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The Impact of Agricultural Development on a Pastoral Society:
the Shukriya of the Eastern Sudan.

A report submitted to the Agency for International Development

by

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PREFACE

In this preliminary analysis of the impact on rural populations of a large capital intensive irrigated agricultural scheme, development anthropologist Muneera Salem Murdock breaks new ground in a number of areas. While such developments are broadly sprinkled across the African landscape where water resources permit (i.e., the Senegal S.A.E.D., the Malian Office du Niger, the Sudanese Gezira and Kassala, the Zaire Azande), and there have been several recent critical studies of them, Murdock is the first to explore their effects on *pastoral herdsmen*, whose access to pasture and water is severely attenuated by the expansion of hydraulic cultivation, and on *women*, whose benefits and costs are almost never factored into scheme assessments. Thus her findings are of the utmost relevance to African development actions in general and to those of the Agency for International Development in the Sudan in specific, even though the particular locus of the study--proposed by the Department of Social Anthropology, University of Khartoum, which invited Ms. Murdock to undertake the work and provided her with the requisite research affiliation in the Sudan Republic--, the New Halfa Agricultural Scheme, has not received U. S. investment.

Muneera Salem Murdock demonstrates how the benefits of Scheme tenancies have been unequally distributed, both between the major ethnic units involved--Halfawis resettled from Wadi Halfa, flooded by the Aswan High Dam, and the indigenous pastoral Shukriya and related Arabic-speaking herders--and within these units. She shows that while traditional elites benefited disproportionately--as we have now too often come to expect--.

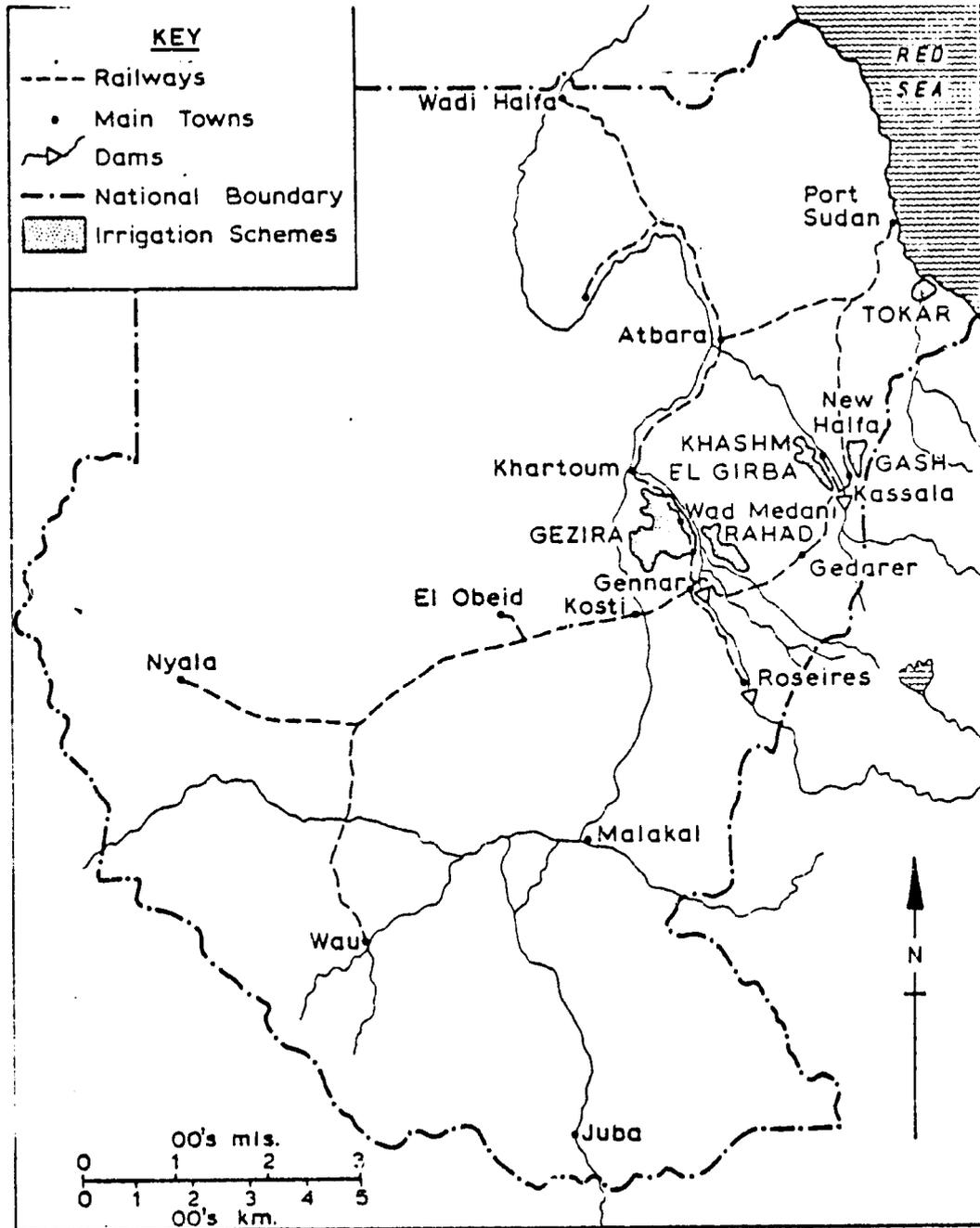
elite women may actually have lost ground. Conversely, lower status pastoral women, entering the Scheme not as tenants but as wage laborers, may be net beneficiaries. And she shows how the Scheme supplemented rather than replaced the pre-existing economy based on pastoral herding and rainfed cereals cultivation, although the government included pastoralists to promote sedentarization. Pastoral herding is once again exposed as an economically and environmentally viable strategy in the semi-arid Sudanese Butana.

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SUMMARY AND CONCLUSIONS

In 1959 a new agreement on water use amending that of 1929 was signed between Egypt and the Sudan. Under the terms of the new agreement, which provided for construction of the Aswan High Dam in Egypt, and the consequent flooding of the Wadi Halfa region, the Sudan's off-take of Nile waters was increased from 4×10^9 cubic meters to $18.5 \times 10^9 \text{ m}^3$. With Egyptian financial help the Sudanese drew on this new resource by damming the highly seasonal Atbara River, a Nile tributary, and establishing the New Halfa Agricultural Scheme. The lands brought under cultivation were planted in cotton and groundnuts, to increase export earnings, and in wheat and sugar to decrease dependence on imports.

As a consequence of the flooding of Wadi Halfa, some 50,000 Sudanese, most of whom were Nubians, were forcibly moved, and the New Halfa Scheme was envisaged as providing for their resettlement. Yet, as is so often the case where people are forced to relocate, the land chosen for their settlement was not without prior claimants. The western banks of the Atbara River constituted part of the traditional grazing lands of the Shukriya, an Arabic-speaking tribe of pastoral herdsmen. Given the ideology of the times which looked at the sedentarization of "nomads" as a progressive act, and the obvious need to provide some compensation to people deprived of their dry season pasture, incorporation of the Shukriya and neighbouring Arab pastoralists in the Scheme was a natural event. As we shall see, the State showed little awareness of the internal differentiation and stratification of these herdsmen, with the result that the benefits of this modernized agricultural activity were



From Hoyle 1977.

not equally distributed among all participants.

From 1964, when it was inaugurated, to 1969 the Scheme went through five phases. During these phases a total of 460,000 feddans* were brought under irrigation. Of these, 33,000 feddans were reserved for a state-owned sugar plantation, and the remaining 427,000 feddans were divided into about 28,500 tenancies of 15 feddans each. These were distributed more-or-less in thirds to Shukriya, other Arab pastoral groups, and the displaced Halfawis.

During the 15 years of its operation, the Scheme has never achieved its production goals. The Halfa Agricultural Production Corporation, the parastatal organization which manages the Scheme, admits partial responsibility for the failure to reach targeted yields: there are repeated shortages of vehicles and fuel; both insect pests and weeds invade the fields and require tremendous labor and financial efforts to remove them; required inputs of seeds, fertilizers, and pesticides rarely arrive in a timely manner, and the poor storage facilities cause deterioration and losses; the distribution of irrigation waters is frequently misapplied, causing the waterlogging of some fields and the dessication of others. Despite their assumption of some responsibility for these instances of poor management, the Corporation considers the tenants themselves the prime cause of low yields. In its view, neither the Halfawis nor the Shukriya and other Arab pastoralists have proved to be ideal tenants. The former are considered more attracted to wage labor than to farming; and the pastoralists are even less committed to sedentary

*1 feddan = 1.04 acres = .42 hectares.

life where that means a reduced ability to care properly for their animals. To the Scheme managers, the attachment of the herdsmen to their flocks is irrational:

the nomadic nature of the Arab, always going after his animals, has led to his non-sedentarizing [on the scheme], his non-commitment to agricultural work, and his absenteeism [from the tenancy] at peak times [when labor is most needed] such as sowing. This has caused the appearance of the phenomenon of the negligent tenant and the unproductive hawashat, 'tenancies', in Arab area (APC 1978: 8, translated from the Arabic by MSM).

The bad press which pastoral herdsmen receive from governments and development agencies is well-known, and the Corporation is here merely echoing sentiments that have appeared, in one form or another, for many years.

The peoples of the region are not homogeneous, but are segmented by ethnicity, by social class and wealth, and by sex, and these segments have responded differently to the conditions of the Scheme. Since only three months were allocated to the study, I decided to focus primarily on the "host" population, the Shukriya, leaving "guest" Halfawis for secondary consideration. ("Host" and "guest" are placed in quotation marks, as neither group welcomed the situation: the Halfawis resettled with great reluctance, forced out of their Wadi Halfa homelands by the rising waters of Lake Nasser; and the Shukriya viewed with resentment the advantages accorded these strangers on, what they felt to be, their own lands.)

The Shukriya elite, particularly those lineages associated with the traditional rulers, seem to have garnered much profit from their involvement with the Scheme, and the gap between them and the poorer

members of the group has in fact greatly widened in consequence. Members of the elite have been able to accumulate tenancies, and have thereby been able to maintain and even expand their livestock holdings by having access to Scheme lands after the harvest for dry season grazing. Thus, while the Scheme has contracted grazing lands available to the Shukriya in general, by removing from public access the rich lands along the west bank of the Atbara, owners of aggregated tenancies bring their animals on the land after the Butana open pastures are exhausted with the progression of the dry season. The large size of these holdings requires labor beyond that which the household can mobilize from its own resources, but the elites have been able to hire labor, especially from among those too poor to have any tenancy at all, or whose tenancies are too small to occupy them continuously throughout the growing season. Yields are higher on those holdings in which there is sufficient labor, and the profits are invested in animals and in transportation. While persons without access to good dry season grazing often have to sell off animals at disadvantageous prices, the wealthy pasture them on the cropped stubble on their irrigated fields, and can schedule livestock sales at such times as prices are more attractive. Investing in lorries for the transport of people, animals, and goods has also proved beneficial to those able to do it.

While elite Shukriya appear to have profited from their involvement in the Scheme, it is less clear that the Scheme has benefited elite women. Nor is there reason to believe that they have lost ground due to its introduction. Elite women traditionally were severely restricted

in their public activities, under tremendous pressure to adhere to Islamic ideals of female modesty and segregation. Household slaves relieved high status women of the need to perform domestic tasks, and even today one meets elderly women who never learned even how to brew coffee. In the tent slave girls cooked, cleaned, and washed. While in principle women could inherit land and animals, among the elite there is a decided tendency for them to decline these inheritances in favor of the brothers and sons. Such changes as are identifiable with the Scheme are superficial. On the Scheme people live in houses or conical huts (qutiyyas) rather than the tents which are found in the home areas (damars) on the Butana. But they are no more involved in economic activities than they were before. Men continue to be responsible for them. As they did not own land in the past they do not possess Scheme tenancies today. Formal slavery no longer exists, and some women are more involved in domestic activity, but in general the descendants of slaves continue to carry out the same kind of tasks in elite households as did their ancestors.

Income levels of elite Shukriya families have probably risen substantially with their involvement on the Scheme, and from their point of view the Scheme is a success. For non-elite, however, the story is less one-sidedly satisfactory, depending upon the opportunity situation of the family. A single tenancy of 15 feddans does not provide sufficient yields to support a household on its own. Combined with other activities, particularly with traditional stock raising, a tenancy can yield enough supplementary income to be attractive. But to

exploit both the tenancy and raise livestock the family must have the proper mix of labor resources. During the cultivating season animals must be kept away from the fields. A family that can provide both a herdsman and a cultivator can exploit the new opportunity without abandoning the security of the old. Two adult brothers might combine resources in this manner, with one farming and the other herding their joint estate of land and animals. It often happens, even where the demographic profile appear correct, that the consumptive demands on labor of this mixed enterprise exceeds the family's ability to supply it, and a decision must be made. The common choice is to concentrate on the herds and give up effective control over the land; the family opts for the security of the familiar and more reliable producer of income. The tenant nominates a wakil, a "surrogate tenant", to take over the farm. Since affluent Shukriya are more likely to have the labor reserves or the ability to hire labor, the tenancies tend to accumulate among the families of the elite. A recurrent scenario has been an individual assigning over his tenancy, and finding his herds inadequate to support the family, seeks wage employment on the very lands he once farmed in his own name.

Those Shukriya who were without connections to the Native Administration when tenancies were originally allocated, or who subsequently lost their herds and could not longer sustain a pastoral life, have become an agrarian proletariat, cultivating the expanding tenancies of the elite. This labor reserve is a great benefit to the elite, for they provide the additional work needed at critical points in the agricultural cycle at low cost to their employers. Some of them hire out as shepherds

on the same terms, caring for elite flocks on the Butana during the growing season, then bringing the animals on the fields after the harvest. The large numbers of these laborers precludes their obtaining a reasonable wage for their work, and therefore makes it almost impossible for them to climb up to the ranks of the tenants and independent herders. Declining productivity on the Butana means that more animals are now required to meet a family's subsistence needs. This decline is due to the reduction in the size of the traditional grazing area and the obstacles to dry season pasture along the Atbara, both caused by the expansion of the Scheme, and to competition from other animals brought in by the State's abrogation of traditional pasture tenure arrangements. At the same time as more animals are needed to meet the same level of subsistence, the cost of obtaining these animals has risen dramatically. The poor are squeezed from both sides.

Among non-elite women impacts of the Scheme are also mixed. Women whose husbands left pastoralism for a small tenancy may be the biggest losers. On the Butana such women were economically active, and had clear rights in animals and to wadi land for rainfed cultivation of sorghum. Women were rarely given tenancies on the Scheme. Following their husbands to these irrigated lands, Shukriya women lost the independence they had in their rights to own and to allocate the benefits of animals and land. The complementarity of sexual roles in pastoral economics changed, and the position of men rose in relation to that of women. As the latter became economically dependent, they also suffered a decline in general social standing.

In a sense, the poorest Shukriya women may actually have benefited from the Scheme. Because they are so poor they are exempted from some of the ideological rules which constrain the activities of other women. Thus they are able to enter the wage labor market, an event which for other women would be unacceptably shameful. Selling their labor alongside that of their husbands on the tenancies, a poor woman is able to assess the value of her work in terms similar to a man. In these poor households, the status of laboring women may actually have risen with the advent of wage labor. (We can speculate as to whether this will lead in time to a revaluation of the working women; whether the benefits of cash income will outweigh the loss of esteem from such action, and therefore make the status of the woman wage laborer more acceptable. Were this to happen we would anticipate an entry into these ranks from women of somewhat higher social position. It is too early, however, for there to be sufficient data to confirm or falsify this speculation.)

While the Shukriya view the Scheme according to their position in it--in general, elite members view it with enthusiasm and non-elite members with, at best, considerable caution--on one point the Shukriya achieve near unanimity: they resent the presence of the resettled Nubian Halfawis. Not only are these refugees from the flooded Wadi Halfa thought of as aliens, they are perceived as receiving benefits from the State which are denied to the original occupants of the region. In addition to the tenancies which Shukriya and Halfawi received alike, the latter were provided with both planned villages with a basic array of social, educational, and health services, and with free-hold

lands twice the size of those which were lost in Wadi Halfa. These free-hold lands may be used according to the occupant's wishes. There are no constraints on what may be grown nor on the number of animals that may be stocked. The Arabic-speaking pastoralists who were allotted tenancies are required to plant only those crops permitted by the Corporation (cotton, groundnuts, and wheat), and to keep only two animal units. Since the herdsmen are not wheat eaters, their grain needs are met by rainfed sorghum grown on the Butana, and by purchases, mainly of vegetables, from the Halfawis. What is especially resented is the need to purchase milk from the Halfawis, as the Shukriya herds are often pastured too far from the Scheme to provide for their nominal owners.

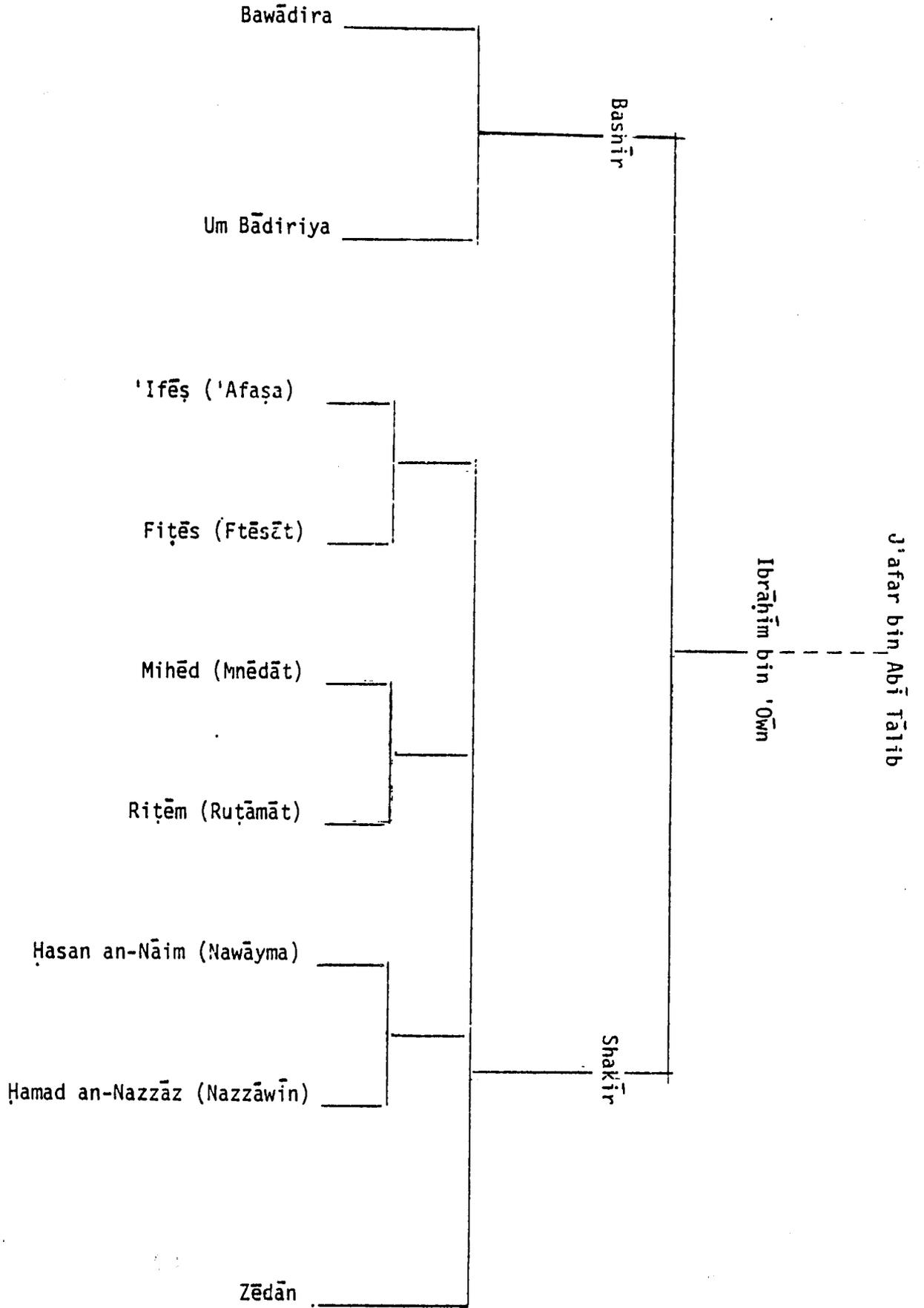
The planned villages and attendant social services are also a point of friction. The Halfawis have had their new villages located in close proximity to the tenancies, which facilitates movement from house to field. For the Shukriya, the tenancies are often so remote that a full day may be required to travel from village to field. For some owners, particularly elite Shukriya, this may simply reflect the accumulation of tenancies which are widely dispersed. What is important, however, is that the Shukriya invidiously compare their situation with that of the more nucleated Halfawis. To the Halfawis no benefits yet received can compensate for their lost homeland, but their "hosts" see only the benefits, and among these the allocation of free-hold lands is most prominent. To the Shukriya elite, with resources to accumulate tenancies, the additional non-Scheme controlled land is less relevant. But to the non-elite, their inability to produce sorghum and milk on the

Scheme forces them to the multiple exploitation of irrigated cash crop production on the Scheme, livestock herding on the Butana, and rainfed sorghum cultivation in the wadis. As I have stated, this requires a delicate husbanding of labor, and where that labor proves inadequate, the Scheme is the first to go, with the consequent further aggregation of holdings by elite wakils. The long-run or perhaps not so long-run outcome of this process is that the Scheme, which was initially conceived of as a reasonably egalitarian one family/one tenancy arrangement, will reach the point in which most of the tenancies are controlled by a few great landlords, and most of the labor will be provided by a landless agrarian proletariat. The rhetoric of equity will no longer mask the concentration of holdings in the hands of the rich.

ACCUMULATION OF SCHEME TENANCIES BY ELITE SHUKRIYA

In tracing the elite Shukriya accumulation of wealth and power it is useful to outline the history of their presence in the Eastern Sudan. The Shukriya today number between 300,000-500,000--no accurate census of the pastoral populations yet exists--and live in the Butana, that area of the Eastern Sudan defined on the west by the Nile downstream from Khartoum and the Blue Nile upstream; the River Atbara on the east; Ed Damir on the north; and Fau and Gedaref on the south. The majority of the nussab (geneology experts) classify the Shukriya as Juhayna Arabs, thus from Qahtan (MacMichael 1967: 250; Hasan 1973: 158). Hasan traces their origin to a Bashir bin Dhubyān (1973: 158). The Shukriya themselves insist that they are 'Adnani Arabs from Shakir bin Ibrahim bin Own who is a descendant of Ja'far bin Abi Talib, an uncle of the prophet, thus connecting themselves to the prophet himself.* Shakir, they say, entered the Sudan around the fourteenth century, coming across the Red Sea from Saudi Arabia with his brother Bashir, the ancestor of the Bawadira and the Um Badiriya. Shakir had seven sons of whom three pairs were twins: Mihed and Ritem the ancestors of the Mihedat and the Rutamat, 'Ifes and Fites, the ancestors of the 'Afasa and the Ftesat, and Hasan an-Naim and Hamad an-Nazzaz, the ancestors of the Nawayma and the Nazzawin. The seventh son was Zedan.

*The Arabs are divided to two major groups: al-'Arab al-'Ariba or Arabian Arabs, and al-'Arab al-musta'riba, or Arabized Arabs; the first group are Yemenites (southern) descended from Qahtan and the second group are Hijazis and Najdis (northern) descended from 'Adnan (P. Litti, History of the Arabs, 7th. ed., London: MacMillan and Co., LTD, 1960: 31-32). Since the prophet's family Quraysh is from 'Adnan, many Arab tribes try to claim an 'Adnani origin.



The 'Afasa, Ftesat and Rutamat live around Rufa'a, east of Khartoum. The Nawayma live on the Ethiopia/Sudan border. In Central Butana*, the area of our study, live mainly the descendant of Zedan and some Mhedat and Nazzawin (the Nazzawin are concentrated in two villages, as-Sadda, an old village and 'Arida sh-Shukriya, a new village). For purposes of this report, the term Shukriya will refer specifically to these groups: the descendants of Zedan and the Mhedat and Nazzawin who live among them; likewise the term Butana will refer to Central Butana.

The historical memory of the Shukriya goes back to Sha'ed-Din bin Tuwaym, reported to have lived in the early seventeenth century (Crawford 1951: 86). His tomb along with that of his wife Bayaki bit el mek (the king's daughter) can be seen near Jebel Geli, at the north-west edge of Central Butana (MacMichael 1967: 251). The Shukriya do not appear to have played a very important role during the seventeenth and eighteenth centuries. They are portrayed in their traditions as having occupied a somewhat humble position in the Butana compared with their kinsmen the Bawadira and Um Badiriya and their traditional enemies the Rikabiyin (Hillelson 1920: 42). It was in the period of 'Awad el-Karim Abu 'Ali and his sons that the Shukriya acquired mastery of the Butana after the battle of Mandara against the Funj, about 1779 (MacMichael 1967: 251). 'Awad el-Karim Abu 'Ali was succeeded by his grandson 'Awad el-Karim Abu Sin, as the chief of the Shukriya; he was named Abu Sin because one of his upper front teeth was black (Hillelson 1920: 55). The Abu Sin family remains among the most prominent

The Butana is divided into four regions: Western Butana, Central Butana, Eastern Butana and Southern Butana. For more information see K. M. Barbour, The Republic of the Sudan: A Regional Geography. U. of London Press, 1961: 215-218.

Shukriya to this day.

The greatest of the Shukriya shaikhs is Ahmed bin 'Awad el-Karim Abu Sin (1790?-1890?) whose days witnessed the Turko-Egyptian conquest of the Sudan. After their conquest, the Turks sought the support of the influential shaikhs of the Sudan and Shaikh Ahmed became one of their most trusted allies (MacMichael 1967: 252). He was rewarded with the title Bey and was given large grants of land east of the Blue Nile (Hillelson 1920: 60). He was also made the governor of Khartoum and remained in office for ten years (Holt 1976: 9). During this period the Shukriya, under the leadership of his son 'Awad el-Karim, became the official lords of the Butana and held "a general overlordship over all the nomads of the Blue Nile, the Gezira and the Atbara, and tithes were paid to the Abu Sin family on the crops of nearly every wadi in the ancient Island of Meroe" (MacMichael 1967: 252). Sir Samuel Baker who visited the Butana in 1861, recounts his meeting with Shaikh Ahmed Abu Sin:

He was the most magnificent specimen of an Arab that I had ever seen. Although upwards of eighty years of age, he was as erect as a lance, and did not appear more than between fifty and sixty; he was of Herculean stature, about six feet three inches high, with immensely broad shoulders and chest. . . . As a desert patriarch he was superb, the very perfection of all that imagination could paint, if we could personify Abraham at the head of his people (1868: 132).

During the Mahdia, 1881-1898, the position of the Shukriya became somewhat ambiguous. They were never totally trusted by the Khalifa, the Mahdi's son and successor, since they never gave him more than partial support; they even helped to provision Kasala during the

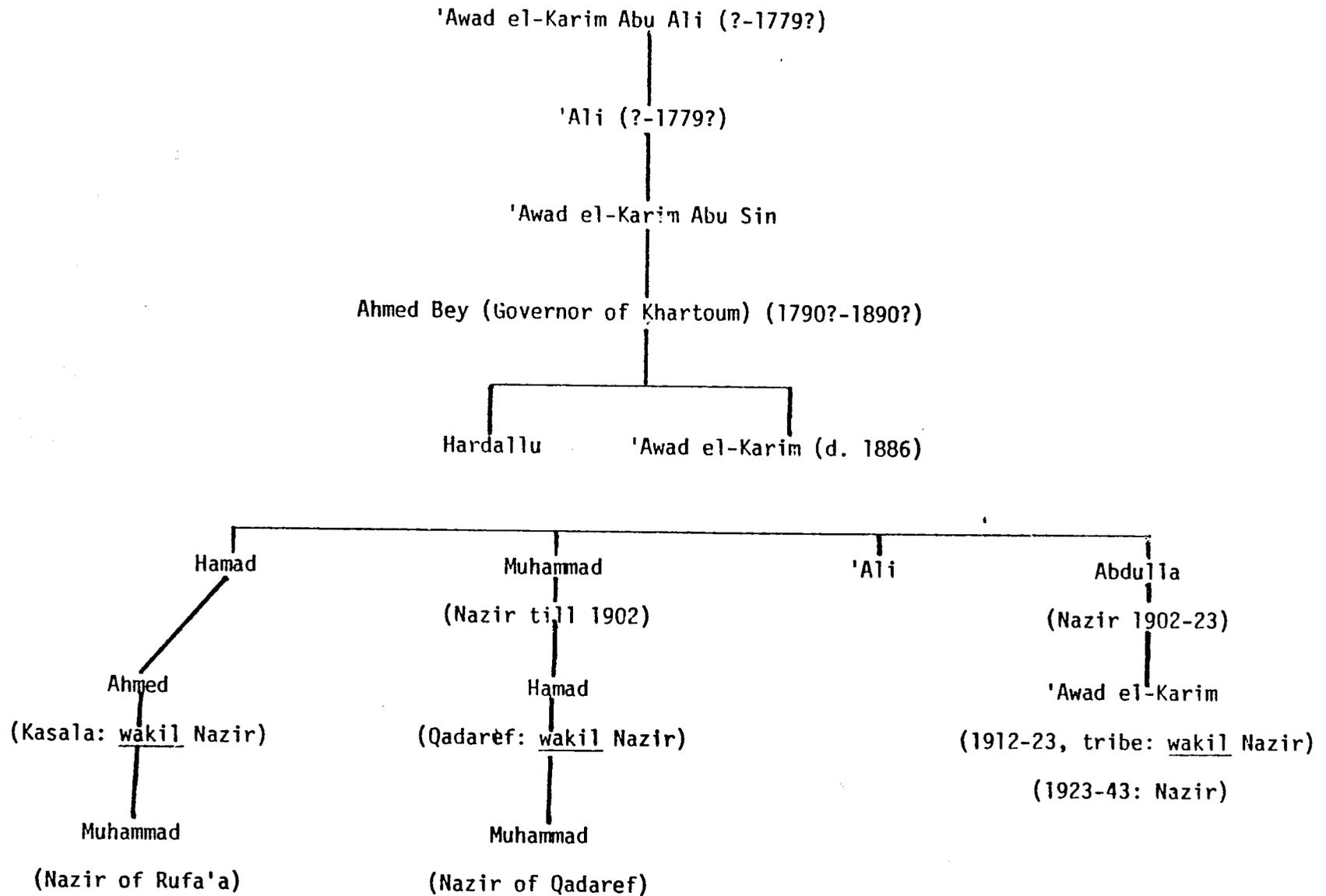
Ansar's (the Mahdi's followers) siege which began in November 1883 and lasted for twenty months (Holt 1958: 147). Shaikh 'Awad el-Karim Ahmed Abu Sin, the chief of the tribe, remained steadily loyal to the Egyptians. When the Khalifa asked him to bring his tribe to Umdurman to show their support, the Shaikh refused. In retaliation, the Khalifa summoned 'Awad el-Karim to Umdurman and put him in prison where he died in 1886. The Shukriya were deprived of the camels and horses which were the foundation of their wealth. The disaster culminated in the great famine that ravaged the Sudan in 1888 (Holt 1958: 152). Father Joseph Ohrwalder reports of the famine: "The great Shukrieh tribe had eaten almost all their camels, and its numbers dwindled from forty thousand to four thousand souls" (Wingate n.d.: 314). The figures cited are not to be taken literally, as it is unlikely that the population could have increased from 4,000 to 300,000-500,000, its present estimated size, in less than a hundred years, but they do give us an idea of the extent of loss.

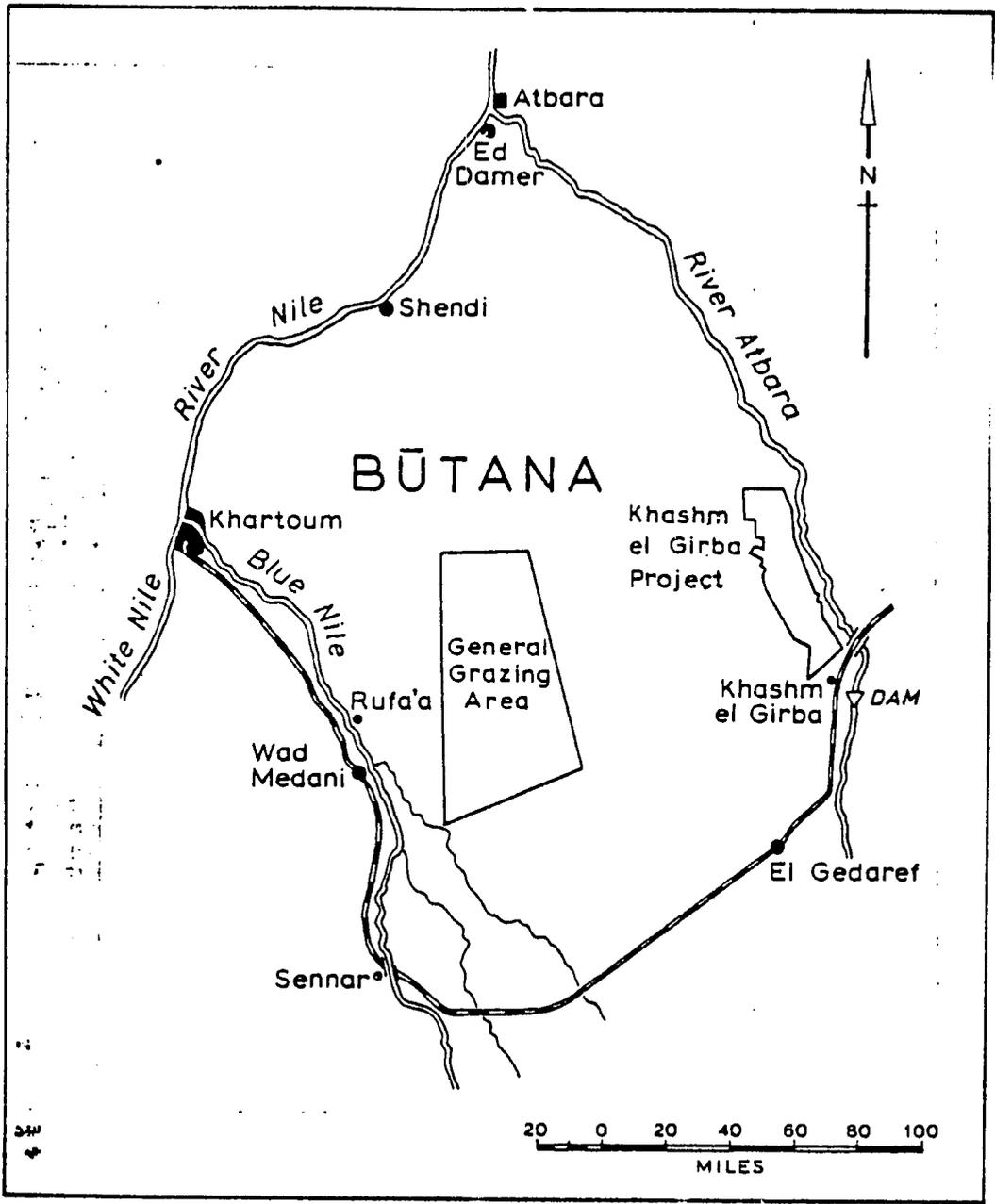
With the Anglo-Egyptian conquest Shaikh Muhammad 'Awad el-Karim was appointed the Nazir of the Shukriya and remained in office until his death in 1902. He was succeeded by his brother Abdulla. In 1912 the British appointed Abdulla's son, 'Awad el-Karim as the wakil Nazir (acts on behalf of Nazir) with the understanding that he would succeed his father as the Nazir of the tribe upon the father's death. In this period the Butana formed one Nazirate. Under the Nazir there were four shaikh khats; under them came the 'umds, and under the 'umds came the smaller shaikhs. Each administrative unit was responsible for tax collection and general security in their area; the shaikhs were res-

possible to the 'umdas, the 'umdas to the shaikh khats, and the shaikh khats to the Nazir himself. The Nazir reported to the British District Commissioner.

The Butana was divided into two areas, a general grazing area which was open to all tribes in the area, and the "private" Butana which was open only to the Shukriya and their followers such as groups of Kawahla, Khawaīda, Lahawayin, Magharba, and so forth. Other tribes were allowed in the "private" Butana only after being granted a permit from the Nazir. Although the Shukriya followers had the right to graze their animals in the "private" Butana, according to informants, only the Shukriya were allowed to dig wells and they thereby monopolized access to water. During the Nazirate of Shaikh Muhammad Hamad Abu Sin other tribes were granted water rights, perhaps reflecting his sense of national priorities over more local ones.

Shaikh Abdulla 'Awad el-Karim died in 1923 and was succeeded by his son 'Awad el-Karim till 1943. Upon his death there was a dispute among the Abu Sin family over the Nazirate. The British resolved the problem by dividing the Nazirate in two: the Rufa'a Nazirate headed by Shaikh Muhammad Abdulla Abu Sin, followed by Shaikh Muhammad Ahmed Abu Sin, and the Gadaref Nazirate headed by Shaikh Muhammad Hamad Abu Sin, mentioned above. In 1972 the Sudanese Government did away with Native Administration and replaced it with locally elected Rural Councils.





From Sørbo 1977b.

Prior to the resettlement of Halfawis on the New Halfa Scheme, a population and land-holding survey was carried out among them, and the information obtained provided the basis for allocation of tenancies and the assignment of free-hold lands. Such a survey was not carried out among the Arab pastoralists of the Butana. Among them the allocation of Scheme tenancies was left to the Native Administration. The Nazir provided a number of tenancies to the shaikh khats, who divided them among their 'umdas, and the latter redivided them among the local shaikhs. At the local level fewer tenancies were available for distribution than the number of potentially eligible households, and some had of necessity to be excluded. The process by which some families were selected for inclusion in the Scheme and others left out involved the application of locally understood values. Whereas the modern Northern European/American world looks with disfavor on the utilization of family and friendship in distribution of social benefits, and "neopotism" has strong negative connotations, in much of the Arab world providing benefits to kinsmen and supporters is expected and accepted. Favoring a stranger over a relative would be viewed as a repudiation of the obligations one has to family; favoring a political opponent or neutral over a political supporter would be madness. And not using the power to allocate tenancies to generate new ties and supporters, as well as to reinforce the ones that already exist, would be interpreted as foolishness. Thus the benefits of Scheme participation through the allocation of tenancies were largely absorbed by the elite Shukriya themselves, and within the elite to those families who were closely

allied, by ties of kinship and politics, to the chiefs of the Native Administration. Since, in principle, the rule of "one man/one tenancy" had to be observed, assignments of tenancies were made to children, persons who were absent, and even to the dead. In one family each of six brothers received a tenancy, only two of whom live on the Scheme and are involved in farming. One of the brothers grazes stock on the Butana; two have civil positions; and one lives out of the country. In addition, tenancies have been assigned to three sons of one of the brothers, none of whom live on the Scheme. The nine tenancies are thus farmed by two men with the aid of hired labor. Other families similarly have aggregated large holdings.

The concentration of tenancies in elite hands was facilitated by the reluctance and suspicion with which the Scheme was viewed by many pastoralists. Faced with the choice of herding and cultivating rainfed sorghum or settling permanently on the Scheme, many decided to stay with familiar routines. By the time some of these changed their minds, and sought to participate, no more tenancies were available. Given the continued accumulation of holdings among the elite, it is likely that the costs of the operation are too great to be met by exploitation of a single tenancy anyway. Effective utilization of the irrigated lands requires the ability to provide costly inputs in a timely way, to hire additional labor at critical times, to maintain a favorable credit balance, and to continue to exploit the traditional pasture and wadi lands. This combination of requirements is out of reach for the average man.

SCHEME PRODUCTION, ABSENTEEISM, AND OFF-SCHEME INTERESTS

Despite the government's attempts to encourage pastoralists to settle and their hope that the alternative source of income that the Scheme provides will encourage tenants to give up "nomadism" and become sedentary farmers, even those who took out tenancies continue to pasture animals on the Butana (Hoyle 1977; Sørbo 1977a, 1977b). According to Hoyle, absenteeism from the Scheme is slightly over 50 percent for most of the year: *"in addition, approximately 25 to 30 per cent of those who have become settled on the scheme still maintain interests in the rearing of livestock, so that, in all, of the tenants on the scheme which have originated from nomadic stock, between 60 per cent and 70 per cent have not become divorced entirely from their former pastoral existence. . ."* (1977: 126). The Corporation attributes its "failure" to settle the pastoral-nomads to their irrational attachment to animals and love of movement; movement, they say, is the nomad's nature; it is his blood. We know today, however, that the pastoral-nomad's interest in herding is not irrational at all. Herding is the correct adaptation to the ecologic conditions of the Butana. The pastoralist is proud of his animals and takes real joy in seeing the herd grow, but that pride and joy serve to support sound economic behavior. A single tenancy in itself is insufficient to keep a family alive since it does not generate enough income. However, as a supplementary source of income it may be important, not only for the cash it generates but also because it provides the pastoralist with grazing in the extremely harsh dry season. But to exploit both the tenancy and raise livestock a family must have the proper mix of labor resources. The fact that the pastoralist

combines herding and irrigated cultivation is evidence of his rationality rather than the opposite:

The strength and durability of the herdsman's adaptation to the arid Sahelian environment is found in multiple resource exploitation (Salzman 1972). That is, instead of concentrating efforts and investments on a single economic activity, the Sahelian pastoralist distributes his activities across a spectrum of ecological niches. He thus hedges his bets, assuring himself and his family of a reasonable level of living in all but the most rain-fall deficient years, a level which supports an exceptionally large number of persons in an environment which seems to have no alternative uses (Brokensha, Horowitz, and Scudder 1977: 23).

Traditionally the Shukriya exploited two ecological niches in their environment: herding and rain-fed sorghum cultivation. The Scheme functioned to add a third niche to that spectrum for those able to profit from it. To illustrate this point let us look at the Shukriya socio-economic and ecological adaptations.

The most pronounced characteristic of the semi-arid region of the Butana which the Shukriya consider their home is a low rainfall, highly variable both in quantity and in distribution. The average rainfall ranges between 200-500 mm per year with the southern parts receiving more precipitation than the northern (Abu Sin 1970). The rains are concentrated during a three-month period from approximately mid-June to mid-September. This season is known as the khareef. The khareef is followed by a warm, damp season, darat which continues to November, with little or no rainfall but adequate ground water and pasture. Shita, the cold dry season lasts till February, followed by very hot

and dry saif that continues till the rains fall once again. Because of the general aridity, watering points are of critical importance to the people and their animals. Ground water points in the Butana are hand-dug wells, bore holes, water catchments, natural reservoirs, hand-dug reservoirs, and machine dug hafirs (reservoirs) (Abu Sin 1970). Hand dug wells are individually owned and are concentrated in tribal damars (home areas). The hafirs and other reservoirs function to **increase** the period the animals are kept away from the damars, thus conserving well water for more critical periods. Before the introduction of irrigated perimeters along the rivers, the Nile and Blue Nile were major resources of water for livestock. With the installation of the Gezira and other schemes and the establishment of permanent villages, access was made very difficult. Access to the Atbara River has also become difficult since the introduction of the New Halfa Scheme. Thus, the herdsmen have seen their pasture and water resources contract due to agricultural modernization.

The long dry period and the uncertain rainfall renders the area too risky for any type of subsistence activities other than nomadic animal husbandry and rain fed sorghum cultivation in flooded wadi beds. People move their animals in search of grass and water. The nature and frequency of this movement is a direct outcome of the amount and distribution of rain, the availability and quality of grass, the availability of labor, the composition and quantity of animals and the number of people who have to subsist on the herd. The ecological situation in the area portrays itself not only in the Shukriya's economic adaptations but also in their social and material life styles.

Animal Husbandry

(a) Herd Composition

Unlike the more northerly Kababish, whose pastoral activities focus primarily on camels, and the more southerly Sudanese Nilotics, such as the Nuer and Dinka, for whom cattle are stressed, the Shukriya are able to exploit a variety of pastoral ecological niches by mixed herding. Each species makes a distinctive consumptive demand on the pasture and browse, providing for an optimizing use of the environment. Since both large and small ruminants are milked, the herders can survive all but the worst years of drought and epidemic, given the varying capacities to survive of the several species.

Camels. The Shukriya keep long-legged, white, single-humped dromedaries, which provide transportation, milk, hair, and, in extremis, meat. Fine camels are much admired, and sources of prestige to their owners, but the utilitarian aspects are also very important. The hair is woven into decorative rugs, known as al-likēb. According to Abu Sin, households with camels are the most mobile of the pastoralists, and their transhumant orbits range from 160 to 240 kilometers a year (1970). The arid zone animal par excellence, camels can travel great distances without drinking, and need water only once in five to twelve days depending on the season. They reach sexual maturity at age three to four, and reproduce yearly thereafter. Thus their lactation period is long and relatively constant.

Cattle. Shukriya herd a red, fine-boned, short-statured and short-horned zebu cow. They are fair milk producers, yielding an average of 4.5

to about 14 kg/day, depending on the season, over a lactation period of about eight months, following their achievement of sexual maturity at age three to four. In addition to the milk, cattle are slaughtered for meat. Elderly and sick animals are invariably slaughtered for food, rather than allowed to die. The hides are used for various purposes, particularly to make containers for milk and for clarified butter (samn).

Ovines and Caprines. Shukriya sheep and goats are of the desert type (Abu Sin 1970). Both are important for their milk and their meat, and both provide good returns on investment because of the rapidity of their lambing and kidding. Sheep mature in about eight months, and lamb twice a year under fair conditions. During the good season, a ewe may produce 2.7 to about 3.6 kg/day, and lactate for about six months. Goats yield somewhat less milk--hence are known as "poor man's cow"--but their ability to survive extreme deprivation provides the herder with basic drought insurance. They also reach maturity within eight months. Because of their small size, rams and he-goats are the most common source of animals protein consumed by the Shukriya. In addition to their food value, sheep skins are used to make coats, and goat hair is used in weaving.

Donkeys. Both men and women ride donkeys, although for long trips camels are preferred because they are faster and considered more comfortable to ride.

(b) Pastoral Movements

The nature and frequency of movement among the pastoral Shukriya

is guided by a number of factors: the quantity and distribution of rain, the availability and quality of grass, the number and composition of animals, the availability of labor, and the number of people who have to subsist on the herd. There is a general framework, however, under which we can fit Shurkiya seasonal movement, with modifications depending on specific situations.

Movement begins with the approach of the wet season, khareef. This movement, known as nishuq, is confined to three months, from mid June to mid August. The rains start in the Southern Butana about the middle of June. Animals that have fallen to their minimum weight during the long hot and dry summer are moved south to feed on the new grass. As rain becomes heavier and spreads further north, the animals start moving northwards, to escape the excessive groundwater and the mosquitos. This is the best season of the year since grass is in its finest shape and water is plentiful. It is the season of weddings and other celebrations, which bring together large assemblages of persons. Towards the end of August and the beginning of September, rainfall gradually stops, grass starts turning yellow and water in small wadis and open reservoirs begins to dry up. Before the hafir program which began in 1947, people at this time started moving back to their damars, where they have permanent wells. Now, when the ground water dries up, the government opens up the hafirs. Officially only cattle, sheep and goats are supposed to use the hafirs, although I have seen camels at two hafirs. I was told that although camels are not supposed to be there, they were permitted to enter because the water in the hafir had become very dirty and the people

were ready to move on to a different one. Each hafir has two ghafirs (guards) whose duty is to make sure that camels do not get in and that only people of the area are using the waters. Any misuse is to be reported to the government. Camels are supposed to water either from the Atbara River or from wells. After using up the hafirs, the people take the animals back to the damars and remain there til the end of the dry season. Since the introduction of the Scheme, Shukriya who own tenancies have been taking their animals there to graze, as the dry period corresponds with the end of the harvest.

Family movement with herds depends on the number and composition of animals, the family structure, and on other viable interests the family might have. Families with many animals and no other interests such as sorghum cultivation, political activities, bureaucratic jobs tend all to move with their animals. Families that have only one kind of animals, cattle for example, tend to remain as a unit throughout the year. Those with several species herded divide their household or hire shepherds, to accomodate to the different needs of animals. On the move, a family carries only light, essential items and leaves the heavier property in the damar. During this period they live in tents made from palm leaves known as birish. These have the advantage of being easy to move and assemble and relatively uncostly, essential since movement might be required as often as every few days.

(c) Offtake

(i) Domestic. Although it is often said that pastoral people are emotionally and irrationally attached to their animals and are very

reluctant to kill them, there are numerous occasions when herders slaughter stock.

1. Hospitality. Hospitality is a most favored virtue among many desert people and the Shukriya are no exception. The custom is that when a guest arrives, he is fed and sheltered for three days before he is asked his quest. Hospitality is achieved through the offering of milk and meat. The Shurkiya asserted that the kind of animals they kill and the number depends on the status of the guest. The closer the guest is to the host or the higher his social status, the more hospitable the host has to be and therefore the more animals he kills. A very honored guest deserves an animal every day, even if he stays for over a month. If the host does not have the appropriate animals, he will borrow them from relatives and friends.

2. Weddings. Weddings are another occasion that require animal sacrifice. There are two stages in a marriage:

- a. at-tu'ma or engagement. Depending on the number of guests and the position of the father, one or several sheep and goats are killed to feed the guests;
- b. al-'qd or the actual marriage. This is a time when families like to display their wealth. Depending on his social position and wealth, a man may kill a very large number of animals to celebrate a son's wedding; on this occasion bulls and camels are killed as well as sheep and goats.

3. Circumcision of boys is another occasion that is associated with animal sacrifice. At least a sheep or a goat is killed but usually

three or four. Some well-off families might offer a camel or a bull.

4. Birth. There are two occasions here that require animal sacrifice:

- a. as soon as birth takes place a sheep or a goat is killed as a karama (token of esteem) for the mother;
- b. seven days after birth takes place sheep and goats are sacrificed for the naming ceremony.

5. Death. Death is a costly occasion both for the family of the dead and for relatives and friends. People from different parts of the Butana come to offer their condolences. They have to be fed properly during their stay. At least one animal is killed every day but usually more. Animals given to the dead person's family by relatives and friends help to ease the load.

6. The pilgrimage to Mecca is a happy occasion that is associated with lots of festivity. There are two occasions in a pilgrimage that require animal sacrifice:

- a. the departure of the hujjaj (pilgrims) to Mecca;
- b. their arrival back in the Butana.

7. Animals are also sacrificed during the two 'Eids that Muslims celebrate: 'Eid al-fitr at the end of Ramadan and 'Eid al-adha after the pilgrimage.

The many occasions on which animals are slaughtered provide for frequent, if irregular, consumption of animal protein, as well as providing incentives to maintain a sufficiently productive herd.

(ii) Sale. In two recent works, "Market Articulation of Pastoral Producers: The Question of Offtake" (1978a) and "The Sociology of Pastoralism and African Livestock Projects" (1978b), Michael M Horowitz probes the problem of low animal offtake among pastoral producers. Horowitz points out that despite the herder's enormous pleasure in possessing large numbers of animals, low offtake is best explained not in terms of prestige but in terms of its survival contribution in a difficult environment. Although Horowitz does not discuss price responsiveness as a factor, since the data, he points out, are "*extremely inconclusive*," he seems to disagree with those students of pastoral studies (Monod 1975; Swift 1977) who argue that the number of market presentations declines when the prices rise (Horowitz 1978b). He observes that among the WoDaaBe of eastern Niger market activity increases with price. John Grayzel, a student of Horowitz, has also noticed a correlation between price and sale in the Doukoloma Forest Area, Mali (1976). My observations among the Shukriya support Horowitz's and Grayzel's conclusions. Shukriya monitor market prices very closely and the time, place and number of animals sold is closely associated with such prices. Men are always watching for lorries that pass by their camp sites and damars carrying travellers. Animal prices in different markets are the most sought after information. There are different markets that Shukriya deal with on a regular basis: Ed-Dāmir, Souq Wad Hassouna, Souq Abu Dīlāq, Tamboul, and Khartoum. Men are always comparing prices offered in these different markets and are willing to travel the longer distance if price differential justifies such an effort. The issue is the relative value of money vs animals.

If the price is high and is expected to decline, more animals will be sold off than if the anticipated future sale is also high, or higher.

With large stock (camels and cattle) the animals that are most readily sold are either old or male although females and young animals are sold on several occasions. This is most likely to happen at the end of the dry season when animals are weak and herders need money to buy fodder for them. Although prices are at their lowest because animals are thin and supply is high, herders are forced to sell part of the herd to save the rest. However, herders always sell off some females: some have histories of still births, others are known to be unwilling to suckle. A pregnant cow (that will not nurse) brings a better price than an old, obviously sterile cow. Another occasion for sale is for tax purposes. Taxes have to be paid in cash not in kind; but prices are also very low at tax time because so many animals are offered for sale.

While the Butana is not the major livestock producing area of the Sudan, the numbers of stock held are considerable. In their review of various hydraulic agricultural schemes in the Sudan Osman and El Hag record for Khashm el Girba the following census for the mid-1960's distributed by nomadic tribe of ownership:

	<u>Camels</u>	<u>Cattle</u>	<u>Sheep</u>	<u>Goats</u>
Shukriya	92000	77000	165000	120000
Lahawein	114000	9000	97000	65000
Kinana	20000	2000	3000	25000
Tribes under Shukriya (Kawahla, Hawamda, Khawalda)	33000	18000	33000	24000
	259000	106000	298000	234000

The authors point out that the Khashm el Girba Scheme made no provision

for livestock. ". . . animal herds are not allowed in the scheme and no major watering centres are provided. Owners are compelled to drive their animals around the scheme from extreme south to extreme north for watering at the Atbara River" (Osman and El Hag 1974: 100).

Rainfed Sorghum Cultivation

Quantitative data on rainfed cereals cultivation among the Shukriya are entirely lacking. We have no reliable information on the amount of land in cultivation, on yields, on labor requirements, and the like. Such cultivation as does occur is in the wadis, water-courses that surge during the brief rainy season, and retain sufficient residual moisture in good years to allow for a single crop. Some of the wadi fields are arranged in terus, earth ridges or bunds from 25 to 50 cm. high, to trap and contain water. Other fields are simply cleared and dibbled. Building the terus requires considerable labor, and it would be useful to compare the yields of the two fields against their labor costs. According to Abu Sin (1970), cultivation begins with the rains, starting earlier in the Southern Butana and later in the Northern Butana. At the end of the dry season, the fields are inspected and cleared, the terus heightened and, where necessary, repaired.

Cereal grains (dukhn, *pennisetum typhoideum*, and dura sorghum vulgare) are the main crops, and, with milk, the principal element in the Shukriya diet. In the morning, Shukriya eat a porridge (lugma), a mixture of milk and sorghum flour. At noon and in the evening they eat flat sorghum flour pancakes (Known generally as rahifa, although some also call it kisra), either alone or served with a stew ('sida). As in

other parts of the Sahelian zone, sorghum stalks serve both as animal fodder and for the mats which women weave.

Because of the uncertainty of rainfall, which in the frequently deficit years reduces the harvest to nil, little capital is invested in the sorghum fields. Occasionally a tractor may be hired to prepare the field for sowing, but there is no other mechanization. Even manure, which would appear to be readily available, is not gathered and composted to increase soil fertility. To insure against undue shortages, the Shukriya use a pit storage (matmūra) system, in which grain is stored in the ground either near the village or in higher and drier grounds in proximity to the wadi fields. Some varieties of sorghum can be kept in these pits for up to four years without spoilage. The fields are harvested at the end of the rainy season, and the harvest might continue into December.

As I have noted above, even Shukriya on the Scheme continue to consume sorghum, which they obtain either from their own wadi fields or through purchases. Sorghum has not been permitted on the hawashas, and although wheat is the staple food of the Halfawis (Ahmed 1967: 161) it is not preferred by the Shukriya. Had the former pastoral tenants been permitted to raise their favored grains, it is likely that they would have shown greater identification with the Scheme. But they were forced into the wheat, groundnuts, cotton rotation which seems rather to favor the resettled Halfawis.

The Unregistered Land Act of 1970 states that all land without formal title of ownership is regarded as belonging to the Government and

therefore public (Al Mahdi 1971). However, any land that has been regularly cultivated by a tribe or an individual for a certain period of time, despite its lack of formal registration, is recognized as belonging to the tribe or individual. Such groups and persons can act as if they were private owners of the land, and have rights to cultivate, lease, or lend it to others. The average holdings range from 2.5 to 15 feddans (Abu Sin 1970), although some individuals, particularly tribal shaikhs, may own entire wadis. The landless, those without formal or informal rights, normally are able to borrow fields for cultivation, but the ownership remains with the original proprietor, regardless of the length of time it is cultivated by others.

Family Structure

The Shukriya social structure is well adapted to the existing ecological situation. The different demands of production are addressed through the extended family. In the context of this report the term refers to a group of families, in most cases a man and his married sons, that cooperate together in livestock raising and sorghum cultivation, but do not necessarily live under the same roof or share the same purse. The core of the cooperation is largely economic and stems from the fact that a person is engaged in subsistence activities that require his/her presence in different spheres at the same time. The only logical solution is the split-family household. A family divides labor among its members to attend to the different needs of herding and sorghum cultivation.

The Scheme provided Shukriya tenants with a new source of income. Contrary to the government's hopes and expectations, the Scheme did not

function to replace animal husbandry. The government attributes that to the pastoral-nomad's irrational attachment to animals. However, there is strong evidence to suggest that the pastoralists' behavior is economically motivated.

Production on the Scheme

During the 15 years of its operation, the Scheme never achieved its production goals of six kantars of cotton per feddan and one ton of groundnuts per feddan*. Commenting on production after the first year of operation, Ahmed wrote:

On the sample hawashas the average yield of cotton in 1964/5 was approximately 23 kantars per hawasha, equivalent to 4.6 kantars per feddan. This figure might be misleading since most of the hawashas visited got less than this figure or even less than 4k./f. But some hawashas got very high yields and pushed up the average. These were mainly hawashas of merchants who are financially able to hire labour and pay for it higher when it was dear at peak-demand seasons. They could hire more skilled labour (especially for the weeding and picking operations). The highest yield was 10k./f. So if we are to estimate the average yield per feddan for the scheme, it would be at the neighbourhood of 4k./f. (1967:161).

Tables One, Two and Three show the average yields of cotton, groundnuts and wheat for the period 1964-1977 (APC 1978).

Table One: Cotton

<u>Season</u>	<u>Area cultivated/feddans</u>	<u>Average kantar/feddan</u>
64/65	15365	3.50
65/66	32965	2.50
66/67	53375	3.60
67/68	70755	4.90
68/69	91605	4.68
69/70	102475	4.80
70/71	107385	4.52
71/72	108025	4.11
72/73	109000	2.62

*One kantar = 100 lbs.

Table One, continue

<u>Season</u>	<u>Area cultivated/feddans</u>	<u>Average kantar/feddan</u>
73/74	109655	3.88
74/75	108960	4.02
75/76	81290	1.77
76/77	109105	3.70

Table Two: Groundnuts

<u>Season</u>	<u>Area cultivated/feddans</u>	<u>Average ton/feddan</u>
64/65	700	.50
65/66	3000	.20
66/67	5700	.96
67/68	4455	.46
78/69	2315	.34
69/70	34545	.46
70/71	25450	.51
71/72	12905	.52
72/73	40000	.70
73/74	45335	.67
74/75	68000	.80
75/76	53800	.32
76/77	38315	.75

Table Three: Wheat

<u>Season</u>	<u>Area cultivated/feddans</u>	<u>Average kantar/feddan</u>
64/65	3250	.45
65/66	35500	.40
66/67	58871	.75
67/68	83771	.39
68/69	150061	.48
69/70	120121	.35
70/71	111280	.52
71/72	117588	.41
72/73	62608	.60
73/74	120158	.28
74/75	120608	.35
75/76	91340	.28
76/77	78435	.26

Profits from the different crops are very low; sometimes none. Let us look

at each crop separately.

(a) Cotton

Cotton is the only crop in the rotation where a division of responsibilities and profits exists between the Corporation and the tenant. The Corporation is responsible for field preparation, seeds, fertilizers, insecticides, and ginning of cotton in two state-owned plants in the town on New Halfa; it also offers tenants loans during different agricultural activities such as sowing and weeding (Idriss 1978). The Corporation will lend ₪ 8 per tenacy for the first weeding, ₪ 4 for the second, and ₪ 2.5 for the third (APC 1978: 31-32). The Corporation acknowledges that to get rid of the weeds, at least 4 weedings are required; they also admit that the loans offered [for weeding] are insufficient and recommend that the loans be increased to ₪ 7.5 for the second weeding, ₪ 7.5 for the third, and ₪ 5 for the fourth (APC 1978: 30). Marketing of cotton is handled by a Khartoum based parastatal corporation. At the end of each season, the tenant is informed how much he is to receive from the Corporation after the deductions are made and the government takes its 50 percent share of the profit. It often happens that at the end of the season the tenant is in debt to the Corporation since production costs are very high. Because returns to the tenant are very low, the Corporation must supervise closely to assure that cotton is grown at all.

Table Four: Cotton production costs 1964/5. Average cost per hawasha for 30 hawashas (average yield 22.88 kantars per hawasha)*

<u>Operation</u>	<u>Per Hawasha</u>	<u>Per Kantar</u>	<u>Percentage of Total Cost</u>
Pre-picking	₪ 27.782	₪ 1.215	33
Picking	44.369	1.940	52.5
Post-picking	11.700	0.512	14.5
Total	83.851	3.667	100

*Ahmed 1967: 162.

(b) Groundnuts

Table Five: Cultivated vs proposed area for cultivation in feddans*

<u>Season</u>	<u>Proposed Area</u>	<u>Cultivated Area</u>	<u>Percentage</u>
64/65	32500	700	2%
65/66	35000	3000	9%
66/67	58875	5700	10%
67/68	83775	4455	5%
68/69	91650	2315	3%
69/70	102500	34545	34%
70/71	110000	25450	23%
71/72	110000	12905	12%
72/73	110000	40000	36%
73/74	110000	45335	41%
74/75	110000	68000	62%
75/76	110000	53800	49%
76/77	110000	38315	35%

As Table Five indicates, the first cultivation of groundnuts in any extensive way was in 1969/70, when 34% of the proposed area was cultivated. There was a reduction in the following years. In 1972/73, it increased to 36% of proposed area, to 41% in 1973/74, and to 62% in 1974/75. There was a drop after that, but it did not return to the low levels of the first few years. The reasons for the reluctance of tenants to grow groundnuts are many**: high labor requirements, high production costs, and until recently, low returns. The returns have gone up in the last few years, but the tenants are still faced with two major problems: production costs remain very high and the loans that are offered by the Corporation for groundnut production are low. The Corporation estimates the production costs of groundnuts to be ₦S 236.25 for 5 feddans in 1976/77 and ₦S 260.40 in 1977/78; this figure is likely to be an over-estimation of what the tenant

*APC 1978.

**Very few farmers cultivated groundnuts in the first season, so no details are given here of costs and returns. Those who grew the crop reported that the heavy soil affected the size of the nuts and made harvesting and clearing time-consuming and expensive. Another effect of the clay soil was that germination was poor and much of the seed rotted in the ground or was eaten by rats (Ahmed 1967: 164).

really pays since very few tenants prepare their fields and carry cultivation out in the manner prescribed by the Corporation. Nevertheless, the high cost of production tends to exclude the poorer tenants from groundnut cultivation although the returns are now much higher than from either cotton or wheat. The other problem the tenants face with groundnuts is marketing. Contrary to what might be expected, the non-involvement of the government in marketing has worked against the tenant and rendered him victim to middleman merchants who buy the tenants' crops at low prices and resell them for high. In 1974/75, and after many complaints on part of the tenant about groundnut merchants, the Corporation entered the market and bought the crop. It suffered substantial losses as a result, and terminated these purchases the following year.

(c) Wheat

Wheat is the most important crop in the rotation from many tenants' point of view and most tenants have paid great attention to it since the beginning of the Scheme. This is due to the importance of wheat in Halfawi diet, its low cost of production and labor, and its relatively high yield. The major problem the wheat crop faces is scarcity of water. Since wheat is the last crop to be sown and harvested, it is supposed to receive between 7-8 waterings. Yet it rarely gets more than 4-5, with an adverse affect on production.

Blanckenburg and Hubert estimated cash income from tenancies for the year 1967/68 and 1968/69. Net revenue limited to cotton and wheat for 67/68 and 68/69 was estimated to be ₪S 81 and ₪S 110 respectively (1969: 353). For 1973/74, Hoyle estimated mean income from cultivation to be ₪S

265: ₪S 140 from groundnuts, ₪S 42 from cotton and ₪S 63 from wheat (1977: 125). But if we include the cost of production and household expenses, the tenant is very likely to come out short. For example, Ahmed, who has a wife and four children, told me that in 1977/78 he received ₪S 32 from cotton, ₪S 65 from wheat and ₪S 100 from groundnuts; ₪S 88 went for production cost, most of which was for hired labor since he had to attend to his wadi fields and to occasionally help his parents in taking care of the animals on the Butana. 'Adlan who has a wife, a sister, and three children told me that his income from the tenancy was about ₪S 240 of which ₪S 100 went for production costs.

The Shukriya and other tenants were faced with the situation where a new source of income had appeared in the area but in itself was insufficient to satisfy their needs. The most rational strategy for those who could afford it was to combine work on the Scheme with their traditional modes of living, in the Shukriya case herding and rainfed sorghum cultivation. There was a considerable amount of shuffling and reshuffling of people in the beginning. This is still going on, although to a lesser extent. Many families who had moved to the Scheme in the earlier stages have moved back to the Butana, leaving one or two people on the Scheme to take care of the tenancies. Families, both nuclear and extended, and groups of families, divided labor among themselves to the best benefit of all. In an extended family one finds a brother with his wife and children living on the Scheme and taking care of the tenancies that belong to the others; another brother might stay in the damar and take care of sorghum cultivation in one or several wadis; a third brother may be on the

Butana. The family members regroup periodically in one of the different locations.

The Shukriya who have the proper mix of labor resources admit that in one sense they are better off with the Scheme than before. Before the Scheme they had to start moving their animals at the beginning of the rainy season which lasted from about the middle of June to the middle of September. For three to five months after the rainy season the animals were fine because of the availability of grass and water. The situation gradually deteriorated and became very bad a few months before the approach of the new rainy season. Fodder would be very scarce, hafirs and the Atbara River, two very important sources of water, dry. The only source of water available was in the wells, many of which were also dry. People who did not have wells had to buy water from well owners. Fodder also had to be bought. Although this is a period when animals bring the lowest prices because many persons are forced into the market at the same time and the animals are thin, people had to sell some to afford water and fodder for the others.

As noted earlier, the Scheme has consumed a good part of the traditional grazing area and created obstacles to dry season watering along the Atbara River. Those Shukriya with substantial tenancies have, of course, both privileged access to water and high quality post harvest browse, and are able to call in their herds and flocks from the Butana during the normally difficult dry season. Furthermore, these tenants pay taxes and buy additional sorghum with profits from the Scheme, and are not forced into selling off stock at disadvantageous prices. They can afford the luxury of monitoring the market and entering it at the

most propitious moment. Such persons also invest surplus from the Scheme by purchasing animals from off-Scheme herders at depressed prices.

These advantages are not available to all Shukriya. The fact that there were fewer tenancies to be distributed than the number of potential applicants necessitates the exclusion of many herders from tenancy ownership. In such a situation what usually happens is that the people at the top receive the most, the people in the middle receive some, and the people at the bottom receive very little if any. Among the Shukriya and other pastoralists in the area wealth is measured in terms of animals; the wealthiest families are the ones with the most animals. Wealth facilitates access to political power; power functions to increase the wealth. As has been previously described, since tenancies were allocated through the Native Administration the Shukriya elite managed to acquire the largest number. People in the middle received some. The poor, who were in most need of help, were largely excluded since the resources were scarce and the demand was high. The options before them were very limited: remaining on the Butana and trying to make a living on their few animals or moving to the Scheme where they could try to sell their labor to the more fortunate. Choosing the first option was hard because of a declining productivity on the Butana. The decline is due to the reduction in size of the traditional grazing area and the obstacles to dry season pasture along the Atbara, both caused by the expansion of the Scheme and to competition from the animals brought in by the State's abrogation of traditional pasture tenure arrangements. Many chose the second option. As often happens, the misfortunes of some prove to be the fortune of

others. The non-tenant settlers became an agrarian proletariat that provided cheap and immediate labor for their more fortunate "brothers" who, because of the large number of tenancies they own, could not rely on family resources for labor. Some of them hire out as shepherds on the same terms, caring for elite flocks on the Butana during the growing season, then bringing the animals back on the Scheme after harvest. Although, in the first years of the Scheme, wage labor may have been well-compensated (Ahmed 1967: 161), their large numbers today preclude their obtaining a reasonable wage for their work, and therefore make it almost impossible for them to rise to the ranks of the tenants and independent herders.

Halfawis on the Scheme

While the Shukriya view the Scheme in terms of their position in it--in general the elite view it with great enthusiasm and the non-elite with, at best, considerable caution--they achieve near unanimity on one point: they strongly resent the presence of the resettled Halfawis. Not only are the Halfawis thought of as strangers, they are perceived as receiving benefits from the government that are denied to the local people themselves.

The New Halfa Agricultural Scheme as mentioned earlier aimed at the resettlement of 50,000 Halfawis displaced from Wadi Halfa as a result of the construction of the Aswan High Dam. Since the Scheme was to be constructed on part of what was traditional grazing lands of the Shukriya and other Arab pastoralists, the incorporation of some of these pastoralists in the Scheme and converting them into small farmers was the

second goal.

From 1964, when it was inaugurated, to 1969 the Scheme went through five phases. During these phases a total of 460,000 feddans were brought under irrigation. Of these 33,000 feddans were reserved for a state-owned sugar plantation. The rest were divided into tenancies of 15 feddans each and were distributed more-or-less in thirds to Shukriya, other Arab pastoral groups, and the displaced Halfawis.

The difference between Phase I (which concentrated on resettling the Halfawis) and the following phases (settling Shukriya and other Arabs) is dramatic in terms of design and inputs. Although the government felt certain obligations towards the Shukriya and other Arabs, from the government's point of view these obligations were met by giving these people the chance to become tenant farmers and in supplying them with some local building materials. The government's attitude towards the Halfawis was totally different. The Halfawis were displaced from their homes and forced into a country they did not have much interest in (see Abdalla 1970). In addition to the tenancies which Shukriya and Halfawis received alike, the latter were provided with 25 planned villages with a basic array of social, educational, and health services. What the villages lack, is provided in New Halfa, for example secondary schools and a hospital.

In addition to tenancies, the Halfawis received free-hold lands twice the size of these which are lost in Wadi Halfa. These free-hold lands may be used according to the occupant's wishes. There are no constraints on what may be grown or on the number of animals that may

be stocked. The Arabic-speaking pastoralists who were allotted tenancies are required to grow only those crops permitted by the Corporation (cotton, groundnuts, and wheat), and to keep only two animal units. Since herdsmen are not wheat eaters, their grain needs are met by rain-fed sorghum cultivation on the Butana, and by purchases, mainly of vegetables, from the Halfawis. The Shukriya especially resent the need to purchase milk from the Halfawis, since their herds are often pastured too far from the Scheme to provide for their nominal owners. (The Halfawis who never regarded animal husbandry as a prime interest are increasingly investing in this activity. For example, one of the Halfawi tenants in Village 4 owns about 200 head of cattle for which he hires a Hadandawa shepherd. There is also a man in Village 33 with a large herd. Halfawis who do not own enough animals to justify hiring a separate shepherd join herds and hire one together.)

The planned villages and attendant social services are also a point of friction. The Halfawi villages are surrounded by their tenancies that are at optimal distances from the villages which facilitates easy movement between homes and fields. The Shukriya villages and tenancies are dispersed throughout the Scheme. Tenancies are often so remote that a full day is required to travel from village to field. In some cases, particularly that of elite Shukriya, this may be a reflection of the accumulation of tenancies which are widely dispersed. The Shukriya have also to bear 60 percent of the cost for the social services that they wish to bring to their villages where the same services were accorded the Halfawis gratis. To the Halfawis no benefits yet received can compensate

for their lost homes in Wadi Halfa. The Shukriya, however, see only the benefits. Among these the allocation of free-hold lands is most prominent. The Shukriya complain that they were the owners of the Butana as much as the Halfawis were the owners of the lost Wadi Halfa. Nevertheless the government chose to take their lands and grant it to the Halfawis, for lands the latter lost. A recurrent question on Shukriya minds is, "who will compensate us?"

EFFECTS OF THE SCHEME ON WOMEN

There are two models among the Shukriya regarding the division of labor between men and women. Ideally, men do herding, milking, watering of animals, sorghum cultivation, and have authority over family resources, both material and people. Women process the milk, prepare the food, clean the house or tent and take care of the children. In addition they are responsible for making the birish (tents), mats and rugs, and for putting and taking down the tents when the family is on the move. The actual division of labor is considerably more situational. The ideal model is followed when convenient although it is more likely for a woman to do men's work than the other way around. In addition to the sexual factor, other elements that affect the division of labor are: labor availability, nature of work, distance from home, age, economic status, and social (genealogical) status. For example, the Shukriya claim that women do not milk; it is shameful. Very soon one notices that by "not milking" the Shukriya are referring to cows and camels only; women, with the help of small boys and girls are almost the exclusive milkers of sheep and goats. Further, the assertion that men are the sole milkers of cows is not as strict as it first appears. Shukriya herd animals by moving them in search of grass and water. This movement takes two forms: the seasonal movement of animals starting in the rainy season away from the damars, and the daily movement, out in the morning and back to the homestead in the evening. During this movement younger animals and lactating cows are usually left behind at the homestead; while the men are

out with the rest of the herd, women care for the "stationary" animals until the men return. They attend to the animals, keep them in the shade, and bring them fodder and water. Animals are milked once a day, in the evening. Usually, the men are back by then. However, if for one reason or another, the men are delayed and there are none around to milk the cows, women are likely to do the job. This likelihood is strongly correlated with the woman's age and social position. For example, it is more likely for an older Shukriya woman from an average family to perform the job than for a younger one; also for a young woman from a poor family than any woman from a high status family. The likelihood decreases, the higher the social status of the woman; where the social status is very high the likelihood becomes very slim; virtually impossible.

Although ideally milking and herding fall within the men's domain, processing of the milk is almost strictly women's. From milk women make sour milk (rōb), clarified butter (samn) and cheese. Milk is also drunk raw and used in cooking. After satisfying the family's immediate needs for milk, a woman may sell the surplus and has full authority over the cash received.

Cultivation falls within the men's domain and it is less likely for women to engage in agriculture than in milking and taking care of animals. This is not because of stronger notions of shame associated with agricultural work; wadis are far from the damars and very often a man has to cultivate in several wadis at the same time to satisfy the family's needs of sorghum. This factor, combined with the many duties that require the woman's continuous presence at home, make it exceptionally

difficult for women to cultivate. However, if a man is in real need of additional labor and has no sons, or they are away, it is not unusual for his wife, after asking a female relative to take care of the home, to accompany her husband to the field and work along side of him.

Although to a large extent women do not participate in herding, milking (cow and camels), or in cultivation, they do have rights in animals and in land. When a woman gets married, the husband has to make two kinds of payment: the mahr which is immediate and the sudag which is delayed. The sudag is substantially larger than the mahr and is paid in animals. The mahr used to be paid in animals as well but many now pay it in cash. The mahr, I was told, is generally between five to ten cows although some might go as high as fifty. It all becomes the wife's private property. The sudag is due upon divorce, and has to be paid in full before the divorce can be approved unless the wife exempts her husband from making the payment. Women also receive animals as gifts on different occasions.

Women can also own land. It is usually inherited from a father or a husband. Often, women renounce land potentially inherited from husbands or fathers in favor of their sons and brothers. However, a woman can reclaim that land if the person concerned failed to take proper care of her.

A woman has full authority over the commodities she owns. A man will herd his wife's animals along with his, but he cannot dispose of them without his wife's consent. The response that I received from the Shukriya when I asked what would happen if a man sells some of his wife's

animals without her permission was that a man better have a very good reason to justify his act or he will be in real trouble. When I asked what the "real trouble" would be, was told that the wife might shame him in front of the community. The same thing applies to land. A man will cultivate his wife's land for a share of the produce agreed to in advance.

The introduction of the Scheme altered the conditions of women. Although initially one might believe that the position of women in Shukriya society has been upgraded with the introduction of the Scheme, the facts do not unreservedly support that conclusion. The argument that women's lives have been improved is based on the following:

1. For almost the first time women are offered the opportunity for education. In some Arab villages literacy schools have been introduced; many villages have elementary schools and they are open to both boys and girls.
2. People are given the chance to obtain a better health as a result of health facilities on the Scheme.
3. For the first time for many Shukriya, foods other than sorghum and milk are being offered. Meat can be bought in small amounts from butchers and fruits and vegetables are on the market; this seems to offer a more "balanced" diet.
4. Women are less constrained than formerly. They attend markets, go to the hospital, attend literacy schools, and engage in more visiting with their neighbours.

My observations suggest that these improvements in women's conditions are in many cases superficial. Although theoretically the chances

to attend schools have somewhat improved, this is not equally realized among different categories. Males have better chances to be educated than females and elite females than others. For example, in the first grade about one-fourth to one-third of the class could be females; by the time they reach fifth or sixth grade the number of girls is likely to decrease to zero. This results from both economic and socio-religious reasons. Since most of the schools in Arab villages are co-educational, many fathers find it unfit for their daughters to continue after a certain age. Others might take their daughters out of school for financial reasons. Since schools are poorly supplied, students are constantly pestered to bring in money to buy this or that for student use. This monetary expense is high enough for poorer families to take at least some of their children out of school. Where that possibility rises, girls are always the first to be taken out even if they are doing much better than their brothers. This is an arena where elite women have an advantage over others; their families can afford to spare their labor and to make financial contributions towards their education. That education, however, rarely continues after the sixth grade since going beyond that will require their transfer to a school in a larger town, most likely in New Halfa. The other problem is that education received is not locally relevant. The girls who previously could not read or write might be able to do that now; this in itself is a great achievement. However, it is not enough. Girls get out of school and join the women at home until they get married.

Health presents similar problems. Villages are not provided with medical centers. Hence, people have to attend the hospital in New Halfa

if the problem is serious enough; otherwise they will resort to native remedies. There are several problems associated with going to New Halfa. Many of the villages are far away from the town and transportation is very difficult; in the rainy season it is virtually impossible. The hospital is always crowded since there are few physicians and many patients. It is not unlikely for a patient to wait for a whole day and then have to come back the following morning because the physician was unable to see him/her. For people who live in New Halfa or in close proximity this might not be a major problem but for those who come from other villages and do not have relatives to stay with in New Halfa it poses a serious constraint. Even where a patient is lucky and is attended by a physician there is the problem of finding a bus or a lorry to take her/him back to the village. (I shall not comment on increased morbidity, particularly schistosomiasis, which may be attributed to the expansion of the irrigation system itself.)

Shukriya diet could be "better balanced" in the new environment but the new foods are not readily available in the villages; people have to go to New Halfa to obtain them. Here they are faced with the transportation problem previously mentioned in addition to the fact that since merchants and buyers do not know each other well, cash is always required to make purchases. This makes it exceptionally difficult for the Shukriya who do not have readily available cash.

The greatest loss that Shukriya women have suffered is their authority over production. As mentioned above, in the pastoral environment, Shukriya women had definite roles to perform that were as important

as and complementary to those of men. Besides the important tasks that women performed they had rights over the important resources in the economy: milk, animals, and land. Women had exclusive rights over the processing and distribution of milk. They also had full rights to cash obtained from sale of surplus milk. The transfer of women to the Scheme changed these conditions. Tenancies were allocated but women were almost totally excluded. Since the Scheme concentrated on cash crops men's work acquired a new value: money. The only opportunity women have to make money on the Scheme, being deprived of their animals and not owning tenancies, is cotton picking. But since they can work only on immediate family tenancies, the monetary value of that labor is very slim. Elite women theoretically have the opportunity to acquire more money through cotton-picking since their men own more tenancies, but because of their social status they are more constrained, thus less able to engage in this activity. Poor Shukriya women are the most likely to benefit from cotton-picking on other people's tenancies since being so poor exempts them from behaving according to the dominant social norms.

Although women's rights to animals and land they own still exist, being physically removed from these commodities makes it difficult for them to control what happens to them. Women used gossip and the threat of public shaming as a control on their husbands' actions. On the Scheme people from the same group are distributed among several villages. Relatives, especially females, do not get back together as often as they used to; even where men make trips back to the Butana to take care of animals or sorghum cultivation, women tend to remain behind on the Scheme. This

makes it difficult for women to exert social pressures on their husbands. When such pressure is used now it is directed towards women to give their husbands more leeway with their property, since they are now totally dependent on these men.

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