in the dry season, except for the group in the undulating dunes of the south, which experiences a small deficit toward the end of the dry season, given the low density of desirable woody vegetation. (translated from Rippstein & Peyre de Fabregues, 1972, p. 247)

We can therefore conclude that the grazing needs of the herds were generally satisfied during this period, despite their rapid expansion.

Environmental Exploitation

The summer migration involves a general northward movement, allowing the successive utilization of two ecological zones with complementary forage and water resources. For 2 months, the clayish plains of Eghazer wan Agadez in the north yield grassy pastures that, although varying with the rains, provide generous yields (2,000 kg of dry matter/1 ha). For the summer period, 1 hectare is sufficient to feed 1 to 2 tropical livestock units (TLU) and sometimes more, whereas, theoretically, the greater part of the northern septentrional course can sustain 1 TLU for 2 to 3 ha. Both annuals (*Sorgho aethiopicum*, *Schoenefeldia gracilis*, *Aristida funiculata*, *Ipomoea verticillata*) and the perennial *Panicum turgidum* are found in this small area, the latter occurring on islands of dunes. *Ipomoea verticillata* is believed to provide vitamin A to animals, and herders have begun noticing the presence of specific illnesses, such as hemeralopia (weak sight and night blindness), in herds that have not been able to make the summer migration. This move is traditionally called the "salt cure" because of the high concentration of sodium chloride and sodium sulphate present in the surface layers of the soil and in the wells and springs. The best areas are the clay plains near Tegidda, where the mineral salts found in the water and earth have a laxative effect on the herds, stimulating the elimination of intestinal parasites.

In good years the Iwellemmeden successively utilize these two different areas, but since surface waters and annual pastures are ephemeral in the north, they can make only temporary use of the region for 1 to 2 months. In the dry season, the Kel Denneg then leave the place to its permanent inhabitants, the Kel Air and the Kel Ahaggar, and return to the southern regions, where each family goes back to its usual wells and valleys. At this time, the herds disperse around each camp, utilizing the pastoral resources (ponds, pastures) that suit each species. The productivity of this area is less than in the north, yet the area can be used throughout the year (1 TLU/8–15 ha). In the dry season, each family, each tribe, exploits a given valley, a small region within the whole of the Kel Denneg territory, and, in the rainy season, each converges with its herds on the plains for the salt cure. Thus, while their points of departure differ, the ultimate end point appears to be the same for everyone.

Before 1969, the salt cure involved each and every person and all the herds from several tribes: it represented a collective movement with which everyone was associated, with pauses and delays, depending on births, sicknesses, or deaths. Only southern agropastoralists, former serfs and freemen, practiced an accelerated salt cure, in which only a part of each family was involved in order to carry out both field chores and the tasks of mobile pastoralists simultaneously. But a few camps among the richest renounced the collective salt cure: a few aristocratic (Kel Nan) and religious (Kel Eghlal) tribes initiated a counter-move toward the north, while continuing to send their herds with herdsmen in a kind of limited transhumance. The weight of their possessions, a decreasing desire to face the discomfort of seasonal uprooting and movement during the tornado season, and the availability of herdsmen encouraged and made possible the subdivision of their herds.

An Open but Dependent Pastoral Economy

The Iwellemmeden Kel Denneg's herds grew steadily until the 1969 drought. Comparing the relative proportion of men and animals in the Tchén Tabaraden department to that of the whole country for 1972,² the importance of pastoralism there is evident. This department, making up 2.6% of Niger's total population, owns 7.1% of bovines, 4.2% of ovines, 5.5% of caprines, and 21.7% of camels.

The Iwellemmeden Kel Denneg, whose dry-season pastures are dispersed between the 15th and the 17th latitudes north, possess a diversified husbandry with balanced distribution between different animal species: taken as a whole, no single species actually predominates. Looking more closely at the statistics, variation in relation to the herd's establishment in the more or less arid zone and specialization related to sociological criteria are seen to occur. Camels dominate in the northern (septentrional) zone, whereas bovines are more numerous further south. The majority of the sixth group (Arab), which migrates north of the 250-mm isohyet, occupying the Saharan zone, owns the largest troop of camels but few bovines. According to an administrative census of the time (which, although certainly underestimated, still gives an idea as to the distribution of animals), the sixth group had 727 bovines, 1,159 ovines, 1,443 caprines and 3,564 camels, revealing species specialization according to ecological zone—camels north of Tassara and Tillia.

If their herds are diversified, in contrast to those of the Fulbe WoDaaBe who live in the same area and hold mostly bovines, the Kel Denneg economy is, more than in the past, open to the outside. Animal products occupy an important place in their diet: milk and its products supply close to half their calories (44.7%; INSEE-Cooperation-SEDES, 1966, p. 186); meat plays only a small role since it is consumed only on the occasion of social or Islamic religious celebrations (births, baptisms, marriages, with guests). Milk, the

daily food, nourishes men of all ages and in all circumstances: fresh, soured, transformed into butter and cheese, it is drunk or served as a side dish with cooked or raw cereals. Meat is obtained largely through sacrifice and only on special occasions. If Kel Denneg herds contribute largely to the provision of milk, they also serve as means to obtain outside resources. Cereals, especially millet, now supply more than half (52.9%) their daily calories, and with the consumption of cereal having increased since the turn of the century, the Kel Denneg have increasingly sold animals to secure these needed grains. The dietary importance of milk varies inversely with that of cereal; the need to purchase cereals is usually limited in August–November, when milk production is abundant, animals benefiting from green pastures and frequent births.

A statistical census demonstrates that clothing (25.7%) and taxes (23.9%) constitute half of the Kel Denneg household expenses. Pieces of European fabric or clothing sewn for the markets, like the Hausa artisans' turbans with 30 to 40 strips, shiny as carbon paper, constitute indispensable expenses for a civilization that focuses on clothing (cf. Exchange, p. 156). The third source of monetary expense is food, especially cereals (19.5%). Tuareg household expenses are numerous and diversified (there are still the expenses for equipment, 16.2%, and for cattle, 10.8%), whereas their income is derived essentially from cattle (89%).

Despite the difficulties of an "average" budget telescoping social differences that are irreducible for an "average" Tuareg (the budget of an artisan, e.g., would show income from his work), these data demonstrate that nearly all purchases were secured through the growth of herds at that time. In Tuareg camps, located away from villages, a man would bring to market some steers or a few rams or goats to fulfill his need for cereals, sugar, tea, and tobacco. The currency for barter (small cattle for cereals at the wells) or cash was based on the herd.

Despite efforts of the authorities, animal husbandry remains centered on milk and its products and is not geared toward meat production. Programs that have favored the development of ranching for the cattle market and slaughter for meat export have not succeeded in transforming the practices of these herdsmen.

A Society in Mutation

During this long period, Kel Denneg sociopolitical organization has been subjected to the constant pressure of the colonial and subsequently national administration. As independence was proclaimed, there was no revolution, no brutal mutation, but instead slow evolution marked by periodic crises. The bonds between the group's leadership, between traditional suzerains and their dependents, were loosened following more frequent administrative intervention. Each tribe, each camp, whatever its place in the social hierarchy, now aimed at diversifying its herds, as previous specializations disappeared. Everyone tried to increase his cattle-capital and to diversify as much as possible,

given the existing store of management and herding skills. Furthermore, the emancipation of captives living in their masters' camps occurred in alternate phases, with a peak at independence, this revolution never maturing to term. Many servants refused to or felt incapable of breaking away from ancient bonds or of assuring their own subsistence; many would rather profit from their masters' wealth, with which they felt associated. Everyone was free to be emancipated, even though the religious leaders cited the Koran to pressure their servants to stay. Emancipation thus occurred only among the most dynamic, who wished to attempt agricultural ventures in the southern zones already cultivated by freemen and other *iklan-n-egef*, agropastoralists who were freed long ago. Most of them started their own herds and sometimes purchased large animals, bovines and camels, which gave them prestige while following their former masters' model. In the nomadic camps, rich owners, now deprived of sufficient manpower, servile or familial, relied on salaried herdsmen, whose contracts stipulated a salary in animals according to the size of the herd and the length of the task.

During this climatically favorable period, water development policies implemented in Kel Deneg territory, with well digging and the establishment of pumping stations from 1960 on, allowed the poor to minimize the time allocated to watering and the rich to preserve the size of their immense herds, despite a diminution in the number of servile herdsmen.

Lost Sovereignty or the Double Rivalry

It was mentioned above that the colonial administration, through its authoritarian policy, separated dependent tribes from their suzerains and brought disorder to the spatial organization of these groups, distorting the fit between an imposed administrative map and the configuration of traditional groups. The drilling of deep wells and, to a large extent, the installation of mechanical pumping stations—16 were established between 1961 and 1969—were to bring further anarchy to the management of territory. Public projects funded by the state were open to everyone without consideration of the traditional users of the area or of surrounding wells. The Illabakan Tuareg, whose numerous camps exploited the pastures surrounding a certain 88-meter-deep well, were confronted in 1961 by camps of Tuareg belonging to five other tribes (and three other administrative groups) and by Fulbe of four different lineages (Bernus, 1974, p. 44). In other words, those Tuareg who had migrated for years within a small region around a few deep wells (including one in In Waggar where a pumping station was established) and good ponds, which often held water for several months after the rains, lost control of these watering areas and of surrounding pastures. Every day the pumping station welcomed 10,000–15,000 TLU, including the large herds of the Fulbe Wo-DaaBe. The Illabakan Tuareg felt dispossessed in a region where they had

developed an equilibrium between water resources and pastures, between human and animal needs, for the forage of the latter and the food gathered for the former (fruits, melons, wild seeds, etc.). In favorable years, pastoral excesses had a negative effect only near pumping stations, which were points of great concentration. Herdsmen, frustrated at having to share and at their loss of control over land, requested that the pump be closed, and when this request was dismissed, many left the area to dig new wells at points in a surrounding radius of 30–50 km.

From then on, no body of leadership could assure the protection of its dependents in territory invaded by strangers, whether they belonged to the same cultural and political community (Tuareg) or were strangers of a different language and origin (Fulbe *WoDaaBe*). The administration installed pumping stations near the homes of prominent chiefs, but the “revolution” initiated by these changes, which brought clean water without it being manually pulled from the ground, had more to do with administrative services and techniques than with the traditional “order.” Nomadic Fulbe, who had been infiltrating the Kel Denneg territory since the 1940s, occupied certain well-defined interstitial areas in the agricultural zone. When expelled from the meridional territories, where pastures were limited and insufficient (owing to the spread of cultivation and withdrawal of fallow ground), they invaded the pastoral zone, which was not yet overpopulated. They were seen as strangers by the Tuareg and the administration alike, and the latter continued to include them in the census of distant “departments” near Nigeria from which they came, even though they then lived permanently in the more northern regions.³ Fulbe concentrated their herds around pumping stations, which the dark mass of their cows surrounded like an insurmountable wall, much to the frustrated annoyance of Tuareg herdsmen. Fulbe herds, always kept, followed, or guided by herdsmen, often displaced the Tuareg cow or camel, which were left to water by themselves. Two types of animal husbandry, two modes of pastoral management, confronted one another around the watering place, and tensions unknown until then found expression in the hot days of April or May, sometimes leading to clashes. The administrative authorities first considered limiting the Fulbe to two watering stations and controlling the number of users for each station. These limitations were never implemented, however, since exclusive rights could not be given to strangers while being refused for locals, and refusing the water to some while offering it to others, a “numerous *clausus*,” could not be implemented.

During the same period, Hausa agriculturalists (and former Tuareg serfs) spread into the land to the south and soon into the pastoral zone: this rain-fed agricultural intrusion hurt the herdsmen of the northern area by monopolizing their pastures and, through leaving the soil bare after weeding, creating an increased threat of erosion by wind and water. Legislation was established in 1960 to try to limit agricultural expansion, and a precise line was established beyond which cultivation was forbidden and where, if the land was seeded, destruction of crops by herds could not be prosecuted. Despite this dissuasive and repressive law, the agricultural front moved forward.

Toward 1968–1969, the Iwellemmeden Kel Denneg collectively had become richer: their herds were bigger, protected by systematic vaccination campaigns, and favored by the mechanical pumping of water that replaced servile labor. The arrival of Fulbe herdsmen, who in a 1963 demographic census accounted for 18% of the total population but owned a bovine herd two-thirds the size of that of the Tuareg, showed clearly that the Tuareg were no longer masters of their own territory. Individual agreements had made possible this progressive infiltration, the Fulbe entering in small groups led by guides (*ardo*). The centralized leadership of the Tuareg could neither refuse nor consent, but allowed each tribe, each camp, to decide for itself at the local level, without realizing that the aggregate of incomers represented a real invasion. Despite the unfavorable sentiments they held toward the pagan Fulbe, accused of immoral customs (the abduction of women) and immodesty (lack of clothing, men's faces made up for celebrations), the Tuareg accepted them as coresidents. The favorable climatic situation did not allow Tuareg society to control the anarchic development of herds and cultivation, but, when rainfall conditions started to progressively decline, this double rivalry led to damaging effects on the environment.

The Kel Geres

The region occupied by the Kel Geres, over which they exercised actual control until the colonial era, always had a diversified population, where Tuareg, Hausa peasants, and more recently Fulbe nomads and agropastoralists lived in association with one another.⁴ Already densely populated, the region, like most agricultural zones, experienced high demographic growth.

The Kel Geres economy was still based on both animal husbandry and agriculture, their cattle part of an important line of trade, revived by increasing demand from Nigerian cities. Subsistence agriculture was replaced by cash crops, with cotton preferred to peanuts. Despite being producers, the Kel Geres were also buyers of cereals, both for the caravan trade and to fulfill their own dietary needs. Market places multiplied until any camp or village was close to one: the Kel Geres sold cattle, salt, and crafts (for the *ighawelen*) for money to buy cereals. Their monetary needs constantly increased (taxes, market purchases) and, during a crisis, cattle were sold and land, which had become an object of commerce, was often rented.

Transformations in the agropastoral system were not the same for the two parts of Kel Geres society, the *imajeghen* and the *ighawelen*, whose tributary relationship was finally eliminated in 1959. In order to limit their cereal purchases, the *imajeghen* started cultivating, compensating for their lack of servile manpower by introducing the practice of “cultivation by invitation”—labor by occasional workers from the neighborhood (*ighawelen*, Hausa) who were compensated by being magnificently fed, so that the *imajeghen* could

maintain their reputation— or they more than ever relied on salaried labor. The major *imajeghen* leaders established themselves in large villages where their lineages and clients were concentrated. These families became richer, whereas those who did not have access to power, and so could not benefit from tax revenues, from gifts owed to their rank, or from advantages tied to their political and administrative relations, disappeared into anonymity.

The *igharwelen* established themselves on autonomous land, forming numerous small and dispersed communities, yet they remained imbedded in the political structure of the tribal overlord. Men and their herds migrated widely during the dry season, to obtain cereals by smoking fields, selling crafts, or, especially, by working for salary: these multiple activities, to which should be added their participation in salt caravans or the work of artisans, were influenced by the degree of their actual need. At that time, Kel Geres society was about to face important changes.

PASTORAL SYSTEMS IN THE FACE OF THE DROUGHT

Pastoral and agropastoral systems, the evolution of which has been described up to the end of 1968, appeared stable in the context of sufficient rainfall. All efforts, all plans, favored the increase of people and cattle in a country where wet phases were no more regular than dry phases and were spatial saturation, that is, pastoral overstocking, varied only according to annual grazing potential.

The Drought and Its Environmental Consequences

The 1968–1973 drought has been described many times and been the subject of a number of publications. The vegetal cover was reported to have been subjected to severe stress, and much discussion has been focused on the causes of this evolution. Was it a consequence of insufficient rain or excessive environmental exploitation? In the course of this period, absolute rainfall minima were registered, resulting in severe loss of cattle. After this dry period, experienced throughout the Sahelian zone, various international agencies began studying the problem of desertification, and some recommendations were elaborated and some projects initiated. In general, there was a tendency to abandon the interventions in only one field—such as pastoral water development and vaccinations—that had produced uncontrolled herd growth without increased grazing resources. Some programs were planned which aimed at pasture management, in an attempt to avoid overgrazing. Two of these projects concerned the Iwellemmeden Kel Denneg and the Kel Geres. The first concerned only the most western of the Kel Denneg; the second, in the center, involved a square that diagonally joins Tahoua to Agadez, covering the remaining Kel Denneg and part of the Kel Geres territory.⁵

After the 1968–1973 period, which seemed to end with a gradual return to previous conditions, it was necessary to come to terms with the facts. Although the rains seemed to return to normal from 1974 to 1982, they were still consistently below average, and 1984 brought the catastrophic rainy season that everywhere passed the minima of 1972 and 1973. Peyre de Fabregues compares the rainfall averages of 1969–1984 with that of 1941–1970 (which period was chosen because it is relatively recent and includes only 2 years of the actual dry periods). Table 5.1 shows that “the deficit of the last 16 years, 1969–1984, corresponds to the equivalent of 6.8 normal years at Agadez and 3.9 normal years at Tahoua” (translated from Peyre de Fabregues, 1984: 501).

These trends are critical since they demonstrate rainfall deficits that seriously threaten pastoral systems, leading to irreversible pasture degradation. Fragile trees like *Commiphora africana* died in great numbers, while others like *Acacia ehrenbergiana* or *Acacia raddiana* were eliminated from higher zones, from plateaus, or from dunes that dominate the *talwegs*, where water pools have been permanently diminished. Grass cover has been modified and impoverished: there have been years when annuals have been rare or absent, wind erosion has stripped the barren soil, and dust and sandstorms were increasingly frequent. Overall, the severe crisis of 1968–1973 led to a general mobilization of both institutions and people, with the elaboration of policies with respect to pastoral systems.

Herds, Lost and Regained

During the 1968–1973 period, cattle losses were considerable. It was estimated that 63% of bovines, 47% of ovines, 33% of caprines, and 38% of camels were lost over the entire Niger pastoral zone. These numbers were largely exceeded in the Agadez department, where bovine losses reached 88%. The Kel Denneg were affected, as were other pastoralist groups, and the figures for the Tchintarabaren department that most concern them resemble those of the pastoral zone as a whole, although the diversity of their husbandry allowed them to

TABLE 5.1. Comparison between the Rains Standards for 1969–1984 and for 1941–1970

Stations	Normal 1941–70 (mm)	Normal 1969–84 (mm)	Deficit 1969–84 (mm)	Deficit equivalent (No. normal years)
Agadez	166.72	95.7	1,136	6.8
Tahoua	433.91	327.9	1,696	3.9

Source. Peyre de Fabrègues (1984, p. 501).

resist better than those who were more specialized, who, even if their cows died in greater numbers, still retained female camels and goats. To the south, the Kel Geres located in the agricultural zone suffered fewer losses.

After this period of exceptional rainfall deficit (1968–1973), the government favored a program of restocking through offering loans to herdsmen. With the help of financial assistance and some technical support from the public service, this program was successful, as shown by the figures from the “Service de l’Elevage” (see Table 5.2).

The Kel Denneg herd is included in the Tchîn Tabaraden departmental registers, to which the Fulbe herd has been added. During restocking, the composition of herds was modified. The 1981 figures exceeded that of 1968 for smallstock, but they remained below for bovines. If, globally, the 1981 herd has not recovered its 1968 size (in TLU), it is because of uneven growth. This new pattern of herd composition is due primarily to more rapid reproduction of smallstock and to the superior resistance and better adaptation to a dry environment of caprines and camels.

Global figures for this rapid restocking do not show local social disparities; the number of herdsmen has not recovered as much as the herd to pre-1970 levels. Many families have been forced to find revenues outside the pastoral system, and young people have migrated toward cities in the south, to Nigeria, or to the mining towns of the north (Arlit, Akokan). After 1973, impoverished families of free status could no longer meet the needs of their *iklan*, who, having no incentive to stay with masters without resources, left the pastoral zone, like others before them, to try farming in the south. Some were rejected by the pastoral system and blended into the world of peasants, which welcomed them. Whereas the Fulbe WoDaaBe sought resources within the pastoral system, earning income through tending the herds of outsiders, such as government administrators, agriculturalists, or merchants, the poorest Tuareg left the pastoral country altogether. Some attempted to copy the values of and identify with their former masters while others, in contrast, tried to erase the traces of their past, of their culture, and to forget or cover up their servile origins. The Tuareg tended not to become involved in wage service to one

TABLE 5.2. Comparison between the 1969 and 1981 Estimated Herd Population

Departments	Bovines (%)	Ovines (%)	Caprines (%)	Camels (%)	TLU (%)
Agadez	19.5	114.0	48.5	49.9	40.3
Tchin Tabaraden	69.7	157.6	113.8	90.0	81.9
Agadez and Tchin Tabaraden	55.3	137.0	89.0	69.0	66.1
Total Niger	76.9	113.8	110.2	110.8	86.4

Source. Bernus, Fauck, and Peyre de Fabrègues (1983).

another's herds, which allowed the poorest Fulbe to remain pastoralists. Bovines were given out to them for herding, the Fulbe having a legitimate reputation for being excellent herders, which the Tuareg lacked since their livestock were left free in the pasture. Artisans (*inadan*) were the only Tuareg who found new resources outside, with the development of tourism, which drew interest to their products; thus, they acquired a double market, that of herdsmen and that of tourists.

The Pastoral System and the Drought

The 1968–1973 climatic crisis was not an isolated event; the 1910–1915 drought was in fact more intense. However, the recent drought hit a zone where populations of people and herds had multiplied and where the societies affected were undergoing change. Until the drought, each tribe, each family, depending on its capacity, could benefit from increased sanitary and veterinary protection provided by new techniques. They could increase the size of their cattle capital, but not without widening the disparity between poor and rich, creating a certain anarchy in pasture management and accelerating the decline of traditional authority. Inequality was previously corrected at the familial and tribal levels by the loan of milk-producing stock, while the existence of global abundance masked the fact that it was linked to overall grazing potential, which depends on the vagaries of rain.

In 1968, overall precipitation was adequate, but, when abundant rain in May was followed by no rain at all in June, the annual grasses were killed and the year's grazing resources were jeopardized. Deficits were experienced over the next 5 years, and herds suffered great losses from starvation. One of the first consequences of the drought was a reduction in the number of animals that participated in the salt cure, which was generally abandoned during the height of the crisis. Thus, the complementarity of the two zones no longer obtained, as people no longer left dry-season pastures with their herds. As early as 1970, the Fulbe WoDaaBe fled to the south, temporarily deserting a region where their cattle could no longer find forage. the Kel Denneg undertook only short migrations and did not attempt to reach the more luscious pastures along the watercourses of the south. In 1972, after a season of scarce rain and facing the threat of losing their herds, an official mission by the Minister of Saharan and Nomadic Affairs in Tchén Tabaraden proposed to the Kel Nan leader, chief of the third group, son of the last *amenokal*, and major figure of the Tuareg world, that he send his herds to the Gaya area, which had been spared by the drought, where, it had been agreed, he would be received. This proposition was rejected, and most Tuareg remained in place. They were more attached than the Fulbe to the land, to the wells that served for them as a frame of reference in a world where the political and social structure was formed out of allied tribes and ties with chiefs with strong personality, who were admired and loved. The

Tuareg preferred to avoid hazardous moves toward unknown destinations; furthermore, their varied herds made them less mobile than the Fulbe, whose Bororodji cows were resilient and capable of long migrations.

No major changes occurred in pastoral organization until the 1984 rainy season, which was a catastrophe for the whole of the pastoral zone. The situation is presented in Table 5.3. In the course of the rainy season, it became obvious that grazing resources were insufficient, virtually nil. Not only was the salt cure aborted, but by August–September, Kel Denneg herdsmen initiated movements in the opposite direction. As in the past, the authorities favored this migration of herds and this time the Kel Denneg, contrary to their inclinations and having realized the seriousness of their situation, accepted this exodus. In all tribes, the majority of families departed with most of their herds, leaving behind only a few dairy cows to serve the small camps of those who could not or would not undertake the long migration. The end destination was located in an agricultural zone that received greater rainfall: the departments of Dosso, Gaya, Dogon-Doutchi, or Birni-n-Konni or in Nigeria for the people from the west or from Tchín Tabaraden; and the departments of Dakoro, Maradi, and Tessaoua and in Nigeria for those from the east.

The *Illabakan, imghad* of the Kel Denneg who lived in the valleys southwest of In Gall, close to In Waggar, are a good example. Acknowledging the exceptional deficit in grazing resources, the chief of the tribe went south with a rented vehicle to survey the Mahayi area. He returned to In Waggar to get his brother and his herd; some animals, guarded by their herdsmen, died along the road but the majority of the herd reached the surveyed pastures. Their families followed. At their arrival, they found that the pastures were sufficient, but, soon after, newcomers arrived, mostly from Kel Aïr (Igdalen, Kel Fadey, Kel Ferwan), and the local peasants started cutting straw for their own use or to sell. From then on, scarcity of forage jeopardized their livestock. In the beginning the peasants did not welcome this invasion, but they soon realized that as the dry season persisted they could buy animals for next to nothing from the weakened herders and sell them forage at high prices. The tribal chief went back to In Waggar to take care of the distribution of food to those camps that had remained, and to obtain the use of a truck from the administration to return his people after a few months of absence; the families

TABLE 5.3. Comparison between the 1984 Rainfall and the 1951–1980 Average

	1984 total (mm)	Average 1951–80 (mm)	Deficit	
			(mm)	(%)
Agadez	3.9	146.5	–142.6	–98
Tchín Tabaraden	122.0	219.4	–97.4	–44
Tahoua	297.4	412.4	–155.0	–28

returned in three consecutive trips, while the men trekked back with the remaining herds.

This is an example of a migration that succeeded because of an intelligent and efficient chief who knew how to obtain help from the authorities. The few families who remained were able to resist the effects of the drought since their dairy cows ensured their subsistence and were few enough in number to find sufficient pasture. The families who left with their herds returned before competition from strangers resulted in their dispersion. During these two crises (1972–1973 and 1984), we can see a different response to a similar problem on the part of the Kel Denneg: a refusal to leave between 1968 and 1973, and a generalized exodus in 1984. A more dramatic forage deficit, more help from the authorities, and new attitudes contributed to this evolution.

In the same situation, the Kel Geres did not encounter the same problems because of their involvement in agriculture. For them, the major result of the drought was reduction in the caravan trade. The last figures known, for 1970, indicated a traffic of 11,070 camels (Maliki & Swift, 1984, pp. 606–607): since then, it appears that caravans have steadily declined. In time of drought there is insufficient straw for camels in the Aïr to meet the needs of a double crossing of the Tenere. Furthermore, the price of salt from Bilma dropped in the south and consequently limited the caravan profits, which in 1970 were still 1,500 FCFA (300 FCFA = US\$1) for an exchange of millet/salt and dates and 6,050 FCFA for the sale of salt and dates, by camel. Ultimately, trucks started transporting salt: first Libyan trucks in 1970–1972, which bought salt on their way to Agadez to sell in southern markets; in the last few years, the government has attempted to replace camels by trucks. This represents a major change in the pastoral system of the Kel Geres and the *imajeghen*: the latter own two-thirds of the country's 30,000 camels, whereas they represent only 5% to 8% of the total population.

Beginning in 1986, there has been a resurgence in caravan trading. Officials had not been able to replace the Tuaregs, who carried a larger range of products, resumed their former arrangements with the salt merchants, and traded with them in accordance with ancient customs. The rigidity of the truck roadway was up against the flexibility of the caravan. Once again, the camel carried the day. The drought has provoked increased pastoral mobility among the Kel Denneg and provisional restriction on movement among the Kel Geres.

CONCLUSION

The drought that began in 1969 has stimulated general reflections on the need to protect the environment and on means to achieve this. Numerous programs in the pastoral zone have implemented these recommendations: an example is the Niger Range and Livestock Project (Swift & Maliki, 1984), which included in its range virtually all the Kel Geres and the Kel Denneg territory. Instead of focusing on discrete actions, the aim was first to organize a balanced

system of land management. In the early 1980s the plan aimed to include herders in a cooperative system consisting of small associations (15–30 families) whose objective was the management of pasture: aid, in the form of loans to rebuild balanced herds, achieving a relative economic independence for herders within pastoral systems, was provided both to assist herders and to even out fluctuations in the cost of cereals. Technical innovations to improve productivity were introduced through these associations.

Although the partially resolved crisis of 1969–1973 has left marks on regional pastoral systems, it has not engendered an irreversible break with the past. The sudden return of the drought in 1984, the culmination of gradual change in direction of these tired systems, could not be addressed within a pastoral frame of action alone. Facing the crisis, authorities took emergency measures while herders took immediate decisions. The Tuareg, through their mass exodus from the pastoral zone, displayed behavior that departed from tradition; their domestic migration on long-established corridors was replaced by a movement in a new direction. This ability to adapt their migratory patterns imitates the ventures of nomadic Fulbe over the last few decades.

The authorities established certain areas of off-season cultivation, in the form of dry-season irrigated agriculture around ponds, wells, or cesspools. This represents an emergency measure, but appears in official discourse as a step toward sedentarization. The territorial frame of traditional pastoral activities is now exploding, as the most recent drought has forced the suspension of recently created associations. At the same time, conversions continue to occur (perhaps temporary) to agricultural activities, and herders tend toward a partial and temporary abandonment of the area. Recent evidence, however, may suggest means by which pastoral systems may still have a future.

Having mobile herds of variable composition, dividing them, sending some animals toward better grazing areas, while keeping enough cattle to provide milk for those families who cannot participate in the migration, seems the best way to cope with dramatic fluctuations in rainfall and forage. Contributing to this is the keeping of female camels and goats in the north, and cows and sheep in areas that receive more rain. The scouting of potential forage during the rainy season would also allow the adoption of adaptive strategies such as destocking or partial migration without fully abandoning the area. Successive shocks, social and political changes, and the technical choices imposed since the beginning of the century appear to have had less of an effect on these pastoral systems than the recurrent droughts of the past few years. However, the cumulation of these traumas has now resulted for the first time in distrust of the system that had until now persisted through adapting to each new crisis with new solutions. Should not greater flexibility of behavior, allowing greater mobility, be favored in response to annual variation in rainfall and potential forage?

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NOTES

1. Aridity indicator: K coefficient = (rains in mm/Penman evapotranspiration); $0.03 < K < 0.20$: arid zone; Agadez: $K = 0.06$; Tahoua: $K = 0.16$.
2. The 1972 census does not yet include losses due to the drought.
3. They were included in the Tchinn Tabaraden census in 1974 and formed the ninth group.
4. Material in this section is taken from Bonte (1975: 166–215).
5. One of these projects was financed by Cooperation Francaise (South-Tamesna, in the west) and the other by USAID (pastoral development in central Niger).

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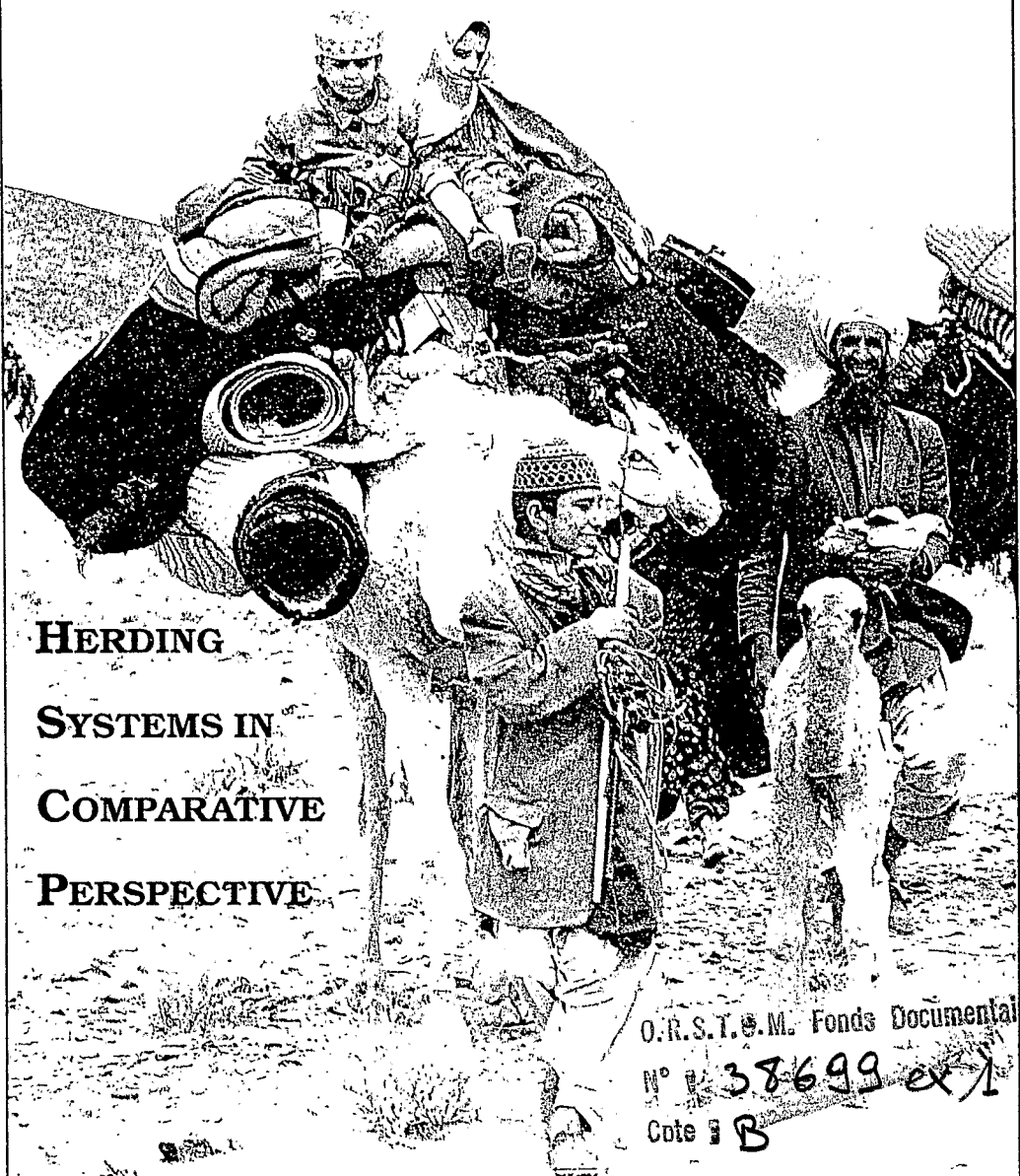
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