

## CULTIVATION BY THE BAKA HUNTER-GATHERERS IN THE TROPICAL RAIN FOREST OF CENTRAL AFRICA

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**ABSTRACT** The Baka in southeastern Cameroon are one of the “Pygmy” hunter-gatherer groups living in the tropical rain forest of central Africa. The Baka are said to have accepted cultivation with their own fields in the 1950s. Their cultivation is unplanned and haphazard, due to longer time lapse between labor investment and return for cultivation than for hunting-gathering. This difference was one of the obstacles for adoption of cultivation with their own fields, and has made them receive produce from neighboring farmers in exchange for forest products or for farm work. The important factor for adoption of their own cultivation is that acquiring produce from the neighboring farmers became difficult due to change in relationship between some Baka and farmers. Colonial government policy also affected the Baka. The major crop of the Baka is plantain. Plantain as a crop requires little care or preservation for future planting and consumption, suited for the Baka cultivation. These factors probably promoted adoption of cultivation by the Baka.

**Key Words:** Baka hunter-gatherers; Acceptance of cultivation; Relationship with farmers; Plantain

### INTRODUCTION

The people called “Pygmies” live in the tropical rain forest of central Africa. They have long been regarded as hunter-gatherers and indigenous people of this area. Some researchers, however, questioned whether humans have ever lived in the tropical rain forest independently of domesticated plants and animals (Bailey et al., 1989; Headland & Reid, 1989). The reason for the difficulty living in the forest is the shortage of energy intake from wild animal and plant resources (Headland & Bailey, 1991). These researchers hypothesized that hunter-gatherers were able to live in the tropical rain forest only after the immigration of cultivators, and were always partly dependent on agricultural crops for subsistence.

In the case of tropical rain forest of central Africa, Bahuchet et al. (1991) criticized this view, showing the existence of sufficient amount of potential resources to survive. I also consider the hunter-gatherers capable of living in the forest for several months at a time without agricultural food, based on my ecological data (Kitanishi, 1995).

However, it is true that all the hunter-gatherers in tropical rain forests of central Africa actually depend on agricultural foods to some extent. They obtain agricultural food in various ways. Peoples exchange forest products for agricultural produce, receive produce as a reward for helping their neighbor’s farm work, and some even have their own fields, as were reported for the Mbuti, by Ichikawa (1986), the Efe by Terashima (1986), the Aka, by

Bahuchet (1985) and Kitanishi (1995), and the Baka, by Kitanishi (2000). Nevertheless, they are regarded as hunter-gatherers, because they do not abandon hunting and gathering.

In this paper, I describe the cultivation among one of the Baka hunter-gatherer groups in central Africa. Former ecological studies on the Pygmies generally focused on hunting and gathering or their symbiotic relationship with neighboring farmers. Cultivation by the Pygmies have not been described nor analyzed in any detail. But it is clear that agricultural food is one of the most important energy source for them, and that they actually engaged in agricultural work for substantial amount of time (Bailey & Peacock, 1988; Kitanishi, 1995, 2000).

The subsistence activities of the Pygmies have been rapidly changing, and at present, there is a large diversity in economic and ecological aspects of their life in the forests (Bahuchet, 1985; Hart, 1978; Ichikawa, 1991; Kitanishi, 1995). The main reasons for these changes may be the impacts of the administrative policy of the colonial and independent governments and the penetration of market economy (Wilkie & Curran, 1993). Under these circumstances, the Baka gradually accepted cultivation and almost all of them have now their own fields.

There are two questions on cultivation by the Baka: The first is why they made their own fields only recently, in spite of their proximity to the agricultural neighbors and their acquaintance with cultivation techniques. The second question is why and how they accepted cultivation. To answer these questions, in this paper, I specifically describe the characteristics of their present cultivation, and try to reconstruct the process of the adoption of cultivation, based on my research data along with previous studies conducted in the transitional eras of the Baka (Althabe, 1965) and the Aka (Guille-Escuret, 1998).

I will focus on the comparison in the time lapse between labor investment and return for hunting-gathering and cultivation. Such time lapse for hunting-gathering is generally short, i.e. one day. Labor investment to return normally takes a day. When the Baka go out to hunt animals or gather wild plant resources, they usually obtain these resources within the same day, and consume them also in the same day. The time lapse between labor and return for cultivation, however, extends to several months, or a few years in some cases. Planting or sowing, weeding, and harvesting cannot be completed on the day of the work. In addition, for crops such as grains which have a clear harvest season, the harvest needs to be rationed until next harvest. The change in the main subsistence activities from hunting-gathering to cultivation, therefore, brings about change in life regarding the aspect of time, from the cycle of investment to return completed in one day to that taking at least several months or years.

As long as the Baka partly continue hunting-gathering in the forest, their aspect of time does not completely change. The combination of subsistence activities with different time lapses between labor investment and return affects the Baka cultivation practice. The cultivation of the Baka differs from that of the neighboring farmers, although they imitate the farmers' techniques. The Baka adopted growing plantain from them, and the characteristics of plantain as a crop is closely related to its cultivation.

## RESEARCH AREA AND PEOPLES

### I. Historical background of the Baka

The Baka in Cameroon are regarded as the indigenous people in the tropical rain forest, as other Pygmies in central Africa. From 3000 to 4000 years ago, Bantu speaking people, who were cultivators, began to migrate to central African forest areas, and spread to the whole forest area by about first century A.D. (Ichikawa, 1999). In this process, the majority of the ancestors of present Pygmy population was probably absorbed by or assimilated to the Bantu peoples, whereas some maintained clear ethnic distinction with the Bantu farmers, as well as their lifestyle of hunting and gathering. Several groups of such peoples live in this area, such as the Mbuti in the eastern Democratic Republic of Congo, and the Aka in the northeastern Republic of Congo and southern Central African Republic.

After the initial contact with the Bantu farmers, the Pygmies kept close social and economic relationships with them (Bahuchet & Guillaume, 1979). One evidence of such close relationships is the language of the Pygmies. All the languages spoken by the Pygmies at present are those of farmers' origin (Bahuchet, 1992).

The Baka live in the southeastern part of Cameroon and northwestern part of Republic of Congo. Their population is estimated at about 30-40 thousand (Joiris, 1993). Their language belongs to Ubangian. In the southeastern Cameroon, several ethnic groups of farmers such as the Bakpele, the Konabembe, the Mbomam (all Bantu-speakers) and Bangando (Ubangian speakers) live in the neighborhood of the Baka.

Before the 1950s, the Baka mainly depended on wild animals and plants of the forest, leading a nomadic life in the forest (Althabe, 1965). They moved their camp every a few weeks or a few months. At the same time, they maintained economic and social relationship with the neighboring farmers. The Baka exchanged forest products such as meat for agricultural products, and they helped with the agricultural work.

The Baka's subsistence activities have rapidly changed since the 1950s. The Baka began to make sedentary settlements along the roads and to cultivate their own fields. The farmers were recommended to grow cacao and coffee by the government, and some Baka worked at cacao and coffee fields of the farmers (Althabe, 1965).

At present, the most important food in the Baka sedentary settlements is produce grown in their own fields. They, however, still maintain their forest life of hunting and gathering. They sometimes stay in the forest (Hayashi, 2000; Kamei, 2001).

### II. Research area

My field research was conducted at the Ndongo village, Boumba and Ngoko Department, East Province of Republic of Cameroon (15° 6' N Lat. and 14° 54' E Long., Fig. 1) from February to March 1999 and from August to October 2000. The monthly average temperature is from 24 to 26°C throughout the year, with little seasonal difference. The annual rainfall is from 1600 to 1800 mm. There are four seasons, the major rainy season from August to November, the major dry season from December to March, the minor rainy season from April to June, and the minor dry season from July to August (Hayashi, 2000).

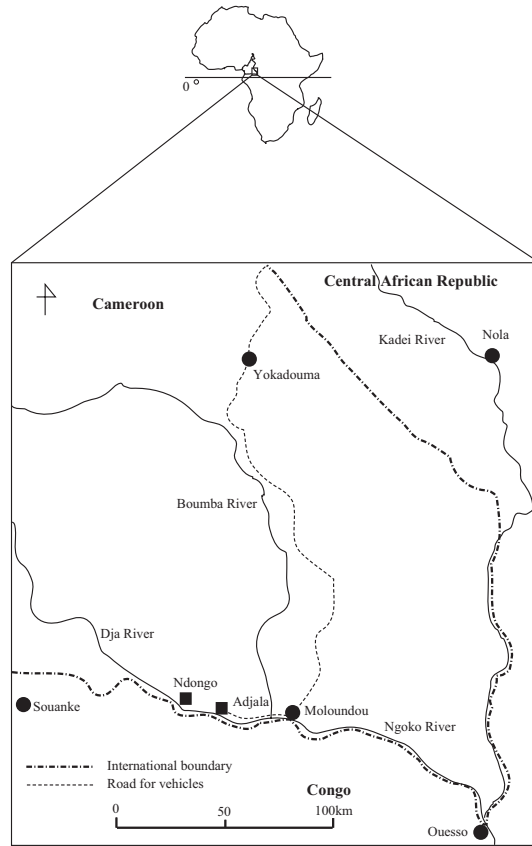


Fig. 1. Research area

The Ndongo village was founded in the 1960s by the Bakpele<sup>(1)</sup> people, whose language belongs to Bantu A group. The Ndongo village is located at the innermost recess along the Dja River from Moloundou, the capital of Sub-prefecture. Before 1973, there was no road for vehicles to the Ndongo village.

When the Bakpele people migrated to the Ndongo village, the Baka accompanied them and made a separate settlement about 3.5 km from the Bakpele village. The Baka had already practiced cultivation around this settlement, but the present inhabitants do not know when their ancestors began cultivation.

In 1973, a logging company advanced to the Ndongo village (Hayashi, 2000). Roads and bridges were constructed and many outsiders came to work. The Baka moved their settlements along the road, and made fields around the new settlements about 3 km away from the Bakpele village. Some Baka of the Ndongo village became employed by the logging company. In 1982, when the logging company left (Hayashi, 2000), Ndongo returned to the present small village.

At present, the population of Bakpele in the Ndongo village is about 70. There are five Baka settlements around the Ndongo village, and their population is about 250 (Hayashi,

2000). In addition to the Baka and Bakpele, a few families of the Hausa whose native land is northern Cameroon live around the Ndongo village. While these Hausa have their fields of shifting cultivation and cacao, they are merchants, who sell various goods such as salt, sugar, clothes, machete, and cigarette.

### III. Present lifestyle of the Baka in the Ndongo village

The Baka life can be roughly divided into two modes: the life in the sedentary settlement and that in the forest. In the sedentary settlement, the produce obtained from their own fields comprises the main food resource. Plantain is the most important.

Another important work in the sedentary settlement is farm work for the Bakpele and Hausa. The reward for farm work is fixed at 250 CFA francs<sup>(2)</sup> a day. But the Bakpele frequently give the Baka a half litter of homemade spirits, which is worth 250 CFA francs in the Ndongo village. Hausa occasionally give the Baka a pair of sandals or some clothes as reward if the farm work lasted much longer than a few weeks. The Bakpele and Hausa sometimes give the Baka produce, meals and cigarettes. When the Baka receive cash for work, they soon buy spirits, and seldom save money for future use.

The Baka move to the forest from time to time. The duration of their stay in the forest varies from a few weeks to a few months. The main subsistence activity in the forest is hunting with snares or guns (Hayashi, 2000). During my research period in 2000, the majority of the Baka stayed in the forest for two or three months to collect wild nuts, because the nut trees were more bountiful that year than in the ordinary years. Thus the availability of wild food resources also affects the timing and duration of the Baka's stay in the forest.

### SHIFTING CULTIVATION OF THE BAKA

The Baka gradually sedentarized and began to cultivate in their own fields after the 1950s. Because they had been helping the neighboring farmers even before then, they knew how to conduct shifting cultivation. The present Baka techniques of shifting cultivation are similar to those of the neighboring farmers. Therefore, the cultivation technique itself is not peculiar to the Baka.

I will describe here the ideal shifting cultivation process of the Baka<sup>(3)</sup>, although actual cultivation does not always follow such a process.

In the major dry season, the Baka men clear either some primary forest or secondary forest. Men cut large trees with axes, whereas clearing the underbrush with machetes is done both by males and females. At the end of the major dry season (March), men burn dried wood and herbs. Before this, women begin to plant. The important crops are plantain, cocoyam, cassava, maize and tobacco. While maize is sown once a season, plantains are planted sporadically for over two years or more, and cassava and cocoyam for over one year. After planting, the Baka males and females weed fields. They do not use any fertilizer. Women harvest crops. Maize is harvested three months after sowing. The cocoyam is harvested 9 months after planting, and cassava, one year after planting. Plantain can be harvested from one year to two years after planting. After the plantain harvest, the Baka

weed and plant plantain suckers again or leave good suckers and cut away the unnecessary ones. Then they harvest plantain again. After such plantain cultivation for three or four years, the fields are abandoned. After about five years, plantains still found in the weed and bush are quite small and not good to eat. The Baka fallow the fields for 15-20 years, and clear them again.

Besides plantain, the Baka also sow cacao in the fields one or two years after clearing. They continue to weed the cacao fields after the plantain harvest. Cacao is harvested after several years. I could not collect the data on cacao cultivation, because the research period did not include the cacao harvest season.

The actual cultivation by the Baka sometimes seemed unplanned or non-systematic, which is the characteristics of their cultivation. Some Baka men do not clear the fields every year. I researched all the newly cleared Baka’s fields of the settlement named Baka un<sup>(4)</sup> of the Ndongo village in 2000, which contained a total of 26 married men. Among the 26 men, 21 cleared the fields in major dry season of 2000, but five did not (Table 1). The major reason why they did not clear the fields is that they stayed in the forest or visited another Baka village.

**Table 1.** The field size of each household.

2000											
household	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11
area (ha)	0.25	0.21	0.30	0.16	0.33	0.17	0.28	0.18	0	0	0.32
household	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22
area (ha)	0.31	0.23	0.50	0.12	0.19	0.12	0	0.23	0.03	0	0
household	M23	M24	M25	M26	F1	F2					
area (ha)	0.18	0.35	0.29	0.15	0.03	0.09					
1999				1998							
household	M3	M4	M6	M7	M4	M7	Average <sup>1</sup>	S.D. <sup>1</sup>			
area (ha)	0.61	0.87	0.16	0.34	1.00	0.28	0.27	0.22			

<sup>1</sup>: Average and standard deviation (S.D.) calculated from the data of 1998 to 2000 except when values are zero, which indicates the field was not cleared at all.

The Baka, like other forest-dwelling peoples, think that they can harvest more plantain from the fields cleared in the primary forest than from those cleared in the secondary forest. But only three men actually cleared the primary forest in 2000, because it is hard work. Some Baka told me that only strong men cleared the primary forest. Even in fields cleared from the secondary forest, some large and hard trees are left uncut. Although this is also seen in fields of the neighboring farmers, I saw more uncut trees in the Baka fields than in those of farmers.

I measured the size of all the 28 fields cleared by the Baka of Baka un in the major dry season of 2000 and some fields cleared in 1998 and 1999 (Table 1). The average of field

size is about 0.27 ha, ranging from 0.03 ha to 1.00 ha. Of the four fields with less than 0.1 ha, one was owned by a man who died this season; two were owned by widows, and the remaining one was abandoned by the owner who left for Congo in the clearing season. Because male work is so crucial to clearing the fields that it cannot be done without male labor. Widows cleared only underbrush of less than 5 years because they could not cut large trees with an ax. Widows cannot obtain enough food from fields with short fallow and small size<sup>(5)</sup>.

Apart from the women's fields, the variation in the field size is quite large. Some Baka said that if they cleared large fields in the previous year, they cleared comparatively small fields next year. This is partly supported by my data (M3 in Table 1), but there is an exception (M6). More data from continuous research are needed.

There is another important factor involved in the large variation of the field size. In the major dry season, the neighboring farmers also need to clear the fields. The Baka are given local spirits, cash and clothes as a reward for farm work in the farmers' field. Some Baka are more attracted to these rewards, and they cannot spend much time clearing their own fields. Some Baka men who did not clear enough field in the major dry season continue to clear in the beginning of the minor rainy season, or clear the field again in the minor dry season.

I measured the planting density of crops in a 10 meter quadrat (Table 2). I conducted this survey in September and October 2000, more than 6 months after the clearing. I tried to count the density at all the fields whose size I measured (23 fields), but was unable to in two fields, because they had no crop. The owners of these two fields were long absent from the settlement because they were in the forest or on a visit to another Baka village. Even though they cleared their fields, their work did not produce any crop, which exemplifies the Baka's unplanned attitude toward agriculture.

**Table 2.** Planting density in the Baka fields.

crops	plantain	maize	cassava	cocoyam	tobacco	cacao	pineapple
N <sup>1</sup>	21	15	13	15	9	2	1
density (individual plant/ha) <sup>2</sup>	1310	-	923	933	822	550	450
S.D. <sup>2</sup>	400	-	896	672	583	354	-

crops	cultivated yam	sugar cane	okra	hemp	red pepper	papaya	ndaka <sup>3</sup>
N	1	1	1	1	6	10	4
density	100	100	100	100	167	490	250
S.D.	-	-	-	-	121	451	173

1: The number of fields (N) that the crops are planted among 21 fields recorded in 2000.

2: Average and standard deviation of planting density in the field where these crops are planted. Because harvest season of maize was already finished, its density could not be measured.

3: *Solanum* sp. Solanaceae.

In the first-year fields, there are both well-planted parts and less-planted parts. I counted the number of crops in the well-planted parts, because the Baka may plant again in the less-planted parts.

Plantain is planted in all the fields with the highest density among all the crops (Table 2), which clearly shows the importance of plantain to the Baka. After preparing the fields, the Baka continue to plant plantain for the following several months, which enables them to harvest plantain throughout the year. As plantain cannot be preserved for a long time, this is an effective means for supplying plantain throughout the year.

Further analysis of planting density, however, showed the unplanned nature of the Baka cultivation. The majority of the Baka planted plantain in less than half the area of their fields. In addition, I found well-planted parts, less-planted parts and even unplanted parts in fields one year from clearing. Maize, cassava and cocoyam are also important crops, and are planted in about two-thirds of the fields, with another third left unplanted (Table 2). The standard deviations for cassava and cocoyam plant density are quite large.

The reason for the irregular planting is that some Baka visited other villages during the planting season, camped in the forest for a long time, or worked in the farmers' fields. A Baka man angrily told me that Baka women worked only for farmers, to obtain local spirits and clothes.

The Baka do not eagerly weed their fields. Only some Baka regularly weed their fields. Crops are sometimes overgrown by weeds. I found many maize plants with empty husks in September 2000, when most Baka stayed in the forest to collect wild nuts. The maize needs much sunshine to grow well. Because weeding was not done adequately in the growing period, the maize crop eventually failed.

By contrast, plantain can survive even if covered with weeds. Plantain takes longer to grow, and can better withstand the shortage of sunshine than maize. Even the Baka weeded irregularly, plantain can grow to be harvested.

## SUBSISTENCE ACTIVITIES WITH IMMEDIATE RETURN AND DELAYED RETURN

Why did the Baka not cultivate their own fields before the 1950s? I will discuss the ecological and economic factors here. Social factors need further research and will not be covered in the present paper<sup>(6)</sup>.

The analysis of the Baka cultivation illustrates the unplanned nature of their agriculture. In agricultural practice, the accumulation of past labor results in large future rewards. Therefore, agricultural work is organized according to a schedule that spans several months or a few years. The Baka do not always do this; they do not plant every year or plant in all areas of their field, even if they clear the fields. Also they do not weed, which resulted in failed maize harvest in 2000. They little concern themselves with whether their past labor ends in vain.

Such unplanned agricultural practice derives from the Baka recognition of difference in the time lapses between labor investment and return for hunting-gathering and cultivation. In hunting and gathering, people obtain a direct and immediate return from labor investment<sup>(7)</sup> (Woodburn, 1982). A person goes out hunting or gathering, and consumes the food obtained on the same day or over the days that follow. The time lapse between investment and return for hunting-gathering is generally less than one day. But for cultivation, yield on labor is only obtained months or years after they clear the forest and plant crops.



In hunting and gathering, the present subsistence activities are seldom affected by the labor investment of the past and future. Activities are adapted to the present circumstances. They use abundant food in season at the area where the food can be obtained most easily.

In the research area, it is difficult for the Baka to predict where and what kind of resources they can obtain from hunting and gathering several months to one year in advance. Some seasonal changes in the availability and productivity of wild resources may be predictable. They know the season for wild yam, honey and caterpillars. But they cannot predict the year-to-year change in wild resource availability. For example, availability of wild nuts, honey and caterpillars considerably fluctuates from one year to another (Kitanishi, 1995). In the days when the Baka mainly hunted and gathered, they adapted to this change through the movement of their camps.

It is difficult for the Baka to reconcile hunting and gathering in the forest with maintaining their own fields. The organized schedule for cultivation is inconsistent with the flexibility in hunting and gathering.

Guille-Escuret (1998), who studies the adoption of agriculture by the Aka in Lobaye, Central African Republic, showed that some Aka tried to adopt agriculture but failed, because they stayed in the forest, leaving the fields from which they could have harvested soon after. Such unplanned nature of farm work and indifference to past labor investment are also common to the Baka in my study area.

## ASSISTING NEIGHBORING FARMERS

Like the Mbuti and Aka who regularly help neighboring farmers (Terashima, 1986; Bahuchet, 1985; Kitanishi, 1995), the Baka also help agricultural neighbors. They have been doing so for a long time, and they know well how to cultivate the land. What is then the difference in the cultivation practice for them and the neighboring farmers?

The exchange of farm work by Pygmies for the produce from the farmers is regarded as one of the important elements of the symbiotic relationship between them (Terashima, 1986; Takeuchi, 2001). This explanation is not sufficient, however, and the Baka's unplanned nature of their subsistence activities needs to be factored in.

The coexistence of the Baka and farmers makes hunting-gathering compatible with agricultural work. The Baka go to the forest and stay, adapting to the changes in the availability of wild food resources from time to time. They offer agricultural labor to neighboring farmers, when they stay in their sedentary settlements. Under this circumstance, the neighboring farmers regulate for them, so to speak, otherwise unreliable, unplanned agricultural work inputs of the Baka to their fields. Therefore, even the unsystematic labor investment of the Baka can produce some crops, and they also eat produce from the farmers' fields where worked.

The Baka obtain direct and immediate return from assistance to the neighboring farmers in the villages. As a return for agricultural work, they obtain cash and various goods on the day they worked. They are familiar to work with direct and immediate returns, because it is actually similar to those in hunting and gathering. In other words, the neighboring farmers diminish the time lapse between labor investment and return for the Baka<sup>(8)</sup>. These economic and ecological factors sustain the symbiotic relationship of the Baka and neighboring farmers<sup>(9)</sup>.

## CULTIVATION OF THEIR OWN FIELDS

Here, I analyze the process of adoption of their own cultivation by the Baka, with studies from the transitional period. Althabe (1965) described socio-economic changes such as sedentarization and acceptance of cultivation among the Baka in the southeastern Cameroon in the 1950s. Guille-Escuret (1998) showed the adoption of cultivation by the Aka in the Lobaye, southern part of Central African Republic.

The Baka had rejected agriculture until the 1950s. According to Vallois & Marquer (1976), the Baka in the southern Cameroon refused to be engaged in intensive cultivation, and rejected the attempts by others to encourage them to cultivate fields in the 1930s. In 1937, an administrator forced Baka groups to sedentarize along the road and to cultivate their own fields. Although they stayed in this settlement for a few years, the fields and huts were abandoned and they returned to the forest when the chief died. The administrators in Cameroon repeatedly tried to make the Baka sedentarize and cultivate.

Also among the Aka in Lobaye, it took a long time to start cultivating their own fields. According to Guille-Escuret (1998), the Ngando, the Bantu farmers, entered the forest from about 1925 to 1945 to avoid heavy taxation of the colonial government, and came to live with the Aka. At this time, the Aka also cleared small fields beside the Ngando fields. But their cultivation did not occupy an important part of their subsistence activities until the 1970s.

One of the major obstacles to acceptance of cultivation at own fields among the Baka and Aka was the incompatibility of hunting-gathering with cultivation. The Baka and Aka did not need to have their own fields, because they obtained crops through helping the neighboring farmers and also through exchange for forest products (Althabe, 1965; Guille-Escuret, 1998).

Althabe (1965) and Guille-Escuret (1998) give the same reason for the final acceptance of cultivation by the Baka and the Aka: the change in the economic and social relationships between the Baka or the Aka and the neighboring farmers: It became difficult to obtain sufficient agricultural food from the neighboring farmers.

In Lobaye, there were two types of villages in the 1970s: ones with a conciliatory relationship between the Aka and neighboring farmers, and the others with a hard relationship. In the conciliatory villages, the relationships between the farmers and the Aka had been kept for a long time, and verbal communication between them was easy because their languages belonged to the same group. In contrast, in the hard villages farmers had relatively short duration of the relationship with the Aka, and the farmers' language was completely different from that of the Aka. In the 1970s, cultivation spread among the Aka immediately after an Aka man introduced it. In the conciliatory villages, although the farmers encouraged the Aka to cultivate their own fields, the Aka soon abandoned the fields, because they could obtain enough food from the farmers. In the hard villages, the increase in farmer population and the penetration of coffee cultivation enlarged the demand for the Aka labor. The Aka eventually escaped the farmers, and they continued to cultivate their own fields (Guille-Escuret, 1998).

In the 1950s in the southeastern Cameroon, the degree of dependence on cultivation varied among groups. Some Baka who had a good relationship with the farmers did not have their own fields, and depended on hunting and gathering in the forest and crops obtained from the farmers (Althabe, 1965). The Aka in the upper Motaba of Congo could get enough food from neighboring farmers, and almost none had their own fields in the 1990s (Kitanishi, 1995). These facts show the importance of relationship between the Baka or the Aka, and the neighboring farmers.

According to Althabe (1965), the dominance of the farmers over the Baka grew in the 1950s, and the farmers regarded the Baka partner as “property.” He described this relationship similar to “slavery.” As the farmers considered the Baka assistance obligatory, they came to think it unnecessary to give agricultural food to the Baka in return. This is why the Baka could no longer obtain enough food from farmers.

Under these circumstances, the Baka adopted cultivation of their own fields while they gradually sedentarized due to the direction from the administrators. Another important outcome due to administration is that it made many Bakas begin cultivation simultaneously. If some Baka adopted cultivation and others did not, food sharing or stealing would have been a problem. When the Baka have a large amount of food (not only meat but also plant resource), they must share with others (Kitanishi, 2000). The harvested plantain is shared before cooking and/or after cooking. “Stealing” crops from the farmers’ fields by the Pygmies is reported in other parts of central African forests<sup>(10)</sup> (Ichikawa, 1982; Terashima, 1998; Takeuchi, 2001). When farmers find “stealing,” they get very angry and sometimes punish the “stealer.” Baka also sometimes steal food from each other’s field. However, when the food is stolen from the Baka’s fields, they have no means of punishment since there is no sanction system among them.

While the present generation of the Baka no longer remembers the sedentarization policy in the 1950s, I collected the information in the early 1990s. The agricultural extension officer of the local government in Moloundou, who was a Bangando farmer, was sent to the Ndongo village. He forced all the Baka households to clear their own fields, marking clear boundary between each fields.

As a result of the coercive instruction, the Baka simultaneously started cultivation of their own fields, without the heavy burden of food sharing or stealing, because everybody now had a field. As the Baka have no leader who can force others to do something, it would have been difficult for them to start cultivation of their fields simultaneously if there had been no action by local government.

At present, I did not find specific partnerships as reported in other parts of the forest between the Baka and neighboring farmers in the Ndongo village. Throughout the southeastern Cameroon, close partnership as reported among the Aka or Efe (Bahuchet, 1985; Grinker, 1994) does not exist. As the Baka accepted cultivation with their own fields, their dependence on farmers decreased. This has weakened the partnership between the two groups. On the other hand, assistance of the Baka has become increasingly indispensable to the farmers who grow cacao and other cash crops on a large scale. The Baka today never help farmers without some return. As a result of their own cultivation, agricultural food is no longer requested as pay, but cash or local spirits are popular for payment.

## PLANTAIN AS A SUITABLE CROP FOR THE HUNTER-GATHERERS

The other factor for the Baka adoption of cultivation is the nature of plantain as a crop. Plantain is quite suitable for cultivation by hunter-gatherers, while groundnuts and maize are not.

Besides inter-mixed cropping, the neighboring farmers grow groundnuts in the mono-crop fields, where there are no tree left uncut. The farmers carefully weed for sufficient sunshine for the crop. The Baka help farmers with these work, and they sometimes receive groundnuts in return. But the Baka seldom sow groundnuts by themselves. I observed a Baka's field growing groundnuts in another village. The groundnuts in this field had withered due to overgrown weeds. The groundnut is not a reliable crop for the Baka who do not continuously care after the crops. Although they often sow maize, they occasionally fail to harvest because of insufficient care, as in 2000. On the other hand, plantain can grow and bear fruit in spite of such unsystematic, sporadic and opportunistic care.

Maize and groundnuts have another disadvantage for the Baka. The harvest season for these crops is generally short, and a part of the harvest must be preserved for the next planting. It is difficult for the Baka to preserve crops for the next season because the Baka do not store produce, as they seldom store wild food. When they need the seeds of maize or groundnuts to sow, they ask the neighboring farmers for them. Thus, cultivation of maize and groundnuts by the Baka is not possible without the help of farmers.

In contrast, the Baka do not need to preserve plantain for a long time, even if they mainly depend on them throughout the year. This characteristic is similar to the condition of wild food resources. Plantain usually propagates vegetatively or naturally. Plantain is harvested throughout the year, because the Baka can plant it throughout the year, and because there are many varieties with different growing durations before harvest.

Some Baka live in the drier part of the forest. There, cassava is the main crop. Cassava differs from plantain in that it is more resistant to aridity, but needs more sunshine than plantain. Therefore, it is necessary to remove more of the standing trees in the forest for cassava cultivation. Cutting down large trees in the rain forest is hard work, hence cassava may be less suitable than plantain elsewhere. Likewise, plantain is less suitable than cassava in the drier forest because of water shortage.

The cultivation of cassava has characteristics common with that of plantain. Cassava cultivation does not require cautious care and preservation of a part of the harvest. The Baka can harvest cassava throughout the year because its tuber is preserved in the ground. Cassava is reproduced by planting its stems. For these reasons, cassava has been accepted by the Baka in the drier area.

## HUNTING AND GATHERING, AND CULTIVATION

I have described the unplanned and haphazard nature of the Baka cultivation. Some may imagine such nature derives from the Baka's idleness. But because they engage in cultivation unplanned and haphazardly, they could incorporate cultivation, depending on it as much as on hunting and gathering. While a part of their life changed by the adoption of cultivation, they maintain their forest life, based on what Woodburn (1982) calls the "immediate-return system." The Baka are still oriented toward the present interest without

thinking much about past labor investment or the future interest. Before the 1950s, they flexibly adapted their subsistence activities to the changes in availability of wild forest resources. Flexibility is still basic to the Baka at present. They try to keep a larger number of choices in their future subsistence activities without a long time span schedule.

For the Baka, cultivation is just one of the choices in their subsistence activities. They sometimes fail in cultivation, especially for maize and groundnuts growing, but they do not seem to mind it so much. They can find some alternative resource either in the forest or in the fields of farmers. I think that this is one of the important characteristics of cultivation by the hunter-gatherers.

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## NOTES

- (1) While this people have generally been denoted as “Bakwele” (Joiris, 1993; Hayashi, 2000), the people in the Ndongo village call themselves “Bakpele,” and those of other villages except for two, along the Dja River also called themselves “Bakpele.” People of the exceptional two villages call themselves “Bakwele.” All of these people consider themselves as belonging to a single group. I will use the name “Bakpele” instead of “Bakwele” here, but more investigation is necessary to clarify their ethnic nomenclature.
- (2) 100 CFA francs = 1 French francs (2000).
- (3) Guille-Escuret (1998) indicated that there is a large diversity in sexual division of agricultural work among the Aka in Lobaye, Central African Republic. Further extensive study is needed to clarify the existence of such diversity among the Baka.
- (4) “Baka un” was named from the river (“Baka”) flowing near this settlement. “Un” means one in French.
- (5) But they will not starve. They can obtain agricultural food from neighboring farmers in return for agricultural work, and neighboring Baka or their relatives share food.
- (6) The maintenance of ethnic boundary between the Baka and neighboring farmers should be considered. Uchihori (1994) indicated that hunter-gatherers called Bukitan on the Borneo Island do not adopt cultivation, in order to demarcate the ethnic distinction between them and the neighboring farmers. The Bukitan said that they would become the farmer group, Iban, if they adopted cultivation. Present ethnic boundary between the Baka and the neighboring farmers is complicated, however (cf. Rupp, 2002).

- (7) Actually, the return on labor is not always immediate even in hunting and gathering. For example, making hunting-tool does not produce immediate return. But the Baka do not have tools made with large and accumulated labor input. The major parts of productive activities are oriented toward a direct and immediate return. There are several hunter-gatherers dependent on accumulation of labor, such as the hunter-gatherers in the Northwestern Coast of America and Southeastern Siberia (Testart, 1982). In this paper, however, I consider only the hunting and gathering in the tropical rain forests of Africa.
- (8) This is one of the reasons for economic and ecological dominance of farmers over the Pygmies.
- (9) The actual economic exchange between the Pygmies and farmers is more complex. The importance of their partnership or patron-client relationship has been reported (Terashima, 1986; Bahuchet, 1985).
- (10) The Pygmies frequently obtain (or “steal”) crops from farmers without permission. Farmers think this act is clear theft. But the Pygmies do not think so because they helped in the farm work, and provided other kinds of labor or forest products to the farmers.

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