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メタデータ	言語: eng 出版者: 公開日: 2009-04-28 キーワード (Ja): キーワード (En): 作成者: 寺嶋, 秀明 メールアドレス: 所属:
URL	https://doi.org/10.15021/00003435

Hunting Life of the Bambote: An Anthropological Study of Hunter-gatherers in a Wooded Savanna

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This paper describes the hunting techniques and activities as well as the general lifestyle of the Bambote people who inhabit the wooded savanna of south-eastern Zaire. It is based on the data obtained during field research from August 1976 to February 1977. It also discusses the characteristics of Bambote subsistence ecology through a comparison with those of the other African hunter-gatherers.

The Bambote make their living mainly by collective net-hunting, collective bow-and-arrow hunting, and individual bow-and-arrow hunting, all of which seem to be environmentally adapted.

Besides these efficient hunting activities, socio-economic relationships with the neighboring Bantu agriculturalists, manifested in the day-to-day exchange of meat for farm products and the generalized reciprocity, are important, giving stability to their hunting-based subsistence.

A comparison of the Bambote's hunting techniques and activities, and other aspects of their lifestyle, with those of the Bambuti Pygmies and the Bushmen, in terms of the relationships between hunter-gatherers and their environments, reveals that the Bambote adopt both the forest type and the savanna type hunting techniques and activities. This seems to correspond with the fact that the Bambote's habitat is an ecotone of lowland forest and drier savanna.

INTRODUCTION

"Cultural Man has been on earth for some 2,000,000 years; for over 99 per cent of this period he has lived as a hunter-gatherer [LEE and DEVORE 1968: 3]." "Of the estimated 80,000,000,000 men who have ever lived out a life span on earth, over 90 per cent have lived as hunters and gatherers; about 6 per cent have lived by agriculture and the remaining few per cent have lived in industrial societies [*ibid.*]." Today, only 0.001 percent of the world's population are hunter-gatherers. In Africa, until now, only five ethnic groups—Bambuti, Batwa, Hadza, Ndorobo, and Bushmen—have been recognized as hunter-gatherers. But even for these people, it is highly probable that their subsistence based on hunting and gathering will gradually disappear as a consequence of rapid acculturation and population decline. It is, then, an urgent task to collect and preserve as much exact data about their societies, cultures and ecologies as possible. It is especially urgent to make an ecological description of

their subsistence activities, because this aspect has been largely neglected until now and it cannot be undertaken except through direct observation.

One of the features common to all African hunter-gatherers is that they live in marginal habitats, unattractive to agriculturalists and pastoralists. The Bambuti, for example, live in the moist lowland forest, and the Bushmen in the driest savanna. This is thought to be one factor that has enabled them to maintain a hunting-gathering economy until the present. The habitats of the Bambote are the wooded savanna, the ecotone of the lowland forest and the dry savanna. Because this wooded savanna has climatic and water supply conditions that are more conducive to cultivation than are those of the lowland forest and dry savanna, agriculturalists long ago intruded into this environment. Although it seems certain that this wooded savanna was once extensively exploited by hunter-gatherers, most of whom have now disappeared under the pressure of agriculturalists, unfortunately there is no available research report on the hunter-gatherers of the wooded savanna.

Intensive fieldwork has been conducted recently on some African hunter-gatherer groups, and data on their subsistence ecology are accumulating. As a consequence, the ecologies of the Bambuti and the Bushmen are better known than hitherto, but broad comparative investigations are now necessary in order that the features of the hunting and gathering life and its adaptation to environment can be better understood. These points alone illustrate why a study of the Bambote's subsistence ecology would contribute to the understanding of hunter-gatherers, but in addition, since it is believed that hominization progressed through movements of early hominoid stock from forest to open land, the assessment of the wooded savanna as a human environment is indispensable to the study of human evolution. One of the most appropriate settings for such an assessment is the subsistence ecology of hunter-gatherers inhabiting a wooded savanna. It should be emphasized that the study of the Bambote's subsistence ecology is also of interest in terms of human evolution.

1. RESEARCH AREA

Kalemie (Albertville), located at about the middle of the western shores of Lake Tanganyika, is a central town of the Zone de Kalemie, Région de Shaba, République du Zaïre, and has a population of some 60,000. Moba (Baudouinville), located about 150 km south of Kalemie, is a central town of the Zone de Moba, Région de Shaba, République du Zaïre. Other than Kalemie, Moba is the biggest town in this area.

The Lukuga River, a tributary to the Lualaba River (a branch of the Zaire River) flows due west from Kalemie, out of Lake Tanganyika. The Niemba River, also a tributary to the Lualaba, joins the Lukuga about 80 km west of Kalemie, and flows almost parallel with the west shore line of Lake Tanganyika. Most of my research was undertaken within the area shown in Figure 1.

Within the research area live many Bantu groups (Batumbwe, Batabwa, Baluba, Babemba, and the like) in addition to the Bambote. A map published by the Institut Géographique du Congo Belge (scale: 1/200,000), designates the area south of

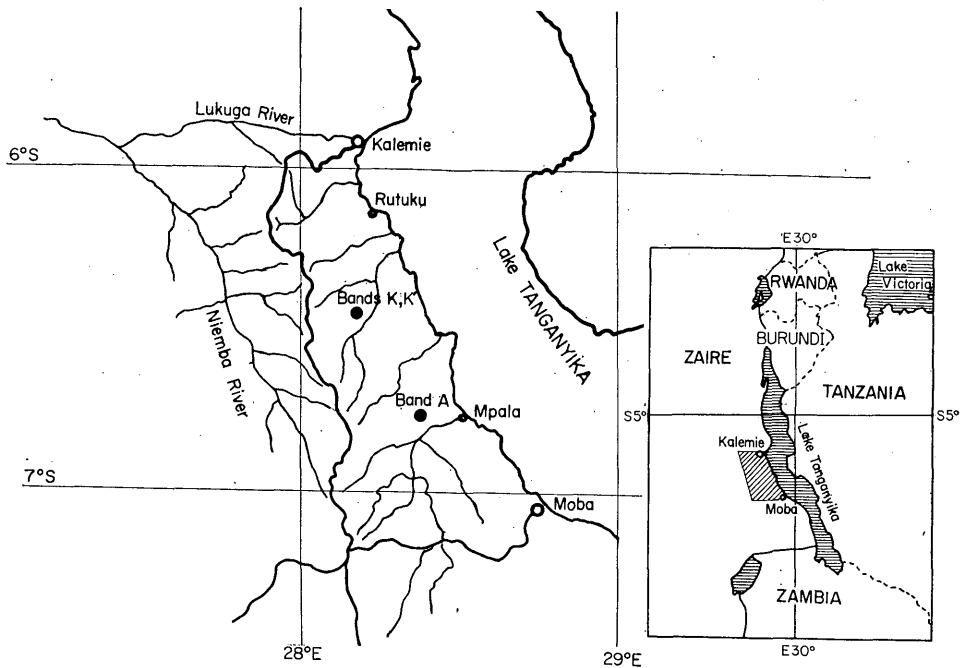


Figure 1. Research area

Kalemie as “Tumbwe Territory”, which may indicate that the Batumbwe are among the oldest agriculturalist groups in this area. It is also said that the Baluba came from the west of this area, and now live mainly along the road from Kalemie to Moba; and the Batabwa, coming from the south, now live mainly along the western shore of Lake Tanganyika. At present the Batumbwe inhabit the hilly interior between the road and the western shore of Lake Tanganyika. All these Bantu groups depend on slash-and-burn agriculture to produce their main crops, economically complemented by hunting and fishing.¹⁾

2. NATURAL ENVIRONMENT

1) Topography

There is no plain in the hinterland of Lake Tanganyika, which is 774 m above sea level. Although there are no high mountains, a group of small mountains some 1,000–1,300 m in elevation dominates the landscape in this area. In the midst of this area are the Mugila Mountains, which run from south to north, and from which innumerable small streams flow to Lake Tanganyika; and the Lukuga and the Niamba Rivers. These numerous mountains and rivers give the area a highly varied geography.

1) See Matsui [1976, 1977] and Kakeya [1976] for a description of the subsistence ecology of these groups.

2) Climate

According to Tsuchiya *et al.* [1972], the average annual rainfall of this area is 1,000–1,200 mm, most of which falls from November to April, the wet season. The remainder falls in a drier season, from May to October. Rainfall amounts also vary within the wet season, November and April being particularly rainy, whereas January and February, when sometimes it does not rain for a week or more, have relatively little precipitation. Rainfalls, accompanied by thunder, are usually squall-like. From June to September, when rainfall is less than 25 mm a month, most of the thick grass dies, and many small streams dry up. But some of the large rivers still contain water, obviating the need to carry water when travelling.

Figure 3 shows the rainfall and temperature for Kalemie (5- 55' S, 22- 12' E). The research area generally exhibits these climatic features, but owing largely to elevation, temperatures are somewhat lower and rainfall amounts are slightly higher.

3) Vegetation

The wild vegetation of the research area may be summarized as wooded savanna,²⁾

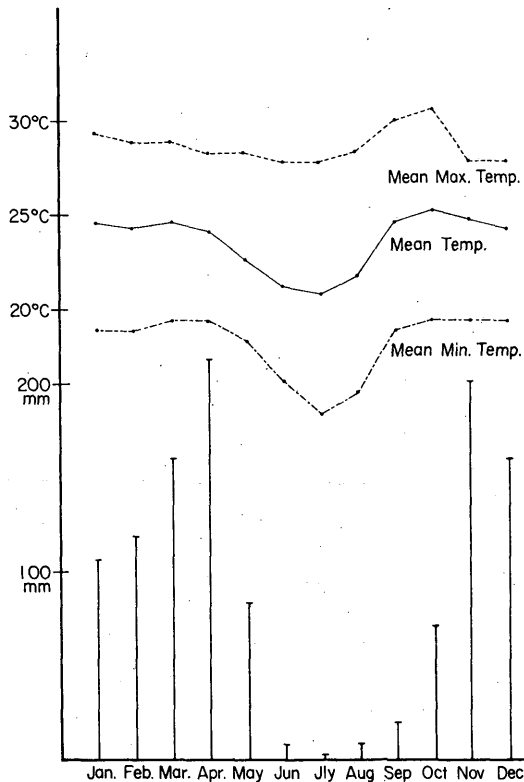


Figure 2. Temperature and rainfall at Kalemie

2) also called the "woodland", "dry forest", or "open dry forest".

in which the dominant trees are deciduous species of the genera *Brachystegia*, *Isoberlinia*, and *Julbernardia*, in the subfamily Caesalpinioideae. The distance between the trees is 3–5 m; the trees are below 20 m in height; and the forest floor is covered with grasses. This vegetation is almost the same as that of the Tongwe territory of Tanzania, on the opposite shore of Lake Tanganyika. Kakeya [1976: 152], who made a detailed classification and description of the vegetation of the Tongwe territory, writes: "The Tongwe territory belongs to the woodland, but its vegetation is more diversified due to its complicated natural features. One of the features of its vegetation is that it is a mixture of openland and forest which can be described as mosaic vegetation. Along the river flowing through the openland, riverine forests are developed, and montane forests exist in the mountainous area." This is also the case in the area where I did research. The classification of the vegetation types in the Tongwe territory (Kakeya [1976: 151]), which closely describes the features of the vegetation of my research area, are shown in Table 1.

4) Fauna

The large- and medium-size mammals of the research area which are assumed to be present occasionally are listed in Table 2. One feature of the fauna of the wooded savanna is that very few mammal species seem to rely exclusively on this habitat [KINGDON 1971: 32]. Of those listed, only three species (Lichtenstein hartebeest, sable antelope, and roan antelope) appear to be largely confined to the woodland vegetation; the others being common to the savanna and the lowland forest. The

Table 1. Vegetation types of the Tongwe Area
(after Kakeya [1976: 151])

(i) Forest
F-1, Riverine forest
F-2, Montane forest
F-3, <i>Arundinalia</i> bamboo forest
(ii) Open land
a) Woodland
W-1, <i>Brachystegia</i> , <i>Isoberlinia</i> and <i>Julbernardia</i> woodland
W-2, <i>Brachystegia-Uapaca</i> mixed woodland
W-3, <i>Oxytenanthera</i> bamboo bush
b) Savanna
S-1, <i>Acacia</i> savanna
S-2, <i>Diplorhynchus-Combretum</i> savanna
c) Grassland
G-1, Montane grassland
G-2, Secondary grassland
d) Swamp vegetation
Sw-1, <i>Papyrus</i> swamp
Sw-2, "Mbuga" vegetation

fact that these animals are found in both the savanna and the lowland forest complicates the description of the fauna.

In addition to the mammals listed in Table 2, the local-fauna contains many small mammals such as rodents and insectivores. Until a few decades ago the area is also said to have supported middle- and large-size carnivores such as the lion, leopard, licaon and serval, and large herbivores such as the eland, zebra and elephant. They seem to have disappeared mainly due to man's influence. Besides mammals, many birds such as guinea-fowl and francolin, reptiles such as the python, puff-adder and tortoise, and many insects are also frequently hunted or gathered.³⁾

3. OUTLINE OF THE BAMBOTE

1) Population, Distribution, Racial Traits, and Language

The scattered settlements of the Bambote are generally composed of only 5-10 houses. Although their population size is not precisely known, their density seems much lower than that of the Bantu people in the area. Only vague information about the range of distribution of the Bambote beyond my research area was obtained. Many of their ancestors apparently lived to the west of the Niemba River, an area still inhabited by many Bambote. Bambote live in the Moni territory, north of Kalemie, but not south of Moba.

Although the origin of the Bambote is not clear, owing to the lack of reliable data, they may possibly be descendants of either a pure Bantu stock, or of a pure Pygmy stock that is thought to have been distributed in earlier times throughout central Africa. Or they may be a hybrid of the two stocks. The latter two are more likely, since Bambote culture is clearly distinct from that of the Bantu agriculturalists, and closely resembles that of the Bambuti Pigmies. Physically, however, they are not so readily distinguishable from the Bantu people as are the Bambuti from the Bantu. It is reasonable to assume that even if they did descend from a pure Pygmy stock considerable hybridization with the Bantu must have occurred.

Rapport Annuel A. I. M. O., Territoire d'Albertville, 1952, 1957, contains a census of "pygmoids" living in the Tumbwe and Rutuku districts (the latter a small district about 25 km south of Kalemie). In 1952, 5,459 "pygmoids" inhabited the Tumbwe district, and there were 65 in Rutuku; in 1957, the figures were 6,461 and 228 respectively. Although "pygmoid" people distinct from the Bantu are known to have inhabited this area in the 1950's, it is not clear that they were "Bambote" or whether they were hunter-gatherers [Allen Roberts, personal communication].

In linguistic terms, although the Bambote themselves and the neighboring Bantu say that the Bambote have their own language (Kimbote), it is not clear whether Kimbote is really a distinct language or simply a dialect of the languages of the neighboring Bantu. African Pygmies (the Bambuti and the Batwa) have lost their own languages and speak those of the agriculturalists on whom they depend econo-

3) See Matsui [1977], who has described in detail the utilization of animals by Tumbwe people.

Table 2. Fauna of the research area

Scientific name	English name	Vernacular (Bambote) name
Order Primates		
<i>Pan troglodytes</i>	chimpanzee	soko
<i>Papio cynocephalus</i>	yellow baboon	puja
<i>Cercopithecus mitis</i>	blue monkey	mbele
<i>C. aethiopus</i>	green monkey	nkolo
Order Pholidota		
<i>Manis</i> sp.	pangolin	nkaka
Order Tubulidentata		
<i>Orycteropus afer</i>	aardvark	muama
Order Artiodactyla		
<i>Hippopotamus amphibius</i>	hippopotamus	kiboko
<i>Phacochoerus aethiopicus</i>	warthog	kasheba
<i>P. porcus</i>	bush-pig	nglube
<i>Tragelaphus spekei</i>	sitatunga	njobe
<i>T. scriptus</i>	bushbuck	kulungu
<i>Kobus</i> sp.	waterbuck	kolwa
<i>Redunca arundinum</i>	southern reedbuck	litolwe
<i>Alcelaphus lichtensteini</i>	Lichtenstein's hartebeest	konzi
<i>Cephalophus monticola</i>	blue duiker	kashesi
<i>C. sylvicultor</i>	yellow-backed duiker	ntundu
<i>Sylvicapra grimmia</i>	bush duiker	kasia
<i>Oreotragus oreotragus</i>	klipspringer	kihelele
<i>Syncerus caffer</i>	African buffalo	nbogo
<i>Hippotragus niger</i>	sable antelope	kafunbwa
<i>H. equinus</i>	roan antelope	ntengu
Order Carnivora		
<i>Canis</i> sp.	jackal	mushegu
<i>Viverra civetta</i>	civet	liobo
<i>Mellivora capensis</i>	ratel	kabulibuli
<i>Aonyx</i> sp.	otter	konge
<i>Ichneumia albicauda</i>	white-tailed mongoose	munyenganyenga
<i>Mungos mungo</i>	banded mongoose	mukala
<i>Crocuta crocuta</i>	spotted hyaena	kinbui
<i>Genetta</i> sp.	genet	simba
Order Lagomorpha		
<i>Lepus</i> sp.	hare	kalulu
Order Rodentia		
<i>Funisciurus lemniscatus</i>	four-striped squirrel	kashende
<i>Cricetomys</i> sp.	giant rat	kumbi
<i>Thryonomys</i> sp.	cane rat	sengi
<i>Hystrix</i> sp.	porcupine	nungu
Order Insectivora		
<i>Petrodrimis tetradactylus</i>	four-toed elephant-shrew	lufuku

mically. The Bambuti, for example, speak the language of the Babira or the Balese with whom they have symbiotic relationships [HARAKO 1976], and the Batwa speak the language of the Bachiga [ITANI 1961]. Possibly the Bambote may speak the language of the neighboring Bantu, similar to the cases of the Bambuti and the Batwa. But in everyday conversation, the Bambote seem to use many words and intonations that are distinct from those of the Bantu.⁴⁾

At present, the Bambote as well as the neighboring Bantu can also speak Kingwana, a dialect of Swahili, the common language of this area.

2) Outline of the Mode of Life of the Bambote

The Bambote adjust their life mode according to the seasonal changes of the environment.

In the wet season they live in a "village" (which may be called a "base camp" in contrast to the "hunting camp" mentioned later, the term "band" being used here to indicate the residential group of a base camp), which is smaller and simpler than that of the neighboring Bantu. Their village, generally consisting of 5-10 houses, is usually located near a Bantu village.

At present, intermarriage among the different Bantu agriculturalist groups is frequently arranged and it may be said that there is no village composed of members of one tribe alone. But since intermarriage between the Bambote and the Bantu is rare, only seldom does a Bambote village contain people from other ethnic groups. A rare exception, however, is a marriage between a male Bantu and a female Mbote⁵⁾, but not vice versa. The Bantu people call the Bambote "mutu wa poli" (Kingwana: man in the wilderness). And the Bambote call the Bantu people "mutu wa mugini" (Kingwana: man in the village). These phrases suggest that difference in life modes is the fundamental factor preventing intermarriage between the Bantu and the Bambote. But despite this, they do not confront each other either socially or economically.

The thatched, domed hut (1.5-2 m in diameter), with a low entrance just large enough to crawl through, is the basic house of the Bambote. Almost all African hunter-gatherers have this kind of dwelling, Coon [1972: 27] noting that the domed hut is man's most basic house type. The thatched rectangular hut is also common. These huts can be quickly and easily built. Figure 3 shows the elementary style of the Bambote settlement, composed of huts arranged in a circle. At present, however, they also build more elaborate houses with clay plastered walls, in imitation of those of the Bantu.

During the wet season, hunting becomes infrequent owing to the rains and the tall, rank, and rapidly growing grasses. By contrast gathering, mainly of mushrooms and honey, is actively undertaken.

An important activity of the Bambote women in the wet season is helping in the

4) Further research is required to elucidate the everyday role of the Bambote's own language.

5) singular of Mbote

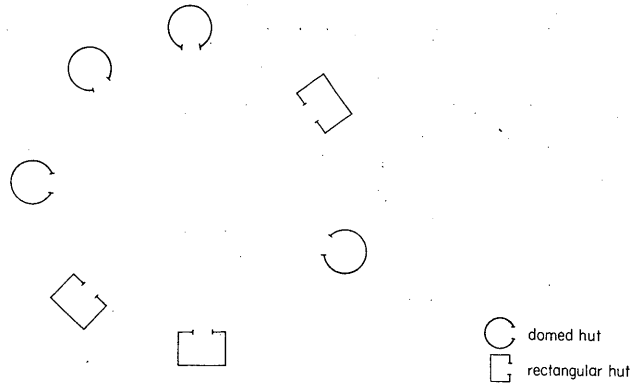


Figure 3. Example of Bambote's settlement

fieldwork of the Bantu agriculturalists. At the end of the dry season, the agriculturalists burn their fields, and after the first rainfall they hoe them up and plant such crops as cassava, maize, beans and bananas. In this busy period, the agriculturalists often seek help from the Bambote. In return for their labor the Bambote receive farm products, clothes, and sometimes cash. Nowadays, the Bambote may also cultivate their own fields, which are much smaller than those of the Bantu.

But most Bambote spend this period idly in their base camp, or devote long periods to visiting relatives. When asked, "What are you doing now?", they often replied, "I'm only passing time."

In the dry season, they are active in hunting. Usually they leave a base camp to build a hunting camp in an area rich with animals. All band members, including women and children, move to the hunting camp. Only rarely does this camp consist of members from only one band, as 2-3 bands generally join in a hunting camp. In such a camp they make only the simple thatched huts described above, but sometimes simple windbreaks of cut wood piled around a fire are regarded as sufficient.

Their hunting tools are mainly bows, arrows, and nets. Hunting is performed either collectively or individually, small- and medium-size antelopes being the main game.

Meat is a dietary staple, but some is exchanged for farm products such as cassava. Sometimes meat traders visit the camp to purchase meat or to exchange it for soap or clothes. The Bambote remain in the hunting camp until the beginning of the wet season, whereupon they return to the base camps.

3) Socio-economic Relationships between the Bambote and the Neighboring Bantu People

(1) TRIBUTARY GIFTS

A Bantu village generally has a traditional chief (*sultani*), who administers a particular territory. Someone who wants to hunt, fish, or cultivate in the territory

must inform the *sultani* and make a kind of contract with him, whether he is a Mbote or not. Then the *sultani* gives permission, informs his *muzimu* (a spirit of his ancestor), and may pray for the success of the hunting. Sometimes he may give the hunter some ritual gifts; for example, white cloth, cassava flour, a chicken, and the like, which the hunter offers to his *muzimu* when he prays for success in the hunting. And when the hunter obtains game, he is supposed to offer some part of it to the *sultani* in return. This offering is called *kulambula*, and what is offered is *mulambu*. It is believed that the hunter would obtain nothing on the next hunt should he neglect *kulambula*.

But *kulambula* is not compulsory. No previous agreement is made on the portion to be offered. The Bambote are not willing to make *kulambula* under the pretext of the possibility of a poor catch. But, to neglect *kulambula* might offend the *sultani*, and might sour the everyday relationships between them, such as the economic relationship described below. Therefore, the Bambote occasionally make *kulambula* in order to avoid a strained relationship with the *sultani*. For example, Band A offered a small bush duiker and four legs of bush-pig to the *sultani* of Muleji (a small village of the Batabwa) when they camped nearby for some three months in the dry season of 1976. Band K offered a bush-pig only once in the hunting season of 1976 to the *sultani* of Kabila (a small village of the Batumbwe).

Besides *kulambula*, it is customary that certain ritually important animals such as lion, leopard, and white-naped weasel must be offered to a *sultani* when they are hunted.

(2) ECONOMIC RELATIONSHIPS

The first type of economic relationship is the direct exchange of meat for farm products. Bambote women sometimes bring meat to the Bantu villages and exchange it for farm products; mushrooms and honey are also exchangeable. This is a direct exchange where the returns are immediate and usually equivalent. It belongs to the category of balanced reciprocity [SAHLINS 1965: 147-148].

The second type is a dependent relationship or an exchange with delayed returns. For example, the Bambote may visit the agriculturalists to beg for farm products even when they have no meat for exchange. If there is a surplus, the agriculturalists may give it to them without direct compensation; in return, when the Bambote get extra meat, they may offer it to the agriculturalists, and Bambote women often help with agriculturalists' domestic jobs such as peeling and pounding cassava.

When agriculturalists have no surplus, the Bambote often receive edible but unpalatable shavings of cassava. *Ugali* (a stiff porridge) made of these shavings has a dark brown color. So the agriculturalists mention the Bambote, saying, "They eat black *ugali*."⁶⁾

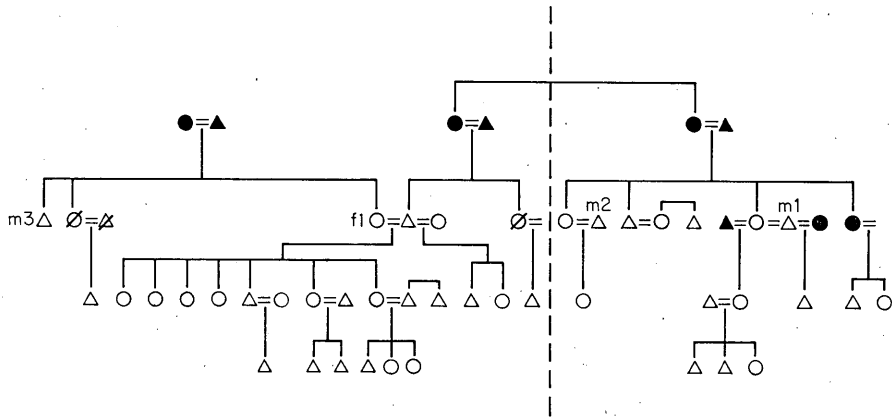
This kind of economic relationship is one of generalized reciprocity in contrast to balanced reciprocity [SAHLINS 1965: 147]. The background of this generalized reciprocity is, apparently, the desire of the agriculturalists to keep the Bambote as meat suppliers.

4) Two Bands Researched

Two bands of the Bambote were selected as the main subjects of research. One, Band K, lived at about 50 km south of Kalemie and 15 km west of Lake Tanganyika (see Figure 1). The other, Band A, lived some 10 km west of Mpala (a large Batabwa village located on the shore of Lake Tanganyika, 100 km south of Kalemie).

Band K had established a socio-economic relationship with those in Kabila, located about 1 km from their settlement. Band K said that they had been living there since the spring of 1975, eighteen months before my first visit. Near Kabila lived another Bambote band (K'), who were relatives of Band K. Band K' said that they had followed Band K, arriving there about a year before my study began.

At the time of my first visit (September 1976), Band K' was at a hunting camp about 4 km east of Kabila. But at the time of my second visit (October 1976), the



note: m1 is an elder brother of f1, m2 is a younger brother of m3.
 ∅ or ∅ is absent from the camp.

Figure 4. Genealogies of Band K and Band K'

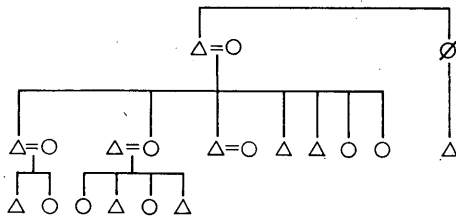


Figure 5. Genealogy of Band A

- 6) *Ugali* of cassava is made as follows: First, peeled cassava is soaked in water for a few days in order to remove the bitterness, then it is dried over a fire; when it is dry the charred surface is scraped off with a knife. Then the cleaned cassava is pounded in a wooden mortar, and kneaded with hot water. It is the charred and scraped-off part that the Bambote receive.

Table 3. Composition of Band K and Band K'

Band	Adult		Youth		Infant		Total
	male	female	male	female	male	female	
K	8	7	0	3	5	2	25
K'	5	6	3	0	1	1	16
Total	26		6		9		41

hunting camp had already been abandoned because most members had dispersed. The remaining few returned to their base camp near Kabila, and they hunted with Band K. Thereafter, three families of relatives arrived and lived with Band K' until the end of 1976; they also hunted with Band K. During my entire survey period, Bands K, K', and their visitors always hunted together. This joint band is indicated by "Bands K & K'". Figure 4 and Table 3 show their genealogy and membership composition.

Band A said that they had been living at the same base camp for more than ten years. Because of this long residence, Band A had a relatively large cultivated field in comparison with those of other Bambote bands. Near Band A's base camp, there were a few small Batabwa villages with whom Band A had established economic relationships; and also there were two other Bambote bands, which were relatives of Band A.

For the past several years Band A had formed a dry season hunting camp at Kasalala, about 10 km west of their base camp. At Kasalala, they had established a socio-economic relationship with the Muleji (see above). Usually 1-2 bands who were related to Band A joined the hunting camp at Kasalala. Figure 5 and Table 4 show their genealogy and membership composition.

5) Residential Rules

The residential rules of the Bambote are as follows: After marriage the bridegroom takes up residence in his wife's village to perform post-marital bride-service; this obligation continues until his wife bears his first (or second) child. During this period, he must serve his wife's parents, and offer them all game he takes. But after

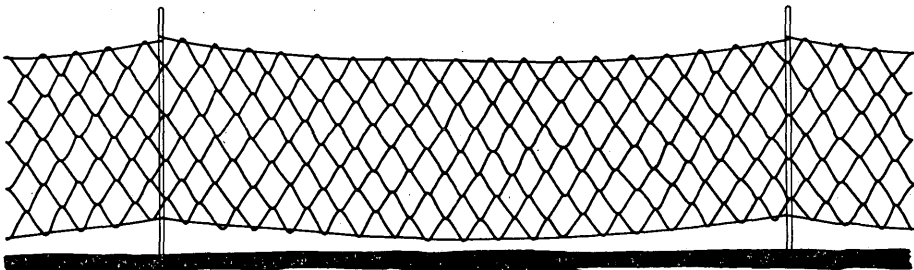
**Figure 6.** Net

Table 4. Composition of Band A

Adult		Youth		Infant		Total
male	female	male	female	male	female	
4	4	3	2	3	3	19

the birth of his first or second child, he can freely choose his family residence, i.e., he may remain in his wife's band or move with his family to his own paternal band or to some other band. Quite a few men remain in uxorilocal residence even after the birth of many children.

Although marriage traditionally did not involve the payment of a bride-price, nowadays the habit has arisen, in imitation of the agriculturalists. However, it is far less than the average payment among the agriculturalists, and the bride-service is still practiced. Marriages are predominantly monogamous although polygyny is not prohibited.

4. HUNTING TOOLS

1) Net: *bukila* (s.), *makila* (pl.)

A male Mbote generally has his own net made of twisted plant fibers. A net is about 40–50 m in length, 70–80 cm in height, and 8–10 kg in weight. The plants used for the net are *butambwa* (*Lannea edulis*), *buyamba* (*Raphia* sp.), *lutonga* (*Strychnos* sp.), *luzinga* (unidentified), among others. Nowadays, the first two are mostly used because they provide strings of smoother texture than the others. The fiber is taken from the long root of *Lannea edulis*, and from the young leaves of *Raphia* sp., a riparian palm. The string of either fiber is strong, and both plants are common.

The mesh size varies from about 5–12 cm square according to the size of the principal mammals hunted. For example, a net 5 cm mesh is for blue duiker, and mesh of about 12 cm is for bush duiker or bushbuck. The optimal mesh size for a particular mammal is one just large enough to catch its head. Nowadays, large mesh are more commonly used, because of the decreased population of small game such as blue duiker.

To set up a net, wooden poles (*lilabo* (s.), *malabo* (pl.)) about 1.2 m in height and 1–2 cm in diameter are used. The pole is generally made of very elastic *luhanje* (*Canthium bibracteatum*). Since they are pitched every 3–4 m, 12 to 15 poles are necessary to set one net. A net is set as follows: first, a pole is pitched at a certain spot, and one end of the net is tied to the pole; then the net is stretched to its end, where another pole is pitched and tied to it. Other poles are then pitched in between, and the upper edge string of the net is tied to each of them. Figure 6 shows a net set up.

2) Bow: *buta* (s., pl.)

Bows and arrows are the most important hunting tools of the Bambote, and a

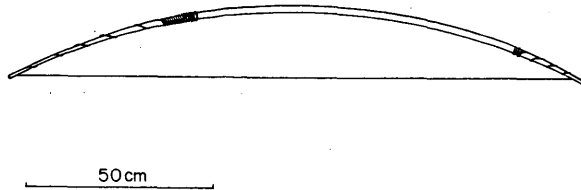


Figure 7. Bow



Figure 8. Arrow

male Mbote carries them with him whenever he goes out. A bow is made of the hard and straight stem of plants such as *ntobo* (*Sterculia* sp.), which is trimmed with a hatchet and a knife into a bow 1.5–1.7 m in length and about 3 cm in diameter. At both ends of the bow, holes to take the bowstring (*muzelo*) are bored through with a piece of heated iron. The bowstring is generally a three-stranded string of leather strips made from the hides of such animals as bush duiker or bushbuck. One end of the bowstring is spiraled around the stave of the bow, and if necessary the tension of the bowstring can be increased or reduced by bending the bow and turning the spiraled part of the bowstring.

The stave of the bow usually lacks ornamentation, but sometimes a charm for good hunting or a piece of fur, the hairs of which are used for discerning the exact wind direction, may be attached.

To bend the Bambote bow requires considerable strength and it is very powerful. The power of the Bambote bow is similar to that of the Hazda, and much stronger than that of the Bambuti or the Bushmen. Figure 7 shows a Bambote bow.

3) Arrow: *muketo* (s.), *miketo* (pl.)

The full length of an arrow is about 70–80 cm. Most Bambote arrows have iron heads and stabilizing feathers (Figure 8). There are some ten kinds classified by the shape of the arrowhead. Among them, the *kikozi*, *kahamai*, *lusange* and *musungu* are those most commonly used (Figure 9). An arrowhead is about 10 cm long, and except for the *musungu* arrow, usually has a poison applied on both sides. *Musungu* is usually used without poison to hunt small animals. Although *kikozi*, *kahamai*, and *lusange* are said to be used to hunt medium- and large-size game, there appears to be no more specialized uses, a hunter selecting his preferred arrowhead for the task at hand. Only one kind of wooden arrowhead, *kikoyo*, made from a node trimmed where three or four branchlets emerge from a branch of the *kikoyo* tree (*Gardenia jovis-tonantis*) was recorded. This arrowhead is used for small game located in trees.

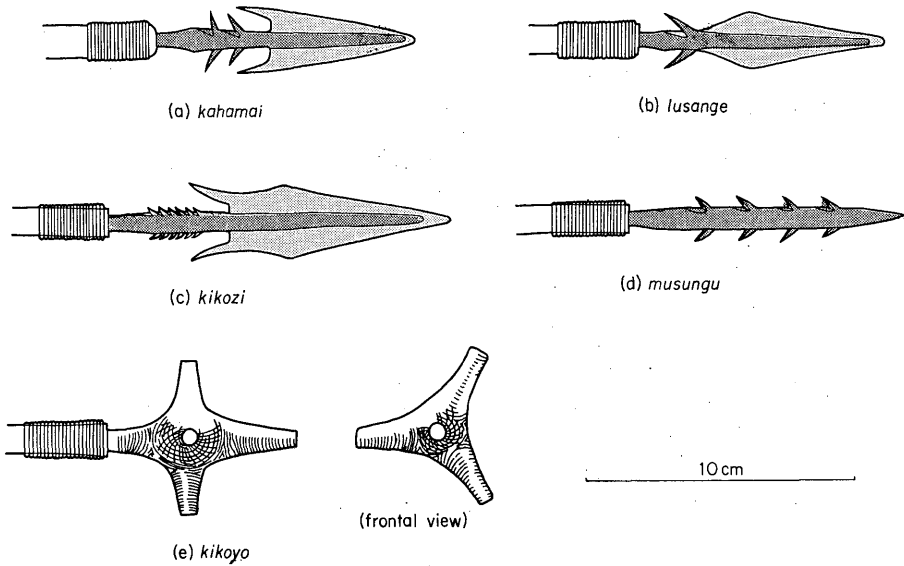


Figure 9. Arrowheads

The arrow shaft (*kihala*) is usually made of *tete* reed (*Phragmites communis*). There is a nock (*mateno*), at the end of the shaft.

Feathers of chicken, domestic duck, francolin and birds of prey such as eagles and hawks are used as arrow feathers. About ten feathers are elaborately tied around a shaft.

Bulembe, powdered seeds of the *bulembe* vine (*Apocynaceae*), are used to make poison. The seeds are pounded in a small mortar (*kitwilo*). Since the *bulembe* is not self-adhesive, the resin of *buhasi* (*Entandrophragma utile*) is first applied to the iron arrowhead, then the *bulembe* smeared over it.

4) Quiver: *lufulu* (s., pl.)

A quiver is a gourd cut to suitable length, and fitted with a shoulder strap. They can be classified into two types by shape, size and decoration. One, small and usually

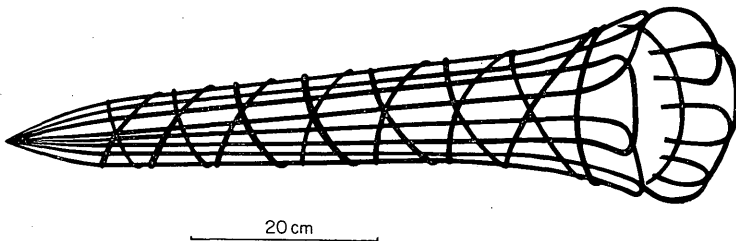
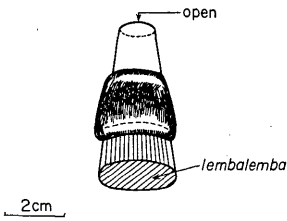
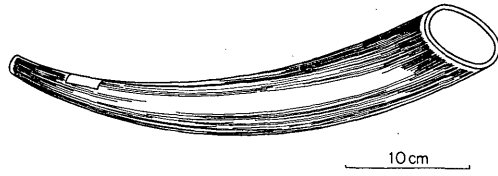


Figure 10. *Lukinda*

Figure 11. *Kimemo*Figure 12. *Kimpungizi*

without decoration, is for everyday hunting. The other, large and usually heavily decorated, is for storing arrows. Python skin is thought to be best for the shoulder strap.

5) Rat Trap: *lukinda* (s., pl.)

The *lukinda* (Figure 10) is a basket trap for small rodents which is made of *tete*. It has a length 50–70 cm, and a diameter at the opening of about 10 cm. When a small rodent, *lufuku* (elephant shrew) is found, the *lukinda* is placed in its path, and the animal, on being chased, enters the *lukinda* by itself. This very simple trap, based on the principle that the rodent always uses the same path, is used mainly by children. A larger but seldom made version is just big enough for the cane rat.

6) Luring Whistle: *kimemo* (s.), *vimemo* (pl.)

The *kimemo* is a hollow piece of the horn of such animals as the bush duiker and bushbuck, the open end of which is covered by a stretched cocoon (*lembalemba*) of the spider (*buibui*) (Figure 11). It is about 5 cm long, and sounds like a clarinet when blown. The Bambote claim that animals such as the bush duiker and bushbuck are lured by it, as is the python which is lying in wait for such animals. But this *kimemo* is not commonly used, and its successful use in hunting is apparently rare.

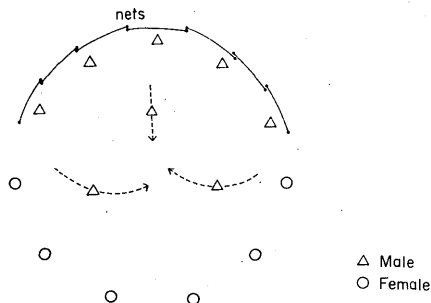


Figure 13. Schema of net hunting

7) Horn: *kimpungizi* (s.), *vimpungizi* (pl.)

This is a hollow horn of sable antelope or roan antelope which is about 20–30 cm long and has a lateral hole made near the pointed end (Figure 12). When blown its sound travels far, so this instrument is used to communicate with people at a distance.

5. HUNTING ACTIVITIES

1) Net Hunting

(1) METHOD

Net hunting (*lubala*) is a group activity, in which both men and women participate. Usually 5–10 nets are used. Men carry the nets on their shoulders and poles under their arms to the netting place. Each man also carries a bow and arrows and an ax. A woman may bring a vessel to carry the meat, and a digging stick (*musolo*) to collect wild roots such as *Dioscorea* spp. Sometimes she may carry a baby on her back. At least one person always brings an ember to make a fire and to burn the dry grasses. Sometimes two wooden sticks (*kavyo*) of *katobotobo* (*Sterculia tragacantha*) wood are used to make a fire. The pointed end of one stick is inserted into the side of the other and rapidly rotated by hand. In good weather, a fire can be made within a minute.

For a netting place the Bambote select a slope with thickets, or a valley with a riverine forest, where small- and medium-size antelopes such as bush duiker, bushbuck, reedbuck, and klipspringer—the main objects of the net hunting—tend to rest in the daytime. But the site is not examined for the presence of animals prior to its selection for netting.



Photograph 1. Hunters with nets and poles



Photograph 2. A hunter setting his net

After selecting a place, men set up the nets, which are usually arranged in a slight arc to block any escape. The nets cover one third of the circumference of the hunting ground at most, and the rest is covered by women spacing themselves some 50 m apart (Figure 13).

When women are ready at their positions, they start driving animals. Women intermittently shout “hooow, hooow” or “heeei, heeei” thus alerting the animals in the thickets to the presence of humans in a particular direction; this is called *kusamina*. Most men silently wait for game in front of their nets, but a few enter the thickets to search for hiding animals, throw stones into the thickets, or set fire to the grasses to drive out the animals. Driving out is called *kuswaga*. Meanwhile, when a man finds an animal, he signals the women by whistling, and the women begin a loud uproar. Thus startled, the animal flees from the noise and rushes into the nets. The man nearest the animal pounces on it and kills it with blows. The *kusamina* and *kuswaga* are continued until all the animals are driven out. When the hunt is over, the men fold the nets and go with the women to another site, where they repeat the process (Figure 14).

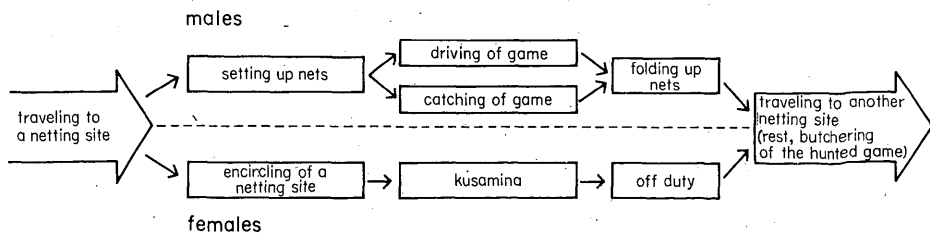


Figure 14. Process of net hunting

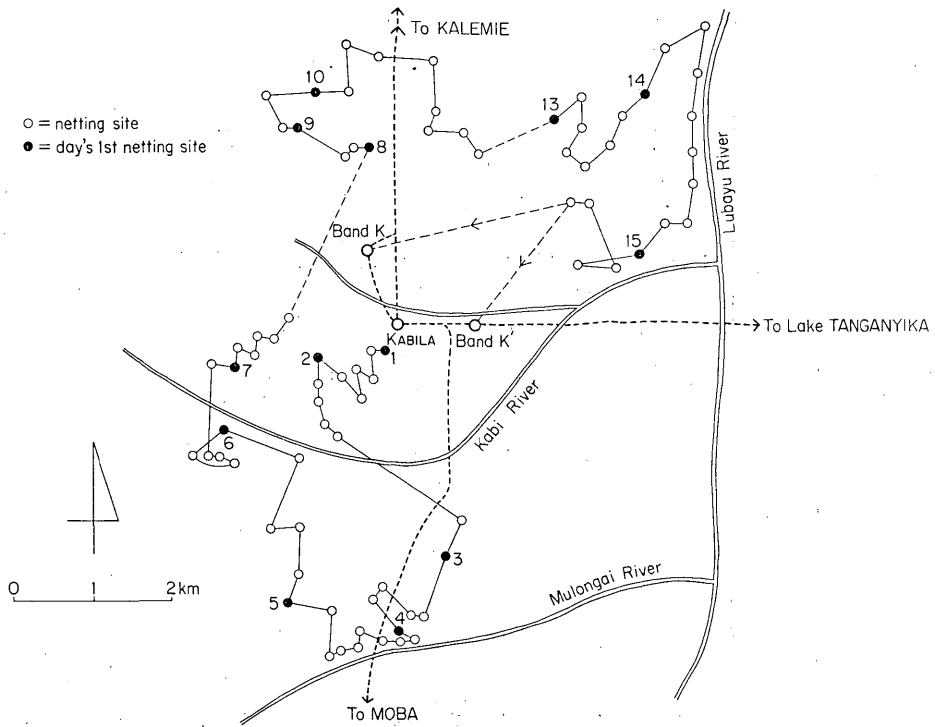


Figure 15. Route travelled during net hunting

The game is either butchered at a rest stop en route to the next hunting site, or during the preparation for the next hunt. There is no regular divider, but generally a young man assumes this role. Before being dismembered, the game is carried by the owner of the net in which it was caught, and after that by a woman.

In general, net hunting is an all day activity. At the end of the day nets are not brought back to the hunting camp, but are left near the last hunting site, from where the next day's hunting will start.

(2) EXAMPLES

From 5 October to 5 November 1976, Bands K & K' spent 16 days in net hunting. I accompanied them on 13 occasions. Table 5 shows the data obtained from the hunts (Cases 11, 12, and 16 are based on a report of an assistant).

i) The members and the effectives

In Table 3, the population of Band K, which was 25 and that of Band K', which was 16, i.e. a total of 41 people, is described. This was the maximum number during the research period. There were, however, frequent comings and goings of visitors and inhabitants. Taking all into account, this gives a mean population⁷⁾ of 18 men

7) $\frac{\text{sum of daily population (man-days)}}{\text{duration of stay (days)}}$

Table 5. Group composition, labor input and yields of net hunting

Case Date	Hunting Group		Dep. Arr.	Working Hours	Time Spent Travelling		No. of Hunting Rounds	Animals caught		Animals escaped	Remarks				
	Male	Female			Going	Returning		Species	Total			Species	Total		
1 Oct. 5	6	6	8:31	16:40	8:09	14	18	32	7:37	6	BD	1	3BD, Bb	4	Honey collected
2 6	9	8	17:44	17:44	8:29	43	63	106	6:43	6	0	0	2BD, Bb	3	Rain (10:45-12:15)
3 7	7	7	17:35	17:24	9:49	42	63	105	8:04	5	4BD	4	3BD, 2Bb	5	Honey collected
4 10	9	8	17:18	18:30	11:12	67	60	127	9:05	9	BD	1	BD, Bb, 2Rb	4	Honey collected
5 12	7	3	17:42	17:42		72	72			5	0	0	2Bb	2	Honey collected
6 13	12	5	17:23	18:45	11:22	49	101	150	7:52	6	BD	1	BD, Rb	2	Honey collected
7 15	11	5	17:27	18:15	10:48	76	62	138	8:30	6	0	0	2BD, 4Rb	6	Divination of cause of failures. Honey collected
8 16	12	6	17:55	12:40	4:45	47	40	87	3:18	3	0	0	2BD, Bb	3	Tracking Bush-pig, after hunt
9 18	12	8	17:42			55				3	BD	1	2BD, Bb	3	Heavy rain at 11:30
10 20	11	7	18:15	18:43	10:28	48	53	101	8:47	9	3BD	3	6BD, 2Rb, 2?	10	Green Monkey hunted with arrow
11 25	12	6	18:35	18:30	9:55					9	BD	1	2BD, Ks	3	
12 26	14	4	18:15	18:30	11:15					9	BD, Ks	2	11BD, 2Bb, Ks	14	Good-catch ritual. Cane
13 29	15	7	16:50	17:37	10:47	53	97	150	8:17	7	2BD	2	4BD, 2Bb	6	Rat hunted with arrow
14 Nov. 1	12	5	18:06	18:40	10:34	81	62	143	8:11	9	3BD, Ks	4	2BD	2	
15 3	10	5	17:13	14:35	7:22	44	52	96	5:46	5	0	0	0	0	"evil day": no game found
16 5	9	6	17:04	17:58	10:54					7	BD, Bb	2	0	0	
Average	10.5	6.0	16.5	7:48	18:00	10:12	52	114	8:18	6.5		1.4		4.2	

note: BD=Bush Duiker, Bb=Bushbuck, Rb=Reedbuck, Ks=Klipspringer

(including 6 infants) and 18 women (including 4 infants), i.e. a total of 36 people (including 10 infants). Subtracting from the mean population the number who could not participate physically in the hunt, such as infants (dependents), yields the number of people capable of participating (effectives). The effectives of Bands K and K' were thus 12 men and 14 women, i.e. a total of 26 people.

In comparison with these effectives, the actual average number of participants per hunt was 10.5 men and 6.0 women, i.e. a total of 16.5 participants (see Table 5); that is, 88% of the men and 43% of the women, or 63% of the effectives. The others remained in the camp, usually doing nothing in particular. From this it appears that the men's participation ratio in the hunt was twice as high as that of the women. The young men participated in almost every hunt. Among the reasons for the women's low participation ratio in the hunt was that some women had to nurse infants or take care of the camp. Of 14 women capable of participating in the hunt, two women never went hunting and two women went only once; among those four women, three were nursing infants. If these four women are excluded from the effectives, the women's participation ratio rises to 60%. But this percentage is still only two thirds of that of the men. The women were requested to participate in the hunt whenever possible, because the greater their participation, the more perfect the encirclement of game. Nevertheless, the low participation ratio of women suggests that women are unwilling to hunt, an attitude which is more easily understood when it is known that female participation in hunting is an unusual event which began rather recently (see below). Indeed, it often happened that net hunting could not be undertaken owing to the women's refusal to participate, using such pretexts as fatigue.

ii) Daily cycle

Hunters usually leave camp in groups of 2-3 between 7:30 and 8:30 a.m. Generally men and women go in separate groups. First they proceed to the place where the nets were left after the last hunt.

It took 14 minutes to go from the camp to the nearest netting site, and 81 to the furthest netting site. The average was 52 minutes, which is equivalent to 4-5 km. Seven nets with a total length of some 300 m were used, the number of nets being almost the same as the households in the band.

The time required for one round of net hunting varies from 30 to 60 minutes (46 minutes on the average) depending on such factors as the topography of the hunting site and the number of game present. It includes 10-30 minutes (21 minutes on the average) to set up the nets and to get ready for *kusamina*, 10-25 minutes (18 minutes on the average) for *kusamina* and *kuswaga*, and 5-10 minutes (7 minutes on the average) to fold the nets to set off for the next hunting site (see Figure 14).

Netting takes place 3-9 (6.5 on the average) times a day. Excluding the special cases (cases 8, 9, and 15) where hunting was interrupted by incidents such as rain, the average becomes 7.2 times a day.

To reach home before dark, they usually stop hunting between 4:30 and 5:30 p.m. and start for the camp, where they arrive between 5:30 and 6:30 p.m. Soon

after 6 p.m. it rapidly becomes dark. However, they often hunted until after 5 p.m. and arrived at the camp in complete darkness.

Including the approximately 2 hours spent travelling in the gross working hours, the Bambote spend an average of 10 hours and 12 minutes per day in hunting (except in Cases 8, 9, and 15).

iii) Catch

The average catch per day was 1.4 head of small-size antelopes, especially bush duikers. A bush duiker weighs about 15 kg, and thus the hunters netted an average of 21 kg/day of meat. In addition, they sometimes hunted monkeys and such small game as cane rat with bow and arrow, and almost every day caught some small rodents with *lukinda*. Since these average to about 1 kg/day, the total weight of the game taken is about 22 kg/day.

In all, 22 head of game were caught with nets, and 67 head escaped (4.2 head/day). (More than 67 head of game may have escaped because some game may have run away unnoticed.) The total number of animals encircled by nets on one side and by women on the other was 89. It included 60 bush duikers (67% of all those encircled), 14 bushbucks (16%), 9 reedbucks (10%), 4 klipspringers (4%), and 2 head of an unidentified species. Bush duiker is the most numerous game in this area, followed by the bushbuck. Of the species netted, bush duiker is also the largest in number (19 head or 86% of all game netted). This is a consequence not only of its relatively high population density but also of the net design suitable for it. Relatively few bushbucks and reedbucks were caught, in proportion to the number encircled; even when caught they often tore through or pushed over the nets, or escaped by throwing off the men who tackled them.

Inefficiency in Bambote net hunting mainly results from the inability of the nets to catch all animals and the inadequate encirclement of game. However, the hunters place much of the blame on the men when game escapes through the nets, and on the women when it escapes between them. All members of the hunting pack get excited and make an uproar particularly when the escape of game has been dramatic. They curse one another, and the man who missed the game explains in detail how he has failed, gesturing excitedly, as though trying to reproduce the excitement of the escape.

Sometimes they may divine the causes of a poor catch and practice a brief ritual for good hunting. From 5 October to 5 November, divination was done three times, and in each case the cause of failure was ascribed to some woman, with the declaration that she had done something wrong (e.g. she had rejected going hunting).

Between hunts the Bambote also gather edible wild plants. Those mainly sought are fruits of such plants as *lilobe* (*Uapaca kirkiana*), *lutonga* (*Strychnos* sp.), and *lukingwa* (*Anisophyllea pomifera*), and the edible roots of such plants as *kisinju*, *mugenda*, *kinkulunkulu* and *luhama* (*Dioscorea* spp.), *kiegu* (*Ipomoea* sp.), together with mushrooms. Men gather honey and often find bee hives by following a honey-guide (*kasebu*). Edible roots and mushrooms are brought back to the camp, but fruit and honey are consumed where found.

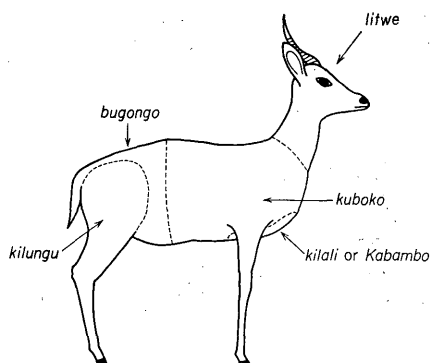


Figure 16. Method of butchering

iv) Hunting range and use pattern

On 5 October they left the camp with nets, and hunted along the course roughly shown in Figure 15, until 5 November. On 5 November they brought the nets back to the camp. From 7 November they began a net hunting tour again, along almost the same course as before.

Figure 15 permits a rough estimate of their net hunting range of about 80 km², within a radius of some 5 km from the base camp.

(3) METHOD OF BUTCHERING AND DISTRIBUTION OF CATCH

i) Butchering

Game, except very small or large animals, are usually butchered as follows:

- Step 1: using a knife, cut the skin from the throat to the anus, and cut the skin of the inside of the legs, and cut off the breasts of a female or the penis and testicles of a male;
- Step 2: skin the parts below the neck;
- Step 3: cut the ribs with an ax, and remove the breast bone;
- Step 4: remove the stomach, intestines, liver, heart, and lungs;
- Step 5: cut off the hind legs with a knife, and break the bones with the back of an ax, for easy wrapping for carrying;
- Step 6: cut the backbone around the lower edge of the thoracic cage, and separate the loins;
- Step 7: cut the back bone of the upper trunk along the body axis;
- Step 8: remove the parts above the neck, take off the forelegs, and break the bones as was done for the hind legs; and finally
- Step 9: extract the contents of the digestive tract.

As a result, the game is divided into the head (*litwe*), two forelegs (*kuboko*), the breast bone part (*kilali* or *kabambo*), the loins (*bugongo*), two hind legs (*kilungu*), the heart

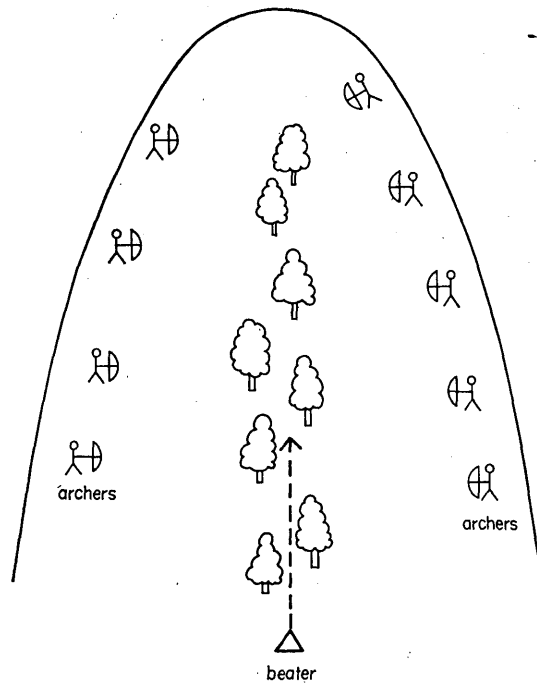


Figure 17. Schema of *lukokolo*

(*mutema*), the liver (*kini*), and the stomach and intestines (*butumbo*) (see Figure 16).

After butchering, a woman usually wraps all the parts together in the skin, and carries the bundle on her head.

The blood may be spread on the meat or captured in a vessel and returned to camp, but usually is left to run into the ground.

ii) Distribution

The divided parts are distributed among the hunt participants according to certain rules. As shown in Table 6, the rules of Bands K & K' differ slightly from those of Band A.

In Bands K & K' there was a person called *mwenye lwendo* (lit. "leader of the hunt"). One of the elder woman played this role. In the first round of distribution, a large portion of the meat was shared between the *mwenye lwendo* and the owner of the net in which the animal was caught. He who actually seized and killed the animal received only the loins. When a person uses a net belonging to another, somewhat more than half the meat he receives must be offered to the net owner. A second round of meat distribution is made. This time, the *mwenye lwendo* redistributes equally to each woman in the hunt one or a half of one of the legs, from the meat that she has received in the first round. In reality the *mwenye lwendo* is probably better described as the "leader of the women in the hunt" rather than of the whole hunting

Table 6. Rules for distribution of the catch

Part of Body	Bambote name	Net hunting		<i>Lukokolo</i>		<i>Kulinga</i>		<i>Luhingo</i>
		Band K	Band A	Band K	Band A	Band K	Band A	Band K
head	<i>litwe</i>	N.O.	N.O.	1st A.H.	1st A.H.	N.O.	N.O.	M.L.
foreleg and ribs	<i>kuboko</i>	N.O.*	N.O.*	1st A.H.	1st A.H.	N.O.	N.O.	M.L.
		M.L.	N.O.	M.S.	M.S.	M.K.	M.K.	M.L.
hind leg	<i>kilungu</i>	N.O.	N.O.	1st A.H.	1st A.H.	N.O.	N.O.	1st A.H.
		M.L.	N.O.*	M.L.	M.L.	M.K.	M.K.	M.L.
breast bone	<i>kilali</i> or <i>kabambo</i>	N.O.*	N.O.	1st A.H.	M.L.	N.O.	M.S.	M.L.
loins	<i>bugongo</i>	C.	C.	C.	C.	C.	C.	C.
heart	<i>mutema</i>	M.L.	N.O.*	M.L.	M.L.	M.K.	M.K.	M.L.
liver	<i>kini</i>	N.O.*	others	1st A.H.	others	N.O.	othere	others
stomach and intestines	<i>butumbo</i>	N.O.	others	1st A.H.	others	N.O.	others	others

note: N.O. = net owner

N.O.* = net user

1st A.H. = first arrow hunter

M.L. = 'mwenye lwendo'

M.K. = 'mwenye kulinga'

M.S. = 'mwenye kuswaga'

C. = catcher (including the second arrow hunter)

party. She often conducted women in hunting, but seldom men. There was no decisive leader of the hunt. In general, matters such as the choice of hunting site were decided by mutual consent, and needless to say, the opinions of experienced elders were respected. Thus there was no real leader in the net hunting of Bands K & K', in the sense of someone who has authority over the others. However, since the women play very important roles in the net hunting, an elder woman who leads the women's hunting team is called *mwenye lwendo*, the leader of the hunt. The importance of her position in hunting is reflected by the fact that she receives the heart of the game, symbolically the most important part.

Band A had no *mwenye lwendo*. First, the game belonged to the owner of the net in which the animal was caught, except for a few parts such as the loins, which belonged to the person who caught the animal. Thereafter a particular elder male took some legs from each net owner who obtained game, and distributed them to the female participants.

The stomach and intestines have the least value. After being roasted over a fire during a break between hunting rounds, they are sometimes given to children.

After the formal distribution of meat, the Bambote redistribute without any fixed rules. One who has received meat according to the rules of formal distribution gives a portion to those who did not receive any. This is a generalized reciprocity among the band.

2) Bow-and-arrow Hunting

(1) INDIVIDUAL HUNTING

A man frequently goes strolling in the woodland with a bow and arrows. Usually he has no particular purpose, but he will hunt whenever an opportunity presents itself.

When game is encountered the hunter must approach as closely as possible, with stealthy steps from the leeward, before shooting an arrow. Almost every animal, from small birds and rodents to large buffalos, can be the object of this type of hunting.

Sometimes the hunter is accompanied by a dog, the only domestic animal among the Bambote except for chickens. The dog sometimes hunts small game, such as cane rat and banded mongoose, by itself. On finding a monkey (blue monkey, green monkey, or yellow baboon), the dog chases it into the trees, where the hunter shoots it. According to my observations, this method of hunting monkeys was fairly efficacious.

In bow and arrow hunting, tracking of the wounded game is no less important than shooting it. It is rare for a shot animal to die immediately, except when shot from a very short distance and hit at vital points. A wounded animal usually runs away at full speed, so that tracking is indispensable. The tracking distance and the time required vary according to many conditions, such as, *inter alia*, the species of animal. If the animal was only slightly wounded, the hunter must track it over a long distance. Often the hunter, losing the track, must give up the chase. When the ground is clear, with little dried grass or fallen leaves, or when the soil is moist and soft after a rainfall, tracking is easier compared to the opposite conditions, or when the spoor of other animals of the same species confuse the track of the wounded beast. Occasionally, more than an hour may be spent in tracking the animal over just 10 m. But Bambote hunters are patient and do not give up easily, sometimes continuing to track wounded animals for several days.

Individual hunting with bow and arrow is quite difficult, as it requires skill not only in the techniques of shooting but also to find and approach game, and track it after shooting, all of which demand a rich experience and a deep knowledge of the game's habits and habitat. Thus it is not uncommon for a hunter to return with no catch after a day-long stroll. But in the course of strolling the hunter can glean much useful information for future hunting and gathering, including the behavior and habits of animals, the location of edible plants growing or the sites of bees nests. He also may satisfy his hunger to a certain degree with foods he gathers along the trail.

Strolling through the woodland with bow and arrow is the most basic and important activity in the life of the Bambote. They go strolling whenever and wherever they like.

(2) GROUP HUNTING: *Lukokolo*

i) Method

Group hunting with bows and arrows is called *lukokolo*, in which only

males participate. A group of at least 5–6 men are necessary for this type of hunting.

Although any place with thickets is suitable for *lukokolo*, usually a small valley with riverine forest is selected. The range of species, from cane rat to bush-pig and large antelope, is wider than in net hunting. But usually small- and medium-size antelopes are hunted because their population is relatively dense, hence they are an easy target.

In the formation for *lukokolo* a beater stands at the mouth of a valley, and the others, who shoot the arrows, disperse at intervals of some 50 m on both slopes, encircling the valley (Figure 17). Usually one of the elders, sometimes assisted by children and dogs, gets the role of the beater. When the shooters are ready in position, the beater proceeds slowly up the valley beating, shouting and throwing stones into the thickets. If dry grass is plentiful, he may set it ablaze to drive the game out of the thickets. Each shooter, setting an arrow to a bow, waits in silence for the game to emerge and come close before releasing the arrow. If the valley is long, they slowly move along the slope in concert with the beater's movement. When the beater reaches the head of the valley, one round of *lukokolo* is over. The arrows which have been shot are collected. After one round, all participants gather, and any game caught is butchered and distributed. If a wounded animal escapes, somebody (usually the man who hit it, and some youths) track it with a dog. The rest of the group moves to the next hunting site, and repeats the process.

The above describes the general pattern of *lukokolo*, but occasionally the formation is different. For example, when the game runs into a particular thicket, the whole group surrounds it, and makes continuous *kusamina* by loudly intoning sounds such as "wo, wo, wo,". Having failed to escape once, the animal does not move easily, and hides in the thicket waiting for another chance. Then the cornered animal is approached and quickly shot. If a similar opportunity occurs during net hunting the hunters surround the thicket with nets before shooting the animal.

ii) Examples

Table 7 presents the data on 5 days of *lukokolo* carried out by Band A and Bands K & K'. Although they did not return to camp after the hunt on 21 September (Case 4), but continued hunting during the next day, data are lacking because I had to return to the camp. Table 8 illustrates a more detailed process of *lukokolo* performed by Band A (Cases 1, 2, and 3 in Table 7).

Usually the hunters leave for *lukokolo* in the morning and return to the camp in the evening, as in net hunting. However, they may carry food and utensils and spend the night away from camp and continue hunting on the next day, as in Case 4. In general, they start hunting near the camp and move progressively farther afield. Since they hunt 5–10 times a day, the last hunt of the day can take place about 10 km from camp (Case 1). Because *lukokolo*, in contrast to net hunting, does not involve women, and cumbersome equipment need not be carried and operated, *lukokolo* hunting ranges over a much larger area than does net hunting.

The time required for one round of *lukokolo* varies according to various conditions, particularly topography. In a short valley, it may take only 10 minutes, but

in a long valley, or in continuous hunting in extended valleys, it may take well over an hour.

Band A (in Cases 1, 2, and 3 as a whole) caught 2 bush duikers and a cane rat, and Bands K & K' (in Cases 4 and 5) a white-tailed mongoose and a cane rat. In addition, Band A caught 2 pythons, which were hiding in burrows encountered en route to the next hunting site. The pythons were pulled from the burrows and killed by blows from axes. Python is a favorite meat of the Bambote. Bands K & K' said that they took 2 bushbucks on 22 September.

Although it is not clear exactly how many animals escaped the encirclement, I observed at least 14 bushbucks, 3 bush duikers, and a bush-pig escaping. Unlike in net hunting, the ratio of bushbuck encircled is high, probably because *lukokolo* usually takes place in a valley with riverine forest, whereas net hunting does not. On two occasions observed hunters missed their targets from a short distance of less than 10 m. It is hard to be accurate against a moving target, particularly if it is far from the hunter, therefore the ratio of game caught to that encircled is lower than in net hunting.

iii) Distribution of Catch

For *lukokolo*, the method of distribution of the catch was almost the same in Band A and Bands K & K' (Table 6). The catch is mostly shared between the hunter who shot the first arrow and the beater. The heart belongs to the beater. Symbolically the beater is the most important person in *lukokolo*. The second hunter to shoot the animal or the first hunter to catch it after tracking receives the loins, as does the actual catcher in net hunting.

3) Net Hunting after Prior Search: *Kulinga*

Kulinga is a variation of net hunting, the procedure of which was as follows: A hunter, strolling in the woodland, finds a fresh spoor, which he follows until he ascertains that the animal is hiding in a particular bush. He returns to camp once, and then returns to the site with a group for net hunting. This method is well adapted to the habits of small antelopes. For example, bush duikers are active and feed mostly in the early morning and evening, passing the heat of the day in thick cover, from which they do not move more than a short distance [DORST and DANDELLOT 1972].

The Bambote practice *kulinga* often, instead of large-scale net hunting or *lukokolo*, when they remain in the base camp during the wet season. Since at that time the soil is moist and soft, it is comparatively easy to find and track spoor, especially in the early morning.

Table 6 shows the method of distributing the catch. The method is almost the same as in the net hunting of Bands K & K'. In *kulinga* the *mwenye kulinga* (the man who has found the spoor and initiates the hunting team) takes the place of the *mwenye lwendo* in net hunting and receives what the *mwenye lwendo* receives in the regular net hunting. The heart of the game belongs, of course, to the *mwenye kulinga*.

Table 7. Labor input and yield of *lukokolo* activities

Case	Date	Band Name	No. of Hunters	Dep.	Arr.	Working Hours	Time Spent Travelling Going	Time Spent Travelling Returning	Hunting Hours	No of Hunting Rounds	Animals Caught	Animals Escaped	Remarks
1	28 Aug. 76	A	11	8:40	17:08	8:28	54	144	5:10	6	0	3Bb	Python hunted
2	30 Aug. 76	A	7	8:53	17:45	8:52	37	90	6:45	8	BD	BD, 2Bb	
3	1 Sep. 76	A	9	ca. 8:00	16:50	ca. 8:50	19	80	6:21	6	BD, CR	2Bb, Bp	Python hunted
4	21 Sep. 76	K'	6	9:32			46		5:47	6	WtM, CR	2BD, 4Bb	CR hunted by dog
5	27 Oct. 76	K & K'	12	11:20	18:00	6:40	3	12	6:25	4	BM	3Bb	Ritual before hunt

note: BD = Bush Duiker, Bb = Bushbuck, CR = Cane Rat, WtM = White-tailed Mongoose, BM = Blue Monkey, Bp = Bush-pig

Table 8. *Lukokolo* (at Kasalala)

28 August 1976		30 August 1976		1 September	
8: 40	Leave camp.	8: 53	Leave camp.	8: 00	Leave camp. (1st party)
9: 34	Begin 1st round	9: 30	Begin 1st round.	8: 23	Leave camp. (2nd party)
9: 40	Encircle Bushbuck. Misshot.	9: 50	Finish. Move.	8: 42	Arrive where 1st party made 1st round.
9: 45	Finish. Move.	9: 55	Stop. Discuss.	8: 50	Join 1st party.
9: 54	Break. Discuss.	9: 56	Begin 2nd round.	8: 54	Stop. Discuss.
10: 05	Begin 2nd round.	10: 03	Bush Duiker appears. Misshot.	8: 55	Move.
10: 14	Finish. Move.	10: 25	Finish. Move.	8: 57	Begin 2nd round.
10: 30	Break.	10: 29	Break.	9: 58	Finish. Move.
10: 48	Move.	10: 55	Move.	10: 05	Begin 3rd round.
10: 55	Find Python. Kill and Butcher it. Break.	11: 18	Stop. Discuss.	10: 23	Finish. Move.
11: 56	Move.	11: 24	Begin 3rd round.	10: 28	Stop. Discuss.
12: 00	Begin 3rd round.	11: 50	Finish. Move.	10: 36	Move.
12: 15	Finish. Move.	12: 14	Break. Discuss.	10: 40	Begin 4th round.
12: 20	Begin 4th round.	12: 27	Move.	11: 20	2 Bushbucks run away. No shot.
12: 33	Bushbuck appears. Misshot.	12: 30	Begin 4th round.	11: 26	Finish. Move.
12: 45	Bushbuck again. Misshot.	12: 49	Bushbuck appears. Misshot.	11: 37	Break. Discuss.
12: 46	Finish. Break.	13: 05	Finish. Move.	12: 20	Move. Begin 5th round.
12: 56	Move.	13: 24	Begin 5th round.	12: 59	Bush-pig flees toward us. Misshot.
12: 58	Begin 5th round.	13: 42	Finish. Curse loudly.	13: 08	Finish.
13: 47	Finish. Break.	13: 43	Move.		Find Python. Kill it.
14: 08	Move.	13: 55	Find Bush Duiker. Encircle it in haste. 'Kusamina'.		Shoot Cane Rat. Butcher it.
14: 13	Begin 6th round.	14: 00	Shot. Butcher it.	13: 57	Move.
14: 39	Finish. Break.	14: 30	Move.	14: 15	Begin 6th round.
14: 49	Return.	14: 31	Begin 6th round.	15: 12	Find Bush Duiker. Good shot, but it runs away. Begin tracking.
17: 08	Back at camp.	15: 03	Stop. Discuss.		Finish. Break.
		15: 12	Move.	15: 30	Return except those tracking.
		15: 16	Begin 7th round. No 'kuswaga'	16: 50	Back at camp.
		15: 53	Stop. Begin 8th round.		
		16: 14	Finish.		
		16: 15	Return.		
		17: 45	Back at camp.		

4) Prolonged Chase: *Luhingo*

Luhingo has somewhat different features from the day-to-day hunts described so far, and has the appearance of big-game hunting. The objects of *luhingo* are medium- and large-size antelope, such as reedbuck, waterbuck, hartebeest, sable antelope, and roan antelope.

By taking turns, two parties of hunters chase an animal non-stop, until the animal is near to dropping, at which time they rush at it directly and kill it with arrows or with a club. They usually have *luhingo* in the wet season when the thick, lush grasses accelerate the exhaustion of the animal. On the other hand, it is not too difficult to give chase, since the hunters have only to follow the path pushed aside by the animal. Chasing parties communicate with each other by means of the horn *kimpungizi* described in Chapter 5. They stop tracking at sunset, and resume at dawn. The animal, being chased, rapidly loses stamina by rushing through dense thickets. The time required to exhaust an animal varies according to its species; for the medium and large antelopes, the Bambote say it takes from a half-day to two days. A strong animal such as eland (which, they say, does not get exhausted even after 3–4 days), and troublesome species such as the bush-pig, (which tends to run away through riverine forests), can not be taken by *luhingo*, as the hunters get exhausted before the animals do. On the other hand, small animals are not worth the labor required. Large animals are hunted because they are more easily tracked, more visible from a distance, and leave clearer spoor than do the smaller species.

The distribution of the catch after *luhingo* differs from that after net or *lukokolo* hunting. First, a large portion of the catch belongs to the leader of the hunt, *mwenye lwendo*, whereas the first hunter to shoot an arrow receives only a hind leg. This implies that the chase itself is the most crucial part of *luhingo*.

Nowadays, *luhingo* is rarely practiced, since the large animals are scarcely seen in this area. Only once during my research period did Bambote hunters other than those with whom I stayed come near to our camp, chasing a hartebeest, which was finally caught in an agriculturalist's trap. But in the old days, the Bambote claim that they hunted many animals by *luhingo*. Service [1966: 101] writes that during the hot season, the Bushmen sometimes hunt big game by simply chasing it at a steady and relentless trot, until the animal drops from exhaustion. This form of hunting, which might seem incredible at first, may be an effective hunting method for big game, and might be one of the oldest types of game hunting, since it does not require elaborate equipment such as bow and arrows and poisons.

5) Trapping

The Bambote do not practice trapping as a rule, saying that it is the agriculturalists' business, but nowadays a few do so, perhaps imitating the agriculturalists.

The agriculturalists use some 20 kinds of traps,⁸⁾ which differ little from those of

8) See Matsui [1977].

the Tongwe [KAKEYA 1976; ITANI 1977]. Today a spring trap (*mbago*) and a noose trap (*singa*) are mainly used. The trapper sets them on the animals' paths or at the openings in a long fence built especially for trapping in the woodland. The specialists set hundreds of traps and check them periodically.

6) Fishing

Agriculturalists also fish more actively than do the Bambote. The Batabwa, living on the shores of Lake Tanganyika, are especially active in fishing. Whereas agriculturalists use various fishing tools such as rods and hooks, cage and basket traps, the Bambote use only fish poisons from plants, such as the leaves of *kabagabaga* (*Tephrosia vogelii*) and the roots of *kituha* (*Gnidia kraussiana*). The early dry season (especially in June and July), when the water level is low, is regarded as the best for fishing with poisons, which is done mainly by children and women.

I have described the main hunting activities of Band A and Bands K & K'. Table 9 shows the daily records of their group hunting, and their catches, based on my own records (except those that were recorded by the chief of Kabila from 19 October to 30 November). The days for which there are no records mean that only individual hunting was practiced. The catches of small game such as rodents and birds are excluded from the table.

6. DISCUSSION—ENVIRONMENT AND HUNTING METHODS AND ACTIVITIES

1) The Hunting Objects and Methods of the Bambote

(1) HUNTING OBJECTS

The objects of day-to-day hunting by the Bambote fall into three broad groups: a) small game such as rodent, cane rat, and mongoose; b) three primates: blue monkey, green monkey, and yellow baboon; and c) small- and medium-size antelopes like the bush duiker and bushbuck. Of these groups, the last is the most important as a food resource, and net hunting and *lukokolo* to take antelopes comprise the bulk of the Bambote's daily hunting activities (see Table 9). Small- and medium-size antelopes have a relatively high population density and even geographic distribution, and show little seasonal migration. Although small animals such as rodents are often hunted, they are too small to provide a large part of the diet. The three primates, though their meat is more favored than that of the antelopes, have a lower population density and are less evenly distributed. The hunting life of the Bambote clearly depends on the antelopes.

(2) THE BEATING METHOD OF ANTELOPE HUNTING

One of the common technological procedures of net hunting and *lukokolo*—both developed as highly effective hunting methods for small- and medium-size antelopes—

Table 9. Daily records of group hunting

Bands K & K'			Band A					
Date	Method	Catch	Date	Method	Catch	Date	Method	Catch
Oct. 5	Net	BD	Nov. 1	Net	3BD, Ks	Aug. 24		
6	Net	0	2			25		
7	Net	4BD	3	Net	0	26	Net	0
8			4			27	Net	BD
9			5	Net	BD, Bb	28	Lukokolo	Py
10	Net	BD	6			29		
11			7	Net	BD, Bb	30	Lukokolo	BD
12	Net	0	8			31		
13	Net	BD	9			Sep. 1	Lukokolo	BD, CR, Py
14			10	Net	2YB	2	Lukokolo	Bb
15	Net	0	11					
16	Net	0	12	Net	0			
17			13	Net	BD	Jan. 4	kulinga	0
18	Net	BD	14			5		
19			15	Net	0	6	kulinga	0
20	Net	3BD, GM	16	Kulinga	BID	7		
21			17	Net	Ks	8		
22			18			9	kulinga	0
23			19			10		
24			20	Lukokolo	0	11	kulinga	0
25	Net	BD	21			12		
26	Net	BD, Ks, CR	22	Lukokolo	Bb	13	kulinga	BD
27	Lukokolo	BM	23					
28			24	Net	BD			
29	Net	2BD	25	Net	BD, Bb			
30			26					
31			27					
			28	Lukokolo	0			
			29	Lukokolo	0			
			30	Net	Bb			

note: BD=Bush Duiker, Bb=Bushbuck, Ks=Klipspringer,, BID=Blue Duiker, GM=Green Monkey, BM=Blue Monkey, YB=Yellow Baboon, CR=Cane Rat, Py=Python

is the beating method, based on a division of labor. Its adaptability to antelope hunting is examined here through a comparison of *lukokolo* with bow-and-arrow hunting that involves stalking.

Stalking game with a bow and arrows is a relatively difficult technique. First, the limited visibility in the woodland and the antelope's habit of seeking daytime refuge in thick cover make them difficult to locate. Neither is it easy to approach the game within shooting distance once it has been located, since it requires a good

knowledge of the animals' habits, based on rich experience. *Lukokolo* presents no such difficulty, thanks to the beating method. When game are encircled, they will eventually come within arrow range as a result of beating. By beating at several different places, the hunters can be certain that some game will be driven out of the bushes, although sometimes no game is encircled. On the other hand, poor visibility in the wood, which makes game location difficult, does facilitate the setting of an ambush.

Thus the hunting process is simplified in *lukokolo* and the hunters require a less extensive knowledge and experience than in bow-and-arrow hunting that involves stalking, except that some skill is needed to handle bows and arrows, and teamwork is required to maintain the encirclement. This contributes to the increase of the number of helpers, since youths who are not skillful hunters with bow-and-arrow can be full participants in *lukokolo*.

The beating method used in *lukokolo* is effective for antelope hunting, because it is well adapted to the habitat and behavior of the quarry.

(3) COLLECTIVE BOW-AND-ARROW HUNTING AND NET HUNTING

Net hunting, which has almost the same technological structure as *lukokolo*, is more closely adapted for small antelopes than is *lukokolo*. Besides its adaptability to the animals' habitat and behavior as in *lukokolo*, net hunting has some other advantages. First, it is technologically simple so that even some ten-year-old boys can participate. Second, it is more efficient for catching small antelopes than is *lukokolo*.

The use of nets as hunting tools seems historically more recent than that of bows and arrows, and female participation in hunting also seems recent considering the universal custom of hunter-gatherers of dividing labor, men doing the hunting and women the gathering. Because of this, together with the similarity of the structures, it is plausible that net hunting followed *lukokolo*; i.e. when the Bambote, who had been practicing *lukokolo*, obtained nets either by adoption or invention, they began net hunting using the beating method of *lukokolo*, which thereafter developed its present style. (Harako [1976: 84-86] makes a similar suggestion based on the historical relationship between the Bambuti net hunting and their collective bow-and-arrow hunting.)

It is, however, necessary to note a difference between the beating in net hunting and that in *lukokolo*. Its aim in the latter is to scare game from the bushes. Not many beaters are necessary for this, and too much beating may even be counter productive, startling an animal so much that it rushes toward the hunters, making accurate shots difficult. But for net hunting, the beating must be loud enough to cause the game to rush into the nets. Thus beating becomes more effective with more beaters. Possibly because of this, and owing to the inherent simplicity of the task, women's participation as beaters in net hunting might have started.

2) Comparison of Hunting Activities: the Bambote and Other African Hunters

It is useful to compare the hunting activities of the Bambote with those of other

hunters, in order to reveal the characteristics of Bambote hunting. Also, the characteristics of the wooded savanna may be partly revealed through these comparisons, since primitive hunting activities largely reflect the characteristics of their natural environment.

(1) NET HUNTING

Among other African hunter-gatherers, the Bambuti Pygmies (the Bira-related Bambuti) who inhabit the Ituri Forest of eastern Zaire are the only active net hunters. Detailed descriptions of their net hunting have been made by Harako [1976], Tanno [1976], and Ichikawa [1976, 1978]. Bambuti net hunting has many characteristics similar to that of the Bambote. Among other things it aims at small-size antelopes, using the beating method and depending on the cooperation of men and women. But the details also reveal many differences.

i) Comparison of method

As shown in Figure 18, the Bambuti almost completely encircle a section of the forest with nets, then the women enter the circle from the end and drive the game toward the nets by loud shouting and chanting and by beating the bushes with branches, while each man stands inside this circle near the center of his own net and awaits the game [TANNO 1976: 110].

First, their method of encircling the game differs from that of the Bambote, primarily because of the difference in net length. The average length of the Bambuti's net is about 80 m [TANNO 1976: 113], or about twice that of the Bambote. When a circle is formed, the total length of the Bambuti nets reaches about 1 km [*ibid.*], or almost three times that of the Bambote (in the case of Bands K & K'). The length of Bambote nets is far shorter than those of the Bambuti, thus the Bambote cannot

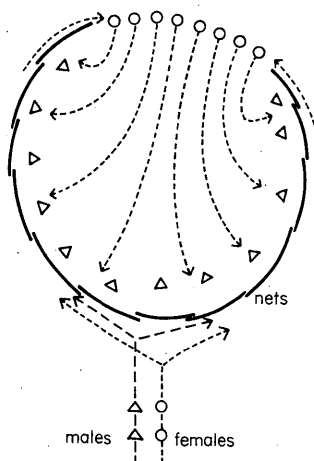


Figure 18. Schema of Bambuti's net hunting (after Tanno [1976: 113])

encircle the site completely with the nets alone, as can the Bambuti. However, the Bambote admit that complete encirclement would be more productive.

Weight is one factor preventing the Bambote from lengthening the net. Despite its shortness, the Bambote's net weighs almost as much that of the Bambuti (about 10 kg [*ibid.*]). This is probably because of the use of different materials. Moreover, because of the dense shrubs and undergrowth to which the nets can be tied the Bambuti do not need to carry net supporters, whereas the Bambote must take them along. Including these supporters (about 2–3 kg), the total weight of one Mbote's net hunting equipment is about 10–13 kg, and is heavier than what of a Mbuti. Because of the weight and the hilly topography of the Bambote's hunting areas, a net length of 40–50 m is the most convenient.

Some structural differences between the Bambuti and Bambote net hunting are apparent which correspond to the difference in the formation of the encirclement by the two groups. First, the manner of the division of labor is different. Among the Bambuti, women act only as beaters and the men only as catchers; but Bambote women both beat and also encircle the game, and the men act as both catchers and beaters. The difference between the division of labor among the two groups is related to the Bambote having to encircle a large area with shorter nets. Second, a basic component of Bambuti net hunting is that a man and a woman make a pair (catcher and beater), and the Bambuti woman is supposed to drive game into her partner's net. No such pairings occur among the Bambote. The Bambote woman, who does not actually chase the game, cannot drive it into a particular net or toward a specific catcher. Thus, Bambote women as a whole compose a functional group. The forms of labor division are reflected in the forms of meat distribution rules. Among the Bambuti, the catch, except the head which is offered to the man who has made a hunting fire before the hunt, belongs to the owner of the net in which the animal was caught, and no part is distributed to the women. But, as the pair is usually composed of a man and a close female relative, such as his wife or daughter, the catcher's portion is also his partner's (i.e. the beater's). On the other hand, almost half the catch is distributed to the women's group through the *mwenye lwendo*, a device, the Bambote say, to attract the women to the net hunting.

ii) Comparison of daily cycles and catches

Table 10 shows the records of the Bambuti net hunting activities, taken from Harako [1976] for Band X, from Tanno [1976] for Band Y, from Ichikawa [1976] for Band Z, and the records of the Bambote Bands K & K'.

Although the size of the Bambuti band is larger than that of Bands K & K', the number of participants in their hunt is not as large. This is partly because the ratio of effectives in a Bambuti band is lower than in Bands K & K'. For 7 Bambuti net hunters' bands in the Tetri district of the Ituri Forest, the ratio of effectives was 53.7% on the average [ICHIKAWA 1978: 141]; whereas for Bands K & K' it was 72%.

The Bambuti spent about 8 hrs/day in net hunting, about 2 hours less than that spent by Bands K & K'. But the number of netting rounds per day is less in Bands

Table 10. Inter-group comparison of net hunting

Band Name	Camp Composition		Hunting Team Composition		Working Hours	No. of Netting Rounds	Catches	Misses	Small Game	Total Weight of Catches	Share of per Camp Member			
	Male	Female	Male	Female								Total		
Bambote K & K'	18	18	36	10.5	6.0	16.5	10:12	6.5	BID 0	MDD 1.4	4.2	1 kg	22 kg	0.61 kg/person
Bambutu X	26	36	62	9.4	10.5	19.9	8:21	7.3	2.6	0.63	6.4		20	0.32
Bambutu Y	30	30	60	12.3			7:56	7.0	4.4	2.6		2.8	63.3	1.20
Bambutu Z		45	45	9.9	6.6	16.5	6:59	7.4	3.3	1.3		2.0	35.0	0.78

note: BID=Blue Duiker, MDD=Middle-size Duiker

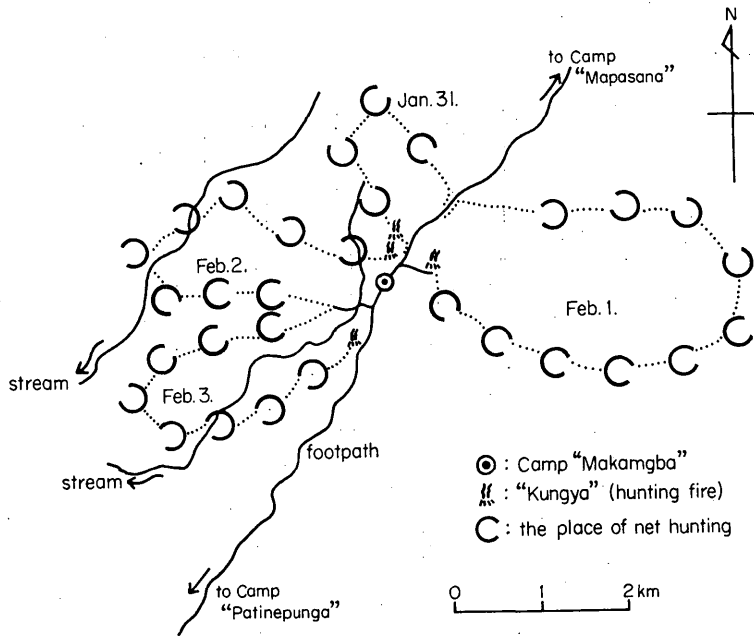


Figure 19. Pattern of travel during Bambuti net hunting (after Tanno [1976: 116])

K & K' than among the Bambuti, because they have different daily traveling patterns. The Bambuti (Band Y) establish their netting places centrifugally from the hunting camp, tracing an easy arc until the fourth or fifth netting, after which netting is repeated proceeding toward the camp [TANNO 1976: 116] (see Figure 19). Thus the Bambuti spend less time on their way back and forth than the Bambote. Subtracting the hours spent on the way (about 2 hours in the case of Bands K & K') from the gross working hours, the hours actually spent in hunting are not very different.

The results by weight of the net hunting of Bands K & K' are within the range of those of the Bambuti. In terms of total catch weight/day/person, Bands K & K' obtained less than Bands Y and Z, but slightly more than Band X. Band Y obtained the most meat. The total weight of Band Y's catch was almost three times that of Band X. Band Z also obtained a considerable amount of meat. These differences seem to exist not only because of different natural conditions such as the population density of game, but also because Bands Y and Z were specialized net hunters who concentrate almost entirely on net hunting, apart from some occasional spear hunting. On the other hand, Band X practiced bow-and-arrow hunting frequently, as well as net hunting, which resulted in about 10 kg/day [HARAKO 1976: 62]. For Band Y, the results of bow-and-arrow hunting, over a long period, were insignificant [TANNO 1976: 122]. In this respect, Bands K & K' are similar to Band X.

According to Harako [1976: 62], 6.4 head of game (about twice as many as were caught) escaped the encirclement, although Band X, using 8–10 nets, encircled the

Table 11. Stability of net hunting

	A	B	C	D
Bands K & K'	16	11 (69%)	11 (69%)	0 (0%)
Band X	16	14 (88%)	8 (50%)	13 (81%)
Band Y	15	15(100%)	14 (93%)	15(100%)
Band Z	22	20 (91%)	16 (73%)	19 (86%)

note: A=days when net hunting was practiced
 B=days with catch
 C=days with catch of middle-size duiker(s)
 D=days with catch of Blue Duiker(s)

range almost completely, and their main objects were blue duikers which are very small (about 4 kg) and rarely broke through the nets. Then it may not be surprising that 75 percent of the total game (which were mostly middle-size duikers, about 15 kg in weight) ran out of the Bambote's encirclement.

iii) Stability of daily catch

Although in Bambote net hunting bush duiker formed most of the catch, for the Bambuti, blue duiker made up about 70 percent of the total caught (about 40 percent of the total weight). This caused a difference in the stability of the daily catch of the net hunting. The ratio of the number of days when game was obtained compared with the total of net hunting days (excluding small game such as cane rat, in either case) yields an index of catch stability. The ratio is 69 percent for bands K & K', 88 percent for Band X, 100 percent for Band Y, and 91 percent for Band Z. Thus Bambuti net hunting has a somewhat higher stability than that of the Bambote (Table 11). But counting only the number of days when middle-size duikers were taken gives a ratio of 50 percent for Band X, 93 percent for Band Y, 73 percent for Band Z, and 69 percent for Bands K & K'. Except Band Y, which shows an extremely high stability, the Bambuti's ratio is almost the same as the Bambote's (Band Z) or even smaller (Band X). This illustrates the contribution of blue duikers to the stability of Bambuti net hunting.

iv) Hunting range and use pattern

Among both the Bambuti and the Bambote, a hunting range is established in a circle around a hunting camp. The Bambuti (Band Y) range has a 3-4 km radius, and an area of 30-50 km² [TANNO 1976: 124]. For the Bambote (Bands K & K'), it has about a 5 km radius and an area of about 80 km². The size of the hunting range relates to the traveling pattern adopted for hunting. Although the traveling pattern of the Bambote's net hunting requires longer working hours than does that of the Bambuti, it helps to enlarge the hunting range. This corresponds with the fact that the Bambote move their hunting camp less frequently than the Bambuti, who move once every 10-60 days [ICHIKAWA 1976: 33]. The Bambote stay for a long period at the same camp and use a large hunting area, since game leave the vicinity of the camp.

Further, the Bambote can leave their nets outside, since it seldom rains in the dry season, whereas the Bambuti cannot because it sometimes rains in the dry season.

The pattern of movement of the Bambote may also be partly determined by the irregular topography and other conditions of their habitat. In comparison, the Ituri Forest has more uniform natural conditions, which permit the Bambuti to use the entire forest area around the camp [TANNO 1976: 116].

v) Frequency of net hunting, and band size

It is suggested that for the Bambuti a net hunter band is larger than one using bows and arrows. Harako [1977: 209–210] shows that a band of net hunters comprises 10–25 families or 40–100 people, whereas for those using bows it is of 5–12 families or 20–60 people. He also estimates the optimal band size of net hunters as 50–80 people [HARAKO 1977: 213]. A certain number of people is necessary to maintain the stability of net hunting [HARAKO 1976: 86]; and conversely, if hunting is stable, a large number of people can be maintained. In this regard, the Bambote band size was somewhat smaller; around 5 families or 15–25 people in the base camp, during the wet season. Even in the hunting camp, during the dry season, it seldom exceeds 20 families or 60 people. When size comparisons are made, the Bambote bands are similar to the Bambuti bow-and-arrow bands rather than the bands of net hunters.

It can easily be seen that the frequency of Bambote net hunting is relatively low compared with the Bambuti's. Bands K & K' went net hunting only about every two days on the average, whereas the Bambuti did so almost every day. Because of their small band size, the Bambote cannot concentrate on net hunting alone as can the Bambuti.

vi) Summary

Bambote and Bambuti net hunting are basically similar in that both make good use of the natural conditions of the forest or woodland and of the habits of small antelopes (especially duikers) living there. Although there are many differences in detail between the two types, it is clear that many directly accord with natural conditions.

Because of its efficiency in duiker hunting, the net hunting of the Bambuti is well adapted to the Ituri Forest [HARAKO 1976: 84; TANNO 1976: 124–125]. Compared with Bambuti net hunting, the Bambote have some disadvantages, such as the short net length. But these are compensated for by techniques, and both groups achieved similar results in terms of catch weight per day and capture ratio. It appears, therefore, that Bambote net hunting is well adapted to the wooded savanna environment. The Bambote band, however, does not have enough members to practice net hunting every day, and they do not specialize in it like the Bambuti.

(2) BOW-AND-ARROW HUNTING

Hunting with bow-and-arrow is the most important hunting activity for the

Bushmen, the Hadza, and the Balese-related Bambuti (who do not practice net hunting, in contrast to the Bira-related Bambuti). Harako [1976] has made a detailed description of the bow-and-arrow hunting of the Bambuti, as has Tanaka [1977] for the Bushmen. Woodburn [1968a] provides an outline for that of the Hadza.

First the characteristics of bow-and-arrow hunting in the forest and in open land are outlined, then the characteristics of the Bambote's bow-and-arrow hunting in the wooded savanna are discussed.

i) Bow-and-arrow hunting in the forest

The Bambuti are typical bow-and-arrow hunters of the forest. They practice various types, among which *mota* and *ebaka* are the most important.

Mota, a collective bow-and-arrow hunting style similar to the *lukokolo* of the Bambote, is done as follows: The hunters encircle a section of the forest, then a dog with a wooden bell runs about in the encirclement to drive the game out of the bush. When an animal rushes out, the hunters, lying in ambush, shoot it [HARAKO 1976: 54]. Most of the game are duikers.

Ebaka, an individual hunting style, is done as follows: the hunter builds a foothold, *ebaka*, in a medium-size tree, on a branch 2–3 m above the ground, and he waits on it for duikers passing below [HARAKO 1976: 55]. The Bambuti do *ebaka* hunting during the early morning and the evening when the duikers are actively foraging, and in the daytime they do *mota* hunting [HARAKO 1976: 67]. This is their typical daily hunting routine.

Both *mota* and *ebaka* are ingenious hunting methods which take advantage of the habitats and behavior of the duikers. It is noteworthy that the hunter, in either method, hides in ambush waiting for an animal to come close either of its own volition or as a result of the beating. The forest provides many hiding places for these ambush methods. On the other hand, for the hunter who intentionally tries to find game, the forest is full of obstacles like trees, branches, vines, saplings and bushes that reduce the visibility and make spoor difficult to find. Therefore a method which depends largely on sight or tracking is not suitable for forest hunting. Indeed, the Bambuti rarely practice bow-and-arrow hunting which requires finding and stalking game, except when they hunt monkeys in trees.

ii) Bow-and-arrow hunting in open land

The Bushmen and the Hadza are typical open land bow-and-arrow hunters. Their method is as follows: first, a hunter strolls around where animals such as gamsbok and eland tend to herd. When an animal is located, the hunter stalks it from down wind, and after getting close enough (usually within 20 m), he shoots. The animal seldom dies immediately, but runs away at full speed. The hunter returns to his camp, and after an interval of several hours (the next day in the case of the Bushmen and a couple of hours later in the case of the Hadza) he tracks it with a group of his fellows [TANAKA 1977: 69–74; WOODBURN 1968a: 51]. They wait for some hours before setting out because immediate tracking may cause the animal to run for

many miles before the poison takes effect [WOODBURN 1968a: 51]. Bushmen take 3–4 days to hunt a large-size antelope [TANAKA 1977: 75]. Thus the bow-and-arrow hunting of the Bushmen and the Hadza include the following processes; spotting an animal, stalking it, shooting it with a poisoned arrow, tracking it, finding the dying game, and finally, killing the quarry. In contrast to bow-and-arrow hunting in the forest, all these processes greatly depend on actually seeing the animal, which in turn demands a condition such as the dry savanna where visibility is excellent. Also, following a spoor is far easier than in the forest, since the ground surface is fairly clear. Because of high visibility and ease of tracking, the Bushmen and the Hadza can hunt such big game as elands and giraffes without killing the animal immediately, whereas, in the forest, where the tracking is very difficult, the game is killed within a short time or not at all [HARAKO 1976: 82].

Thus it is clear that the method described above is well adapted to the open land as well as being determined by natural conditions.

iii) Bow-and-arrow hunting in the wooded savanna

Here the characteristics of bow-and-arrow hunting in the wooded savanna are examined and a comparison is made between the Bambote hunting and that of the Bambuti and the Bushmen.

First, the Bambote's *lukokolo*, which is basically the same as *mota* of the Bambuti, is a forest type of bow-and-arrow hunting. Their differences derive from differing environmental conditions. For example, in *lukokolo*, the beating is linear along the riverine forests, and one beater suffices, whereas in *mota*, done in a thick lowland forest, the beating must cover a certain area at once, so the dog with a wooden bell is very important. Second, both the Bambote and the Bambuti use bows and arrows to hunt monkeys in trees. This is also basically a forest type of hunting, and illustrates the adaptive differences between the methods of the two groups. The Bambuti method is basically stalking, where the hunter stealthily creeps up toward a monkey that he hears. When he spots the monkey in a tree, he moves toward the tree and shoots. If the monkey is in a tall tree (more than about 30 m high), he waits until it comes down lower [HARAKO 1976: 63]. The Bambote may sometimes use that method, but they usually do it with the help of a dog, which chases a monkey up a tree so that the hunter can close in and shoot. This method corresponds to certain features of hunting in the wooded savanna. The hunter can move more freely in the wooded savanna than in the forest, and also there are few trees so tall that the monkey can go beyond arrow range.

Besides forest type bow-and-arrow hunting, the Bambote also practice open land hunting, which includes stalking and tracking, aiming for antelopes, bush-pig, and the like. But since the tracking is far more difficult than in the drier savanna, the Bambote cannot depend on a long and patient tracking as can the Bushmen or the Hadza. The Bambote use of powerful bow and arrows may be partly ascribed to this fact.

Thus the Bambote adopt both the forest type and the open land type bow-and-

Table 12. Comparison of hunting methods

Method	Bambuti	Bambote	Bushmen
Netting	+ [S]	+ [S]	—
Bow-and-arrow ambushing	+ (<i>ebaka</i>) [S]	—	—
beating	+ (<i>mota</i>) [S]	+ (<i>lukokolo</i>) [S-M]	—
stalking	+ [S-M]	+ [S-M-L]	+ [S-M-L]
Spearing	+ [M-L]	—	(+)
Chasing (by dog)	+ [S]	+ [S]	+ [S]
Chasing (by men)	—	+ [M-L]	+ [L]
Trapping	—	+ [S-M-L]	+ [S-M]

note: S, M, and L indicate that the objects of the hunting are small, medium, and large-size animals, respectively.

arrow hunting. This suits the characteristics of the wooded savanna as an ecotone. But the details show that particular features of the Bambote's bow-and-arrow hunting depend on and suit the natural conditions of the wooded savanna.

All the hunting methods used by the Bambuti, the Bambote and the Bushmen are listed in Table 12 to show their mutual correspondence. It is evident that the Bambote use hunting methods as a whole that are intermediate between those of the Bambuti and the Bushmen, thus showing that the wooded savanna provides the opportunity to use various hunting methods. It is also noteworthy that all of these groups of hunters have a single set of hunting methods to cover all game living within their habitat.

3) Hunting versus Gathering

Hunter-gatherers, except those like the Eskimo who live in high latitudes, generally depend largely on vegetable food rather than animal food [LEE 1968: 41-43; TANAKA 1976: 116], because hunting is a less reliable method of provisioning a community than is either gathering or fishing [LEE *ibid.*]. For example, Tanaka [1976: 112] notes that the percentages of vegetable and animal food by weight in the total diet of the Central Kalahari Bushmen are 81.3 and 18.7 respectively. On the other hand, the Bambote as well as the Bambuti (net hunters) make their living from hunting rather than gathering, because their hunting has become relatively stable owing to the existence of suitable game and the development of well-adapted hunting methods. But, in addition, the cooperative economic relationship between the Bambote (or the Bambuti) and the neighboring agriculturalists must be taken into account. Though net hunting is effective, it is not as reliable as gathering as a primary source of food supply. Although on a given day they may obtain too much meat to consume by themselves, on another day they may catch none. Economic symbiosis, whereby the decrease in gathering activity and the resulting instability of the food supply is compensated for, enables them to cope with this unstable situation. Gathering, however,

has not been abandoned. Various edible wild vegetables are gathered, though not in any great quantity. This shows that the Bambote have a wide knowledge of edible plants, and suggests that they formerly were more dependent on gathering. (Ichikawa [1976: 33] has made the same suggestion for the Bambuti net hunters.) These various edible wild vegetables still have value as an emergency resource, such as when no game is obtained or the agriculturalists' products are not available.

4) Residential Group

The residential groups of the hunter-gatherers generally can be sorted into two types: one with relatively fixed social and spatial boundaries, and the other with flexible boundaries. The Bambuti Pygmy bands belong to the former and those of the Bushmen to the latter.

Migrating in the vast nomadic range (about 4,000 km² for the G/wi and the G//ana in the Central Kalahari [TANAKA 1977: 113]); the Bushmen repeat frequent fission and fusion of their residential groups; there are neither fixed social boundaries nor exclusive territories [LEE 1976; TANAKA 1976, 1977]. This is also the case with the Hadza [WOODBURN 1968b]. The Bambuti's residential groups, both at the base camp and at the hunting camp, are of exogamous patrilocal and patrilineal bands with somewhat fixed territories (of about 150–300 km [TANNO 1976: 133; ICHIKAWA 1976: 33]).

These differences are reflected in their environmental conditions and subsistence technologies. In the drier Kalahari savanna, where such essential resources as vegetable foods, water, and as well as animals are scarce and have an extremely uneven distribution, large groups of people cannot stay long in one place. To maximize the use of limited resources, residential groups must have highly flexible social and spatial boundaries. The Itrui Forest, in contrast, shows a rich and even distribution of animal and vegetable resources, thus enabling the Bambuti to sustain themselves from a small territory [TANNO 1976: 134]. Adapting to their environment, they have developed collective net hunting, which requires enough hunters and the maintenance of close cooperation among them to yield a consistently good catch. A patrilocal and patrilineal band in which the members are tightly bound by kinship, and an intimate "male bond" based on it [ICHIKAWA 1978], is probably the most suitable basis for satisfying those conditions.

The Bambote residential group seems to be far less fluid than that of the Bushmen, and somewhat similar to that of the Bambuti; it has rather fixed social and spatial boundaries, and fission and fusion are infrequent. This accords with the fact that the habitat of the Bambote shows some evenness in the distribution of resources, although it is not as great as in the Ituri Forest. They also use net hunting as the primary method of food acquisition. Among the Bambote, however, matrilineal residence, as well as patrilocal residence, is common. This obscures the social boundary of a band, and discourages the formation of a "male bond" as strong as among the Bambuti. No territories so clearly defined as the Bambuti's are found in Bambote society.

It cannot be said that this is a direct reflection of environmental features, and it is too early to discuss this problem further because detailed data on the Bambote are lacking. The characteristics of the residential groups of hunter-gatherers should be studied from the ecological as well as sociological viewpoint, since the residential group is the basic unit of subsistence as well as of social life.

Acknowledgement

This study was made under the financial sponsorship of the Japanese Ministry of Education, under which the author was Research Associate at the Institut de Recherche Scientifique du Zaïre.

I wish to express my heartfelt thanks to all who supported me in carrying out this study: to Dr. Ntika Nkumu, former Délégué Général at the Institut de Recherche Scientifique (I.R.S.); to Mr. Ekofo Sokombe, former Directeur at the I.R.S. (Centre de Lwiro), and all other members of the I.R.S. for their hospitality; to Mr. Allen F. Roberts and Mrs. Christopher D. Roberts of the University of Chicago, who were staying at Mpala to conduct anthropological studies, for their cordial hospitality and help in beginning and continuing my study of the Bambote; to Dr. Makoto Kakeya at Fukui University for his kind advice and help in every way in taking up the study; to Dr. F. N. Gachati at the Kenya Herbarium who identified the plant specimens collected; to Dr. Junichiro Itani at Kyoto University and Dr. Reizo Harako at Meiji University for their unstinting support from the planning of this study until the writing of this report; to Dr. Toshinao Yoneyama, leader of our mission, and all the other members for their kind advice and support throughout my research; to Dr. Jiro Ikeda and all other colleagues at the Laboratory of Physical Anthropology, Faculty of Science, Kyoto University, for their valuable suggestions and strong support.

Thanks are also due to all the kind people in the research area, and to all my Bambote friends, who showed much kindness and understanding during the period of my research.

BIBLIOGRAPHY

- COON, Charleton S.
1972 *The Hunting Peoples*. Jonathan Cape Ltd.
- DORST, J. and P. DANDELLOT
1970 *A Field Guide to Larger Mammals of Africa*. Collins.
- HARAKO, Reizo
1976 The Mbuti as Hunters: a Study of Ecological Anthropology of the Mbuti Pygmies (1). *Kyoto University African Studies* 10: 37-99.
- 原子 令三 (HARAKO, Reizo)
1977 「ムブティ・ピグミーの生態と社会」人類学講座編纂委員会編『人類学講座第12巻・生態』雄山閣, pp. 185-214.
- 市川 光雄 (ICHIKAWA, Mitsuo)
1976 「バンブティ・ピグミーの狩猟生活」『自然』31(4): 26-35.
1978 「ムブティ・ピグミーの居住集団」『季刊人類学』9(1): 3-79.
- 伊谷純一郎 (ITANI, Jun'ichiro)
1961 『ゴリラとピグミーの森』岩波書店。
1977 「トングウェ動物誌」伊谷純一郎・原子令三編『人類の自然誌』雄山閣, pp. 441-537.

KAKEYA, Makoto

- 1976 Subsistence Ecology of the Tongwe, Tanzania. *Kyoto University African Studies* 10: 143-212.

KINGDON, J.

- 1971 *East African Mammals, an Atlas of Evolution in Africa, Vol. I.* Academic Press.

LEE, Richard B.

- 1968 What Hunters Do for a Living, or, How to Make Out on Scarce Resources. In R. B. Lee and I. DeVore (ed.), *Man the Hunter*, Aldine Publishing Company, pp. 30-48.
- 1976 !Kung Spatial Organization: An Ecological and Historical Perspective. In R. B. Lee and I. DeVore (ed.), *Kalahari Hunter-Gatherers: Studies of the !Kung San and Their Neighbors*, Harvard University Press, pp. 73-97.

LEE, R. B. and I. DEVORE

- 1968 Problems in the Study of Hunters and Gatherers. In R. B. Lee and I. DeVore (ed.), *Man the Hunter*, Aldine Publishing Company, pp. 3-12.

松井 健 (MATSUI, Takeshi)

- 1976 「トウンブウェ族の諸相——広域調査の結果から——」『アフリカ研究』15: 24-37。
- 1977 「トウンブウェ族の民族動物学」伊谷純一郎・原子令三編『人類の自然誌』雄山閣, pp. 539-623。

SAHLINS, Marshall D.

- 1965 On the Sociology of Primitive Exchange. In M. Banton (ed.), *The Relevance of Models for Social Anthropology, A.S.A. Monographs 1*, Tavistock Publications, pp. 139-236.

SERVICE, Elman R.

- 1966 *The Hunters.* Foundation of Modern Anthropology Series, Prentice-Hall, Inc.

TANAKA, Jiro

- 1976 Subsistence Ecology of Central Kalahari San. In R. B. Lee and I. DeVore (ed.), *Kalahari Hunter-Gatherers: Studies of the !Kung San and Their Neighbors*, Harvard University Press, pp. 98-119.

田中 二郎 (TANAKA, Jiro)

- 1977 『ブッシュマン』(第2版) 思索社。

TANNO, Tadashi

- 1976 The Mbuti, Net-hunters in the Ituri Forest Eastern Zaire—Their Hunting Activities and Band Composition. *Kyoto University African Studies* 10: 101-135.

土屋 巖ほか (TSUCHIYA *et al.*)

- 1972 『アフリカの気候』(世界気候誌第2巻) 古今書院。

WOODBURN, James

- 1968a An Introduction to Hadza Ecology. In R. B. Lee and I. DeVore (ed.), *Man the Hunter*, Aldine Publishing Company, pp. 49-55.
- 1968b Stability and Flexibility in Hadza Residential Groupings. In R. B. Lee and I. DeVore (ed.), *Man the Hunter*, Aldine Publishing Company, pp. 103-110.