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## Cultivated Bananas among the Galela

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## Cultivated Bananas among the Galela

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### INTRODUCTION

The cultivated banana is an extremely important plant for the Galela. It not only provides one of their staple foods, but also it figures prominently in their myths, and its varieties are more carefully discriminated among than are those of any other plant. A study of the cultivated bananas of the Galela is interesting from the standpoints of both crop diffusion and folk classification, but especially of the latter, for the Galela classify the varieties of cultivated banana in their own particular way. The way in which the Galela classify these bananas may reveal considerable information on the evolution of folk botanical classification.

The taxonomy of the cultivated banana is complicated. In 1955, Simmonds and Shepherd demonstrated that cultivated bananas, formerly classified into many species, had developed from only two species; *Musa acuminata* Colla and *M. balbisiana* Colla [1955: 302-312]. Cultivated bananas are divided into 6 genetic types; the diploid (AA) and the triploid (AAA) of *Musa acuminata*, and the four types of hybrid (AB, AAB, ABB and ABBB) of *Musa balbisiana*.<sup>1)</sup> To distinguish these types, Simmonds and Shepherd developed the taxonomic scoring method [1955: 302-304]. Their method is adopted in this study, but the chromosome numbers are not counted. It is impossible to distinguish between the AA and AAA groups using only taxonomic scoring, although the types can be distinguished to some extent by observing the distinctive features of diploid and triploid. The plant body of the diploid, for example, is generally smaller than that of the triploid, and the leaves of the diploid are harder, narrower and more nearly vertical than those of the triploid. The data used in this article were collected in Limau and Duma Villages of the Galela Sub-District, from September 30 to December 10, 1976.

1) A and B indicate the genomes of *M. acuminata* and *M. balbisiana*, respectively.



Photo. 1. *Kawasi* (*Musa acuminata* subsp. *banksii* Simmonds).

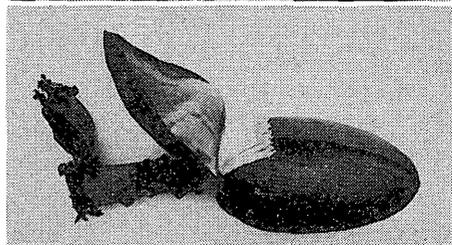


Photo. 2. *Mora* (AAB).

## I. GALELA MYTH ON THE ORIGIN OF CULTIVATED PLANTS

According to Galela myth, the world was once filled with water. Two people, a man named *Boangon* and a woman called *Nurungon*, floated on a nipa palm ship for many days. One day they found a small piece of land beneath their ship. *Boangon* then called, "Come out, land! Dry up, sea!" Then the water began to withdraw and increasingly more land appeared. *Boangon* and *Nurungon* landed on the top of the land, which according to the present-day Galela, was the top of Mt. Lukum, a high peak situated at the headwaters of the R. Tiabo.

The first plant which grew on this land was a wild banana called *kawasi* (Photo 1.),<sup>2)</sup> no longer eaten by the Galela. The second was *mora* (Photo 2.) and the third *sangate* (Photo 3.), both well-known cultivated bananas among the Galela and which

2) Article "o" is omitted in this paper except for the part on folk classification.



Photo. 3. *Sangate* (AAB).

were derived from the wild banana, *kawasi*. The fourth plant was papaya, the fifth was tobacco and lastly came rice. The water withdrew gradually, and when at last it stopped *Nurungon* became pregnant. The small piece of land became larger as the water withdrew and was called Halmahera (*o halu ma hera*: "the land of mother"); and *Boangon* and *Nurungon* had many children.

This is the first part of the Galela myth, a story of wanderers on the sea, which is common to eastern Indonesia. However, this myth may also suggest that the Galela settled in Halmahera from elsewhere, but it is not clear whether they brought banana varieties to Halmahera. *Kawasi*, the first plant in their myth and regarded as the parent of *mora* and *sangate*, was probably not brought by men. *Kawasi* is identified as *Musa acuminata* subsp. *banksii* (F. Muell) Simmonds (syn: *Musa banksii* F. Muell), which occurs from Queensland to Samoa and which is one of the most widespread *Musa* in New Guinea [ANGENT 1976: 87-89]. According to

Simmonds [1962], *M. acuminata* is subdivided into 5 subspecies; subsp. *malaccaensis* (Ridl.) Simmonds, subsp. *siamea* Simmonds, subsp. *burmannica* Simmonds, subsp. *microcarpa* (Bacc.) Simmonds and subsp. *banksii* (F. Muell) Simmonds [1962: 15, 18]. Subsp. *malaccaensis* might be directly related to the cultivated bananas. However, wide diversity among the varieties of banana could not be explained by the assumption that those varieties of banana were derived only from subsp. *malaccaensis*, and the other subspecies might have been related to cultivated bananas too. Therefore, it is possible to assume that subsp. *banksii* contributed to the formation of some cultivated bananas: Some varieties of Galela banana may have developed from the *kawasi*, the banana of Galela myth.

It is clear from this myth that bananas are very significant plants among the Galela, because the first 3 of the 6 plants that appear in their myth are bananas. This order of the appearance suggests that rice may be a rather new plant in Halmahera, and that the Galela adopted papaya and tobacco at a comparatively early time, although these plants originated in the New World.

## II. BANANAS AS STAPLE FOOD

The staple foods of the Galela are banana, sago, sweet potato, manioc and rice, the first two being the most frequently consumed. At present the consumption of manioc is gradually increasing whereas sago is decreasing in importance. Taro might have been planted more frequently than it is now. Among these staple foods,

Table 1. Cooking and fruit bananas

1. Bananas used for only fruit		<i>mora</i>	AAB
<i>dedena (pisang pinang)</i>	AA	<i>sangate</i>	AAB
<i>pisang masi (p. mas)</i>	AA	<i>ngala moi</i>	AAB
<i>pisang banjarmasin</i>	AA	<i>kasiala</i>	AAB
<i>koi jawa</i>	AAA	<i>gogusumutu</i>	AAB
<i>koi susu (p. susu)</i>	AAB	<i>namo ma uru</i>	AAB
		<i>koi nyonya</i>	AAB
2. Bananas used for both fruit and cooking		<i>selewati</i>	AAB
<i>bau ma pau</i>	AA	<i>tabaga</i>	AAB (?)
<i>kakuba</i>	AA	<i>kosuta</i>	ABB
<i>siwala</i>	AB	<i>pisang sangir</i>	ABB
<i>dadaka</i>	AAB	<i>ngongopa</i>	(AAB)
<i>gapi</i>	AAB	<i>ngoko</i>	—
<i>boraca (p. raja)</i>	ABB	<i>papoko</i>	—
<i>basutel (p. putih)</i>	ABB	<i>taratibi</i>	(AA)
<i>koi gohu</i>	ABB	<i>tifa ma suro</i>	—
<i>pisang gorontalo</i>	ABB (?)	<i>sitadi</i>	—
		<i>bului</i>	—
3. Bananas used only for cooking		<i>koi boku</i>	—
<i>galipapo</i>	AA	<i>koi manado</i>	—
<i>ruwodo</i>	AAA		—

bananas are considered to be good for the brain and rice is the favorite food even though the Galela eat relatively little of it.

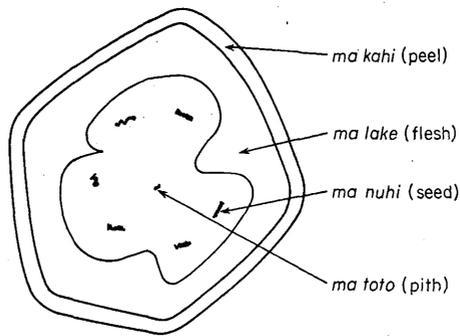
Cultivated bananas are divided into 2 types; fruit bananas and cooking bananas. The Galela consume most varieties of banana cooked. The simplest way of cooking bananas is to throw them into the fire. When the peel is burned black, the Galela take them from the fire, remove the peel, and eat them. Cooked in the fashion, the bananas taste like baked sweet potatoes. They are also cooked by boiling, after which they are peeled and mashed into a paste. They also boil the peeled and sliced bananas with brown sugar. This cooking method, called *kola*, which is employed also for sweet potatoes and manioc, may be relatively new. Frying bananas in coconut oil is another favorite cooking method (see Ishige this volume, p. 301). Among the many varieties of banana, *sangate*, *saranga*, *namo ma uru* and *bau ma pau* are considered to be particularly delicious.

### III. THE GROWTH STAGES OF BANANAS

The growing speed of bananas varies depending on the variety: Some may bear fruit within a few months of transplanting; some take more than a year before blooming; and others take even longer to ripen. Thus, unlike the case of rice (see Yoshida this volume, pp. 102–104) the growth stages of bananas cannot be used for time reckoning, although the Galela know the blooming and harvesting times of the different varieties. Rarely are more than 10 plants of a single variety planted in one field. Moreover, it could not be observed that many plants of one variety in the same growth stage occur in one field. Fields usually contain many varieties in various stages of growth: One field sample containing 26 varieties of banana in various growth stages.

The Galela divide the growth of the banana into 10 stages:

1. *Ma boboko i dosu*: "The young leaves are rolled inside." The time to transplant. While the leaves are still rolled inside, the plants are removed from the roots and transplanted to another field. The Galela believe that the sucker of some varieties must be transplanted when the sucker emerges from the base of the mother plants, in order to grow well and bear fruit;
2. *I ma si mooa*: "To spread the leaves." This stage lasts until the flower axis emerges, and its duration depends on the variety;
3. *I ma si kabo*: "Flowers bud." The inflorescence starts to emerge, but plant is not yet in bloom;
4. *Ma kusi ma belenga*: "Flowers bloom." The female flowers are in bloom. Some varieties have only female flowers, male flowers having degenerated. Thus, these varieties do not have the next stage;
5. *Ma kusi pa tola* or *ma kusi pa ogu*: "To cut off the inflorescence." When the female flowers finish blooming and the male flowers begin to bloom, the inflorescence is cut off. The Galela believe that the growth of fruit is obstructed by the male flowers' growth;



banana leaf : o soka,	leaf sheath : o raro
banana stem : o rohe,	sucker : o susu
inflorescence : o kusi,	peduncle : o sakuru

Fig. 1. The parts of the banana in cross section and the parts of the banana plant.

6. *O ingi ma sasi amu*: "To be fixed the oath of ceremony of filing teeth." The Galela modify the upper front teeth of children less than 10 years of age, by filing the teeth with a stone or a file into a beak-like shape. The unripe bananas at this stage (particularly the *kosuta* and *koi gohu* varieties), are used as offerings at the filing ceremony. These baked bananas are also used to cure the swollen gums of children;
7. *Ma gurati i ma'ida ngado*: "Still not yet really yellow." The Galela sometimes cut one fruit at the tip of the hanging cluster to check on the ripeness of the fruit. When cut into halves, only the part of fruit around the seeds (*ma nuhi*) is yellow at this stage (Fig. 1);
8. *Da tihimo*: "Ripe." The flesh part (*ma lake*) is yellow at this stage, and cooking bananas are usually harvested now. In some varieties the flesh remains white even when ripe; these bananas are harvested mainly by judging the size of the fruit. Bananas at this stage are not yet ripe;
9. *I sambulu*: "Greenish yellow." The peels turn yellowish, but the fruit is not completely ripe; and finally
10. *Da omu ma duputu*: "Fully ripe." The peels are yellow and the fruit is completely ripe. Fruit bananas are harvested at this stage.

It is noteworthy that these expressions are known only to women, whose exclusive task it is to cultivate bananas. Eight of those 10 stages (from 3-10) are related to the flowers and fruit, showing that dominant changes do not occur before the inflorescence emerges and that these changes signal the time for harvesting. Compared with the 17 growth stages of rice, the 10 growth stages of the banana are much less complex. Banana cultivation requires relatively little work at each stage, whereas the cultivation of rice entails many tasks at each of the stages.

#### IV. VARIETIES OF THE CULTIVATED BANANAS

There are about 60 names of cultivated banana (Table 2). Among 61 varieties of bananas, three are wild; *kawasi* (*M. acuminata* subsp. *banksii*), *ngopo* (*M. lolodensis* Cheesman) and *midilao* (uncollected). *Ngopo* belongs to section *Australimusa*, and is found in the area extending from Halmahera to New Guinea [CHEESMAN 1950: 27; ARGENT 1976: 106–108].<sup>3)</sup> The 10 varieties, *bului*, *doi*, *leleko*, *mikin*, *ngongopa*, *papoko*, *patikala*, *sibutu*, *sitadi* and *umeloa*, are now rarely planted in Limau and Duma. Another 10 varieties are labeled by combining with the word *koi*, which means “banana” in Ternate; and these 10 varieties may have been introduced to the Galela area from Ternate. Thirteen varieties have names created in combination with the word *pisang* (“banana” in Malay), some of which may have been introduced from Ambon.

Not all names of the varieties can be glossed, but the glosses of some names are (M: Malay, T: Ternate):

1. *Pisang putih* (M): “White banana.”
2. *Bai ma pau*: “Erect penis.” This variety is sometimes called *pisang batu* (M, “banana like a stone”). But some people may confuse them.



Photo. 4. *Ngopo* (*Musa lolodensis* Cheesman).

3) *Fei*-banana was not found in the Galela area. *Fei*-banana was once introduced to the Tobelo area, but it can no longer be found there. It is called *pisang tongkalangit* (or *p. tongkat-langit*) and is commonly cultivated in Ambon.

Table 2. The naming of banana varieties among the Galela

Galela names	names derived from Ternate	names derived from Malay	description by Baarda	Tobelo names	remarks
1 <i>basutel</i>				—	
2 <i>bau ma pau</i>				*	
3 <i>boraca</i>	( <i>koi raja</i> )	( <i>pisang putih</i> ) ( <i>p. batu</i> ?) ( <i>p. raja</i> )		—	uncommon
4 <i>bubuka</i>				—	
5 <i>bului</i>				*	
6 <i>dadaka</i>				—	
7 <i>dedena</i>		( <i>p. pinang</i> )		*	no longer common
8 <i>doi</i>				—	
9 <i>galipapo</i>	( <i>koi goloko</i> )			—	
10 <i>gapi</i>				—	
11 <i>gapi seram</i>				—	
12 <i>gogusumutu</i>				*	
13 <i>kakaba</i>				*	
14 <i>kasitala</i>				—	
15 <i>kasi ma guluki</i>				—	
16 <i>kawasi</i>				*	= <i>bului</i> ? wild banana
17				—	
18	<i>koi boku</i>	( <i>p. sepatu</i> ?)		—	
19	<i>koi gohu</i>			—	
20	<i>koi guraci</i>			—	
21	<i>koi jawa</i>	( <i>p. ambon</i> )		—	
22	<i>koi manado</i>			—	
23	<i>koi nyonya</i>			—	
24	<i>koi susu</i>	( <i>p. susu</i> )		—	
25	<i>koi taritibi</i>			*	
26 <i>kosuta popo</i>				*	
27 <i>kusimalo</i>				—	
28 <i>leleko</i>				*	= <i>selewati</i> ? no longer common
29 <i>midilao</i>				*	wild banana
30 <i>mikin</i>				—	uncommon



3. *Pisang raja* (M): "Big banana or king of banana," synonymous with *boraca*.
4. *Bubuka*: "Heavy."
7. *Dedena*: "Betel nut (*Areca catechu*)," synonymous with *pisang pinang* (M, "banana like a betel nut").
9. *Galipapo*: "To want more."
12. *Gogusumutu*: "A tool with a sharp tip." The fruit of this variety has a bottleneck shape.
14. *Kasiala*: "To be delayed." This fruit takes a long time to be ripen.
15. *Kasi ma guluhi*: "The hip of a dog (?)"
30. *Koi jawa* (T): "Banana of Jawa," synonymous with *pisang ambon* (M, "banana of Ambon").
21. *Koi manado* (T): "Banana of Manado (North Sulawesi)."
22. *Koi nyonya* (T): "Lady banana."
23. *Koi susu* (T): "Milky banana." *Pisang susu* (M) is the same.
33. *Namo ma uru*: "The bill of a bird."
37. *Ngongopa*: The name derived from *ngopa* "child."
40. *Pisang banjarmasin* (M): "Banana of Banjarmasin (South Kalimantan)," sometimes called *pisang empatpuluh hari* (M, "40 days' banana"). A fast growing banana.
42. *Pisang gorontalo* (M): "Banana of Gorontalo (North Sulawesi)."
43. *Pisang lahatara* (M): *Lahatara* originates in Ternate and means "the Lord."
44. *Pisang mas* (M): "Golden banana," called *pisang masi* in Galela.
45. *Pisang sangir* (M): "Banana of Sangir (North Sulawesi)."
46. *Pisang sepatu* (M): "Banana like shoes."
47. *Poko-poko*: *Poko* means "belly."
38. *Raratu*: *Ratu* means "hundred." It has many fruits.
50. *Saluta*: According to Baarda [1895: 367] *saluta* is the name of a village which is to the north of Galela (Soasio).
53. *Selewati*: "To borrow, or one of the New Guinea islands (Salawati)" [BAARDA 1895: 367].
54. *Pisang obi* (M): "Banana of Obi Island."
55. *Sitabi*: "To pierce."
57. *Tabaga*: "Red." The word derives from *tembaga* (M, "copper").
58. *Teto*: "Stone."

Baarda's dictionary [1895] of the Galela dialect provides 38 names of banana varieties and Hueting's [1908] of the Tobalo dialect includes 20 names. Baarda's dictionary is very reliable, and to ascertain the changes that have occurred during the past 80-90 years, our field data should be compared with his entries. Of 23 varieties not described by Baarda, 9 have names created in combination with *pisang*; *p. pinang* (*dedena*), *p. susu* (*koi susu*), *p. banjarmasin* (*totaleka?*), *p. batu* (*bau ma pau?* or *teto?*), *p. gorontalo*, *p. lahatara*, *p. sangir*, *p. sepatu* (*koi gohu?*) and *p. obi* (*sibutu*). Except

for *p. obi*, these varieties may have been adopted by the Galela during the past 90 years. Similarly, *koi boku*, *koi nyonya* and *koi susu* may have been recently introduced. It is likely that the bananas with a place name were introduced from that particular location. Following this assumption, *p. gorontalo* must have come from North Sulawesi. In fact, this variety was not known in the Galela Sub-district prior to World War II, after which its cultivation spread rapidly. This variety has tall and clustered pseudostems at its base, and large fruits and is strong enough to tolerate planting in windy places, particularly near the sea. Thus, in the villages near the sea, most bananas are of the *p. gorontalo* (banana fields are usually located in less windy location, from 1–10 km from the villages). *P. sangir* might have come from the Sangir Islands, north of Sulawesi. *P. banjarmasin* originated in Borneo, but it may not have been introduced directly from there. *P. susu*, *p. batu*, *p. sepatu* and *p. pinang* might have come from Ambon, since these varieties are very common there. However, *p. susu* is also called *koi susu*, and this variety may have been introduced to the Galela area via Ternate. Bananas whose names are combined with *koi* might have been introduced from Ternate. Judging from the variety names that are combined with place names, recently introduced varieties appear to have been brought to the Galela area from Ambon and North Sulawesi, either via Ternate or directly.

## V. FOLK CLASSIFICATION OF BANANAS

In the Galela dialect the banana is called *o bole*. The Galela discriminate between wild and cultivated bananas. The former consist of 3 varieties, *o kawasi* (*M. acuminata* subsp. *banksii* [F. Muell.] Simmonds), *o ngopo* (*M. lolodensis* Cheesman) and *o midilao*.

Cultivated bananas are divided into 2 kinds, *o bole ma nau* (male banana) and *o bole ma bedeka* (female banana). However, because the banana is not dioecious, they are not actually male and female. According to the Galela notion, male bananas are those with large bodies and whose fruit is large and requires a long time to ripen, whereas female bananas have smaller bodies, and smaller fruit, that ripens relatively fast.

Male bananas are divided into 2 types, although there are no special names to designate them: One type consists of those that are harvested once only (single-harvest type), and the other consists of those which can be harvested repeatedly (multi-harvest type). Banana plants are usually cut down after harvesting since they do not bloom again, but consecutive harvests are possible if suckers grow from the same rootstock and bear fruit at different times. This kind of banana is called the multi-harvest type. However, the suckers of single-harvest type do not bear fruit, even if some grow from the same root. Probably the difference between the suckers of both types is related to the difference between the growth patterns of the parent plants' root: Parent plants of the single-harvest type are large and their roots are thick and wide-spread, so that they make it difficult for the suckers to grow enough to bear fruit. The Galela believe that the suckers of the single-harvest type obstruct the growth of fruit of the parent plant, hence such suckers must be transplanted. It is difficult to

say which of these types of banana is more highly evolved as a cultivated plant. However, it is noteworthy that the bananas which appear to have been recently adopted by the Galela are of the multi-harvest type, whereas those apparently native are of the single-harvest type. The former, which requires less labor, is now becoming more widespread. Female bananas are also subdivided into 2 types; those which can be harvested within 6 months of transplanting, and those which take longer. The former are often planted in new fields.

The Galela folk classification of bananas is depicted in Fig. 2. Applying the general principles of folk classification presented by Berlin *et al.* [1973], *o bole* would correspond to a life form category and each of the varieties could be called a generic category, except *o gapi seram*, *o kosuta popo*, and *o mora dadaka*, which are considered specific categories. The banana is distinguished from trees by not having a hard stem and it is distinguished from herbs or grasses by being much larger. However, additional facts help to identify *o bole* (banana) as a life form category: (1) A taxon (*o bole*) is polytypic and also include many subordinate taxa (varieties of banana); (2) the taxon is labeled by a primary lexeme and immediately preceding taxa are also labeled by primary lexemes; and (3) the taxon is identified by a small number of perceptual characteristics, such as particular stem habit and peculiar shape of fruit. Similarly, most varieties of Galela banana are identified as generic categories: (1) These varieties are labeled by primary lexemes; and (2) they are identified by gestalt or are recognized by the features of multiple characteristics.

On the other hand, Berlin *et al.* [1974] treated the banana as an unaffiliated generic category not thought to be included in any of the 4 life form taxa (tree, vine, grass or herb) and the varieties of banana as specific and varietal categories in the Tzeltal ethnobotany [*ibid.*: 415, 432–438]. The differences between the Galela and the Tzeltal cases appear to depend on the number of terminal taxa (15 terminal taxa in the Tzeltal case) and the abbreviation of the labels of the varieties of banana.

Doubtless the varieties of Galela banana were labeled by secondary lexemes, e.g., as in *o bole o mora*. The Ternate refer to banana varieties by the forms that attach *koi*, as in *koi boku*. Malay-speaking people also refer to them by the labels formed of a combination with *pisang*, as in *pisang susu*. *O bole* might not have been a life form category, but rather a generic category. Then, after many years of cultivation the Galela gradually distinguished many varieties. Not only may they have come to recognize each variety clearly, but also to establish each variety, both by selecting their special varieties from some mutants of cultivated bananas and by adopting some varieties from other areas. Each variety was labeled by a secondary lexeme, and the abbreviation of the labels occurred through the frequent use of the labels. At the same time, gestalt-like recognition of the varieties might have occurred through familiarity with the varieties. Hunn [1975] mentions this point as follows, "We have seen that as bird watchers gain experience they gradually 'push' the level of generic identification downwards so that more terminal taxa are recognizable as generic" [*ibid.*: 63]. It seems likely that a process such as that mentioned by Hunn occurred among the Galela, and as a result the cluster of the

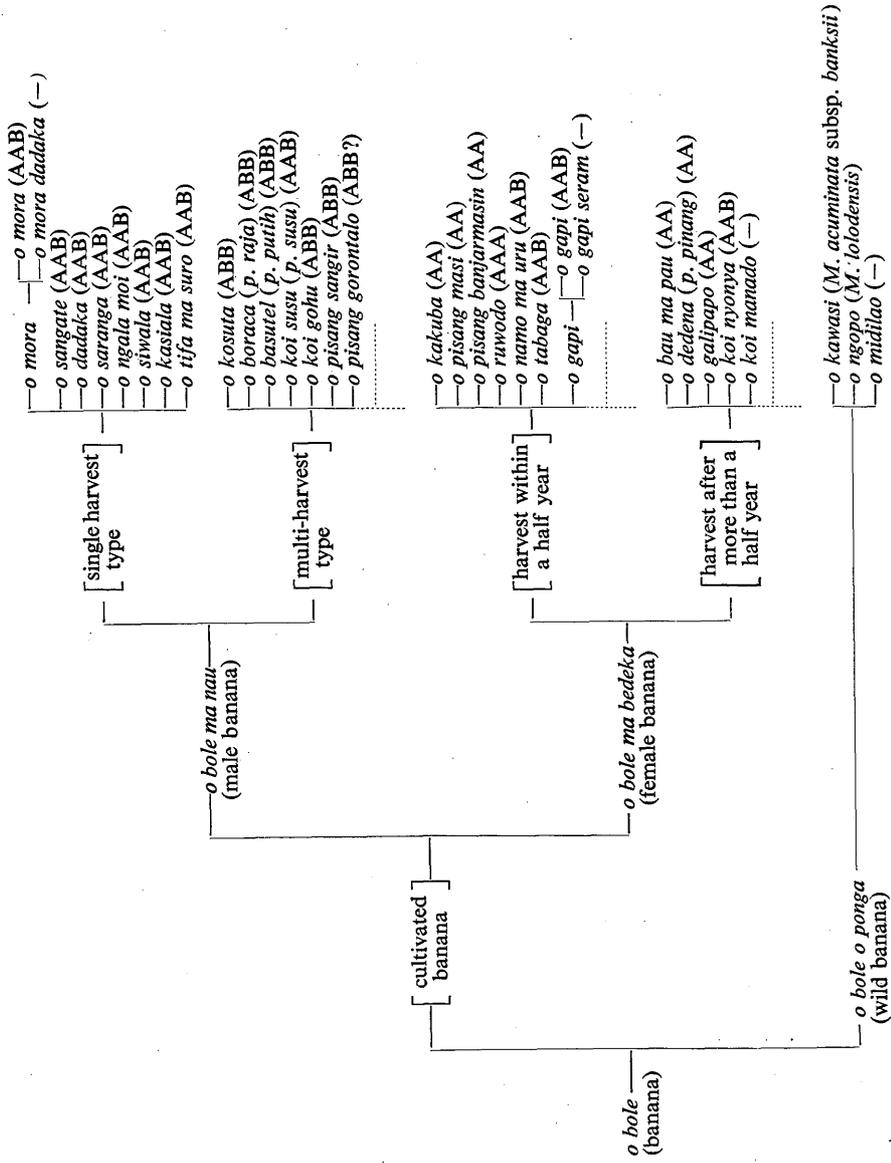


Fig. 2. The Galela folk classification of bananas.



*O bole ma nau* (male banana) and *o bole ma bedeka* (female banana) seem to be identified as labeled intermediate categories. However, the subordinate taxa of these categories, that is, single-harvest type and multi-harvest type, are also intermediate categories, but they are not labeled. Male and female bananas are distinguished not only by the perceptual discontinuity but also by a cultural function. Male bananas might have been restricted to *o mora* and *o sangate*, both of which occur in Galela myth. *O mora* and *o sangate* are often referred to as "genuine" male bananas. According to traditional Galela law (*adati*), the male banana was treated as a significant gift in ritual, and *o mora* and *o sangate* were served as the gift. It seems likely that the term "male banana" expanded its referential extension and that it has come to include other large bananas. This process is very similar to that of life form [BERLIN 1972: 71]. On the other hand, the single-harvest type and multi-harvest type have less functional significance among the Galela than do the male and female bananas, which may suggest that suprageneric taxa are labeled by some significant cultural functions.

## VI. THE SCORING OF THE CULTIVATED BANANAS

Simmonds and Shepherd selected the 15 distinctive characters of banana and scored from 1-5 in each character. When a character of a given sample is the same as that of *M. acuminata*, 1 point is given to the character. If the character is the same as that of *M. balbisiana*, 5 points are given. Thus, the diploid (AA) and the



Photo. 5. *Selewati* (horn plantain, AAB).

Table 3. Taxonomic scorings of

name of variety	Stem color	Petiole form	Peduncle	Pedicels	Ovule rows	Bract shoulder	Bract curling
<i>bastel</i>	5	5	3	5	5	3	4
( <i>pisang putih</i> )	3	5	5	3	(3)	4	2
<i>bau ma pau</i>	1	1	1	1	1	2	2
<i>boraca</i> ( <i>p. raja</i> )	4	2	2	2	5	5	5
	2	1	5	2	(3)	4	(4)
	2	3	3	2	5	1	3
<i>bubuku</i>	1	1	5	2	2	2	2
<i>dadaka</i>	1	2	4	2	(1)	5	5
<i>dedena</i> ( <i>p. pinang</i> )	1	1	4	1	(3)	1	1
	2	2	1	2	1	1	2
<i>galipapo</i>	4	1	1	2	1	2	2
<i>gapi</i>	1	1	3	1	(3)	3	(3)
	1	2	4	2	(3)	2	2
<i>gogusumutu</i>	1	2	2	2	(1)	2	(3)
<i>kakuba</i>	2	1	1	1	(3)	2	2
<i>kasiala</i> ( <i>kawasi</i> )	2	4	5	3	(1)	4	5
	1	2	2	1	1	1	2
<i>koi gohu</i>	3	5	5	2	5	4	3
<i>koi jawa</i>	2	1	4	2	1	1	2
<i>koi nyonya</i>	3	2	4	2	1	2	3
<i>koi susu</i>	2	2	5	4	1	2	2
<i>kosuta</i>	2	4	4	4	5	4	3
<i>mora</i>	2	4	5	2	1	3	2
<i>na mo mauru</i>	2	1	3	3	1	1	2
<i>ngala moi</i>	5	3	5	3	(5)	4	5
<i>p. gorontalo</i>	5	5	2	5	(5)	4	4
<i>p. masi</i>	1	1	1	1	(3)	2	2
<i>p. sangir</i>	2	3	4	4	5	4	5
<i>ruwodo</i>	1	1	2	2	1	1	(1)
<i>sangate</i>	3	1	5	2	(3)	3	4
	3	3	4	2	1	2	2
<i>saranga</i>	2	4	4	4	1	1	2
<i>siwala</i>	2	4	4	4	(3)	3	(3)
<i>tabaga</i>	1	4	5	1	5	1	5
<i>totaleka</i>	1	1	4	1	(1)	2	1

triploid (AAA) take  $1 \times 15 = 15$  points, the diploid of hybrid (AB) takes  $(15 + 75)/2 = 45$ , the triploid of hybrid (AAB) takes  $(15 + 15 + 75)/3 = 35$ , the other triploid of hybrid (ABB) takes 55, and tetraploid (ABBB) takes 60 [SIMMONDS and SHEPHERD 1955: 302-312]. These points are theoretical, and the actual scores are a little higher.

Table 3 shows the result of the scorings of the Galela bananas by this method. As a whole, the results are a little higher than those of Simmonds and Shepherd, and

## the Galela cultivated bananas

Bract shape	Bract apex	Bract color	Color fading	Bract scars	Tepal corrugation	Male flower color	Stigma color	Total	Result
4	5	5	4	1	5	3	6	62	} ABB
4	4	4	5	4	4	5	5	60	
(3)	2	2	1	(2)	2	1	1	23	AA
5	5	5	5	3	3	4	5	60	} ABB
4	4	5	5	3	3	2	3	60	
4	5	5	4	2	2	3	1	44(?)	} ABB
2	1	1	1	2	3	1	1	27	
5	4	4	1	1	1	1	5	42	AAB
1	1	3	2	2	2	1	1	25	} AA
2	3	1	2	2	2	1	3	27	
2	2	2	1	1	1	1	1	24	AA
3	3	4	1	2	1	1	1	31	} AAB
2	2	3	2	2	2	1	2	32	
3	1	1	1	1	2	(3)	1	26	AA
2	3	2	2	2	2	1	2	26	AA
5	5	1	1	5	4	2	2	49	AAB
1	1	1	1	2	2	1	1	(22)	} ABB
5	4	5	5	2	2	5	4	59	
1	1	1	1	(3)	1	2	3	23	AAA
3	3	2	2	3	1	1	4	36	AAB
4	4	4	4	(3)	2	4	4	47	AAB
3	5	5	5	3	4	5	5	60	ABB
4	4	3	2	3	2	2	3	42	AAB
2	3	2	3	2	2	1	4	32	AAB
4	5	3	2	4	2	1	2	53	AAB
5	5	5	5	5	5	5	3	68	ABB/ABBB
3	2	2	2	2	2	1	2	23	AA
4	5	5	5	3	2	5	4	60	ABB
1	2	1	1	1	2	1	2	20	AAA
4	5	2	2	3	2	1	2	42	} AAB
2	4	2	3	3	2	2	2	37	
2	3	4	4	2	4	5	4	46	AAB
3	4	5	5	2	2	5	4	53	AB
2	3	5	3	1	1	5	1	43	AAB
2	2	1	1	2	1	1	1	22	AA

a difference may be caused by the difference of intermechate evaluation of the characters. Among the scorings of the Galela bananas, one case is doubtful: The score of *pisang gorontalo* is 68, which should be judged as tetraploid (ABBB). Since the chromosome number is not counted, it cannot be definitely said whether *pisang gorontalo* is ABBB or ABB.

*Selewati* is not included in the table since it lacks a male axis. It is identified as

“horn plantain” in the AAB group. The Galela cultivate 2 other varieties without a male axis, *kusimalo* and *ngongopa*, which may belong to the “horn plantain” of the AAB group. According to Simmonds, the varieties of “horn plantain” have not been recorded [1966: 89]. Further investigation may yield interesting results.

Judging from the scorings of the Galela bananas, the main varieties fall into the AAB group. The AAA group is not significant among them. The bananas which the Galela regard as fruit consist of AA and AAA, except for *pisang susu* (AAB) (Table 1). However, most varieties of fruit bananas may have been introduced recently since all have names combined with *pisang* and *koi*. On the other hand, the varieties belonging to the AA and AAA groups and which may be indigenous, are used as cooking bananas. This indicates that the Galela originally considered the bananas only as cooking bananas and not as fruit bananas.

*O bole ma nau* (male banana) consists of the triploids of hybrids, AAB and ABB, whereas *o bole ma bedeka* (female banana) consists mainly of the diploid (AA) of *M. acuminata*. In the other words, their classification almost coincides with the scientific one. Moreover, the varieties of the single-harvest type consist of the AAB group, whereas the varieties of the multi-harvest type consist of the ABB group, although further investigation is required.

According to Simmonds [1966], the AAB group is dominant in India and the Pacific, the AA group in New Guinea, Malay and East Africa, and the AAB group in India and the Philippines [1966: 124–125]. The proportion of genetic types in the Galela area partially resembles that in the Pacific area in terms of AAB dominance, and is also somewhat similar to that of New Guinea in terms of AA dominance. Since there is no record that *M. balbisiana* exists in Halmahera (although there is an uncollected wild banana named *midilao* in the Galela area), the hybrids (AB, AAB and ABB) might have been introduced to the Galela area from the Philippines. On the other hand, the AA group in the Galela area may have been introduced from New Guinea or they might have developed from *kawasi*. Further research is needed on Galela bananas to clarify in detail the several problems explored in this article.

## BIBLIOGRAPHY

ARGENT, G. C. G.

1976 The Wild Bananas of Papua New Guinea. *Notes from the Royal Botanic Garden* 35: 77–114.

BAARDA, M. J. van

1895 *Woordenlijst, Galelareesch-Hollandsch. Met ethnologische aantekeningen, op de woorden, die daartoe aanleiding gaven.* Martinus Nijhoff.

BERLIN, B.

1972 Speculations on the Growth of Ethnobotanical Nomenclature. *Journal of Language in Society* 1: 51–86.

BERLIN, B. D. E. BREEDLOVE, and P. H. RAVEN

1973 General Principles of Classification and Nomenclature in Folk Biology. *American Anthropologist* 70(2): 214–243.

- 1974 *Principles of Tzeltal Plant Classification*. Academic Press.
- CHEESMAN, E. E.  
1950 Classification of the Bananas III: Critical notes on Species. *Kew Bulletin* 5: 27-28.
- HUETING, A.  
1908 *Tobèloreesch-Hollandsch woordenboek. Met Hollndsch-Tobeloreesche inhouds-opgave*. Martinus Nijhoff.
- HUNN, E.  
1975 Cognitive Processes in Folk Ornithology: The Identification of Gulls. *Language Behavior Research Laboratory, Working Paper* No. 42, University of California, Berkeley.
- SIMMONDS, N. W.  
1962 *The Evolution of the Bananas*. John Wiley & Sons Inc.  
1966 *Bananas*. Longman.
- SIMMONDS, N. W. and K. SHEPHERD  
1955 The Taxonomy and Origin of the Cultivated Bananas. *Botanical Journal of the Linnean Society* 55: 302-312.

