



## Trees, plants and a rural community in the southern Sudan

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**Interdisciplinary planning, community forestry, people's participation, the importance of women in forestry, multipurpose tree species - all of these are pivotal concepts in the new emphasis upon "forestry for development". In this article, the importance of these concepts is indirectly but strikingly conveyed in a graphic portrait of a Mödö village in the southern Sudan where trees are an essential element in daily survival.**

**The author, a linguist and a skilled observer, gives us just enough information of a sociological and anthropological nature to indicate how evocative in-depth, forestry-related studies by professionals in these fields might be - and how relevant they could be for planning future forestry activities. As life in this Mödö village is described, we come to appreciate - implicitly - the relevance of community forestry, the value of people's participation in planning and decision-making, and the extent of women's involvement in forestry activities. Finally, it is noteworthy how many examples there are of the many potential uses for a single species of tree.**

• In 1980 my husband and I took up residence in the village of Domeri (Lodo), which is about 16 km (10 miles) south of Mvolo in the western Equatoria Province, southern Sudan. We had gone there to learn the Mödö language in order to carry out our linguistic work for the Southern Regional Government. In learning the language, we found that the first thing local people wished to teach us was the names of trees. We understood, therefore, that trees and other plants are of major importance to the local people, and thus, as a means of learning the language. I began to study the way the community used various local species.

No local botanist was available to provide me with the scientific names for the plant specimens I collected, so I sent them to the East African Herbarium in Nairobi and was very grateful to receive a determination list from them to match with my list of vernacular names.

The countryside around Domeri and Mvolo is mainly savannah woodland, with some patches of thicker forest, and is intersected by rivers that flow in the rainy season only. Some species are found only near the rivers or in this thicker forest. The topsoil is black on top of a heavy red clay and the prevailing rock is ironstone with occasional outcrops of granite, especially in Mvolo. The year is divided almost equally into rainy and dry seasons but the rainy season may be interspersed with dry spells of a month or more. The dry season is very dry, characterized by a dust-laden north wind off the desert of northern Sudan. Between January and March, when the water-table is at its lowest, this north wind is hot and shrivels young plants.

### [MÖDÖ COMPOUNDS SURROUNDED BY FIELDS in the dry season](#)

The Mödö and related tribes in the area, collectively known as *Jur*, are an agricultural people who have lived in relative isolation until the present day. There are no large towns closer than Rumbek, which is about 128 km (80 miles) north of Mvolo, so urban culture has penetrated very little. Few consumer goods are commonly available. The Mödö communities, scattered among a vast expanse of woodland, are still largely self-supporting. This explains why the woodland and its particular species are so important to the people, since they depend on it, together with the crops from their fields, to supply them with all the necessities of life.

## Food plants

For food, the Mödö rely primarily on what they grow in their fields and in the gardens around their compounds; their main crops are sorghum, sesame, beans, and peanuts with some cassava and other roots. But the leaves of some trees are picked as vegetables if nothing else is available: *Grewia mollis*, *Pterocarpus* sp. nr *P. lucens*, *Afzelia africana*. The leaves are chopped finely like those of cultivated vegetables and cooked in a stew.

A number of trees bear edible fruit. In April and May women and girls walk long distances to gather the fruit of *Butyrospermum niloticum*, the shea butter tree, and *Borassus aethiopum*, the doleib palm. They do not climb the trees to pick the fruit, but instead gather fallen fruit - or shake the trees to make it fall. The shea nuts are valued mainly for their oil but the green flesh is also highly prized. The orange *Borassus* fruit is considered delicious and, since the seeds sprout fairly easily, there are consequently *Borassus* trees to be seen around human habitations even though their natural habitat is the river bank or swamp.

### Specimens of trees and other plants collected in Mvolo district, the Sudan, during 1982-83

	Botanical name	Mödö name	Mödö use
A	* <i>Acacia seyal</i>	kono	thorn fences; fever medicine
	* <i>Afzelia africana</i>	kpëri	vegetable; leaf apron; tall enough for hives
	<i>Annona senegalensis</i> Pers.	mambolowe	edible fruit; fire sticks; roof construction; game trap; stool frames
	<i>Anogeissus leiocarpus</i> (DC) Guill. & Perr.	korc'ba	posts and rafters; roof construction; snares; game trap; leaf apron
B	* <i>Borassus aethiopum</i>	mbere	edible fruit; rafters; woven baskets and mats
	<i>Bridalia</i> sp. nr <i>B. scleroneura</i> Pax	sönzu	edible fruit; posts and rafters
	? <i>Burkea</i> sp	mbirëni	posts and rafters; beehives
	* <i>Butyrospermum niloticum</i>	kil'inö	oil; edible fruit; posts; hoe handles; game trap; glue
C	<i>Cassia</i> sp.	mcbc a 'bati	stool frames; hernia medicine
	<i>Cassia</i> sp.	söli	tall enough for hives
	<i>Cassia obtusifolia</i> L.	lajira	cultivated vegetable; arrow shafts
	<i>Catunaregam</i> sp.	päriözö	fish poison; game trap; soap; jaundice medicine
	<i>Cissus integrifolia</i>	lu'ju	rope; ritual function
	<i>Combretum</i> sp.	kirika'da	posts and rafters; leaf apron
	<i>Combretum</i> sp.	kidirö	no specific use
	<i>Combretum</i> sp.	kangoro	storage container
<i>Crossopteryx febrifuga</i> Benth.	yangayo	game trap; knife sheaths; hoe handles	

## [STRIPPING BARK from GREWIA MOLLIS used for tying house rafters](#)

Other edible fruits come from the following trees: *Tamarindus indica*, *Ficus salicifolia*, *Bridelia* sp. nr *B. scleroneura*, *Ximenia americana*, *Diospyros mespiliformis*, *Gardenia* sp. (smooth kīri), *Annona senegalensis*, *Vitex madiensis*, *Vangueria apiculata*, *Sclerocarya caffra*, *Grewia mollis*, *Parkia africana*, *Nauclea latifolia*, *Pterocarpus* sp. (ngutu). Adults will eat these fruits if they come across them, but they do not often go out deliberately to gather them. Children, on the other hand, love to spend a morning searching for wild fruit. Cultivated fruits such as mangoes and citrus are still a rare treat.

Various wild yams and other roots can be eaten but are not of great importance as long as people are able to grow crops. There is evidence from oral history, however, that at certain periods the people have depended more on these wild foods either by choice or necessity.

I have mentioned the oil obtained from shea butter nuts. This oil seems to be preferred to sesame oil, which is the only other cooking oil made locally. Peanuts are grown but the Mödö do not know how to produce good peanut oil and do not have the equipment for extracting of on a large scale. They produce only a little oil for cooking and for special guests by skinning the peanuts, soaking them in water and grinding them wet, finally squeezing out the oil through a basket.

Since the Mödö are not often able to buy market salt, it is a regular task for the women to make vegetable salt for flavouring stews. They break off branches from certain trees, dry them, burn the wood and dried leaves and pour water through the ashes to obtain a salty liquid that can be added to the stew. This vegetable salt is just as tasty as mineral salt. Trees used in this process are *Grewia mollis*, *Maytenus senegalensis* and a *Sterculia* sp. The first two are the most commonly used. Also used are the stems of papaw trees, cassava and maize. As a result, large specimens of *Grewia mollis* or *Maytenus senegalensis* are never found near homesteads since their branches are constantly being removed by local housewives.

## Fuel

In some parts of the Sudan charcoal is commonly used as a fuel for cooking-fires, but in the Mödö area only blacksmiths burn charcoal on their forge fires. The wood used to make the charcoal is *Prosopis africana*, said to be the hardest wood in the area. It is not clear whether growing trees are ever felled for this purpose or whether blacksmiths are always able to find dead trees. In any case, there are few blacksmiths and *Prosopis africana* is a common tree, so overexploitation is doubtful.

The usual fuel for cooking-fires is dead branches collected by the women and girls of each family. There is so much woodland producing its own crop of dead wood that there is never any need to damage living trees. The women usually do not pick up wood from the ground, however, because once it has fallen it quickly rots or is eaten by termites. Instead, they break off dead branches still on the trees. Almost any wood will do for firewood but some common sources are: *Ficus* sp. (round-leaved *kēlu*), *Combretum* spp. (*kīdirö* and *kirika'da*), *Butyrospermum niloticum*, *Borassus aethiopum*, *Ximenia americana*, *Anogeissus leiocarpus*, *Maytenus senegalensis*, *Annona senegalensis* and *Crossopteryx febrifuga*.

Homestead fires are lit by hot coals from other fires, but men out in the woods will start a fire by rubbing sticks of *Annona senegalensis* together.

## Fishing

Fish form a regular part of many people's diet. When the river is in full spate there are places

where men can fish with nets that they dip quickly into the water and lift out again. This is the traditional Mödö net, woven with string made from the bark of a *Ficus* sp. (round-leaved *këlu*) attached to a hardwood frame.

During the dry season the rivers cease to flow and, as the water-level drops, fish are concentrated in pools in the river bed. At this time of year men, women and children all gather by the river, build shelters and stay there for several days at a stretch in order to catch fish, feast on them and dry them for later use. Some of the fish are caught with their bare hands but many are poisoned. A number of trees and plants yield fish poisons. The fruit of a *Catunaregam* sp. yields a good but slow-acting poison and is easily obtained. Another common poison comes from the root of a *Neorautanenia* sp. A very popular poison is made from the leaves and other parts of a *Tephrosia* sp. This is a shrub that seems to have been introduced in fairly recent times into the Mödö area. It is found only at the site of old homesteads. My informant, who believed it to have originated further to the southwest, said that this is an extremely fast-acting poison and to use it the spits for smoking fish need to have been prepared beforehand. Other sources of fish poisons are *Khaya senegalensis* and three unidentified plants. One is a common bulb (*nbcro*) one the root of a vine (*dömikorcbc*) and one the bark of a tree that grows near water.

When the fish is smoked it is placed on spits most commonly made of the wood of a *Gardenia* sp.

	Botanical name	Mödö name	Mödö use
D	<i>Dalbergia melanoxylon</i> Guill. & Perr.	kölu	clubs; knife sheaths; formerly arrowheads
	<i>Daniella oliveri</i> (Rolfe) Hutch. & J.M. Dalz.	kila	tall enough for hives
	<i>Dichrostachys</i> sp.	kotclikë'dë	posts and rafters
	<i>Diospyros mespiliformis</i> A DC	kolome	edible fruit; roof construction; stool frames; tall enough for hives
E	<i>Entada</i> sp.	pirizaza	leaf apron
	<i>Erythrina abyssinica</i> DC.	kcmc kuruku	no known use
F	<i>Ficus</i> sp.	këlu	string for nets, pottery mats and hive suspension; storage baskets
	<i>Ficus salicifolia</i> Vahl	këlu	edible fruit; leaf apron
G	<i>Gardenia</i> sp. (gnarled)	kiri	spits; yam trellis
	<i>Gardenia</i> sp.	kiri	edible fruit; spits(straight)
	<i>Grewia mollis</i> Juss.	ya'da	vegetable; edible fruit; salt; building rope; bow; game trap; roof construction; ritual function
H	<i>Harrisonia abyssinica</i> Oliv.	ngero	bows; stool seats
	<i>Hymenocardia acida</i> Tul var. <i>acida</i> .	kilikere	posts and rafters; yam vine posts
K	<i>Khaya senegalensis</i>	'bölölö	fish poison
L	<i>Lannea fruticosa</i> (A. Rich.) Engl.	fcdc	snares; withies for hives; tall enough for hives
	<i>Lannea schweinfurthii</i> (Engl.) var. <i>schweinfurthii</i>	lapiri	no known use
	<i>Lannea</i> sp. nr <i>L. barteri</i> (Oliv.) Engl.	kudë	beehive; rope for hive suspension; leaf apron
	<i>Lonchocarpus</i> sp. nr <i>L. laxiflorus</i> Guill. & Perr.	pele	posts and rafters; ulcer medicine
	<i>Maytenus senegalensis</i> (Lam.)	'bīlī'dö	salt

M	Exell.		
	<i>Monanthonotaxis buchananii</i> (Engl) Verdc.	'böli	roof construction
N	<i>Nauclea latifolia</i> Smith	singeye	edible fruit; knife sheaths and combs: hernia medicine
	<i>Neorautanenien</i> sp nr <i>N.(miti)</i> (A. Rich) Verdc	dinyi	fish poison; hip fringes
O	<i>Ozoroa insignis</i> Del. Var. <i>insignis tandiya</i>	dckcmc	posts and rafters
P	<i>Parkia africana</i> R. Br.	'bolctc	edible fruit
	<i>Piliostigma thonningii</i> (Schumach.) Milne-Redh	mbesi	posts and rafters
	<i>Prosopis africana</i> (Guill & Perr.) Taub.	kaliyc	charcoal; posts and rafters; drums: game trap; grave posts: beehives
	<i>Pseudocedrela kotschyi</i> (Schweinf) Harms.	kiyë'di	stool and deckchair frames; beehives: stomach medicine
	? <i>Pterocarpus</i> sp	ngutu	edible fruit: tinder: for fumigating hives
	<i>Pterocarpus</i> sp. nr <i>P. lucens</i> Guill. & Perr.	yangilo	vegetable; bows; roof construction
R	<i>Rhus natalensis</i> Krauss	ragba	roof construction: eye medicine
S	<i>Sclerocarya caffra</i> Sond	ngepe	edible fruit
	<i>Sesbania sesban</i> Merrill var. <i>nubica</i> Chiov.	rere	arrow shafts
	<i>Sterculia</i> sp. = Padwa 239 *? <i>Sterculia setigera</i>	'binyc	salt; cosmetic oil; tall enough for hives
	<i>Stereospermum kunthianum</i> Cham.	ma'bclc	fixed bedposts
T	* <i>Tamarindus indica</i>	maa	edible fruit; beehives: tall enough for hives
	<i>Tephrosia</i> sp	ngamo	fish poison
	<i>Terminalia</i> sp.	lökpö	posts and rafters: beehives; storage containers: tall enough for hives
	<i>Terminalia</i> sp	lökpö mbara'boya	storage containers
V	<i>Vangueria apiculata</i> K Schum.	yanbala	edible fruit; rafters
	<i>Vitex madiensis</i> Oliv. Var <i>madiensis</i>	wölö	edible fruit: stool frames; tall enough for hives
X	<i>Ximenia americana</i> L.	madcngiti	edible fruit
Z	<i>Ziziphus pubescens</i> Oliv.	kcmckörö	game trap

### Unidentified specimens known only in Mödö

'do'dowc	stomach medicine (causes vomiting)
dömikorcbc	fish poison
gita	medicine for headaches and fevers
gorota	stool and deckchair frames; rope for binding hives; bows; game trap
gulu	stool frames
kidana	bows; clubs
kö'bö (strangler fig)	glue
madombali	bowstrings

nbcro	fish poison
siya dōwōlō	stomach medicine
yite	game trap; stool legs; drumsticks
ycngc (bamboo)	roofs, etc.; spear shafts

*Note:* Items with an asterisk identified by the author: all others by the East Africa Herbarium, Nairobi.

## Hunting

The Mödö get meat chiefly from wild game. They use various means to hunt animals. Buffalo can be approached and speared at close range, as they stand their ground when attacked. Small animals and birds can be shot with bow and arrows or snared. Antelope of various kinds - bushbuck, hartebeest, roan, oribi, waterbuck, reedbuck, warthogs and sometimes buffalo - can be trapped. Game pits of about 4.5-6 m (15-20 feet) deep are dug near a river to catch the largest animals, such as giraffe and elephant, but these obviously catch antelope and buffalo as well. Monitor lizards, rabbits and other creatures are clubbed to death.

All these hunting methods involve the use of trees in some way. The shaft of spears is made from bamboo, if available, or from various species of reed. Bows are made from the wood of *Pterocarpus* sp. nr *P. lucens*, *Harrisonia abyssinica*, *Grewia mollis*, and two unidentified riverside trees (*kidana* and *gorota*). Bowstrings are usually the tough skin off the fillet of an antelope such as a waterbuck, but the root of a certain creeper called *madombali* can be used as substitute.

Arrow shafts have to be very light and are fashioned out of the stem of certain strong plants. The favourite is *Sesbania sesban*, which appears to be another introduced plant. It is found only at homesteads or sites of old homesteads although I am told it seeds itself. Probably it does not survive fierce fires and is therefore not found in true woodland, which is subject to yearly burning of the grass. A certain reed from the river and a small household plant grown mainly as a vegetable, *Cassia obtusifolia*, can also be used for arrow shafts.

Arrowheads used to be carved from ebony, *Dalbergia melanoxylon*, a very hard wood much favoured for carving, especially by the Dinkas, who come to Mödö country to obtain it. But iron arrowheads are the only kind at present in use.

The traps made by the Mödö for trapping larger animals are nooses of rope with a spring mechanism in the shape of a bow and arrow. There are several parts to such a trap - the noose and weight, a bow with bowstring and arrow, and a round piece of bark. The noose and bowstring are made of strips of hide plaited together to make a very strong rope and then stretched. The strength of the rope and also the size of the weight depend on the size of animal it is to trap. The whole trap is set and buried just under the surface of the ground in a path that animals are known to follow regularly. If an animal steps on a piece of bark placed over a small pit that is dug underneath the noose, the trap springs up and the noose fastens on its leg.

### A VIEW OF MÖDÖ COUNTRY where trees are essential

**All these hunting methods involve the use of trees in some way.**

**Every compound has a shade tree, an important feature of social life; in one instance, the withering of a shade tree was regarded as a sufficiently evil omen to make the family move.**

The woods used for the bow part of the trap are from *Catunaregam* sp., *Grewia mollis*, *Annona*

*senegalensis*, *Ziziphus pubescens* and two other riverside trees (*yite* and *gorota*). The round piece of bark is from *Prosopis africana*, *Butyrospermum niloticum*, *Crossopteryx febrifuga* or *Anogeissus leiocarpus*. The arrow and wooden pegs for setting the spring mechanism are always made of *yite*, and the weight may be any suitably heavy lump of wood except for *Anogeissus leiocarpus* on which there is a taboo.

Snares are obtained from *Lannea fruticosa*, *Anogeissus leiocarpus* or any other tree that yields long thin pliant branches.

Game pits are dug on a route that animals are known to take when they come down to the river to drink. The pit itself is covered with loose branches and grass to conceal it, and a rough fence is erected on either side of it at an angle to channel the animals toward the pit. It appears, since the pits are only temporary, that the branches used for the fence need not be from any particular tree. Good clubs can be made from *Dalbergia melanoxylon* wood and from an unidentified riverside tree (*kidana*).

It seems unlikely that exploitation of any of these trees and plants causes destruction of woodland. Spears, bows, clubs and the wooden parts of traps last many years, and each hunter usually owns only one or two spears and a few traps; game pits, which require an enormous amount of work, are limited in number.

## Bee culture

Beekeeping is very common in the southern Sudan. Some of the Avokaya, who live between Mundri and Maridi, own as many as 30 or 40 hives each and sell oil drums full of honey to people who brew alcoholic drinks such as honey beer from it. None of the Mödö own that many hives but most of them have a few, which they inspect about three times a year. Honey is the only sweet part of Mödö meals, since sugar is kept strictly for sweetening tea.

Making a hive is a fairly long and skilled process. First, a tree has to be ring-barked in two places with an additional vertical incision in the bark to connect the two rings. After a few months, when the bark between the incisions has loosened, it can be pulled off the trunk in one piece. This slit bark tube forms the interior of the hive where the bees build their combs. Bark suitable for this purpose comes from: *Tamarindus indica*, *Prosopis africana*, *Pseudocedrela kotschyj*, a *Terminalia* sp. (*lökpö*), *Burkea* sp. and *Lannea* sp. nr *L. barteri*. When the bark is dry it has to be bound with thin branches from *Lannea fruticosa* to stop it from splitting. Then it is covered with a layer of woven grass bound with rope from a riverside tree (*gorota*). If so desired, the inside can be fumigated with sweet-scented smoke from the resinous wood of *Pterocarpus* sp. (*ngutu*), which is said to attract bees. The finished hive is taken into the woods some distance from the nearest house and hung up, usually near the top of a tall tree, on a level at which bees are likely to be flying in search of flowers. Many of the flowers they favour are tree blossoms and, moreover, the higher the hive the safer it is from fire. Some species of tree that grow tall enough for hives are: *Tamarindus indica*, *Azelia africana*, *Diospyros mespiliformis*, *Daniella oliveri*, *Vitex madiensis*, *Lannea fruticosa*, a *Cassia* sp. (*söli*) and a *Sterculia* sp. The hives are raised from the ground to the upper branches of a tall tree by means of ropes made from the bark of a *Ficus* sp. (round-leaved *kelu*) or *Lannea* sp. nr *L. barteri* or from a hemp plant often cultivated at the edge of a field. The same kind of ropes are also used to let down a full container of honey when it is collected from the hive.

It is unlikely that beekeeping, any more than hunting, involves any destruction of the woodland at the present time. The population is very small in relation to the area of uncultivated land, and not many hives are made at any one time. If the population were to increase substantially and if people were to start to own as many hives as the Avokaya, there could be a decline in the species that provide bark for the hives, since ring-barking kills them. However, the Mödö know alternative methods of making hives and presumably these could be encouraged if the

need arose to protect the woodland.

## Building

The typical Mödö home consists of a group of round thatched huts built around the edge of a bare earth yard that is swept clean every day. Smaller, raised huts, which are in fact granaries, are usually built a little behind the dwellings. Surrounding the entire compound is a circle of ground a few metres wide which is a sort of compost heap-cum-vegetable patch. Here all the household refuse is thrown, largely of a vegetable nature, and this is consequently the only place where most vegetables do well, since the common soil type in the area is not highly fertile. Beyond the vegetable patch are the fields, radiating out from the compound in a large circle and intersected by paths to other compounds.

In the centre of the yard one or sometimes two large trees are left when the ground is cleared in order to provide shade. Every compound has a shade tree, an important feature of social life; in one instance, the withering of a shade tree was regarded as a sufficiently evil omen to make the family move. The only criterion for choosing a shade tree is that it provide shade all year round. Deciduous species are no use, nor are very tall species that branch high up. Two popular shade trees in Domeri are *Bridelia* sp. nr *B. scleroneura* and a *Combretum* sp. (*kirika'da*), although other species can also be used.

When a site for a new compound has been chosen and a shade tree picked out, all other small trees are cut down and the ground is cleared for building. Since the Mödö possess only small axes and no saws, large trees cannot be felled but have to be burnt. This means that it takes several years before all trees are removed completely. Eventually, however, even roots and stumps are dug out, and a site that has been occupied for a long time contains only its shade tree and cultivated plants and possibly some shea butter trees.

Building begins with the digging of holes for posts. Forked posts about 2 m long are then cut from woodland saplings and dropped into the holes. A framework of rafters tied to circles of long plant branches supports the thatch, and walls are made of various materials, either sorghum canes or woven grass or sticks with building clay. Posts and rafters need to be of a hard wood resistant to termites and are obtained from: *Hymenocardia acida*, *Combretum* sp. (*kirika'da*), *Bridelia* sp. nr *B. scleroneura*, *Piliostigma thonningii*, *Anogeissus leiocarpus*, *Terminalia* sp. (*lökpö*), *Lonchocarpus* sp. nr *L. Laxiflorus*, *Dichrostachys* sp., *Prosopis africana*, *Ozoroa insignia* and *Burkea* sp. *Butyrospermum niloticum* is also good for posts but not rafters, and *Borassus aethiopum* and *Vangueria apiculata* for rafters but not posts.

The circles of pliant branches to which the rafters are tied are called *mo'ba*. The tree preferred for these circles is *Monanthotaxis buchananii*, which is found only in dense forest, not in the more open woodland characteristic of the area. If people do not want to go to the bother of carrying branches all the way from the forest they will use branches from other suitable trees, such as *Grewia mollis*, *Pterocarpus* sp. nr *P. lucens*, *Rhus natalensis*, *Diospyros mespiliformis*, *Annona senegalensis* and *Anogeissus leiocarpus*.

No nails are used. All parts are tied together with rope from thin strips of the bark of *Grewia mollis*, one of the most common local trees. Another stronger rope for tying on thatch is the creeper *Cissus integrifolia*.

If a house is to have mud walls, almost any kind of sticks of the right length can be used to fill in the gaps between the posts. These sticks are then plastered from the inside with two layers of building clay made from earth from a termite heap mixed with straw.

Granaries are built of the same material as dwellings but they are always raised from the ground and therefore have wooden floors plastered with mud. Their walls are made from



building clay alone without the sticks.

One more construction needs to be mentioned because it uses the same woods as dwellings and granaries. It is the tall frame erected in a field at the time of the sesame harvest for hanging the sesame heads for drying. It consists of several upright poles with crosspieces made of split sorghum canes or bamboo. The difference between these upright poles and house posts is that the poles are not forked and have to be about 5 m long: long and thin rather than short and stout. So the poles are taken from branches of large trees of the species rather than from saplings. This means that they often have to be brought from afar, since large trees have become rare in districts that have been settled for a long time.

The scarcity of large trees of certain species may indicate that the cutting of building materials does deplete the woods to some extent. Or it may indicate that the Mödö are tending to settle in one place for longer periods and that large trees have disappeared as the land has been cleared for building new compounds and making new fields within the district.

Bamboo has been mentioned in connection with the sesame drying racks. Bamboo grows in only a few places in Mödö country and is highly valued for these racks as well as for roof construction and other purposes, but the difficulty of transporting it has limited its use to certain districts. However, if lorries could be brought in to transport bamboo, demand for it would probably exceed the supply.

## Furniture

The Mödö have few tools, but they manage nevertheless to furnish their houses with beds, chairs and stools that they make themselves. Some people have bought small tables that they cannot make themselves because they lack the means to make wide, smooth boards for a table top.

There are three basic ways of constructing furniture. The first is to implant forked posts of *Stereospermum kunthianum* of the desired height in the earth floor of the hut and stretch out on top of them a mat of sorghum canes tied together and either firmly fixed to the supports or left loose so it can be rolled up. This method is the traditional one for beds and also for the high shelves that most women have above their indoor cooking-fires.

Secondly, there is the common method for making stools, which has in recent years been extended to beds and chairs. A frame is made from appropriate lengths of sapling or branches from *Diospyros mespiliformis*, *Annona senegalensis*, *Vitex madiensis*, a *Cassia* sp. (*mcbc a 'bati*), *Pseudocedrela kotschy*, and two riverside trees (*gulu* and *gorota*). Holes are drilled in the lengths of wood by means of a red-hot iron rod heated in a smithy fire, and the ends of the pieces are whittled to a size to fit into the holes so that the various parts slot together. The favourite wood for the legs is *yite*, which is said to be very light and durable. The seats of these chairs and stools are made from slats of the cane-like wood of *Harrisonia abyssinica* fitted into grooves in the frame.

Thirdly, deck chairs with wooden frames and seats of animal hides are made. The frames are made from lengths of *Pseudocedrela kotschy* or *gorota*, fashioned with an adze and then nailed together.

## TRADITIONAL MÖDÖ FISHING NET another product dependent upon trees

## Household

Many activities that take place in a household involve the use of some part of a tree or plant. Nearly every day women may be seen chopping vegetables, peeling yams or splitting sesame

Pods with small knives about 10-12 cm long. The knife blades are metal, shaped like a spear head, but have wooden sheaths of *Dalbergia melanoxylon*, *Crossopteryx febrifuga* or *Nauclea latifolia*.

Not many metal cooking pots or storage vessels have reached Mödö country. Women make their own earthenware pots for cooking, fetching water and for storage. Near the end of the potting process the pots are placed on a small string mat in order to give the outside a distinctive pattern. These string mats are made of the same string as the typical Mödö fishing nets, a *Ficus* sp. (round-leaved *kēlu*).

If earthenware pots or large gourds used for carrying water crack and start to leak, they are patched with the glue-like sap of *Butyrospermum niloticum* or of the strangler fig (*köbö*) or with beeswax.

New baskets for all sorts of purposes and new sleeping mats are constantly needed by a large household as old ones wear out. The strongest and therefore preferred type are made from the outside of sorghum canes split into narrow strips. It takes many hours and sore fingers to finish one of the sorghum cane baskets, so for a quick but less durable result women will cut leaves of *Borassus aethiopum*.

An annual activity, after the main harvest is over, is the making of storage containers of various types in addition to the pots mentioned. One type is made entirely of a certain species of grass. Another is made from leaves of a *Combretum* sp. (*kangoro*) or two *Terminalia* spp. (*lökpö* and *mbara'boya*). These three trees have fairly large leaves, which is probably the reason for the choice. A third type of storage container is similar to a large basket of very open weave, such as is used for transporting chickens in some places. This third type is woven from the shoots of the same species of *Ficus* that yields bark for nets and potting mats.

## Agricultural uses

Obviously the main connection between agriculture and the natural woodland is that inevitably the woodland tends to be destroyed in order to give way to food crops. And although the Mödö know and value their woodland and its uses, they do not hesitate in burning, and then chopping and clearing the land for a field when necessary. Their chief concern is to get good crops. They know that wood ash and rotten wood increase the fertility of the soil and they are on the lookout for places where logs or standing trees have been burnt to plant vegetables that need rich soil, such as pumpkins and the popular *Cleome parvipetala*.

Hoes are the only regular agricultural implement. These are all push hoes with long handles for clearing the fields or shorter handles for weeding. The clearing handles measure between 2-4 m, the longer size for men and the shorter for women. Weeding handles are between 15 cm and 1.2 m. These handles are made from the springy wood of *Butyrospermum niloticum* with crosspieces of *Crossopteryx febrifuga*.

## Beauty and cleanliness

Although the Mödö all like to wear clothes if they can get them, many women do not have enough dresses to be able to wear one for work. In this case they pick leaves of certain trees daily, arrange them carefully in a neat bunch and tuck them through their hip beads at front and back for decency's sake. And they are very particular about this. A woman may spend a quarter of an hour arranging her bunch of leaves. Some trees are preferred to others. The favourite is *Azelia africana*, especially for its darker leaves. An *Entada* sp. is popular and leaves may be picked from: *Combretum* s p. (*kirika'da*), *Anogeissus leiocarpus*. *Lannea* sp. nr *L. barteri*, *Ficus salicifolia*. The main requirement seems to be that the leaves should be small.

At the time of the Azande Empire, which extended into southern Sudan, the Azande dressed in cloth beaten out of the bark of a *Ficus* sp. It appears that the Mödö also knew, and perhaps still know, the art of beating out bark cloth but the use of such cloth was never widespread. The tree from which the bark comes is not common in the area and is found only in scattered locations by the riverside.

Girls from the age of about six until they are married often go about dressed only in beads and a fringe round the hips woven either of home-grown cotton or of a thread made from the bark of *Neorautanenia* sp. nr *N mitis* and reddened with ironstone powder.

Cosmetic oils for rubbing into the body can be obtained from a *Sterculia* sp. ('*binyc*'), and from two riverside trees, but women can, more conveniently, rub themselves with cooking oils or perfumed ointments from a shop, or even car grease. The same goes for the soap that can be produced from the roots of a *Catunaregam* sp., and from another tree near the river. Although this soap is said to be very effective, once people are used to manufactured soap they will use it only in cases of dire need. One woman told me that she used "tree soap" during the civil war in the Sudan when they were unable to obtain shop soap but no longer does so. Combs are carved from the wood of *Nauclea latifolia*.

**The Mödö have few tools, but they manage nevertheless to furnish their houses with beds, chairs and stools that they make themselves.**

## Medicine

There are many different herbal remedies used among the Mödö but most people are familiar with only a few of them. This is because specialist healers keep their treatments a secret. I give here the remedies known to my informant and believed by him to be more or less effective. For bathing sore eyes an infusion is made from the leaves of *Rhus natalensis*. Leaves of *Lonchocarpus* sp. nr *L. laxiflorus* are placed on ulcers and large sores to promote healing. A medicine is made out of the roots of *Nauclea latifolia* or a *Cassia* sp. (*mcbc* a '*bati*') for inguinal hernias, which are very common in Mödö men. There are several treatments for stomach ache: *Pseudocedrela kotschyi*, a small unidentified plant (*siya döwölö*), and a rare unidentified tree ('*do'dowc*'). Jaundice is treated with an infusion from the root of *Catunaregam* sp. *Acacia seyal* yields a medicine for ordinary fevers, and for bad headaches and malaria there is a bulb said to be very bitter in taste (*gita*). The knowledge of this last cure apparently spread to the Mödö during the civil war. They were not previously familiar with the bulb, even though it grows in their area.

More research could usefully be done on these Mödö folk medicines and their effectiveness.

## Miscellaneous

Singing and dancing are popular activities. The common instrument is a one-ended drum between 30 and 60 cm in height with a goatskin head tightened by means of cords around the body of the drum. The wood used is the hard, durable *Prosopis africana*. Only a few experts are considered capable of carving good drums.

*Prosopis africana* is also used for grave posts because it lasts longer than any other wood. Sometimes these grave posts are forked and sometimes carved with a few simple designs. Since it takes time and effort to chop such a hard tree with a small axe, the posts are not erected on the day of burial but some time later.

Two plants, the tree *Grewia mollis* and the creeper *Cissus integrifolia*, have a ritual function. *Grewia mollis* is known in Mödö as *ya'da*, and the *bc ya'da* or "owner of the *ya'da*" is the head of a household. His function is to bless the household by sprinkling water over its assembled

members with a branch of this tree.

Rainmakers are said to use both *Grewia mollis* and *Cissus integrifolia* in their rites to invoke rain, and both these plants are also involved in ritual offerings at times of harvest or in times of need. There is no obvious reason why these particular species have a ritual function. Both are very common and both supply useful kinds of rope. *Grewia mollis* also gives vegetable salt but so do several other trees that have no ritual uses.

## Conclusion

The Mödö at present are living in harmony with their natural environment. Their way of life is not a threat to the woodland except in a few small areas that are being settled on a more permanent basis. Probably the most destructive single activity is the burning of grass every dry season. However, local people are not the only ones responsible for fires that get out of hand. Travellers all too often leave their camp-fires still smouldering or throw cigarette ends into the dry grass at the roadsides. It might be possible, however, to educate local people to watch bushfires more carefully or to be more zealous in putting them out. Only a few fires are really necessary for agricultural or hunting activities but people do not see any practical advantage in stopping a fire that does not threaten their crops or homes, and so they usually just let it go on burning until it dies of its own accord.

Some cutting of wood, e.g. for building, could cause deforestation if the population were to increase substantially but that seems unlikely at the moment. However, the Mödö area can be compared with that of the Avokaya further south. Since 1982 the countryside between Maridi and points further east along both the Mundri and Yei roads has received a sudden influx of refugees from Uganda, so that what was once very sparsely populated woodland has now become fairly heavily populated. Such increases in population should result in attempts to manage the woodland in such a way as to compensate for the greater demands being made on it.

The Mödö often complain that there used to be a higher rainfall in the past. While farming people in general are rarely satisfied with the weather and while everyone is apt to yearn for the good old days (which perhaps were not really so good), it does appear from references in European writings of the 1850s that rainfall has decreased in many places in the southern Sudan since then. This also must surely affect the natural species of the region so that, according to some observers, the seedlings of some species less resistant to drought will no longer survive the long dry season and only old trees of those species will remain. This is something that might warrant further research.

It needs to be emphasized also that although the Mödö live in harmony with their woodland environment there is very little in their attitudes that would prevent them from causing deforestation. They are neither better informed nor less self-centred than other people in the world and can be expected to exploit the woodland for their own benefit as long as it is there. In fact, they depend on it for many of the necessities of life and cannot be expected to give up using it without finding some viable alternatives.

