

T H E K A M A N U K U

V o l u m e II

The Material Culture

By W. Bergmann



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Mutdapilly M/S 126 Qld,

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Preface

In this volume (volume II) I have tried to write something down about the material culture of the Kānanuku. My observations in this respect are over the years from 1934 to 1968. I shall try to describe things as they were in the old days; when we arrived there and in the following years. Now and again I shall also mention how things have changed in the course of the years. To mention just one example: It will hardly be possible today to see and find a single shield: such as was used in warfare in the old days. Other things also have vanished. But the people: especially the old ones still know well, how it was in the old days. Also in regard to building the houses, in regard to tools they use: in regard to food etc. quite a few changes have taken place. Also in regard to how they have their hair made up, in regard to the wearing apparels etc.etc., big changes can be observed. Many things are different today, compared with the customs of the time 30 or more years ago.

As one of the first white people who lived with the natives here, I have made my observations and try to write them down in this volume,

This is a translation from the original, which was written in German. I want to express my sincere thanks to Laurēl Bergmann who kindly read through this manuscript and made corrections where necessary. The translation was done by the author.

With this work I hope to do some little service to all who are interested in the culture of the "primitive".

Mutdapilly, Qld, Australia in the year 1971

In Regard to the Pictures

To have pictures made from photos on stencils is a problem. It took me quite some time to decide which way would be the best. I have decided at last to have some made electronic (Roneo) (the ones made from photos). They are not as good as I wanted them, but it is the best I could get. To have them made by blocks and then printed, was a bit expensive for the limited amount of copies I have made. They would have cost me at least \$ 15 to \$ 20 each. The electronic stencils I could get for \$5 each.

The other stencils were drawn direct on the stencils. Our daughter Hilda and her husband were a big help to me, as they have drawn a number of stencils. Others I have done myself as well or as badly as I could do them. For the help and assistance given to me by our daughter Hilda and her husband, I am most grateful.

To get the electronic stencils cut our son Gerhard was a big help, as he took care of preparing them. Also the binding of the volumes was done by him and his wife Bernice. I am very thankful for their help.

W. Bergmann

I The Settlements

In the area from the coast to the west(Lae to Chimbu) people live in villages, small or big, but in the Chimbu area this changes all of a sudden and people live in clusters or hamlets of several houses close together. About 10 km east of the Chimbu river is the borderline for villages and from there on towards Mt. Hagen one finds only the hamlet system. The border area is no borderline between different groups of people: also the language is the same, even if different in dialect; also the customs etc, are the same, not counting small differences, which are found in the area of the hamlet system as well. Where the people live in village systems there are some differences in the location of them. In some areas one finds the villages hidden somewhere near the rivers, or near the forest borders near the spring of the rivers, very often quite hidden by nearby hills. Other areas have the villages build in the open on the ridges or on the slopes of the hills. So for example the people in the upper Goroka valley and in the Maili river system. The same system one finds in the area around the Elimbalim(mountain range). In the area of the eastern Highlands, Kainantu etc. the villages were very much fortified in the old days. Strong and high fences were built around the villages and especially the entrances were very strongly fortified. They had wood(trees) enough in the vicinity, so they could do that. If one came to the grassland area the fortifications were much weaker, fences being made from strong grass etc.. But coming over the divide from Goroka to the Maili river, no such fortifications were in use. Perhaps it was enough for them, that by the locations of their villages on the hills or slopes, they felt safe enough against a surprise attack of an enemy. They could overlook the whole area that surrounded them from the elevated point of their villages.

The Kamanuku live in hamlets. The same is true of all the people in the upper Chimbu valley. Also to the west from Ega there are only hamlets, not villages. The borderline is about 10 km to the east. The Yongumugl are still living in hamlets: the Sinesine in villages etc.

The villages to the east from Chimbu are different in size. There are villages covering whole mountain ridges (Grass land) and are several km long. The houses are mostly in one line. If there is room enough there may be 2 lines of houses or more. One may count several hundred houses in one village and of course in that case also several men-houses. The houses for the women and children are, in all these areas where the people live in the village system, built as round houses. For each woman (wife and children) there is one house in which she lives with her children and with her pigs.

It will be an idle question if we ask why this change of the system does occur, because we don't know the answer. Surely one may observe that people living singly or more isolated from the others are somewhat more "individualists" than the others who live close together. But did that develop because they were living in small groups or were they more individualistic and then built in smaller groups? What is cause and what is effect? If you ask the people why they live differently from the others, they will say: Our fathers and grandfathers lived that way and we do the same. That is all one will hear.

Another reason they gave me for living more apart from each other was: If we live so close together we are far more in danger to be harmed by Kumol (see volume IV). If we are so close together and we do something what they do not like, they have far more occasion to harm and kill us. They can also then much more easily kill our pigs etc. ("eat their liver" so they will get sick and die).

Another reason why it was necessary to live in hamlets they gave as following: If we live close together(many people) and if then the pigs eat the faeces of the human beings (any kinds of latrines, holes in the ground etc. were unknown to the people here, they had special places where they went, but one could go anywhere to releive himself), then they will get skinny, get sick and will die. There is also the danger, if people live close together, that pig eat some of the menstruation blood or touch it. If they eat that, they also will get sick, get bony and skinny and at last they will die.

To describe the hamlets, I want to say, there are usually only a few houses close together, three or four, seldom more. Often the inhabitants are brothers or close relatives, special friends. Each house is for one family, for wife and children. The husband may stay in the family house or he may prefer to go to the menhouse. In daytime and in the evening the husband will very often stay in the family house, but at night most of them prefer to sleep in the menhouse.

The menhouses, which one will find in every clan, are built some distance from the hamlets. Often they may be away a kilometer or more.

If a man had more than one wife, then the wives never lived at the same place, often several km away from each other. It was well known, that several women of one husband were often fighting each other.

These hamlets, (up to date very little has changed in building these hamlets) are mostly located on a small hill, on slopes of the mountains etc. Anywhere where there is a place, somewhat even, such a hamlet may be built. But even then the places have to be made even or flat, because there is very little flat land in the area, not even big enough to build a house.

Such a hamlet is always surrounded by a fence. The kind of fence is normally the same as these used around the gardens. (see under: garden). Inside the fence there are no gardens. There would not be room enough for them. But one may plant some sugarcane or a few bananas, some kinds of vegetables and some trees. The purpose of the fence is mainly so that the pigs have to stay close to the houses, when they have been brought into the fence at night to be fed, before they are put into the houses.

If a house is old and rotten (which does not take long in this climate and with the material that is used for building the houses, it may take about three years) then it is pulled down and another one may be build at the same place, or one may prefer to build on another place. If all the old houses are rotten and threaten to fall down, they sometimes leave a place altogether and build on a new selected place.

Since with the type of hamlet settlements, the people are not so close together as in village settlements, they have more menhouses than the population of villages. Or one may say the menhouses are smaller in the hamlet system than in the village system. The Okondie have for example 7 menhouses, the Awakane have 7 menhouses and the Endugakane have even 10 menhouses etc.,etc.

As the little groups of people often live very mixed and chequered, as far as groups or clans are concerned, it may happen that several men houses are fairly close to each other, because each group or clan has as a rule its own menhouse.

Area of the Kamanuku

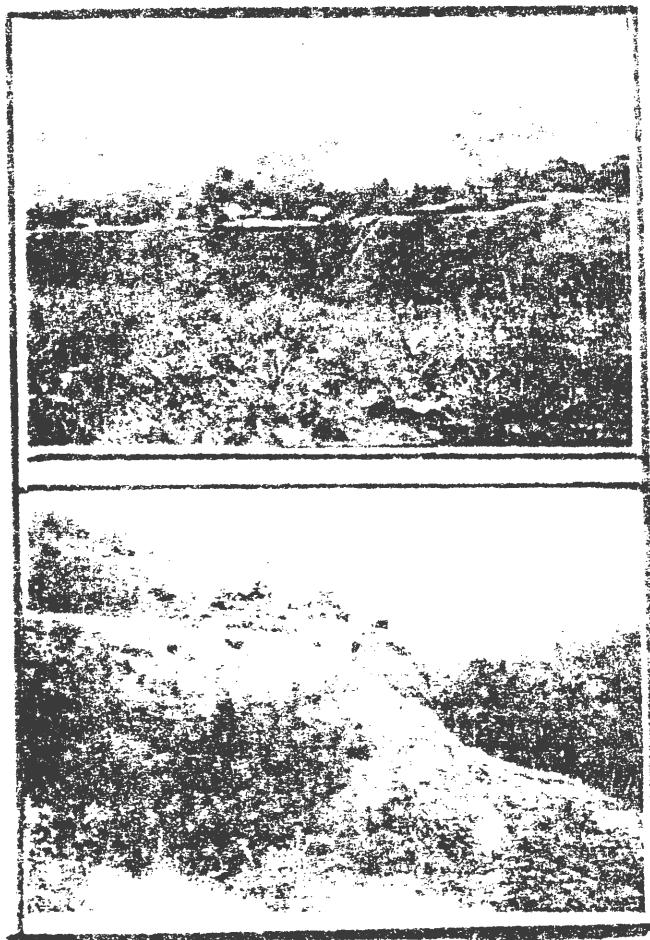
- 1'. Looking from Ega towards north
 2. The same mountain seen from the other side
- (Mountain to the left on picture 1 is mountain to the right on picture 2. The Chimbu river broke through these mountains, many thousand of years ago)

1.



2.



Hamlets

II Types of Houses

The Kamánukü had different types of houses, or forms of houses. Some of them have been known to them since ancient times, others seem to have been introduced in more recent years. (It may be that they have been in use for 80 or a hundred years or so, but they still know, that these types were introduced from other areas.)

We may differentiate:

1. Menhouses
2. Women and family houses
3. Houses for cooking
4. Cult houses
5. Huts in the gardens
6. Hunting huts
7. Emergency huts
8. Houses for guests
10. Huts for animals and birds.

On the following pages these different types will be described in some detail.

1. The Men Houses

a) yungu bire. Of the different types in use for men houses the rectangular type seems to be the original type for this region, at least as far as people can remember, and as they have been informed by their ancestors. This type of house is called: yungu bire. The house is about 5 or 6 meters wide, so it is possible for the men to lay and sleep at each side of the walls, feet towards the middle of the room. In the middle of the house are the fire places. The places for sleeping are not specially marked or defined. At the head of each sleeping person is the place where he keeps his weapons (shield, bow and arrows) also their stone axes are placed here and the ornaments (shells and feathers), besides other utensils,

that is , they put all these things down on the ground or lean them upright at the wall, or put them under the grass roof, but in each case in such a way that they can be reached in the twinkie of an eye. The walls of such a house are about 80 cm to 1 meter high. On the walls the roof rests. The roof is a pointed (A - attic) roof and the middle of it is a few feet higher than the sides(about 50 to 60 cm). A grown up person is as a rule just able to stand upright in such a house(in the middle) without touching the roof with his head. The roof is covered with grass. The house yungu bire has two entrances, one at each end of the house. The floor is the ground. Mostly it is covered with some grass or leaves. The walls are very dense(firm). Between two rows of posts treebark or grass is set firmly in place and pressed together by the posts which are bound together with vines. Hardly any air comes through such walls. Therefore such a house is also fairly warm in cold nights and in altitudes of 2000 and more meters. But on the other hand the smoke can not disappear and also foul air stayes inside the house. There are no windows. In some cases air can come into the house from under the roof, where roof and walls meet. The doors are lower than the walls, about 10 to 15 cm or so. The doors or entrances are made so that a little outside the walls at each side of the door another post is put into the ground(or more than one post at each side) and then the opening is closed with pieces of wood which is put between the posts across the opening(horizontal). Sometimes there is also outside the wood, a kind of "curtain" made from dry banana leaves or similar material. This can be put to one side or left before the opening when the wood pieces are removed.

At each end of the house is a gabled roof. On the roof there are several "decorations" called: minie, or: endi minie. Some houses have 4,6,8, 10 or more of these decorations. These are made so that besides the middle post, which carries the ridge piece, a smaller post is put into the ground, and this post exstends over the roof for about 1 meter and on these posts grass is wound around and on top often pieces of fern are put, which look mostly very dark, and also kogugl and dire duruagl(orchids) are put on as ornamental plants. These decorations look like several turrets on the houses.

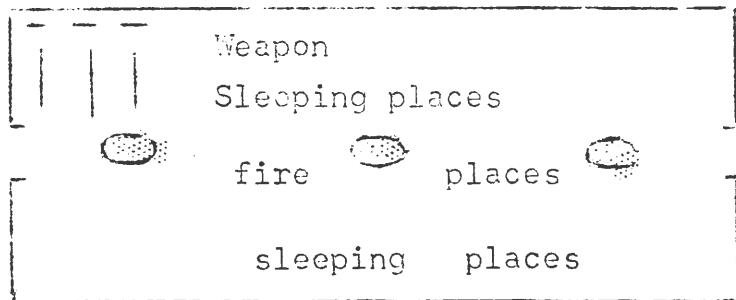
If one asks for the meaning of such decorations, the answer is: "Our ancestors built that way and we do it too". Or the answer is that the little turrets on the house should prevent rainwater running down into the house. Now and again this decoration is also called: yunqu nimbine. This expression will be best translated with: "protecting charm" and I suppose that this meaning may be the original meaning. The meaning could be, that these decorations will protect the inhabitants of the house against evil influences from outside, but others say that the good(house) spirits have their dwelling there and will help to bring luck and blessings to all inhabitants and they also are supposed to help to bring wealth and goods. They also are supposed to attract game and birds. Without doubt these and similar thoughts will have been the causes why such decorations were made on the houses.

b. Yunqu keu keu.

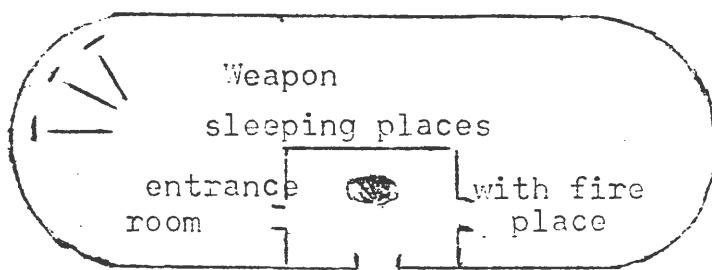
Another type of menhouse is called yunqu keu keu. It is built similar to the one as described under a), and also the building material is the same. The difference is that the floorplan is different: namely oval or long oval. In other words the "corners" of the house are not corners but round. It also has only one entrance on one side of the house, in the middle of the lengthwall. This entrance is toward the inner of the house protected by a fence inside the house. In this room, which is at the entrance of the house, the fireplace is located. All the other space of the house is sleeping place. From this room at the entrance, two doors or openings lead to the sleeping room. This fence inside the house is made mainly for the purpose of protection.

c) Yunqu tawia. A third form of menhouse is called: yunqu tawia. It has been introduced as the yunqu keu keu from other areas. It also has only one door and has the fireplace in the fenced-in room at the entrance. This type of house is a round house. It is found not as often as the other two types.

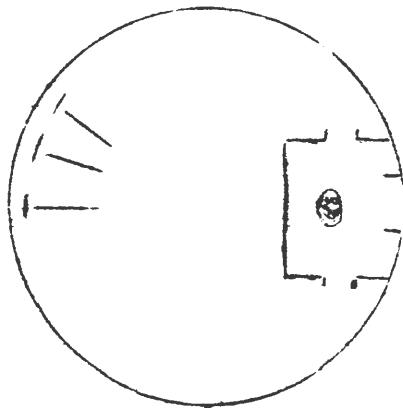
Ménhouses, Floorplan



I. Yungu bire
- 6 m wide
15 - 20 m long



2. yungu keu keu
5 - 6 m wide
15 - 20m long



3. yungu tawia
entrance room and
fireplace

8 - 10 m in diameter

2. Women and/or Family Houses

Of the women and/or family houses there are 3 types in use:

- a) baundo puma yungu
- b) yungu angaingo
- c) yungu angaingu simbigl·mambuglo.

All three types are long-houses. Round houses such as one will find in the neighbouring tribes, as for example the Sine-sine, were not in use in this area.

a) Baundo puma yungu

The type of building and also the building material are similar to those of the menhouses. This type of house has three rooms. The house is about 10 meters long and about 3.50 to 4 m wide. There is only one entrance at the one end of the house. The first room inside is for the pigs. At night they are put into this room and the entrance is closed. A gangway leads from the first into the second room. The partitions in the house are like fences and one can mostly look through them from one room into the other. In the second room is the fireplace. Cooking utensils and other things, also some food, may be placed in this room. There is also a place for firewood, near the fence or wall to the last room. To the next room one can enter through two entrances. Between these two "doors" is the place for the sweet potatoes and vegetables. The three rooms in such a house are of about the same size. The outer walls are a bit lower than the walls for the menhouses, but not much. The roof is also a bit lower. In the middle, the highest point of the house, it may be about 1.60 or 1.70 m high. The last or third room is the sleeping room. Here the wife and the children sleep and also the husband, when he stays over night. In this room there are the sleeping mats and the neckrests if such are used. Otherwise there is no furniture. The house as a whole is oval. On both ends the roof is round. At the head ends of the sleeping places the "tools" of the women are put and if the husband is in the house for the night, his weapons.

b. Yunqu angainqu. This type of house is built like the one described under a). The only difference is that this house is at the end, where the entrance is, not round but rectangular. Also the roof is at this end not a gabled roof but is a vertical gable.

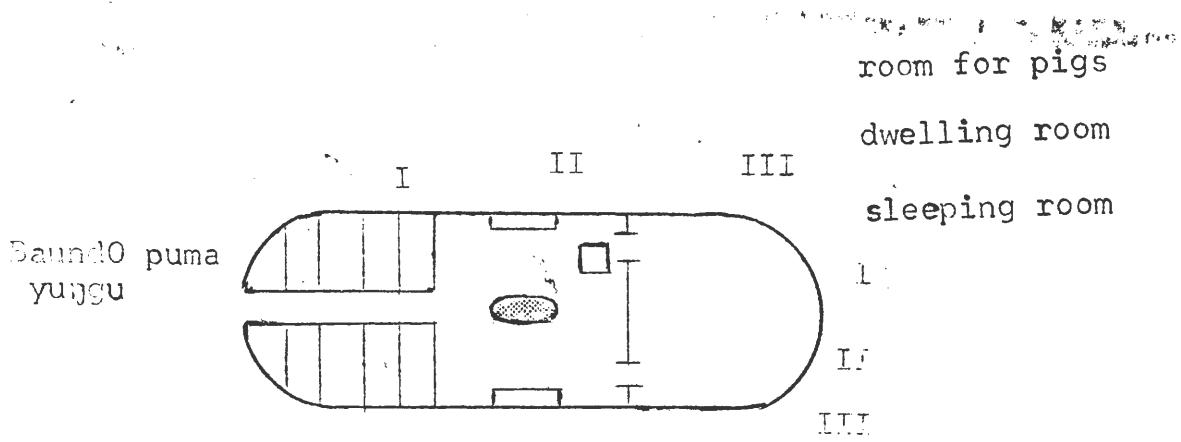
c.) Yunqu angainqu simbigl mambuglo. This type of house is similar to the other two types of houses; but it has 4 rooms instead of three. The entrance here also is only at one end of the house. At this end is has a steep gable and is rectangular. The first room is used for cooking purposes, we could call it the kitchen. Instead of having an extra house for cooking, the preparing of the meals is done in this room. There are mostly a number of wooden cooking pots in this room and a fire place for cooking. Sometimes there are even pits for cooking in this room. The stones necessary for cooking are also in this room. In the middle of the fence or wall to the next room is the entrance for it. In this room the pigs are kept at night. The third room is then the "living" room and the fourth one is the sleeping room. Like the other ones described under a) and b). Floorplans of these types of houses see next page.)

3. Houses for cooking

A cluster of houses, or a hamlet, has normally also one or more houses for cooking purposes. There are two types of them known here, yungu tengagl and yungu akerika. The difference is: The first one has a steep roof and the second one has a flat roof(slanting only to one side). Both types are rectangular. The walls can be open, so that there is more or less only a roof resting on posts, or the walls can be like a fence, but hardly ever closed and dense like the walls of a house. The first type has only one entrance at one end. and the other type has two entrances, one at one end of the house and the other at one side. In the houses there are normally a number of wooden pots for cooking purposes, heaps of stones and one or more pits, in which the food is cooked or steamed. The houses are about 4 m wide and about 6 m long. If many people are living in the houses close by, these houses may be bigger. In these houses the main meal for the day is prepared, mostly late in the afternoon. This meal may be eaten in the cook houses, especially if it is rainy weather, but mostly people prefer to eat outside.

Floorplan for Women and Family houses

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room for pigs

dwelling room

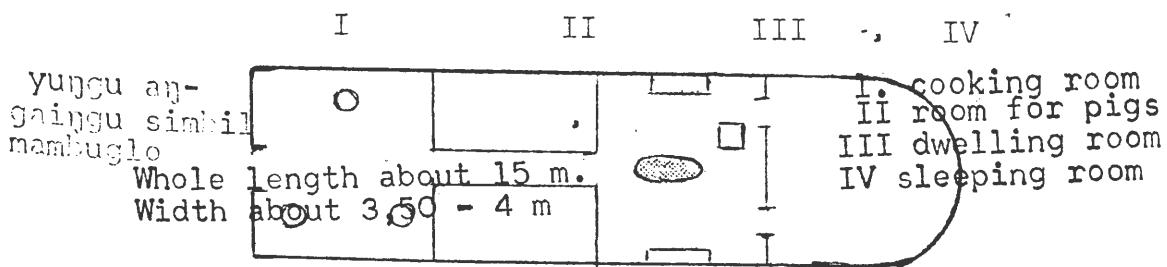
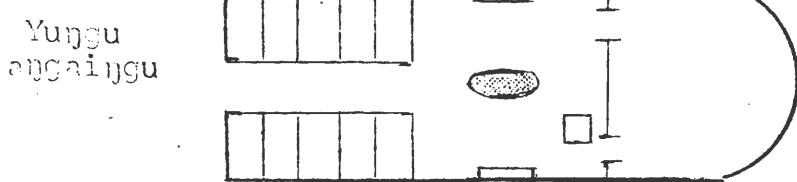
sleeping room

I

II

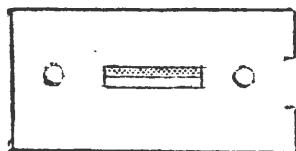
III

Divided as above



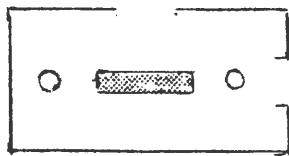
Houses for cooking

yungu ten-
gagl

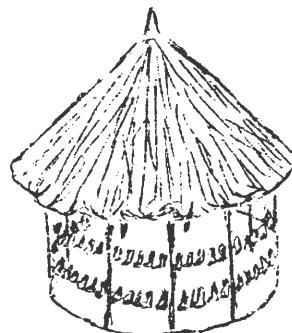


length 6 m
width 5 m

yungu
akerika



bolum



1.60 in diameter

4. Culthouses

a) In first place I want to mention here the gerua yungu. This is a type of house which is built, in size and form, like the menhouses, only not as firm and solid as the menhouses, because they are needed only for a short while; when the socalled gerua pieces(ancestor pieces) are presented to the boys. That is done very often in connection with the big pig festivals, but it may also be done at other times. If the gerua have been presented to the youth the houses may be used for some time as living or guesthouses, but mostly they decay very quickly. Because they are needed only for a short while, not as much care has been taken in building them as with the real menhouses,

b.) As a second type of culthouse I have to mention a little ancestor house, which is called bolum. This is erected only in connection with the big pig festivals, namely a short while before the big killing of the pigs takes place. This house belongs to the ancestor cult and is built in honour of the ancestors. As soon as the festival is over, the houses are left to decay though some people find another use for them, as for example the Uru Pare(Kamanuku "villages") who put them into a big pond after the festival.(see volume IV under pig festival) This bolum house is only small, a round house, no walls, a good roof made out of grass. The diameter of such a house maybe 2 meters or less. Instead of the walls there are some cross sticks or small poles tight together to the upright posts. On these sticks in the horizontal position the jaws of the pigs killed and eaten are lined up after the pigs haven been eaten at the big pig festivals.

5. Garden huts

In some gardens, especially if these gardens are made some distance away from the houses or dwelling places, people sometimes erect field huts. Here one may rest in the hot noon sun, or find shelter if it suddenly starts to rain, and some people even stay in these houses over night. There are areas where people live for weeks in such field huts, especially if there is a lot of work to do in the gardens. The huts are only roughly built. Sometimes they have walls, sometimes not. This type of hut is very similar to the cooking houses with only one difference, that they mostly have a fireplace in the middle. They are built like the tengagle or like the akerika cookhouses, namely with a pointed roof or with a flat roof.

6. Huts for hunting

Northwards of the Kamanuku area there is plenty of forest. In this area the Kamanuku men frequently went to hunt. Because it was too far away from home to return at night, they built some huts in the forest at different places, where they could stay overnight. These huts they called dua kambu yungu. They were built of the same type as the cookhouses, only the walls were firm and dense, as it can be really cold in these altitudes (2000 to 3000 m.). When they had hunted they returned at night to these huts, prepared what they had killed that day, ate and slept there. Sweetpotatoes they mostly brought from home and put into the huts, before they went hunting. They often stayed in these huts for several nights.

Another type of small hut or hiding place was made on trees, especially on trees where birds gathered, or on trees which bore fruit which the birds ate. When the birds arrived they should be shot from such hiding places. These "huts" were as a rule very small; just big enough so that a man had some cover and could not be seen by the birds.

7. Emergency Huts

Now and again it was necessary for the people to build small emergency huts. For example: A group of people was chased away from house and home in wartime, their houses had been burnt etc., so they made somewhere little emergency huts for one or two nights. Or if someone had been away and could not reach home in time, or if it started to rain, then he, or if it were more people, they would quickly make an emergency hut. A few sticks put into the ground and bent on top, or some long grass, sugar cane grass or bambu grass etc. were put into the ground and the tops bound tightly together. Some grass was pulled out and put over the sticks and the emergency hut was ready. If it was necessary to stay for a longer time in such huts, then they built them somewhat more firmly and solid. Such little emergency huts they called: Kilawe.

8. Houses for Births

As has already been mentioned in volume I, the custom of the Kamanuku was, that babies were not born in the women or family houses. If the time for confinement drew near they built a special house for the woman who expected the child. This house could be rectangular or the round type. It had one entrance and in the middle of the house was a fireplace. It was big enough so that besides the expectant mother several other women had room to stay with her. The walls were firm and the roof fairly dense. The child was born in such a house and the mother stayed for several days until she could go back to the family house. The time she stayed after the birth of the baby was up to a week.

9. Guesthouses

Guesthouses were built on the occasion of the big festivals, especially the big pig festivals. On such occasions not only hundreds of guests were expected but often several thousand. For all of them the sleeping places had to be provided. These type of houses are often only 3 m wide, but the length is according to the number of guests, who are expected to come. About every 8 - 10 meters there is a partition in the house, a wall or fence, and each room is for a different group of people. A single entrance leads to each of these partitions. The roof can be pointed or it may be flat. These houses are built beside the assembly ground or dance place, or right around the place, sometimes a single house, sometimes a number of houses. The floor is earth, but dry grass and leaves are put on down, especially if it is wet weather. A fireplace is in each of these rooms or partitions. The houses are in use only for a week or so and it is not necessary to build them very strong and firm. Afterwards they are standing empty and very soon decay.

10. Huts for Animals and Birds.

The pigs are, as already mentioned, with the people in the women or family houses. No extra houses are built for them. No houses were built for fowls nor for the dogs.

But they build small huts for cassowaries. These are caught, when they are still small, in the forest and brought home to be fed and eaten at some festival occasions. Often people, who live near the forest catch them and trade them in for other goods. For the first months they mostly run free around the village square, but when they grow bigger, they could get dangerous for children, which they hit with their sharp claws, first in play, but, later perhaps in earnest.

Then a small hut is built for them, an enclosure. Strong sticks are put into the ground which are tied together with crossticks and vines and on top is a roof of grass in height of about 1.50 m.

The sticks are not close together, so the cassowaries can put their heads and necks through them. In such a hut they stay and are fed each day, until they are fully grown. Since they stay there day and night, and as the place selected for such a hut is often on soft ground, inside the hut is a lot of mud and mire. Food is given abundantly to them to have them grow quickly and ready to be killed and eaten, either for a marriage, a pig festival or for any other occasion.

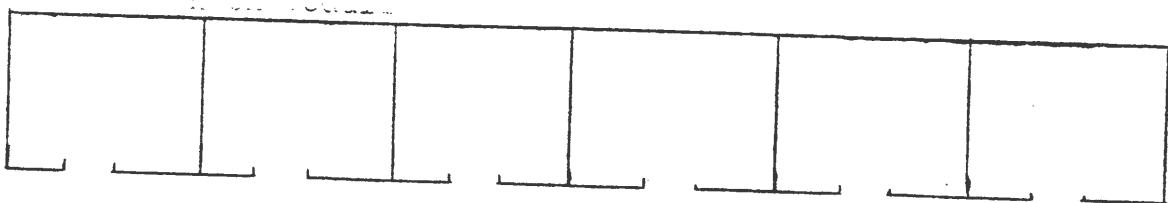
Also for other birds little huts are erected, for example for the white cockatoo or for some kinds of lorries. The white cockatoos do not live in this area but are traded in. They are kept for their white feathers. Also sometimes a hornbill is kept in this way.

The huts for such birds are not built on the ground, but a bit higher. Several sticks or small posts are put into the ground and at a height of about 1.50 m. a platform is made and the hut for the bird is built. Perhaps one may call it a cage. This is mostly rectangular. Sometimes it may be round. Little sticks are tied together over the platform and on top a roof is made, mostly a flat roof. Here the birds stay, at least until they are really tame. Then they are often taken out of the cages, at least in the daytime, and they can fly around the place. At night they are put into the cages again. The birds are more or less pets for adults and for children, but the main reason for keeping them is the feathers.

Also for several kinds of animals similar small huts or cages are made. Such animals as kambu teine and others are often caught in the forest, while they are still small, or caught and saved when the mother has been killed. They are kept until they are fully grown. These animals are mainly kept for their skin or fur, which is used for ornaments; Of course, when they are killed the meat is eaten as well.

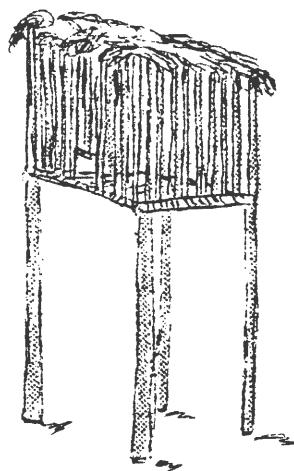
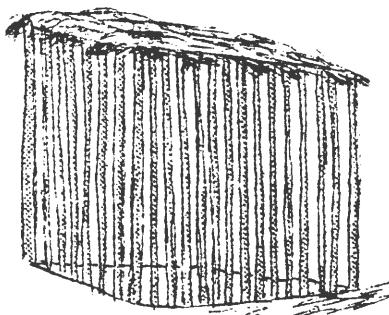
Guesthouse Floorplan

single room about 4 b 4 to 10, the whole
lengthe according to the expected guests



House for cassowary

House for kambū teine
or for a white cockatoo



III. Housebuilding

I want now to describe how a house is built. We may assume that a menhouse shall be built. First it must be decided where it will be erected, and a suitable site has to be found. This is not decided by one man or by two, but the people sit together and talk about the problems, the advantages and disadvantages of different sites, until they come to a decision. The menhouses are mostly not close to the women or family houses, but at some distance. They like to build the menhouses on little hills or on an elevated place, but often that is not possible. It is selfevident that all men, who want to live in such a menhouse, will help to build it. Besides that, often men from befriended clans give a helping hand.

When the site has been decided upon, the next step is to get the building material ready, namely wood or trees for the posts, for bearers, beams and rafters etc. Most of the wood has to be cut in the forest, or in the gardens, if building material can be found there. The posts have to be hewn or trimmed for the walls as well as for the main posts. For the shorter posts (walls etc) the trees have to be split, cut in ends and the pieces flattened to the size they want to get. For the wall, lengths of about 1 meter are needed, sharpened and pointed on each end. Such posts are about 10 to 30 cm wide and about 5 to 8 cm thick. When the posts are prepared in this way they are stacked(piled) in heaps at the place where they are prepared, always two lengthwise and then two crosswise, so the air can readily get through and dry them. This work takes some time. In the old time it took weeks and weeks, as all work had to be done by stone axes. In later years they have learned to use iron tools. Iron axes were practically unknown, when we arrived here, and the few pieces they had, were very old and worn. Besides the stone axes they used wooden wedges, either short ones, or long strong sticks, which they sharpened like wedges. If they had made a crack at the one end with their stone axes they would ram these "wedges" into the split, two sticks at a time side by side, and then bend the sticks to either side and in that way split the trees.

While the wood was drying the place, where the house was to be built, could be levelled, if that was necessary. Then the dry wood would have to be carried from the forest to the building place. The men would go in groups to do that, and carry the wooden posts on their shoulders, the heavier posts, bearers etc. are carried sometimes by two men, each taking one end on his shoulder. It seldom happened that they had chosen posts etc., that could not be carried by two men. All this work mentioned so far is work for the men.

When the place had been levelled, they must make endiko, that is: They put long sticks on the ground, marking out exactly the projected floor plan. Then they put little pegs into the ground along the sticks and then tighten a string(vine) to the pegs. The menhouses have no partitions, so they need only to mark the outer walls. However in the type of house where there is a room near the entrance, this room is also marked on the ground. It takes quite a while until everything is correct and all are content. The one likes the house bigger, the other smaller, one thinks the rounding at the end is not exact etc.etc. or the sidewall is not straight.

When in this way the floorplan is decided upon and all are content, they begin to drive the posts into the ground, on both sides of the vine, which has been placed in position. The posts are driven into the ground with a distance of about 10 cm in between the two rows of posts. The posts have to be the same height on top. The single posts are not close together, but have some room between them of about 10 cm or more. The room in between the two rows of posts is then filled in with treebark, very often bark of casuarina trees, or with grass. If the people use only treebark then the two rows of posts have to be fairly close together, if they take grass, they must be wider apart. If they take treebark, the room in between two posts will be only about 4 - 5 cm. The treebark is put in several layers one over the other, and the grass is pressed firmly in. When the walls are filled to the top, the crosspoles are tightened near the top, about 10 cm down from the pointed ends, one pole on each side. In this way the posts are pulled close together and the walls are firm and dense.

These crosspoles or sticks, which mark the end and height of the walls are called kijgin. For fastening these to the top they use grass vines, which are called kindikan (others also use different types of vines). The points of the posts project about 10 cm over this crosspoles. On these the roof will rest later and this stops the roof from sliding down.

When this work is done and the posts for the entrance (or entrances) have also been put in, it is time to make the holes for the main posts, which will carry the roof in the middle. When the holes are made and deep enough - only hands and sticks are used to make them - then the posts are put into the holes temporarily. These posts are called kauglange and are forked at the top end. Either a post has been selected which has a natural fork, or a kind of fork is worked in on top with an axe. Then the crossbeam is put on these posts. When that is done they can see if the roof is high enough or too high, if the beam is horizontal or higher at one end etc.etc. If one end is higher, then the post is taken out and a piece is cut off with an axe. If everything is alright then the posts are taken out again. Then small dry grass is taken and rubbed or chopped fine and this is put into the posthole and doing that an enchantment is said:

Eremine ande yei moglo
Endiweri endi yei moglo
Ninga ninga.

(In the daytime, when the sun is shining, stand firm
At night stay and give warmth
always, always.

In other words: In the daytime the house should give shelter and at night it should keep warm the people, who live in it. Chanting these words they put the posts into the holes again and the holes are filled with earth and trampled firm, or rammed firm with sticks. As the posts have now the correct height and are evenly high, the ridge beam can now be put on permanently. For long houses they need at least two of these posts that carry the ridge beam,

but more often there are at least three of these kinds of posts. Most of these types of houses have no steep gable, or only at one end, but the roof is round and as low as at the sidewalls, or they have a gable roof. (That they always plant beside the main post a smaller one, which protrudes over the roof, I have already mentioned before).

Now the "rafters" can be put on. At the lower end they rest on the kingin(pole) and at the upper end on the ridge beam. Then they take big leaves from the gandin tree(and other trees) and wind them to a big rope, about 8 cm in diameter, and this is put over the kingin and is tied firmly to it. On this "rope" the rafters come to rest. If that is finished they can start to cover the roof. At first they put banana leaves and several kinds of grasson, and over that some vines are tightened. In this way the big leaves are kept in their correct position.

In the meantime the women have brought grass, long grass of about 1 meter long or longer. Bringing that is women's work. This grass is now put on the roof fairly densely, the first row the root end down, the next row the root end always on top. The grass is not tightened with vines, but only put loosely(not bundled) on the roof. The denser the grass, the longer the roof will last. When they have arrived at the top they bend the grass in the middle and put it over the ridge, with the roots always on alternate sides. Then the roof is finished. Some people then put a few sticks or branches over the roof, so that the wind cannot blow the grass off. Once the grass has dried and been wet by rain in this position it is seldom damaged anymore by strong winds.

Once the roof is finished, then the protruding posts will also be wrapped with grass. They look then like small turrets on the house. On top of these turrets some ornamental shrubs or flowers, or a piece of a fern stem are fastened.

At the lower end the grass of the roof is sometimes nicely and evenly cut, but others prefer to leave it as it is. Only with some types of houses, for example the cult huts (bolum) the roof is always evenly cut at the lower end.

Outside the house, not far from it, a little ditch is made, so the water dripping from the roof can not run into the house. In most cases this ditch gets deeper with the time, as heavy rain washes the ground away.

For the entrance two extra posts had been put in when the posts for the walls were driven in. These two posts, at the outside of the wall are connected on top by a crosspiece of wood. Above this crosspiece the posts are connected with the roof with vines. Between these posts and the posts of the wall some open space is left of about 10 to 12 cm. To close the "door" pieces of wood are put horizontally in this space, pieces of split wood or something like boards or posts. In this way the entrance can be closed. Outside of this "closure" there is often a lighter "door". Some leaves of bananas (dry) are put on a string and this type of apron is put across the opening. Both together give a firm and dense closure. In the daytime, or if somebody goes out of the house for only a short time often only the outer door is closed, but at night both are tightly closed.

Houses for families are built in a similar fashion, only the type of house differs and mostly there are not as many men to help build them. If a family house is built the main work has to be done by the husband and father, but normally he has a number of friends, relatives etc. who will help him to build

the house. Mutual help is customary. "He helped me when I built a house, so I have to help him building his house*". And that applies not only to house building but equally to other work.

It may be mentioned that, in the partition of a famili lu house in which the pigs are to live, some crossbeams are put on the ground, and this has to be done with a special enchantment, which is a fertility charm for the pigs(endi sunjwa boglkwa.)

Once the house is finished in this way the fireplace can be made, but that is done according to ritual custom. Many of the people do not know why they do it just that way, it is nevertheless a firm custom. At first several kinds of grass and pieces of weeds have to be collected, also dingi(leaves), yokondo and gandi etc. (The fruit of these trees is eaten by birds when they are ripe.) The meaning is: Just as the birds "collect" and eat all these different kinds of fruit or seeds, likewise shell's and other valuables shall be richly present in this house.

The aforesaid leaves etc. are now taken and together with other firewood put onto the fireplace. Also different bones of pigs such as bones from the legs, have to be put on. As soon as everything, that belongs to it, has been put on the fireplace, the fire is started, and everything is burnt together. The burning of the leaves and the vegetables have the same meaning: From everywhere, from near and far off the vegetables shall come, also the meat. In this house we will live and always have plenty to eat. Here we will stay and eat all the good things.

Once the fire is burnt and everything with it, then the house is dedicated. Now it is ready to be lived in,. But often they wait for a few more days until everything is drier (grass etc) and the house is warmer.

As payment for building a house, or helping to build it, a good meal is prepared for the men, especially when the house is finished. If it is a family house, the owner will have prepared the meal for the people who helped him; that is: his wife and other women will do most of the work, as far as food from the garden etc. is concerned; as far as meat is prepared, he and his friends will do it. A payment in other goods, such as shells etc., was unknown. But if the other had to build a house, he expected help from the ones, to whom he had given a hand.

These good meals included in most cases several pigs, which had to be killed and prepared for the meal. With that everybody was quite content.

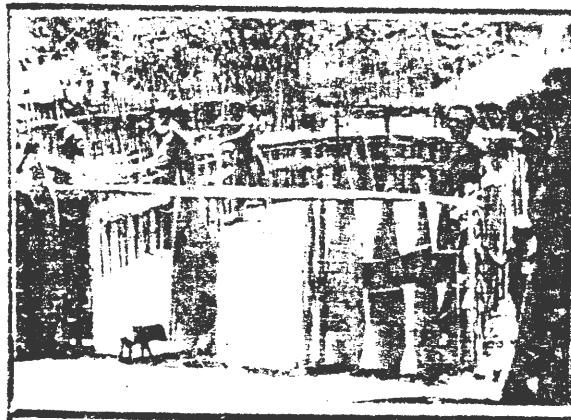
Furniture was unknown, at least in our sense. There was no table and no chair. But in the sleeping room there were mats to sleep on, or one could cover oneself with them. Otherwise everyone slept as near to the fire as possible. Some men slept on their shields, others on grass or on leaves. Besides that there were different kinds of neckrests. They are called: Puka tengé and ira gauma. Puka tengé is more or less a stake which was pressed into the ground and had a kind of fork on top, on which the head or neck could rest. The "fork" has the shape of a halfmoon. Especially when the men have ornaments on their heads in time of dances, they like it to rest their heads on such a neckrest. Then they do not need to take the decorations off. Some of these puka tengé have also a hole under the headrest, in which a stick is put. I was told that they rest their arm on that stick.

The ira gauma are branches of trees with sidebranches. The latter are cut to a length of about 10 cm and serve as "legs". These neckrests are longer and sometimes more than one man can use them at the same time. A third kind of neckrest is, when strong pegs with a fork on top are put in the ground and a crosspole is put over them. Here quite a number of men can use the neckrest at the same time. If nothing of this kind is available then some take just a piece of wood, a stone (seldom because they are too cold) and have their heads rest on that. All that seems a bit hard for a neckrest or pillow, but I have observed more than once that people put away the pillow, which was offered to them and took a piece of wood instead. They are used to that.

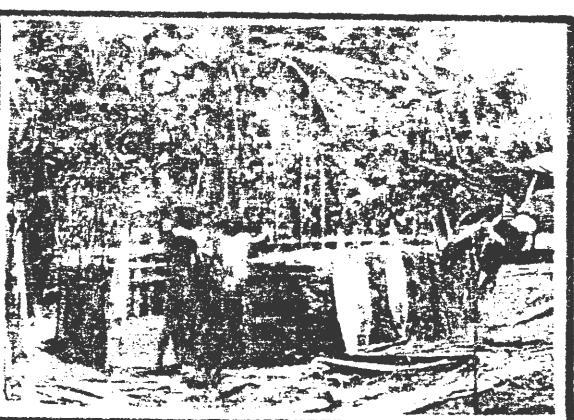
During the last 35 years many things and customs have changed to some extent. Influences have come from outside, many natives from the coast have come in, many of the young men have been at the coast for some years etc. and changes have gradually taken place. Many have tried to build other house types. They have tried to build houses on posts and not on the ground. That has the advantage of having less vermin (fleas etc.) but it has the disadvantage of being too cold. Others have taken the trouble to hew boards for the walls, but here too, the wind can come through and people had far more colds and pneumonia. The types of houses have changed somewhat, but many things, once tried, were abandoned again. The partitions in the houses are mostly different today. The pigs are often not kept in the family houses anymore. The roof decorations have nearly all vanished. Whether a house is rectangular or round does not matter anymore today and many other changes may be observed.

For the walls treebark is seldom used today, also grass and leaves in the walls are seldom seen. Instead the walls are often made from woven bambugrass, but then one ~~has~~ has to make several layers one over the other, to keep wind and cold out. Now and again one sees in recent years also, some houses covered with corrugated iron. Also most houses have better doors and a padlock is mostly at each door. At the sides one sees hinges, so the door can be easily opened and closed. Also in the houses there are many innovations, little stools or boxes, which are used to sit on, some shelves to put pots and pans on and there are dishes, iron pots, cups, plates, forks and knifes etc. People like to make tea and/or coffee etc. The clothes, such as trousers, singlets, dresses etc., are mostly kept in wooden boxes. In the sleeping room there is mostly at least one blanket for each person etc., etc.,

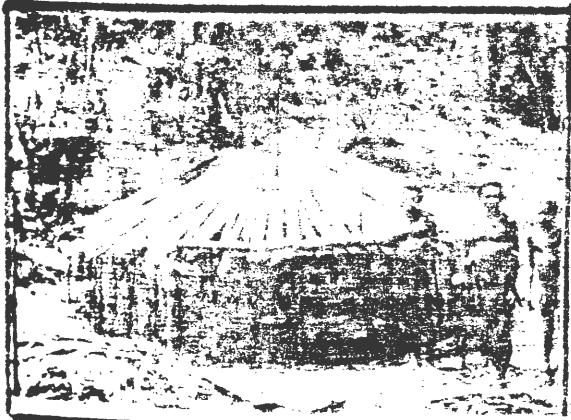
Housebuilding



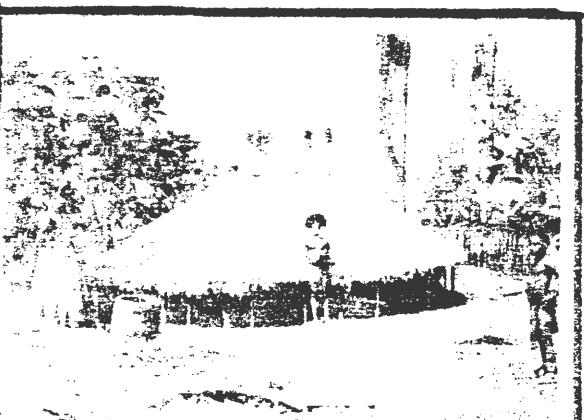
1. The posts are put in



2. The walls are made

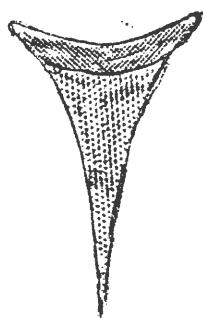


3. The roof is put on

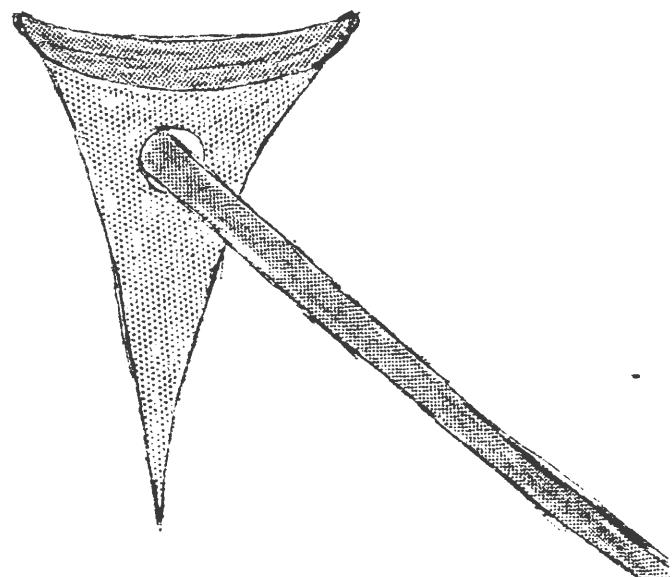


4. The house is finished

Head or Neckrests



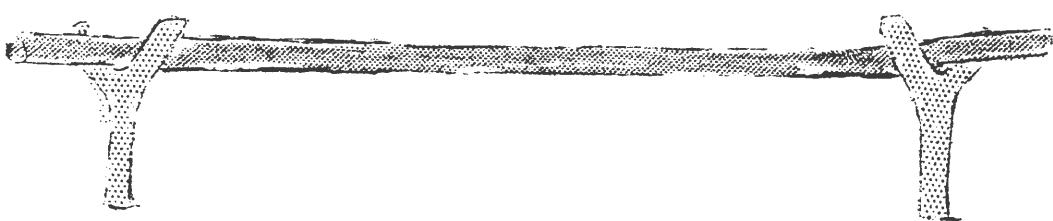
Puka tegge



ira yauma



endi yuka



IV. Clothing

By "clothing" is meant everything that is used for dresses, ornaments and so on. To bring some order to this wide range I have made the following paragraphs:

1. Hair-style
2. Work and/or workaday costume
3. Festival dress
4. War regalia
5. Mourning dress
6. Costume for the dead

1. The Hair style

The hair of the natives is as a rule all of the same colour and also of the same strength. That is not only true of the hair on their heads, but also of their beards, the body hair etc. The hair is dark coloured, a dark brown, but not quite black. All hair is inclined to be curly, not only the hair on their heads. The latter is as a rule very dense and the single hairs are fine. The same must be said of the hair in the beards, not as with many white people where the single hairs in the beards are far stronger than the hair on the head and also of different colour.

At the time, when we arrived in the inland the men all had long beards. A man without beard was not esteemed as a grown man. "You have not even a beard", was a saying meaning: only a boy, a greenhorn.

The men took care of their beards in this way: The beard hair was wrapped in treebark (second bark), sometimes in one strand, but often in two strands. Most probably they wanted to stretch their hair in this way and make the beard appear longer. After a few days this winding was taken off, the hair cleaned and then wrapped again. To clean the hair

they put their fingers in the hair and stroked them from top downwards, or they took the full beards into their hands and did the same. The hands or fingers, were in this way used as a comb. Extra long beards were looked upon as beautiful and men were proud of them.

Also the moustaches were mostly fairly long. Shaving was not known. If one wanted to remove some hair at the cheeks etc. he took some small stones (or sand) between thumb and the first two fingers, made a twirling movement, so that the hair would be caught around the sand or small stones, and then pulled them out. (That they took a pieces of split bambu or a piece of split grass, and tried to get the hair between them and pull them out, was known in many parts of the highlands, but I have never noticed it with the Kamanuku people). The beard was called: konduno yungo auro.

The hair on the heads was not cut; at least not when people were grown up. They let them grow, but mostly they did not appear to be very long. Very often the hair of the heads was braided, with the men as well as with the women, especially on both sides of the head. These were small, thin braids and a single person had up to a hundred or more of these braids. But no kui these braids were called.

The braiding of the hair of the men was done by their own wives or their grown up daughters, sometimes also good friends or women, relatives.

To get the old matted braids loose was quite a job and took some time. While the braids were being undone, the lice and the nits were removed as far as possible and then all the hair had to be braided again. That took at least several days. But the men put their heads on the lap of their wives and let them do this job for them. The newly made braids and also the unbraided hair, were then rubbed with pig grease. That was done while saying some enchantments, for example:

Ugl koglo, koglo, dumbu dambu; which means that the braids as well as the fat in the hair shall keep for o long time.

The women did not cut their hair either. They also had their hair in very small braids. Women from the same clan, good friends or relatives, made up one another's hair. The hair styles needed to be redone about every 6 weeks to two months. Then most of them may have had the feeling that too much crawling was going on in the hair, which could become irksome. Little daggers from cassowary bones or the pointed bones from cassowary wings were used to undo the braids, which were very often very matted after several weeks, and it took a long time to get them undone. If a braid was too matted and could not be undone, they often just took a bambu knife and cut it off and threw it away.

The young women sometimes braided strips of bark into the braids. These were called quo yongugl. These strips were about one half to one cm wide and long enough to reach the buttock or even the knees (bend of the knees). These strips hung down over shoulder and back, never at the sides or in front of the body. In some tribes this was also done by the young lads, in other tribes it was a sign of mourning.

Children on the contrary had their hair cut frequently. Only in the area of the fontanella of small children the hair was never cut. Here they let the hair grow. Cutting the children's hair was done, they said, so that the children should grow better and more quickly. But not all cut the hair of the children. There was no fast rule in this respect. Some said: The boys who would soon get the gerua pieces were not permitted to have their hair cut, at least not for some time before these gerua were presented to them. The same was true when the time came to give the arigl (a kind of wick) to them. If they should do so (cut their hair) the spirits of the ancestors could be insulted.

Other hair, that is body hair, eyebrows, hair of the eyelashes, hair in the armpits etc, was not removed.

Hair and Beards



2. The Work- and/or Workaday Dress

Usually the Kamanuku needs only very little to dress himself. It was different at festival occasions, but of that later. The wearing apparel of the men, as they were put on on workdays, was very simple. A kind of apron in front, called gagl yaundo or gagl kondai, a belt and a few leaves for the "clothing" behind, mostly leaves of gumane were taken. Gumane is a kind of cordyline, which is grown in many varieties. The leaves and/or plants were not only used as wearing apparel but also to mark borders, for little fences etc.

The common apron is more or less similar to a netbag and is made in the same way, only the form is different. Such an apron was about two or three hands wide, and reached down to the knees. As this piece of clothing was put over the belt and was hanging down on each side, it was nearly twice as long as it appeared. The part underneath(near the body) was mostly a bit shorter, than the part outside. In this way this apron hung down double. One could just as well call it a net(netbag) and not seldom old and torn netbags were used as aprons. Often such an apron was old, torn and very dirty. These "aprons" were made by the women.

For the belt, different kinds were in use; The belt which is worn day by day is called bojgo mam(motherbelt). It was made by the men and also worn by them. Another kind was called moro kumagl, which was also made and worn by the men. Another kind is called towa paru. It is made by the women and worn by the men.

Another type of "apron" is the kondai mapu. This type is a rectangular piece and is very densely woven. It is about 30 to 50 cm wide and also reaches down to the knees. The top end is put over the belt but only for about 10 cm and it is kept in position between belt and body.

Workdays this kind of apron was seldom worn, only when it was very old and torn and if one had a new and better one for the festivals.

As wearing apparel on the backside only a few leaves were required. These leaves grow on a stem and form a tuft or bunch. The leaves are about 40 cm long or longer. They would break off a few of these tufts from the gumane shrub and put them under their belts. If they were old, withered or dirty, then they just were thrown away and new ones were put in their place. These gumane were grown in the gardens, near the roads, near the houses, etc. so they did not have to look for them for long, when they were needed.

Sometimes people also wore some kind of head gear. They were known to wear small nets which were pulled over the hair. They were made in similar fashion to netbags. But these head gear were not always worn and not everyone had them. These little nets, made in a round shape, were called: Gagl puka. Sometimes, if people had to work in long grass, or if very dusty work had to be done the men put some leaves over their hair to keep the dust out.

For the feet no wearing apparel was known.

Some kinds of little ornaments normally belonged to the daily clothing. For example: Some decorations for the nose(bones, shells), animal tails in the ears, animal skins around the neck etc. Men also normally carried a small netbag over one shoulder. Sometimes a man put on a better kind of belt and a few other things. A hard and fast division between the clothing of the work-a-day and the festival occasion did not exist.

Wearing apparels of the men
in front and at the backside



The dress of the women is quite different from that of the men. They also wear a skirt apron in front, or better, quite a number of them one over the other, which are called kayru; and on the backside they wear a number of stripes of treebark (inner bark), which are called diglimbi. The aprons are fastened with strings around the waist, not with belts. But very often the women wear a belt above the string aprons. The netbag may also be included in women's dress, for no woman was seen in the old days without it, either in use or empty. When empty it was folded up and carried on the head; when it contained something then carried over the head and back. A woman without a netbag felt as if she was not fully dressed.

The skirt or apron of the women is made from numerous small strings, so we may call it also a string skirt or a string apron. The strings are made from the fibre of koragle, nombun, aragl, dondiglme etc, The fibre is gained from the inner bark of these plants (shrubs or trees). The dry fibre has some similarity to the fibre of flax or hemp. This fibre is then worked into strings by hand and twisted on the thigh. There are always two strands in each string. With much skill the women twist two strands and when they have made about 10 cm or so with a quick movement with their hand on their thigh, they get them firmly together in one string. Such a string may have 3mm or so in diameter. The strings for making netbags are made in similar fashion, only such a string is made very long. The strings for a string apron are long enough to reach from the waist to the knees (from under the navel to the knees) At the upper end the strings are tightened together with a bigger string. The strings are tightened very close together on the big string. The string apron is from 20 - 60 cm in width according to the wearer. According to the age of the women the width differs. Small girls have smaller aprons, and shorter ones, than the bigger girls, and wider and longer again after they have reached puberty; then when the women get older the aprons are smaller again. Also little girls may have only one of these aprons, but a girl when mature, may have 5 or 6 over each other, and an elderly woman will have fewer again, perhaps two or three. The string aprons are made by the women and/or girls.

Now and again one sees a women whose string apron is made from thicker strings. That is always an influence from other areas. Perhaps the woman has come from a tribe from the west, or has been presented with such an apron from another area. In the area of Mt. Hagen and already in Banz and Minj such aprons are in use.

There are also different types of string aprons. There is the one that is the everyday apron, and other ones which are made for special occasions, festivals, marriages etc. Often one sees that young women are wearing this better types of apron. They want to make a good impression. The size and the strength of the strings are the same, in this better type of apron, but with the fibre some animal hair has been worked into the strands and strings. They are also made very carefully.

The aprons do not reach around the full body, but reach only from hip to hip (the widest). Elderly women have smaller aprons and small girls also. With the thicker strings on which the smaller ones are tied and which extend to each side over the small strings, the apron is tied around the hip, either at the back or at one side. As the apron can be worn in this way the women do not need to have a belt, but they often wear one or more, especially at festival occasions.

On the backside the women do not wear leaves as the men do, but a number of strips of bark, which is pounded smooth. These strips are about 6 - 8 cm wide and long enough so that they reach at least to the hollow of the knee or a bit deeper. And at the top they are put over the strings of the apron and hang down double for about 30 to 40 cm, the shorter end towards the body. When they are made, the men make the bark from the tree, all the other work is done by the women, such as pounding the bark, rubbing it with fat, decorating them with paint and different imprints (patterns). They use stones for that, or teeth.

For the work - a day the women wear only common di-glimbi and old ones, which are often dirty and torn and tattered. But the new ones, with new paint and nice pattern are the ones reserved for festival occasions.

Of this type of diglimbi each woman wears several as back dress. Normally there may be 5 or 6, which may be increased to ten or more at festival occasions. The stones or the wooden pieces with which the patterns are pressed into the diglimbi are called: kombuglo kumba (stone hammer) and to make these pattern on the diglimbi strips is called: diglimbi singino singwa (They hit the pattern).

These diglimbi are not tied together or tied with the apron strings, but just put over these strings when worn, as already mentioned. If it rains, or if the women have to wade through water, or if they have to work in long and wet grass, they often push the front aprons through the instep and tie the apron together with the diglimbi. That is called: toumba singwa. In this way they avoid getting the apron as well as the diglimbi wet. Also when the women are working on a slope and there is a road further down, they mostly have their apron and diglimbi tied in this way, or even if men are working below them in the same garden, they may do the same.

When they have to wade though rivers they tie the apron and diglimbi up in the same fashion and if the water is deep enough, for both to get wet, they often take apron and diglimbi off altogether, hold both high over their heads in one hand and with the other sometimes they take a handful of leaves or grass and hold that in front of them, or sometimes nothing at all, and wade through the river to the other side. They at least had dry clothes there. The men did the same, when they had to cross rivers.

Children's Dress

Small boys, often up to 5 or 6 years, did not wear anything at all. They ran about naked. If they were a bit bigger a string was put around their waist(hip) and in front a piece of an old netbag or something similar was put. Then soon they wore the same dress as the men did, only smaller, according to their size. Today one very seldom sees even small boys running about naked.

With the girls it was somewhat different. Now and again one saw a small girl up to 4 years or so, without anything on, but as a rule they were wearing a string around their hips and in front there was at least an indication of a string apron, or a few bits of fibre or a few shells, or even a few small pieces of wood. If the girls were 3 or 4 years old, their clothing was similar to that of the adults, only in miniature. The girls soon also wore some diglimbi.

I have already mentioned that the net or stringbag belongs more or less to the dress. But one may count it just as well as a "tool", or an object used for work. But it would be best to count it to both.

How a net- or stringbag is mad, I do not intend to describe here, as I take it for granted, that that is common knowledge. There are different sizes of net-bags and the pattern, woven in, are also different. The netbag here have no "handle" or strap, but at each end of it there is an "ear" getting smaller and smaller(narrower) and these two strips are tied together over the head.

Cover against rain. That men as well as women tie their apron high in wet weather I have already mentioned. If it rains one also tries to find a banana leaf and holds that over his/or her head and body. Besides the aprons the people try to keep their hair dry. A leaf of a banana or some other big leaf can so be used as an "umbrella".

They also have a rain mat, which is at the same time a sleeping mat, or at least very similar. If one has two mats he will use one for sleeping and the other when he goes outside when it rains. These mats are made from long leaves of a kind of amugl, which is a pandanus tree. These long leaves are 60 to 80cm long or longer, and about 6 to 10 cm wide. The ribs of the leaves are taken out, but in a way that the leaf is not damaged(the leaf is heated over the fire). Then the leaves are heated again over the fire to make them soft and then sewn together with needles made of bones(tambarange kare). As sewing "cotton" different kinds of fibre is used as: koragle, kokon, umbana etc.

There are a few men who wear different wearing apparel, also a few women. That is caused by influences from neighbouring tribes. Perhaps the woman have come from that area etc. To mention only a few differences: The men at Kerowagi, about 20 km west from the Chimbu area, wear far longer "aprons" or woven aprons than the Kamanuku. Their aprons reach nearly down to their feet. The women over the divide the other side of the Bismarck range have no diglimbi, but wear little string aprons at their backside. These are a bit shorter than the ones in front and a bit smaller. In Chimbu there are a few men who wear in front a kind of "apron" similar to that of the women, only they are much shorter. Also I have observed a few women who wore string aprons as back clothing.

Now and again one may observe with the Kamanuku women, that they have string aprons which are made from thicker strings, strings as big as the diameter of a pencil. That seems to be caused by influences from the area west of us. The women in the eastern highland, Kainantu etc. wore skirts made of some kind of grass, which reached fully around their bodies(hips). The men in the Goroka area very often wore only a so called T string.

In single cases the Chimbu people had also a big piece of mat, made of the inner bark of a tree, instead of a blanket. Today one hardly sees any more these big "blankets". They were called: Dengigle bangigle kungugl. They were used to sleep on or to use them as cover while sleeping. Another type was called: wiringa. It is probable that these mats came from the south, because I could observe that they are much more in use in that area. Further south (Karimui) this type of mat is also worn in the daytime and women wrap themselves in such mats when they go on the road, especially if they are near men or strangers.

That today many things are changed, is selfevident. Women wear mostly cheap dresses from cotton material and loincloths. They like bright colours. But the fashion has its influence here too. Some people today are able to buy any kind of dresses, very expensive too, in some stores. Also pants and bras are worn. And in buying dresses, not so much the material is the deciding factor, but the fashion and the colour. Bright, shining colours, especially red, are liked most.

Also the men wear seldom their old apron anymore. For years they had loincloths, but that has changed into short trousers, and the advanded ones even have long trousers, white shirts and neckties.

Shoes were not known at all in the old days, but today most of the people wear shoes, sandals, sandshoes and also shoes of the latest fashion and very expensive. Socks of all kinds have been introduced, also hats of all forms and materials. Some are made by themselves, but the art to make them is also introduced. In other words, many of the younger people, especially the ones with an education in english have altogether European clothes and dress like an European.

But the old dresses are still used in many areas in the villages. Especially the people on the land and in house and garden in their daily lives are dressed somewhat the same as they were many years ago.

3. Festival Dress

The dress for festival occasions is basically the same, or very similar to the dresses described so far. Only at a festival occasion everything has to be new, as far as possible, and everything has to be very clean; and on top of that, all kind of ornaments and decorations are put on. These ornaments belong to a festival costume.

As far as men are concerned, another and better type of apron belongs to the festival dress (With the Kamanuku). This apron is rectangular and very firmly woven. One can never see through the meshes of this apron. This apron is about 40 cm wide (or wider) and hangs down over the main belt at least 40 cm. That part which is bend over the belt towards the body will be at least 10 cm, so the apron has a firm hold between belt and body. These aprons are then decorated with strips of the yellow bark of an orchid, and many small shells are put at different places on the apron, as well as pieces of green snail shells, pieces of goldlip shells etc., while the lower end is decorated with pigtails, 20, 30 and more, so the hair of the pigtails hangs down like fringes. All that shows roughly the wealth of the owner of the apron.

These apron, at least in most cases, are made by the women. If a woman is not able to make that kind of apron, then she asks another one to do it for her and pays for her work. Also most of the decorations are put on by the women, only the bugla yagle kondai (the pigtails) being put on by the men themselves.

As to the clothing on their backside, the men could put the common leaves of the cordyline on. If they did so, they put more than double the usual quantity on. But most of the men had a special backdress for the festival occasion. For example, the leaf of arembuglo gona, which was rippled, and gaglma girim kauro, also rippled, and pingin kauro, made in the same fashion. Also wayangi (young) were used (leaves of a special type of cane).

So the men have real bundles of leaves as dress-material on their backside.

At festival occasions the men as well as young unmarried women wear a kind of side apron over their hips on both sides. This ornament is made by the men.

The women who are married also dress up for festival occasions by putting new and clean string aprons on, and new and nicely painted diglimbi, decorated with patterns, the more the better, up to 10 and more, so their whole buttocks are nearly covered with them.

As already mentioned, the young women put on a lot of decorations at festival occasions. They not only have a number of string aprons on, but mostly these are interwoven with animal hair and they also have new diglimbi on their backsides. Then they put on one or more belts of different make and size, just as the men do and also the sulan and the mundugl buna kauro, the side aprons. Of the special diglimbi worn at such occasions I might mention the kan pire kauro and the komano kauro. Belts are worn, beside the mam bongo (main belt) the kikawa mongo bongo and the kumagl kake, which are preferred to other types of belts and are very often worn by the grown up girls.

The Ornaments

To give only a small insight into the richness of the different ornaments with which the people decorated themselves and still do, I shall try briefly to mention some of them. Of course, what has been said so far could also refer to decoration or ornaments, but the difference is this: What has been mentioned so far is worn more or less by everyone, but ornaments are an individual matter. One might put on 10 or 15 pieces, another 50 or more. It depends on how many he has. Each one wants to show off and is proud of all he has. No work or cost to obtain the decorations is shunned. One may also borrow different pieces from friends and relatives just to wear them for the festival occasion.

To have some sort of order in enumerating these different ornaments I shall mention which part of the body are ornamented and with which decorations:

1. The legs: There are different kinds of leg rings made from diverse material. They are worn in the area from ankles to knees. Katna banje bongo is made from strips of Span. ~~cane~~, or from nombun and keragle fibre (inner bark). To make them is women's work. Bonao kimial, wayangi and kangire are made from cane and similar material. They are made by the men.

Wangia kurumba is a wide ring, bandawa is a small one, and wangia aglku. They are made from wangia, which is a cane, a small kind, especially grown for the purpose of making rings woven from this material. All these kinds are made by the women.

2. The hips: Here we do not need to say any more, as the different kinds of aprons have already been mentioned and also the side aprons.

3. The waist: Above the hips and higher than the aprons, the belts are worn. There are very many kinds of them. There are some which have to be pulled on over the head, or over the legs; others are open and are fastened by strings on the back. Also the way in which they are made is very different, the way in which they are woven and also the material from which they are made. Some kinds are about 5 cm wide, others are up to 30 cm wide. It takes a lot of time and work to make these belts. I can only mention a few here:

Kiraql wayangi is a wide belt woven from strands of cane. Kumagi sulan is made from treebark (inner bark) and over that is a fine braided work of fibres of different plants. This type of belt is made by men and is worn by grown up girls.

Towa paru kumagl is made by the women and is worn by the men as well as by the women.

Endi qangie kumagl. This type is from treebark and mostly very wide and as a rule ornaments are carved in. It is made by the men and also worn by them.

Kangire bongo and bojgo paglkane are also made by the men and worn by men and women. They are wide belts, woven. The fibre is about 2 mm wide and the first layer is just woven. To weave them one has at least 50 of these strands to deal with. When the first layer is finished then they work with a long bone needle and get more and more of the material through and work the different patterns.

Sulan is made of cane and is made by the men and worn by them too.

4. The dress for the bottom (backside) has already been mentioned. I only mention some more of the material or of the leaves which are used for such dress: Gumane, gona, arembuglo, pingin, gaglma, girim, kauro, pire kauro, wayangi yaundo, kuro, sulan etc.

5. The side aprons have also been mentioned. They are called mundugl buna kauro and are made of the same material as the diglimbi or of similar material. These ornaments are made by the men and are worn by people of both sexes.

6. The arm is normally very richly decorated, beginning at the wrist up to the upper arm.

Okan agku is an armring made of small treebark (fibre). The women make them of the katen nombun and the armring is worn by men and women.

Pingi is made of a fine cane, slit into fine strips. It is made by the men and is worn by men and women.

Lugla pingo is made of pig intestines. They are put on round pieces of wood and dried in that way. They are worn by the men.

Dingi is made of wayaŋgi and is made by the men but , worn by men and women.

Bugla nungo kiwine is made of the larynx of the pigs. It is worn by the men and also made by them.

Endi mawa is a kind of clamp or brace, open on one side. It is worn on the lower arm just above the wrist and is made of wood. Men make and wear them.

Endi ongondare a kind of disk with a hole in the middle. The fringe or the rim outside is carved. These ornaments are made by the men and women and also worn by both.

Ongono bange bongo is an expression for several kinds of armrings, which are made of different material and, may be woven or braided or made like the belts or the firm aprons. Wayangi is used for the coarser ones. They are made by both , men and women. The ones of wayangi were made by the men and worn by men and women.

7. On the chest or breast different ornaments were worn. In the first place the organ shell has to be mentioned. That is a halfmoon shaped shell made of the goldlip shell, a mother of pearl shell. If men wore them, they had normally only one of these shells around their neck. Girls wore mostly more then one of these shells around their neck, and later, when more of these shells were available one could see girls with up to a dozen of these shells hanging one over the other, each one a little bit deeper, on their breast. The whole breast was then coverd, from neck to the place where the apron started.

Bugla yagle , pig tails, have to be mentioned next. They were lined up on strings and worn around the neck, dangling down an chest and back. These were worn mainly by the men, but women could wear them too;

Kambu yagle , animal tails, were also used as decoration and were worn in the same way.

8. Round the neck as well as on the chest and over shoulder and back animal skins or furs were also worn either lined up on strings or whole skins. For example the skins or parts thereof, of kambu teine, kambu mokop, kambu mamia, kambu puku, kambu takopo. Now and again one could also see the bill of a hornbill tied on a long string and hanging halfway down the back, but that was seldom, as these birds do not live in this area. Also skulls of animals, some bones etc, are attached to strings and hanging down the back. Around the neck there also were many kinds of chains made from shells, seeds of grass or trees etc. Women and girls especially wear these.
9. The ear (lobes) were normally perforated, so some decorations could be put in. Different pieces of ornaments are in use as: minge kinano, little pieces of shells, (as oongan and dëndena). Men as well as women wear these decorations. Also dua yagle, animal tails, mostly rounded to a circle, are worn by boys and girls. Also many men have these tails in their ears. Most probably they are trophies from hunting expeditions and at the same time a kind of charm, which shall attract more animals. Also end: mawa, wooden pieces from the forest, are worn in the ears. They are bent roots, bent pieces of branches, and also of the vine kan kama etc. Orugl, another ornament of the ear, is a flat piece of wood, decorated with carvings or paint and worn at the time of pig festivals, probably as protecting charm and lucky charm. Especially half grown children wear them. They say the ancestor spirit should see them and enjoy seeing them. They are made of amboane and the decorations are in a pattern similar to the tatoo pattern on their skin.
10. The nose, the middle of the face, one may also call the middle of the decorations. The septum of the nose is always perforated, as far as the male sex is concerned. The septum of each male is already

perforated while the boy is still small. That also has a religious significance, as no male will be admitted to the "other world" if the septum is not perforated. Only secondarily is the hole in the septum for putting ornaments in it. Through the hole in the septum, which can be fairly big, men put a piece of goldlip shell, or a boar's tusk, bones from the wings of cassowaries, or pieces of grass or wood. By always having something in the nose, the hole gets bigger and bigger and one may see that some men have empty shell of a shotgun through the nose. Not only the septum has a hole, but also the wings of the nose, on each side 3 to 5 holes as a rule. In these little holes small sticks, in the size of a match are put and on the end of such sticks often is a little shell attached. And across the nose, on top of these sticks there is put a string of small shells, kauri or nasa shells. Sometimes also small feathers of lories are put into these holes. But that is not all. I shall mention a few more:

Kua kaql ake are long feathers of a kind of lory. They are worn by the boys and girls in the nose wings. Kawagle jungo are feathers of another lory. The feathers are red and short. Gumano buglo, the sticks, which are put into the nose wings, are called, which are decorated with the small shell on top.

Gundu qanqa are feathers of the white cockatoo, namely the crest feathers of the bird. As the bird does not live here, these types of feathers are very hard for them to get and very expensive.

The little string or chain with small shells, which they put over the nose is called guglmbo gumano. The pieces which are put through the hole in the septum are called mingi gumano, Kurumbi gumano are the bones of the cassowary wings, which are often put through the nose. They are black.

Bugla singie qumano , the boars tusks are called, which are put through the septum of the nose,. Gumanu buglo endekera they also put on the wings of the nose. Kere kere are the feathers of the white cockatoo and these feathers are often put into the wings of the nose beside the earlier mentioned sticks in the nose wings..

11. Forehead. The forehead is also a part to be decorated. The main and most valuable piece of ornament is made of little shells, kauri or nasa shells. Each single shell, which has only a diameter of about 5 - 7 mm must be ground and cleaned. By the hole in the shell they are fastened to a piece of inner bark of a tree, with thin strings, and nice patterns of these shells are worked in. It takes a long time to make these ornamental pieces and in the old days this type of shell was very hard to get. This type of ornament is called wakopo. There ~~are~~ hundreds of these small shells on one piece which is in the middle of the forehead about 10 cm wide. It tapers off to each side and covers the whole forehead. This piece of ornament was mostly worn by men, but not exclusively.

Another ornament for the forehead is called maindume. It is part of the bailor shell, mostly nearly round and with a diameter of 10 to 15 cm. The whole shell as ornament on the chest was not used in this area, as for example in the Mt. Hagen area.

12. The temples and the cheeks were also decorated, mostly with feathers, namely feathers or wings of the kawagl bird, which is a kind of lory. The wings are fastened to a piece of wood(spit or pike) and this is put into the hair above the ear, so the wings cover temple and cheeks. This ornament was called: Kawagl paunano. Kawagl mamburo are feathers of the same bird, but lined up on a string and bound around the head (on the forehead just under the hair) and so these feathers also cover temple and cheeks.

13. The head is also richly decorated. There is room enough and in the matted hair one can easily fasten decorations of different kinds. Prevalent here are the many and different plumes of birds, especially the birds of paradise. Many live here in the vicinity, but others are traded in from neighbouring tribes.

Because these plumes are very much liked as ornaments they are always very expensive and even today they are still very valuable. A few of these birds, whose feathers and skins are worked into plumages may be mentioned here:

Baundo, yambagle, siune, miugle, all birds of paradise, goiye, kiriwa, konguruwagle, kuglame, kawagle, all kinds of lories, kua nime, the cassowary, bindebaundo, kono kugla, koiye, all kinds of hawks and konduwagle, the rooster.

Bitno gagl are little nets, which are pulled over the hair and cover the head, also gagl puka is used for the same purpose. Another kind to cover the head is made of animal skins. They are called: kambu jungo gagl.

Of the above mentioned plumage that of the redbrown bird of paradise is prevalent. The bird is living here or in the forest in the vicinity. It is not seldom that one can count up to ten plumes of birds of paradise on the head of one single man. Another plumage which is very much liked is that of the bird of paradise with very long black-blue tailfeathers. Their names are: Kawagle mondono beiye and kawagle kungugl.

But there is still more decoration for the head. For example animal tails. To get this kind of ornament the skin of the animal tail is put on sticks (sticks are put into the skin) and then dried. These sticks with the animal skins over them are put into the hair and so protrude wide over the heads according to the length of the tails. Also sticks with feathers wrapped around are worn in the same way (kawagle kumbo kumbo).

Another type of bird of paradise feather is worn and very valuable, the two long head feathers (protruding from the head of the bird) of the duke of Saxonia. The bird does not live in this area. The two feathers are put into the holes of the nose wings and in a wide circle bow around and the tops reach the head again (about 40 cm long). These feathers are not seen very often, but girls in their bridal dress wear them not seldom.

14. Ariql is also a piece of ornament. This is a kind of wig covering most of the head and reaching down to the shoulders. It is made from human hair tied on treebark, and to hold it in shape pieces of bambu lie underneath, or first the form is made of bambu, diglimbi is put, and so on. These arigl of which there are at least two different kinds in use, are often worn during the pig festivals, mostly by young men, sometimes also by young girls.

15. The big three pronged spears are not primarily weapons. They can be used as such, but they are first and foremost ornamental spears. They are carried ~~in~~ in the hands, mostly leaning over one shoulder, but sometimes also held straight in the air, vertically, when dancing. They are called kauglange. Also bow and arrows, especially the nicely decorated arrows, must be counted as ornaments, because they are also carried in the hands of the men while dancing.

16. Also ornamental stone axes must be mentioned here. They are not made here, but are traded in from the west. But they belong among the ornaments and are held in the hands of the dancers and gently moved. There are many kinds of them, according to the stone-blades two kinds, the ones with light coloured stone-blades, greyish white, and the others with dark blades, bluish grey. They are called di pokumbo and di kuruo (kuruo is white).

17. A further piece of ornament is the drum, which is at the same time a musical instrument. For more about the drum see under: Musical instruments.

18. With that we have mentioned nearly all the body parts decorated. But there is still more to mention. I want to mention also that flowers are often used abundantly to decorate the body. Sometimes the whole head is full of flowers, put into the hair. Also in armlets, rings for the legs, in belts, in nose and around the ears etc. flowers are put. The flowers can be from their own garden but they may also have been picked in the forest etc.

19. Furthermore different kinds of moss is used for decorative purposes. Moss can be put nearly everywhere that flowers can be put. Some kinds of moss used as decoration are: onguglo yaundo, kaiglo, gutn diun, gutn diun sima.
20. As last in this line I want to mention the different paints, which the people use to paint their bodies, especially the face in all possible colours and patterns. The paints and how they are made, will be described later (see under paints later in this volume). Gamba gogl (red) is most popular, but also other colours are used, for instance gamba kilen, gamba kum, gamba gawagle ambu, gamba ira, gamba dengigl, gamba pine.

Not everyone has all these listed ornaments and wears them, but each and everyone has some of them. The more he has the more he can show off. It is really astonishing to see how many of these ornaments each of them has on his body, when he is decorated for a festival or dance.

The enumeration of the ornaments on the previous pages is not complete, as not each and every piece can be named. For example I have not mentioned the rings of pig tusks; several dozen were put on a wooden ring, and they were worn around the neck. In very old days, when the gold-lip shells had not found their way into the highlands, these ornaments seem to have been the most valuable pieces of their ornaments, and at that time were worn by the men. Today these ornaments are worn by the women. In the very old times, I was told, these pig tusks were used to by wives.

Also strings with lines of dog and other animal teeth I have not mentioned. They also were very valuable in the old days. They also have been devalued. Also many types of shells are not mentioned.

As occasionally mentioned, most of these ornaments were worn by the men and also by girls, when they were at the age to be married. Some pieces were worn only by men, others only by the girls and others again by the married women. For example several kinds of belts were worn only by the girls, for example: kikawa mongo kong^e and kumagl take bongo etc.

Around their chins men often wear a piece of goldlip shell, a 2 cm wide piece of it, in form of a halfmoon. This piece reaches from ear to ear. Girls wearing this kind of ornament are seldom seen. They carry the halfmoon shaped goldlip shells on their chests. Also the nose of the girls is not as much decorated as that of the men. Normally they have not pierced the septum. Also the wings of their noses are not perforated, or at least there are fewer holes in them. Now and again a woman can be seen with a hole in the point of the nose. That seems to be an influence from the north, as the women the other side of the mountain range all have such a hole in their noses. In such a hole they put a bone of the wing of a flying fox, a kind of feeler(Antenna).

As a rule the girls do not carry the ornamental spears, also no stone axes. They also carry no drum and no arigi. The girls as a rule do not dance in line with the men, and when single ones of them do, it is more or less an exception. In some of the dances one sees girls in the lines of the men, about 1 girl in 20 men.

Long strings with small mother of pearl shells lined on them, are worn by men and by women, but chains made of seeds or pieces of yellow wood are worn only by women. Of these chains there are many kinds known and made as:

Yomba mojgo, black fruits of the yomba tree,

Werai bitn mongo, fruits or seeds of pearlgrass,

Aindake koan, a chain put over one shoulder and across the chest and around the body at the other side.

Doum bange, a chain made from pieces of yellow wood blocks.

Wau mokono(fruit of a tree) are put on strings(as big as golfballs) and put around the neck, so the fruits hang down the backside. They are worn by men and women.

I want also to mention, that besides the already mentioned covers for the head(bitno gagl) there are still quite a number more as: muni guglo, which seems to be made of a nest of caterpillars, which breed in colonies, and gogl mambu gagl, a net made of spiderwebs(which is strengthened with some tree sap).

Festival Dress, front and backside.



1. Aprons for men and for festival days
2. Woman, belt of cane, boars tusk, hornbill
3. Mens's dresses, backside

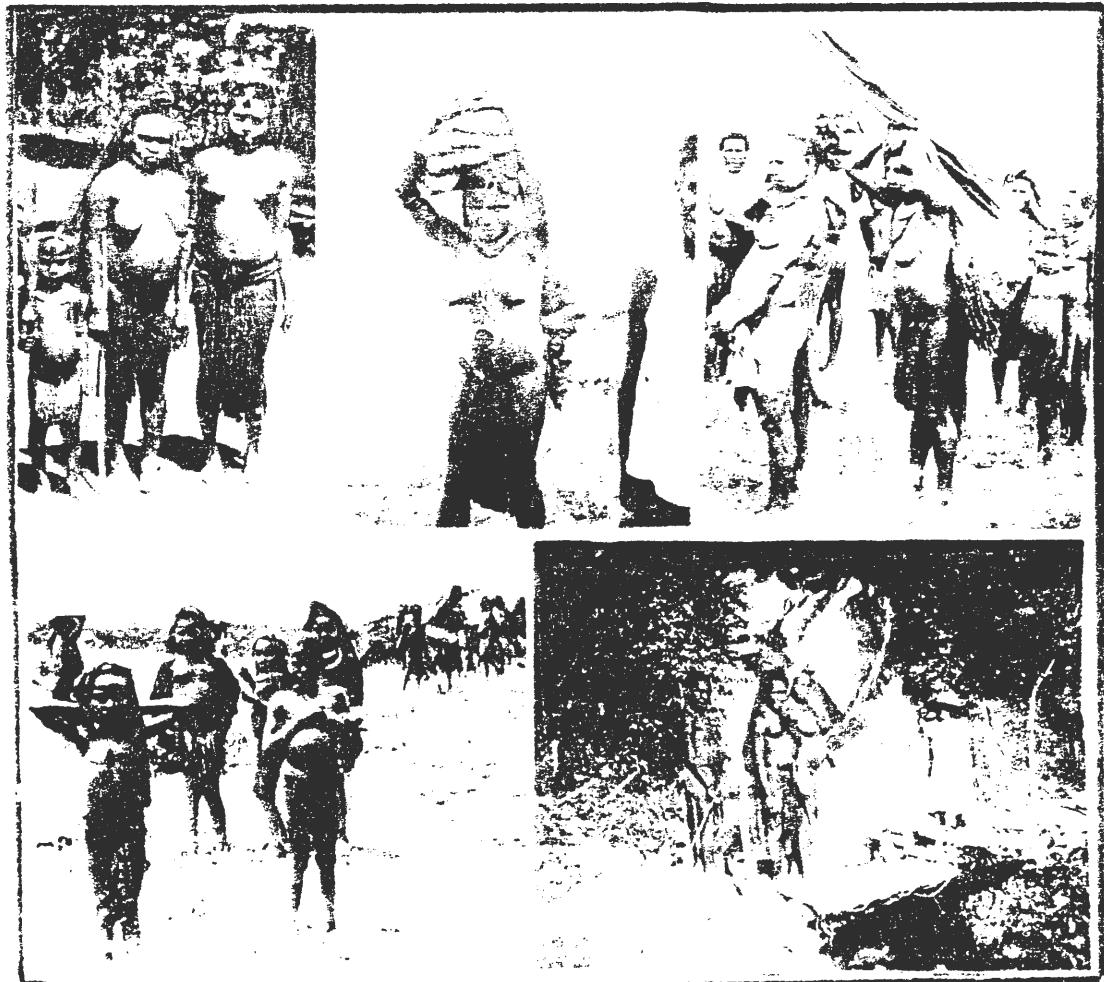
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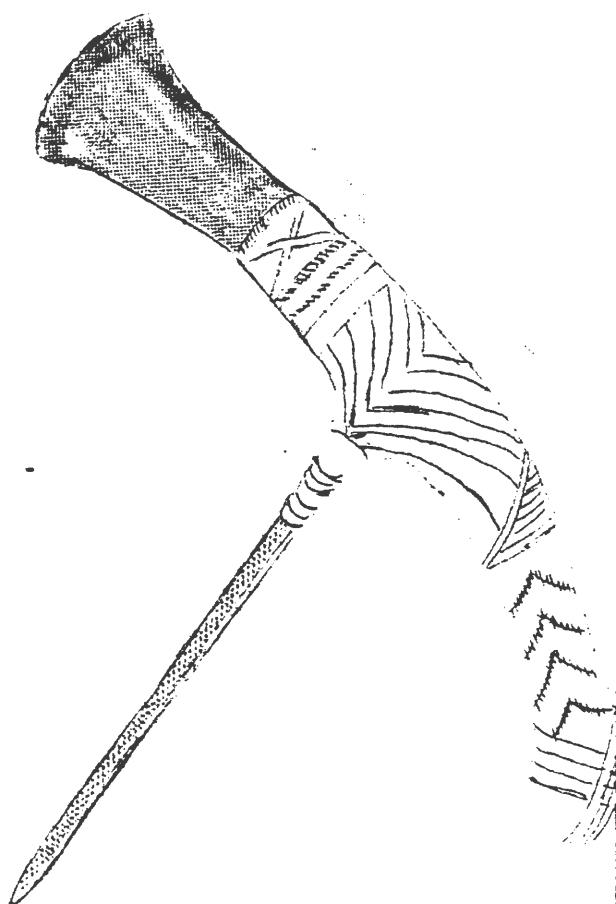
'Women' dress



Ornamental spears: a) three- b) fourpronged
2. Ornamental stone axe



3.



1. Men in dancing dresses, arigl and plumes
2. Young man and lad with headdress,
feathers of birds of paradise
3. Man with forehead ornament made of small shells



In the last 20 years there have been, also in regard to the decorations and ornamental pieces, many changes. Some pieces, which were 30 years ago very valuable and much liked, are hardly seen today anymore. Then there are quite a lot of things imported, which can be bought for money in the stores, such as rings of porcelain, glassbeads, steel axes etc. Also paints of all colours, cloth material of cotton and silk etc. But basically many things are still the same, which can be observed at the big pig and dance festivals. But even there, most of the men will have short trousers under the old garb etc.

4. War Dress

The war dress, or one could say the decoration of the warriors, is quite different, compared with the festival dress. The aprons were similar or the same as they wore on workdays and also the leaves on the backside were the same or similar. Now and again one could see a kondai wapo worn and for the backside they preferred to put leaves of the pingin and piri kaugl on.

Then the whole body was rubbed over with soot, which was often mixed with fat, so it stuck better. They burnt sticks and when they were burnt and black ashes had developed, they let them cool and rubbed their bodies with it, face, chest, arms and legs. Instead of soot they also could take kilen and they rubbed in that paint, especially on nose and cheeks. Sometimes they used also gamba pine.

On their heads they put feathers of the cassowary, but also of dua kauagla(bird). The cassowary feathers are worked to a bundle, on st-rings, often reinforced with small strips of bambu, which are knitted or sewn in a spiral form, and the feathers are at the same time worked in. It looks like a little cap inside, which is pulled over the head and outside are the long cassowary feathers. If this piece is not in use, one may turn

it over, inside out, and thus it can be put away, without damaging the feathers.

Plumages of bāundo(bird of paradise) were split in half and such a half plumage was put at each side of the head. Also yāmbagle(bird of paradise) was halved the same way and put on in the same fashion. Besides that kauglange, animal tails, of different animals were put into the hair.

In the nose(septum) they liked to put a boars tusk, as big as thy could get, but also other things, such as pieces of goldlip shells etc. were put into the nose. Into the ear they put animal tails of small animals, rounded to a circle, and/or pieces of animal skin.

Around the neck they liked to put pig tails, especially hanging down the backside, buglo yungo and bugla yagle, or pieces of animal skin.

Arms and legs were decorated with rings. For belts they liked to put on gekua kumagl and endi gangie kumagl.

The weapons they had were:

Stone axes, as di kuruo and di poglumbo. These were put with the handle under the belt, so the hands were free for the other weapons.

Shields , awagl, . Not all men had these shields, most of them had only bows and arrows. The shields were in form about alike, but the decorations on them were different. They had :awaglé kuglambu, kon kana, endemba, gokondo etc. Bows and arrows. The bows were called kimbiri, kimbiri wi and kimbiri buna, according to the wood of which they were made.

The arrows are called: Yere. There were a big number of kinds and varieties. I only shall mention here some of them e.a. Yere ambai gogl, kapa dane boor, kiu gogl, gu-munande gogl, koimbo gike, muka, mengagl mambuno, tene, ukumbó gumie, kangigle ongo, tene mam, paglkane, bugla, benderjwa, nigr kumbá sungwa, buglange; bendungwa, bonguro amo, numambo etc.etc.

Spears: kuglange, as: Siglengi, dimbin, enkama, kuglange bogl buglo, datngi etc.etc.

Bows and arrows were used in normal fights, when they did not come closer than about 80 meters, mostly even farther, and stone axes and spear were used only in hand to hand fighting.

The weapons I have only mentioned here, they will be described more in detail in a special chapter (see under weapon), in this volume.

To get fully ornamented or decorated many of the warriors put also different mosses and other plants on to decorate their hair and bodies.

5. Mourning Dress

With the men there was not much of a mourning dress.

They wore the normal workaday dress, but rubbed their faces, chest, arms and legs with mud, dirty ground mixed with clay.

Very often some blood had to flow in a real mourning, especially if the deceased one was a close relative, or an important man of the clan etc. They hit their heads with sharp stones, until blood ran down their cheeks, or they cut a piece of their ears(lobes)off. Not all men did that, but quite a few, namely the ones who wanted to show their sadness in a special way. Some also rubbed their bodies over with faeces.

For the guests who had come to mourn, the mourning was more or less over, when the body was buried. Then a good meal was served and eaten, with several pigs killed, and after that, the guests went home. With the close relatives, the mourning time lasted for some time, for example: With the widowers, parents, children.

The dirt, which was put on the body as a sign of mourning, was not washed off. After some time it fell off by itself bit by bit. It lasted weeks and months until the last signs of mourning had disappeared. If the body was more or less "clean" again, it was rubbed with fat.

The women had no special dress for mourning either, but as a mourning "dress" one has to count the big netbag, which women had to wear over their heads during time of mourning. This kind of netbag covered not only the head but also most of the face. The women wear also as a sign of mourning quite a number of strings and chains around their neck and shoulder and crosswise over shoulder, chest and down the waist. They also wear the aprons of the men (their husbands) on a string around their necks (wamba and kumugl) and also hair of the men they wear around their necks. If they had lost children, then they also wore their belts and aprons around their necks or on their chests, or hanging down on their backs.

The Kamanuku wore other things, like bones of the deceased ones, very seldom, as the women of other tribes used to do. If they did so, one must suspect some influences from other tribes, for example the Goroka valley people, where women carry the skulls of the dead ones in their netbags, or from the people to the north, where the women had the jaw bones of the children hanging around their necks.

But in really deep mourning also with the women it was customary to have blood running. Besides other injuries it was customary to cut off a finger, or at least an end of a finger, if one of the relatives, children etc. had died. One could see many women who had lost all their fingertips especially at the left hand, except that of the thumb. The women had courage enough to put a finger on a block of wood and cut a finger off with the other hand with a stone axe. The thumb was not mutilated, because that would have hindered them very much in doing their work.

Widows normally had a longer period of mourning than the men. It lasted often several months, or up to a year, or until she could be remarried, when the time of mourning was over,

several pigs had to be killed and prepared for a meal. The things worn as sign of mourning, such as hair, belts etc. were then put aside and put on the grave of the deceased one, or on a tree nearby or on a branch of it, and then the prepared meal was eaten. With that the mourning came to an end.

6. The Dress for the Dead

If somebody dies then the corpse is laid outside the house, so everybody can see the deceased one. In some cases the body is put up a kind of scaffold. If it rains, this can also be done in the house. Then all the decorations and ornaments which the dead one had possessed are put on his body. The body is often quite covered with all the different pieces of ornaments. In that way the body lies there during the mourning songs and lamenting. The friends and relatives from near and far arrive and join the others who are already there. During that time a grave is dug by some men. When they have finished it, the body is carried to the grave, fully ornamented. The body is mostly carried on a kind of litter or bier. On arrival at the grave, they put the body beside the grave, on the ground. Then all the decorations are taken away, only the normal clothing is left. Then a big blanket (from inner tree bark) is taken and the body wrapped into it, or put in the grave and the body put on it, and then mats and pieces of wood is put on the body and gradually the grave is filled with earth.

Sometimes a gd'lip shell was given to the dead one and buried with him and also other ornaments, but before burying it, it was mostly smashed, so nobody would be tempted to steal it later.

Also in regard to these customs many things have changed. For example: Today the body is mostly wrapped in bought ~~the~~ blankets and a number of loinclothes. Some also try to make coffins. All influences of the ~~Q~~ coastal people, or of the white people.

V. Ornaments and Valuables

It is not my intention to enumerate and mention all the different ornaments, which are at the same time also their valuables. In the preceding chapter a good number of them have already been mentioned. How valuable these pieces of ornaments are, will depend not only on the outward appearance, but more or less on the ease with which they can be obtained, whether they are produced in the home community, or have been imported from other areas.

Most of the time these pieces of decoration are wrapped up nicely and put away in a safe place in the house until they are needed. Nearly all the rings for arms and legs, nearly all types of belts, most of the plumes and feathers, all types of shell ornaments, except the common pieces for the noses, are put away most of the time, and also nearly all the ornaments of animal skin or fur.

One has to differentiate the stone axes which are foremost ornamental pieces from the stone axes used as tools or for the daily use. The stone axes for ornamental purposes are called: Di puglumbo; and of them there are two kinds the di kenduwapo and the di kuruo, the one with a dark stone blade and the other one with a light coloured blade(grey white). Both types are imported from the west. But another kind, also an ornamental piece, was made not far from here, about 10 km south from here, near the Nera(Waghi) river at Bemadl. It was called: di gaima kan singwa.

All the ornamental spears belong also to the valuables. They all were produced locally. It takes a long time and much work, to make such a three or fourpronged spear (kuglange buglombuglo). But also the simple smooth spear(whithout pronges)belongs to the valuables as: kuglange dimbin and gigengi aglki and gorua, as well as datngi.

It has already been said, that people decorated themselves only for festival occasion. Here are meant not only the big festivals and dances but also many other occasions as: Marriages, other types of dances and so on.

As an exception of this rule one may mention the young girls of marriagable age. They very often were richly decorated, even when there was no festival or a dance anywhere in the vicinity. They had especially many goldlip shells around their necks and also plenty of other shells and also plumages and feathers.

All ornaments made from shells, either the pieces of ornaments or the single shells, which were used to make these pieces of ornaments locally, came from the north, that is from Madang over land from tribe to tribe, until they at last reached the Chimbu area. That in the old days these ornaments were scarce and also had to be paid for very dearly, one can easily-imagine. Before the white people came into this area the boars tusks, put with strings on an oval ring of cane or bambu, and worn around the neck, had been without doubt the most valuable piece of ornament. Then came teeth of other animals, dogs and forest animals etc. were lesser valuables. But already when we arrived here, there were single pieces of halfmoon shaped goldlips, which were mostly worn by the men. This piece of mother of pearl shell was the most valuable ornament, which they could think of. A single goldlip shell, even in natural shape and not worked and polished, bought easily a fairly big pig and was also payment for a woman given in marriage. That was perhaps the main reason why so many women went over the divide to the other side of the Bismarck ranges, toward the Ramu side and were married there.

The second highest shell in value was a little kauri shell. This shell was rare but was liked very much and pieces of ornaments were made of them for the forehead and others. Other shells were known and were worn, either singly, a few on a string, or quite long strings, which then were worn over shoulder and chest, single or crosswise. We may say, the goldlip was their money in gold, the small kauri shell their silver and the other shells money of smaller denomination. Our money was unknown, and these shells were used in their barter system as payment.

The main reason, why I have put this chapter in here is, that there are a few things, which I could not mention under festival dress.

Two things I want to mention here especially; one is tatooing and the other is the big stone axes used for bride prices. As to the latter, one may count them under the ornamental pieces, even if not much stress is laid on the appearance of these stone axes. But anyhow they belong to the valuables. These stone axes were never worn as ornamental pieces, but only used when a bride price had to be paid. They were fairly roughly made, as far as the wood and the windings on the axes were concerned. The stones were very big and thick. Such axes up to 1 meter and more (whole length) were not at all infrequent. The stones were carried mostly separately and only put in the wooden part, when lined up. They were in most places also full of soot as they were lying in the houses most of the time. Form and shape of these axes see page 72.

The Tatooing

30 or 40 years ago there was hardly any man, and far less any woman who had not some tatooing on the body. It was mostly done in the time when boys and girls reached the age of puberty. Without doubt it was partly a beautification of the body, but I suspect, even if it is not known today, any more, that there was some underlying religious significance. I could no longer ascertain what this was.

With the men very often the shoulders, upper arm and backside from neck to waist were tatooed. But with the girls it was different, there the face, cheeks and forehead were tatooed. I asked why they did the tatooing and the answer was: "To look nice" and: "The boys will look at us".

While a boy or a girl was undergoing such beautification, which lasted for life, the relatives had to prepare a good meal. Of course several pigs had to be killed etc. While the expert in the art of tatooing did his work, the others had time enough to prepare the meal. Normally the procedure of tatooing of one person took several days, according to the area which had to be tatooed.

The man, who did the tatooing needed as tools some wood of the casuarina tree or a kind of hard grass. He split that into strips and between two pieces of this wood he squeezed a piece of skin and held it in position in the way that the skin protruded a little over the edges of the wood, about 2 mm. Then he took a little stone knife(splinter) and cut the skin in even distances, about every 2 mm. The stone splinters were of the di gotne(stone axe) type of stone. As soon as the man finished a piece then he took ashes or charcoal of the kurumba tree and rubbed the cuts with that. After a day or two there is often quite an inflamation, but then it starts to heal and the soot or ashes pressed into the wounds, heal with the wounds and stay in the skin. That gives the bluish colour of the cuts and scars.

These cuts and decorations of the skin are according to certain pattern. They differentiate mainly between three kinds:

kaugla guma	from down to upward
mondo mambuno	from top to downward, but different design
mokono pigl pirake	a pattern across the back.

When the work is finished the man has to be paid for his work. He may get different shells as payment, animal skins, a goldlip shell, or parts thereof etc., and then of course he takes part in the good meal that has been prepared for him and the others, for all present take part in the meal.

Today very little of this tatooing is done anymore.

Tatocing 1. Forehead and face, 2. Forehead
3. forehead



1



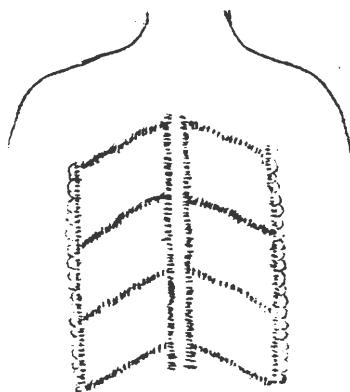
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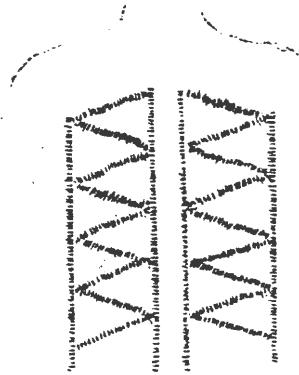
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Tatooing pattern:

1. back; called: gondin kambu
2. back, called: mondo ombuno
3. Upper arm, called: kaugla guma
4. back, called: mokono pigl pirake



1



2



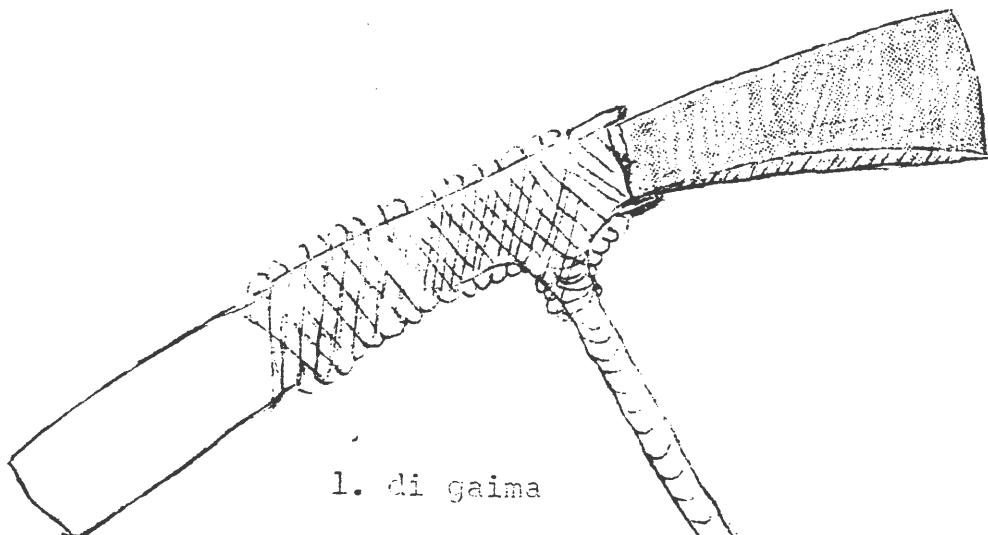
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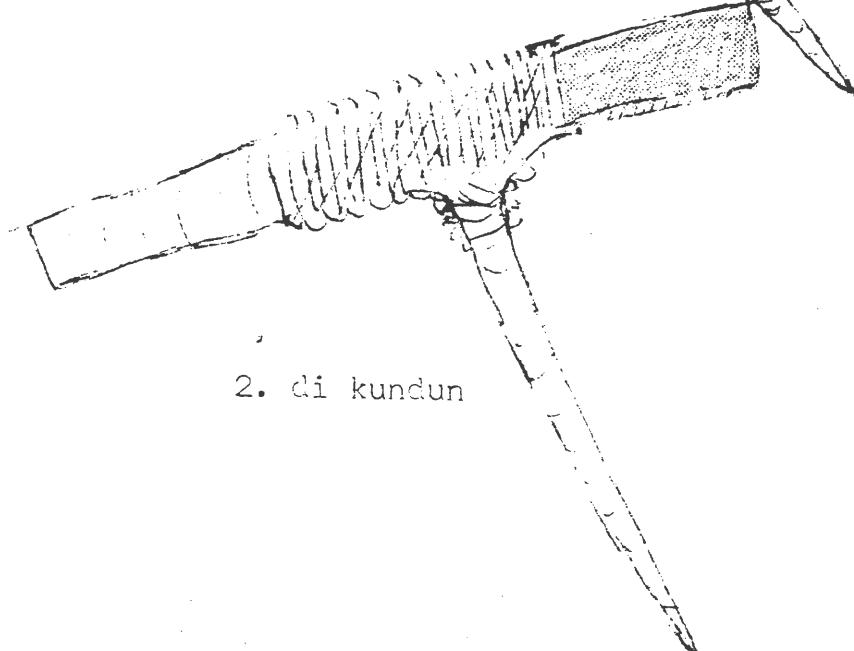
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Stone axes for bride prices

1. big stone axe, stone 30cm long, whole length 90 cm
2. smaller axe. Stone 15 cm long, whole length 55 cm



1. di gaima



2. di kundun

VI The Gardens

In describing the gardens I want to make three chapters:

1. Little gardens, mostly near the houses, or individual gardens
2. The main gardens.
3. The gardens with fruit trees.

1. Small gardens with some vegetables and/or some herbs etc. also tobacco and some plant for fibre, are mostly planted by individuals, often not far from the houses where they are living. Also some sugarcane may be planted. A little fence is made around these gardens. For nutrition or maintenance these gardens count little, but it is sometimes quite convenient to have some sugar cane etc. close by. As these gardens are not of great importance, it may be enough just to mention them here.

2. The main gardens

The main gardens are always worked in community fashion. Often there are several groups, not only families, who make a garden together. That means, the main work is done by all who want to have plots in the garden.

At first the whole matter has to be talked over by the men in the menhouses, where to make the gardens, how big they have to be, who will be in the group to make the gardens etc. They cannot just plant at any time. The best time is at the end of the rainy season which is in this area end of May - June.

As soon as these issues are decided, the work can begin. At first they may have to cut down trees, split them and cut them in ends to make fence posts. These are 1 m to 1.20 m long and pointed ends are made on both ends. Then they are piled in heaps length and crosswise to dry.

For this work in old times the stone axes were used, the di bire. To split the trees they took pointed sticks, always two, and rammed them into a crack or split they had made with an stone axe at the one end of the tree and pulled or pushed each stick to one side. In that way it was easy for them to split the trees. Today they have steel axes, for many years.

It is perhaps good to mention here, that the Kamanuku and also the neighbouring tribes know something that could be called crop rotation. It was customary to plant in all gardens, besides the sweetpotatoes and vegetables, casuarina trees, or put the seeds of them in the ground. That is also the cause for the whole area, not having any real forest, not looking bare of trees. Sometimes there are real little forests of casuarina trees. This tree grows fairly quickly and after 6 to 8 years they can be used for different purposes, for building material for the houses, for fence posts etc. They will have at that time grown to little trees of 10 to 20 cm in diameter. In that way they have always wood ready, new one for fences and building material and old one, the old fences, for firewood. At the same time the needles of the trees seem to enrich the soil, as normally the gardens which had trees in them, are quite fertile. So there will be in most cases a cycle of about 6 - 8 years, until gardens are made again at the same place.

As all these trees are planted, each tree has its owner, because according to native rule, anyone who plants the tree, is owner of the tree. Nobody else will ever cut down a tree, except the owner, or at least only after getting permission by him. Only along the rivers there are trees, which are not planted and therefore have no real owner. The water has swept the seeds on the grounds beside the river and they have come up and grown.

The fence posts are not all the same size, but different in thickness and width. Normally they may be about 5-8 cm thick and 10 to 15 cm wide, but there are also posts with a width of 30 cm or more. On both ends they are sharply pointed.

People say they do that to be able to turn the fence posts upside down, when the one end is rotten. The post rot very quickly, as the casuarina wood does not stand long in water. That may be so and I have seen several fences, in which the posts were turned upside down, but just as often that is not done. That the posts are pointed on top will also have other reasons, for example, it will be a protection against theft, as it is not easy to jump a fence as high as they are and if one tries it, he may hurt himself badly.

While the fenceposts are piled to dry, the first work on the new garden site can also begin. Old gardens are not always available, nor tree planted areas. Often the piece of land, on which they want to make the garden is covered with strong grass (sugar cane grass and others), which is 1 - 2 cm thick and 2 - 3 meters long (high). Such grass grows in bunches and these have to be made out of the ground. They take long sticks and ram them into the ground, near or under the grass bushes and try to lift them out of the ground. That may take time and cost quite a bit of work. Other weeds are pulled out in similar fashion. At the same time the ground is made loose to a certain extent. All this work is done by the men only.

Then the wood for the fences have to be brought from the places where the fencepost were prepared to the new place. They may be in the vicinity, but they may be quite a distance away. When the wood is carried to the new place, the men start to make the fence. That also is work for the men. If the line for the direction of the fence is cleared and a vine has been pulled and pegged down, to get the fence straight, then before the first fence post can be rammed in, an enchantment has to be said. This is fertility charm. The man, who says the words of the charm takes a handful of loose ground and says the

words of enchantment over it and then throws the loose ground over the fence posts, which are lying there. Such enchantment is the following one:

Surumbuno suku teke	as the dust it shall multiply
tarambuno suku teke	like tarambuno it shall multi-
pukuma suku teke	like pukuma(kind of ant which builds big heaps)
mandai suku teke.	like the mandai(kind of white stone, which falls to pieces when the sun shines on it.)

If that has been done they may begin to put the posts into the ground or start to make the fence.

I want to mention here, that the Kamanuku make two different kinds of fences. Which type they make is related to the conditions and how much and what type of wood is at their disposal. I want to say a few words about these two kinds of fences.

1. The first type of fence is very prevalent here in this area. The pointed fenceposts are rammed into the ground one after the other in a distance of about 6 - 8 cm, in a straight line. Then a straight stick or pole is put alongside the row of fenceposts and at the other side (inside) of this pole, fence posts are rammed into the ground in a distance of 50 cm to 1 meter. These fenceposts are bent over to the other row and connected on top with them. So the fence gets firmness and can not easily fall over. On top, in a distance of about 15 to 20 cm from the pointed end downwards, a stick or pole is fastened with strong vines along the upper end of the fence, and each fencepost is connected or tightened firm with this pole. Usually the vine is wound twice around pole and post. Sometimes one can see that on each side of the pointed ends of the fenceposts a crosspole is fastened in the same way. The effect is the same, the fence is strong and firm.

At the gate, or entrance to the garden, the fence posts are a bit shorter and also the posts are not pointed. Then a kind of staircase(or steps) are made. They put two crosspieces of wood(poles) in, posts with a fork on top. One of these poles(steps) is about 30 cm from the ground, the next one about 50 or 60 cm. Instead of such crosspoles some plant posts of different heights into the ground and use them as steps. Or they put only one post on one side and put a pole on the forked post at the other side(one end on the ground, the other on the post, in a slanting position.) That serves also as steps. When it is slippery they sometimes make notches into such poles. At the other side is then the same kind of staircase as at the front side.

Such an entrance to a garden is often decorated and a big bow of trees,branches and leaves is over the entrance. On both sides ornamental shrubs are planted. That is nothing else than a protecting charm. I asked the people of the meaning of this entrance and I was instructed, that no man nor woman may enter the garden and go over the entrance fence if he or she had not cleaned his or her skin with the leaves of the plants at the entrance gate. If a man has slept with his wife neither husband nor wife are permitted to go into the garden the following day. When they come later, they have to "clean" their skin with leaves and put these leaves down close to the entrance. In other words: All uncleanness has to be kept away from the garden because this could hinder the growth of the plants inside the garden. These rules apply only for the first weeks, after the garden has been planted.

One finds also some fence posts with decorations, namely on top of some posts one may see a piece of a ferntree. That also is a protecting charm, at least it was in the old time. Today the young people hardly know the

meaning of such old customs. Some say that were only signs how far one man had made the fence and where another had started to work.

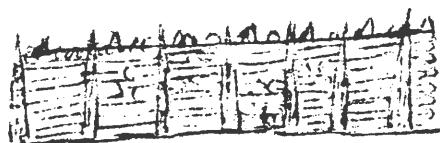
One may see also that some fence posts have in the middle, about half the length from the ground, a hole in them. This can be oval or rectangular, but not square, the longer side is from top to bottom. This is originally nothing else than a fertility charm, as such signs will be found on many trees near the road and in the forest also. It is nothing else than the rough indication of the female genitalia. But most people do not like to admit that, but say, the hole is made to put a stick in to brace the fence in case it is about to fall down. (I have never observed that they did that).

2. The other kind of fence, which one can see in this area now and again is quite different. It is used less frequently because far more wood is needed and they have no abundance of that. In making this type of fence two rows of fenceposts are rammed into the ground in a distance of about 50 cm or so and the room in between is filled from bottom to top with branches and small trees. The fences are about the same height and they are also strong, as the posts are bound or tightened on top with vines, which hold the filling very strongly together.

1. Common fence.
2. Fence with cross wood piled on.
3. An entrance or gate.
4. a. A fence with cross wood.
4. b. Common fence.
5. Decorated fence posts.
6. Entrance gate.



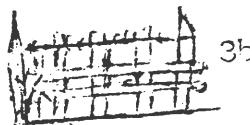
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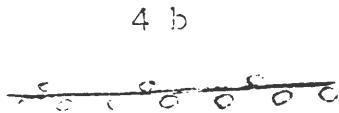
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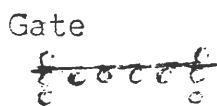
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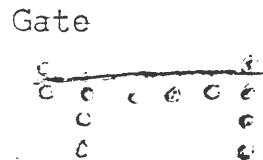
4 a



4 b



Gate



Gate



5



6

As soon as the fence is finished, which takes a couple of days or even weeks, the garden is divided in smaller pieces. Each man with his family gets his or their part. If a husband has more than one wife, then each wife and children get a special piece of land. This distribution of the ground for garden space does not create any difficulty. There are hardly any problems or differences of opinion. The leading men do the distribution and they think of each one according to his or her size of the family.

Sofar all work has been community work. Now the individual work starts. Each one must now at first clear his part of land, of grass and weeds. If the grass is very strong the men may help clearing the area, otherwise the women do the clearing. If there are trees in the garden which they have decided to let stand, the men will start to cut the branches off. Somebody will climb up right to the top and start to cut all branches, leaving only two or so right on top. Normally these trees are casuarina trees and they will die when the branches are cut off in this way. The people have then always dry fire wood handy, if they need some. The ground in the garden is not dug and turned over, it is only loosened with sticks. The soil in this area is very porous, therefore they move it as little as possible, otherwise it may be washed away by the next rain.

When the garden is fairly clean from grass and weeds the men start to make ditches, length and crosswide with their wooden spades and hoes (now of course with iron tools) so the whole area looks like a huge chessboard. The squares which are formed in this way may have an average of 4 to 5 meters in diameter ~~some are~~ smaller and some are bigger. If the ground is fairly even each garden is made in this way. Even if the ground may have a slope of 1 in 5, such ditches can still be made; but if the gardens are on a steep slope, then no ditches are made, but little miniature fences crosswise and the ditches only lengthwise. Instead of little fences, stones may be used, or grass and rubbish may be used. All that is done to avoid erosion when heavy rainfalls occur, which is more or less every year.

For making the ditchés the men use wooden spades, as already mentioned. Such a spade was made out of one piece of wood, a straight piece of wood as handle and at the one end, or on both ends the "blades". The blades were sharpened on each side and when worked dull were sharpened again and again. Such spade "blade" was about 40 cm long, and 12 to 15 cm wide. With these spades the ditches were made which were about 30 cm wide and about 30 cm deep. Beside the spade the people had a hoe, also of wood. The hoe had two parts, the hoe and the handle, which were tightened together. (See page 161).

The ground taken from the ditches was put on the squares. There it stayed and dried. There the loose ground stays as fallow land. Sun and rain and wind worked on the ground and made it fine.

So far nearly all work had to be done by the men, except the weeding, but from now on nearly all the work still to be done is work for the women. If the land is dry enough then the women come with their digging sticks and poke and pound the ground and rub it fine with their hands, and at the same time get all the grass and weed roots out. Then, the land is neat and fine and ready to be planted. Mostly they wait for planting for another 2 or 3 weeks.

The women then prepare sweetpotatoe shoots from the old gardens, pinching them off with their fingers and bringing them, whole netbags full, to be planted. They do not just start to plant at will, for only one of the women first goes alone into the garden and starts to plant near the entrance, or in the middle of the garden. She makes small heaps of ground, about 40 to 50 cm in diameter and about 30 to 40 cm high. She plants some of the shoots of the sweetpotatoes into this heap and does it saying a charm. One of the enchantments is the following:

Ande nu nu ba nu nu At sunshine and at moonshine
kurumba guko porake arake As the branches of the kurumba
damba guso parake arake guko lie crosswise over each
diri kep suglkum taglkum. Like the damba guso (a type of
pumpkin) the sweetpotatoes

Once this woman has planted her sweetpotatoes, then all
the others can start to plant as well, each one in her
own part of the garden. Arriving at their plot most of
them start at one side of the piece which is theirs and
not in the middle, and work from the side toward the
middle. That is an old custom. They say if a woman starts
in the middle, then she is lazy and will hardly plant the
sides as well, but if she starts at the sides first she
will plant the whole lot in like fashion. Not only
the shoots of sweetpotatoes are planted, but quite
different varieties of vegetables too, in the same
garden, between the sweet potatoe shoots.

The planting of the sweet potatoes and the vegetables,
in short the whole garden is work for the women, with
only two exceptions: The sugar cane and the bananas are
planted by the men. They have made the tops of the cane
ready, weeks ahead, and put them into water, so they grow
roots. Banana suckers they also have prepared. The sugar
cane is not planted vertically, but slanted, nearly close
to the ground.

But here also, before the men start to plant, the
garden charm has to be made. Mostly there is a special
witch doctor who does this. He has to catch and bring
one or more rats, which have been cooked or roasted.
Of the meat the witch doctor now eats some. Feet and
tails he cuts off and hacks into small pieces.

This the witch doctor now takes and enters the
garden over the entrance gate. Then he takes some of
this preparation, makes a small hole in the ground, puts some in it, and chants the fertility enchantment. He

now goes along the fence and around the whole garden and from time to time he repeats digging holes, putting something of the feet and tails of the rats in, which he has mixed with a number of herbs, which also were chopped into small pieces and always repeats his enchantment. Some men murmur the enchantments, others recite them as loudly as they can, so it can go in all directions. Here is such an enchantment:

Eglimbagle singe korane	Kind of yams
kora gambirane	kind of yams
sinake porake	kind of vegetable
endeyawo endiyawo.	it shall come, it shall grow.
Omburume kiau	Kind of bean
endiyawo, endiyawo.	it shall grow, it shall grow.
Sinake panake	Kind of vegetable
endiyawo, endiyawo.	it shall grow, it shall grow.
Kenduwa yaundo	Kind of banana
endiyawo, endiyawo.	it shall grow, it shall grow
Kimbiri kama	Kind of banana
endiyawo, endiyawo.	it shall grow, it shall grow.
Sinake panake	It shall grow,
teki yake teki yake.	grow abundantly.

Chanting this he waves with his hands in the air in all directions and makes the movement as if he wants to pull it from all directions.

When he has finished, the men plant the banana suckers one in each square, or if the squares are big, maybe two. And also the sugar cane he plants here and there.

Now the women can go on planting their sweetpotatoes, whatever is left to do and the different kinds of vegetables, mostly seeds, eg. beans, corn(maize), aglemba, kumba, suga and dirisuka(kinds of cucumbers) etc.

The sweetpotatoo is without doubt the stable food in this area, and not only for the Kamanuku, but for all the neighbouring tribes and for most of the highland population as well. But there are some families who grow, besides sweetpotatoes, also some taro and yams. Now and again one can see a whole garden planted with taro, but yams are only a few planted by some persons. Bananas and sugar cane one finds everywhere. The sugar cane is very good, that means its sugar content is very high. Perhaps that comes from the high altitude, or perhaps the varieties have something to do with it; I could not say. Besides these kinds of food plenty of vegetables are also planted and besides that, they eat also what they find growing wild in gardens and in the forest. Also several kinds of tree leaves are gathered and eaten and also mushrooms.

To give a little insight into the richness of varieties they plant and grow I would like to mention a few kinds of the different tuberous plants and also of some of their vegetables. These enumerations are not complete and the lists could easily be added too, but the given varieties will give an idea of the multiplicity of the varieties. Anyone who is not interested in the different kinds, may just skip the names given below.

Sweetpotatoes:

Dakakuru ambu	kom gogl ambu
daka "	kimbiri angiri "
deri "	kuni konda "
dini "	muglai " pandena ambu
dua singie "	mainge " paran "
dumanggi "	me kom " simbil "
diun "	murumbo " sipigl "
gaim "	kombugl " tainde "
gumbu "	kam " suaire "
indaun kui "	ninemuglo "
kanai "	nombo "
karigl "	okai kombuglo "
kinato "	ongan "
konda "	miuge "

1. Yams, growing, tubers in the ground
2. Taro growing, tubers in the ground
3. kumba, vegetable, in netbag, to be sold,
4. kunggi, vegetable, in netbag, to be sold



The varieties just mentioned were known and were grown (besides others) when we arrived here. Then we introduced several other varieties, which were quickly accepted by the natives, as they yielded better crops. Sometimes these new varieties are just called: kuá kande ambu, which means: big bird's seetpotatoes, because they came in by plane.

Sugar cane

There was quite a bit of sugar cane grown in this area, but only as much as each family used for its own need. Natives like to chew some sugarcane when they feel thirsty or if they are a bit tired, for the effect is felt within a few minutes. When they plant sugarcane, the ends to be planted are mostly put in water for several weeks before planting and these ends or tops are put in the ground in a slanting position. They get then many new shoots close to the ground, which grow into sugarcane. If the new shoots are about a meter or more high they wrap some strings around and also put a long pole in the middle of the shoots and fasten the shoots around them. The cane grows then up to 8 or more meters high. It is not harvested in one year, but many of these bushes or bundles stand there for several years and they take only as much as they need for the moment.

There is also quite a variety of kinds of sugarcane and most of them are very rich in sugar. Some years ago there were several expeditions from Australia in the highland which collected some samples of the different varieties of sugarcane and took them to Australia, obviously to try and see if they were any good and if so to better the varieties they had in Australia.

I here also want to mention a few of the varieties, which were grown by the Kamanuku. The collective name for sugarcane is: bo, and the varieties are added to the name bo, as bo gogl, bo gagl etc. Here are some varieties:

gogl	kemga	kimigl oruku
gagl	kama	koglo dauro
gembe	kiān	maran
goglo	kimbiri	membigle
yungum	kimbiri kama	mengagle
yungunem	koglu	
kawagle	kombu	
guambo	kimbiri	yungunem
kaireme		

Bananas

Bananas also were known everywhere, here in the highlands as well as near the coast. Of the bananas also there were many varieties known and grown. Not all varieties grow well. The climatic conditions seem to have a decisive influence. Varieties well known at the coast, are not known here and vice versa. Other areas, also in the highlands, have other varieties.

That in planting bananas, the young shoots are taken, which sprout and grow beside the old banana trunk (stump), and which are separated from the old plant when firm enough, will be well known. There are varieties of bananas which ripen at the plant and have to be covered or wrapped in with bark etc., so the flying foxes and other animals will not eat them. Often there are also strong poles put beside the banana plant to stop them from falling down, as they have only short roots and then also because the fruit is fairly heavy and may pull the plant down; or the wind may blow it over. These ripe types of bananas can be eaten at any time. Other varieties are taken off while still green, and they are cooked and eaten. Some varieties are used to "grate" them and make banana cake out of them (kambe kila). Others again are cooked in pots, in the ground oven or roasted in ashes.

Here are some of the known varieties:

denge	taglimba
gane paikurukwa	taugl gogl
garongo	tokam
yaunde	witambagle
kenduwa	boma
kiunambo	nape
mugla	gigl kambe
sugla	kenduwa ombondo

Some varieties were later imported as for example the: yomba boromai and the cavandish (from Australia).

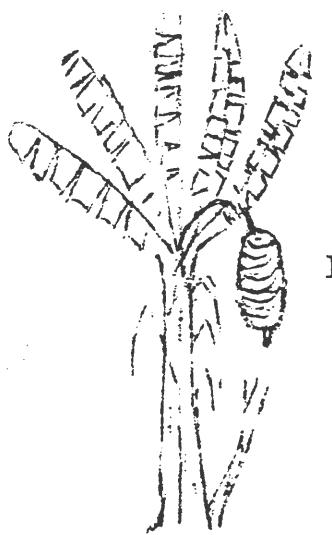
The Taro

The taro was occasionally grown, but for the daily food, the sweetpotatoe was eaten. One saw seldom taro in the main gardens, but some people made an extra garden for taro and for festival occasions taro was something extra. Also guests are served with taro, sometimes. How taro is planted and grown will be known, so I shall not describe it. But of the taro also several varieties were known. I shall give the names of some of the varieties in the following:

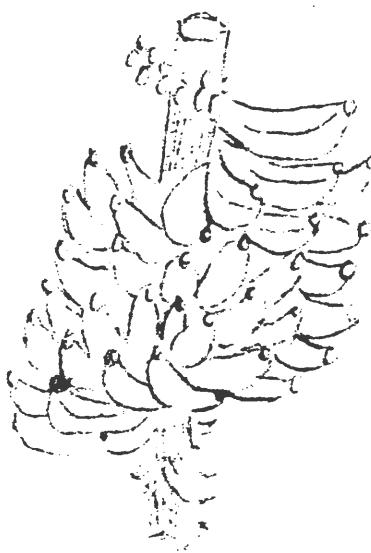
aglumbugl	tawana (came from Gerigl)
anjiri	umbakama
bungun gogl gagl	tera beran (new introduced)
kerua	dengin (new introduced)
keiange	
kumi gama	
me aglumgu	
mondo gogl yagl	

The socalled "Chinese taro" introduced to New Guinea about 1900 in the Finschhafen area by senior Flierl, has spread over the whole area and was also known here. Probably it came in from Madang, but did not grow well here. Climatic conditions and the conditions of the soil seem not to be suitable. The few I saw did not grow well and most of them were much eaten by grubs. Coastal people have tried to grow them and with some success, but as a whole there is not much of them in this area.

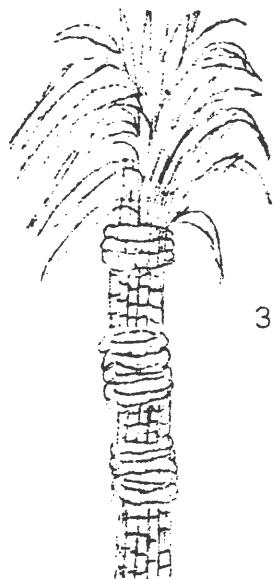
1. Banana, fruit wrapped, stem 4 - 5 m high
 sideshoot from the main stem
2. Banana, part of a bunch
3. Sugar cane fastened to a pole
4. Sugar cane, planted, shoots are thriving



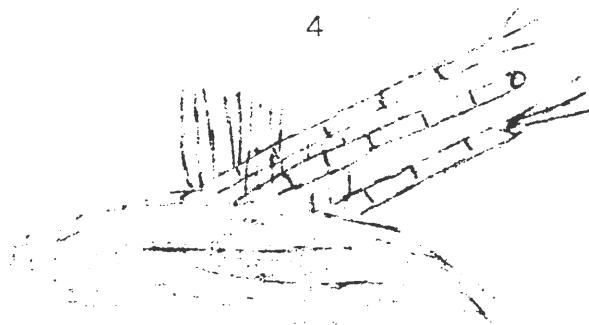
1



2



3



4

Yams (kom)

Yams were known in this area in different varieties and were more or less individually grown. Yams are liked by the people, but yams need a very good and deep topsoil and do not grow in soil where sweetpotatoe still thrives (grasshills, mountain slopes). At festival occasions it was an honour for the hostesses if they could treat the guests with yams. I also give here several of the many varieties:

agl kagle sura kom	kom kendeu
kom bongikengiugl	kom karangandin
kom bongi	kuragl kom
kom daka paglkane	kom muglai
kom gembuglo	muqla yombuglo kom
kom gunjurame	nenje sugo kom
kom gonduma	kom singi
kom kainge	tekoi kom

Baundo yombuglo kom

This type is counted under yams by the people, but it is a tapioca or anicca. That they call it yams is only proof, that is has been introduced into this area not very long ago. In the area north of here on the north slopes of the Eismarck ranges, I found them very much grown. There they did very well, but here they are not so good. The tubers are very small here, but always some were planted and they are still grown today here and there.

Corn (maize) - called dikeri

Maize was known here in this area when we arrived in the year 1934, but the variety they had was fairly poor. The cobs were very small and the seeds small and some yellow and some blue. But it is characteristic of the Chimbu people, including the Kamanuku, that they try something new, when they see it, especially when they can enrich their food. They try it themselves very soon.

It does not fit so well into the framework of this book to tell stories, but the following may just illustrate what has been said.

When we arrived here we had taken along different seeds, amongst others also some maize seed. We planted it and it grew well. The stalks were twice as high as the ones the natives grew and the cobs were 3 or 4 times as big as theirs. When the corn was just about to be harvested, one morning, there was not a single cob left. All had gone. Inquiries revealed nothing. We were newcomers and to blame people for something they have not done, is always very dangerous. So we just had to leave it. But about 6 months later all of a sudden people brought in netbags full of good corn. And now they told us laughingly: We did not steal your corn, we only wanted to get the good seed(variety) and now you can have it again (means: buy it from us.). They only wanted to see if the corn would grow on their land as well as on the land where we had planted it(or if our charm was much stronger than theirs).

Today maize is grown in good quantities and the varieties are also good. They mostly do not plant more than they need for their own. At any rate, maize is a nourishing food and very good for the health of the people, even if only eaten beside the staple food.

Some kinds of vegetables

Aglmba, a leafy kind of vegetable. Plenty of it is grown in the gardens. What it is called in English I do not know. I also cannot say the botanic name. At the coast in the Finschhafen area this kind of vegetable is not known. The leaves grow on little stems or stalks somewhat similar to the mint plant, but smaller. The leaves are smooth and may have different colours, green, yellow, reddish or striped. The vegetable grows very dense and yields quite a lot. The following varieties are grown;:

benduma	kende aglmba
goiye kama	kokon ambu
kangiambu	mua
kembai.	

Kumba (another type of vegetable)

This kind of vegetable is well known at the coast as well as in the highlands. It grows in shoots. The leaves outside are not eaten, but only the inside or the pith. The Kamanuku ate the inside sometimes without cooking it. When the shoots are broken off, they shoot again from the roots or the stems, which is left. The inner part has some similarity with asparagus and is also a good vegetable for white people, only it gets a bit harsh(sharp). Of this type of vegetable there were also several varieties known as:

kumba anga gogl	kumba kuragl
kumba ambai gogl	mokono jungu kumba
kumba buagle kama	kumba mugla geñiggle
kumba bundu kuruo	kumba muno boglkwa
kumba dane wam pangwa	kumba nakenga
kumba de bumbu	kuragl̄kui kumba
kamuntai kumba	kumba teine kuruo
	kumba nugla gekire.

1. Beans (ondugl)
2. Tobacco and kungugl vegetable
3. kumba vegetable
4. agmba, vegetable, in netbag



Beans

Several varieties of beans are known. The one which is most grown is called ondugl. This bean have vines(or is a climbing variety) and sticks have to be put in the ground, at which they can climb. They take bambu grass for that purpose or sugarcane grass. They grow to a hight of about 1.50 meter. Some people plant them in the main garden, but mostly they have a plot of land extra for these beans and plant only beans on it. The pods are square and about 10 to 20 cm long. Inside they are full of small beans, mostly purple and are about as thick as peas. A special feature of this bean is, that not only the beans can be eaten, but also the roots. These grow in form of small onions(bulbs) of a diameter of about 2 to 4 cm. They taste good and are rich in nourishment. Of this ondugl the following kinds are mostly grown:

ande kuia	kere kere
bongi	kire
bouglia	mingai
dagla	mingai gogl
dinjan	simuna
gorop	

Another type of bean is called miugla. It is also a climbing bean and has short pods, about the size of a pea -pod. The beans are fairly small. This type is not as much grown as the other one. Several varieties of this type are known as:

ainagl kama	enimbogl
bagle kuruo	gungu ganga
bugla sijjie	kungugl gagltoglo
endembogl	uru berua

A third type is called pinga pinga(lima bean). This type has been introduced, but was already known before we arrived. This bean has a wide fleshy pod and the beans are very thick (compared with the other kinds). The beans are mostly white or purple striped. It is not very plentiful and I suppose it was not very long ago that this bean was introduced in this area.

Cucumber (suka)

The cucumbers also were known in several varieties. They are planted in the big gardens, between the "heaps" of sweetpotatoes. Most of the varieties they have are short and yellow, some are like egg-cucumbers, but there is also a bigger variety, with very rough skin(with prickles or spines). The kinds of cucumbers mostly grown are the following:

bagl kuruo	yomba kama
dendena karigl	kaglki muno
ekigl	moglki kama

Pumpkins and squashes (orowa)

There are several varieties known and grown. Most probably they also were introduced not a very long time ago. The people said they had come in from the Ramu area(over the Bismarck ranges). The kinds mostly grown are:

boma a kind of pumpkin with fairly hard flesh
deni, fairly big, but a fairly soft kind(marrow?)

Of the pumpkins (and marrows) not only the fruit is eaten, but also the leaves, the fresh green shoots.

Also gourds are grown, but not so much for food, as for flasks and bottles etc.

Yuwai

Yuwai is the name given to some leaves of a bush. The young leaves and shoots give, when boiled, a slimy(mucous) broth, but it tastes very good and white people like it for spinach and in soups. Two kinds are known:

boglkanga and wile.

Kunqi

Kunqi is a leafy kind of vegetable and is also richly grown. The young leaves and stalks are good to eat as a kind of spinach or in soups. Many white people like and use it. If the soil is fairly rich it grows exuberantly luxuriant. Of this type of vegetable there are many varieties grown eg.:

gaugl gara	puglu pagla
gigl munduno kunqi	kamba gigl
kunqi gogl	daŋgema kunqi
kunqi kimbiri	kunqi tainde
kuman kuiambu kunqi	kunqi dini
kimbiri gurume	kunqi dini muru muru.

Diune

This type grows like sugarcane. Not the leaves are eaten but the not fully developed panicles. If cooked or roasted it tastes good and resembles somewhat cauliflower. The panicles are 2 - 3 cm in diameter and about 30 cm long. The best known varieties are:

akamanda	kondopuglo
buagle	moi moi
gagl	teine
gun	

Diverse kinds of Leaves and wild Vegetables

Besides the mentioned vegetables there are quite a number of other leaves and wild vegetables, which were also eaten. I shall mention here a few of them: Koqa. This are leaves of a tree. The leaves are hard and rough, when you touch them, but when young and fresh, they are much liked as vegetables. Nearly every house has one or more of this kind of tree in the vicinity of the house. Also the fruits of this tree are sometimes eaten. They look similar to figs.

Kokun and murumbo are also leaves of trees and bushes. They are big and pig meat etc. is often wrapped in such leaves and they are then cooked together with the meat and if they are cooked, both are also eaten.

Mengagle is a kind of bambu. The young shoots are eaten as vegetables.

Tambuno and wilan kaulan are ferns. They are also cooked together with meat and then eaten. One may count these also under herbs.

Ponquql is another type of leaf. It is cooked together with meat. To get the leaves they plant the shrub.

Then there are several kinds of ginger, which are all used as vegetables or as herbs and eaten with and without meat. Ginger is called gene. Of them the following kinds are known:

gene singi

gene dingi

gene mauglum

indaun gene

Another kind of vegetable is called pime. It also is grown, but tambake grows wild. There are still more kinds of vegetables, some grown, some growing wild, but this may suffice to give an idea of the abundance and the big variety of the vegetables.

Gin bogl

Gin bogl is a creeper (climber). The seeds are mostly put into the ground near trees and the vines climb up the tree to 15 and 20 meters. The fruits are as big as a big cucumber and get red when ripe. This fruit is very much liked and esteemed a luxurious repast. There are two different kinds, the gin bogl and the orutmane.

There are also several varieties of this fruit which grow wild, as gin nume and gin gonduglo.

Mushrooms (gin)

Of eatable mushroom quite a number of varieties are known to them. A white person hardly sees them, when he is not looking for them, but the native knows where they grow, and knows also many different varieties. I like to mention a few of them here:

aglkinakin	yangin
angire angire	ken gin
atndirambe	kutn gin
bei	monduwa
bombande	marumbonga
bongondo	nekimbande
bugla dundu	owai kane gin
bugla wam gin	nuglu
dundu	uragl
dangigla	wiragl
denjirime	wiglki dorugl
kake nekin	surumbuglo
indaun kui gin	

There are also quite a number of mushrooms which cannot be eaten (poisonous) but they do not interest us here.

Treefruit (nuts)

As treefruit or nuts several kinds are known: Kawi is a big tree and the fruit (nut) of it is known by the Kamanuku. The tree itself is not found in the area here ('except recently planted), but a little further south. By trade the nuts are brought into this area. The nuts have a hard shell and the nut is sweet and nourishing.

The nuts have an outer green shell, like the walnut, but thinner, which opens when the nuts are ripe. Then comes the hard shell and then the inner kernel. The nuts have a shape similar to chestnuts with a diameter of 2 to 3 cm.

Awagle mongo is another type of tree fruit and also the yokondo mongo. Both grow on trees.

Nenae pi mongo are acorns of some oak trees. They are fairly small. The big varieties of other oak trees are not eaten.

Since the white people came into this area many kinds of new vegetables have been introduced, better varieties of sweetpotatoes and maize, several varieties of beans, which grow well in this climate, and then cabbage, which people like very much. Especially in the altitude of 2000 meters it grows very well. They do not need seeds, as they plant the young shoots, which sprout from the stem when heads are removed. That also helps to keep the variety on a high level, as degeneration cannot set in. Such shoots easily get new roots and soon grow again. Also onions, in higher altitudes, big ones as well as shallots, tomatoes, soybeans and peanuts etc. are known everywhere. Radish and carrots, and also green lettuce are grown, not so much for their own use, but to sell them on the market in town. Passion fruit, strawberries, mulberries, grenadilla (a kind of passion fruit) and here and there a few orange and lemon trees can be seen. People like pawpaw very much, but it grows only in lower altitudes and can not be planted much higher than 1500 meters. Also pineapples and many other kinds of vegetables and fruits are known and slowly people get used to them and grow them.

As can be seen the food is abundant and there are many varieties. It is not possible to mention everything here, therefore what has been said may suffice. It is enough to have given just an insight into the food situation.

But a garden is not fully planted, if some ornamental shrubs and flowers are not also planted. Foremost the cordylines have to be mentioned. One needs only to break off a piece and put it in the ground. Very soon roots appear and it grows again. But also flowers of different varieties and many varieties of "dead nettels" are planted, and also many varieties of balsams. Some are grown for the flowers, others for leaves and others again are used to get dyes. All these varieties are planted between the sweetpotatoes and other vegetables, very often on the borderline between plots of different owners.

The plants, especially the cordylines, serve also as border marks. Each one knows exactly where his plot is, and even from a great distance one could spot any person, if he should be in a wrong place in the garden.

Last, but not least, it means also that the garden looks nice and beautiful if all the different colours can be seen, and they shine even from a great distance.

But there may also be still another reason. I suspect that by this planting of flowers, they also wanted to influence the growth of the fruit in the garden. So it may have been a charm in the old days.

That in most of the gardens also small casuarina trees are planted, or the seed of this tree, I have already mentioned before, but I want to stress it here again.

That may suffice in regard to the main gardens, as far as the preparing of the fences and of the soil and the planting is concerned.

The Care of the Gardens

If everything has been planted, the gardens can not just be left alone and let grow what will grow. The gardens have to be kept clean, for the weeds grow abundantly too in Newguinea. This work, to keep the gardens clean, is work for the women. They always have to go to the gardens again and again to weed and from time to time to loosen the ground with their digging sticks. The single and only instrument or tool which they use for this purpose is the just mentioned digging stick.

Not only for the women is there work to be done, but also for the men. They have to put sticks to the beans. The sugarcane has to get poles and has to be tied to them, the bananas have to be propped with poles etc. The poles for the sugar cane have at the upper end some decorations, some orchids or a piece of wood. That was a charm to help the cane grow that high. In recent years one may also see a model of a plane or something similar at the point of such poles.

If the bananas are nearly ripe they have to be wrapped in. That is done with a kind of cloth, made of tree bark (inner bark) and is a protection against animals and flying foxes, which like to eat them. If the bananas are too high and cannot be reached, then a kind of ladder is used. That is often only a branch or a pole, but some ends of the side branches are left on and can be used to give a hold and to rest the feet on. Also the fences have to be mended from time to time, so no pigs will break through and destroy the garden, or one of the ropes (vines) may have broken and has to be renewed, or if it has loosened, it has to be fastened again.

3. The Fruit Gardens

Now we still have to say a few words about the third type of garden, the fruit garden.. These are mostly gardens for pandanus trees. There are in the highlands two kinds of pandanus trees with all the many species. The one is the komba in many varieties. The trees are not high and they do not grow too well in the higher altitudes. In altitudes of more than 2000 meters they are not found anymore. This type is also planted near the coast and well known there.

The second type is the amugl. These are not found in low altitudes. Here they are seldom lower than 1800 meters. But from there on one finds them, especially, near the fringes of the forests. This is a bigger type tree.. I intend to describe both kinds in some details.

1. The komba

The komba is a pandanus which also grows at the coast and in all areas with an altitude lower than 1500 meters. The "tree" has many roots coming from the tree stem at all sides above the ground and growing down until they reach the soil. Later the old roots die and new ones come out of the stem, or better, as soon as the new ones have taken over the old ones die. These root come out of the stem always a bit higher than the previous ones. The roots as well as the trees are full of pricks and/or thorns. It is not a big tree as it grows only a few meters high. It develops many side branches. Each branch has on its end a bundle of leaves and once a year in these leaves a fruit can develop, but not every branch bears fruit and not every year. If people want to plant pandanus trees, they only cut some of these branches off and put them in the ground, and they will grow again. The leaves are about 80 cm long and 5 - 6 cm wide. The fruit is about 60 - 80 cm long and has a diameter of 10 - 12 cm. There are yellow and red species (fruit). In the middle of the fruit is the thalamus and the kernels are pricked off from it, mostly with a bone dagger. When boiled the seed are pressed with the hands and it gives a red broth, or a yellow broth as the skin of the seeds get soft and comes off. The single seeds are as big as cucumber seeds, but they can not be eaten, but only the skin around them, which gives the broth. This broth is a delicacy for the natives and often they mix it with sweetpotatoes, or eat it without mixing it with something else.

The pandanus is mostly not broken into pieces before boiling, therefore that can only be done in the big mondono or in the earth ovens. When the kernels are pushed of the thalamus and the juice has been pressed from the seeds, which is done by hand, the fluit, a slimy red broth, is put in wooden bowls and they wait for a while so the thicker part can settle and the "water" is on top. This "water" is taken off and put in bottles of gourds etc., and is later used to grease the body (festivals, marriages etc.) The thicker part is then eaten.

The most common species of kombu are:

komba andambo	komba kimugl
komba agl	komba mumburu
komba andambai	komba urum
komba bugla	komba toruo
komba din	komba kimbiri
komba gundu	komba komburi
komba yunjo tou	gande kombu
komba kiglawा	komba omburum
komba kemga	

Komba memgo is the part of the juice which is eaten and kombu nuglo is the "water" which is used to grease the body (skin).

The gardens with kombu can be planted by a man individually or by several men. Mostly they are near rivers, streams etc. in a bit of low lying ground, where good soil can be found and where plenty of water is all the time. The size varies to the number of the men who make these gardens. At first a little fence is made around the young and newly planted branches (pieces of branches), so the pigs will not dig them out. When they are firm in the ground and have roots, this is not necessary anymore as pigs will not touch them, as the bark is too rough and prickly. Such a garden can bring fruit for many years.

2. The Amugl

Here we have quite another type of pandanus. It does not grow near the coast but needs higher altitudes., 15 - 1800 meters or more. They hardly ever grow in grass country, but mostly at the fringes of forest country and in the forest. One may rightly say there are some little forests with nothing other than amugl. The Kamanuku have only a limited number of these amugl gardens.

They grow quite differently from the komba. The tree is a stem of 30 to 40 cm in diameter, some bigger, and grow straight up to 10 - 20 meters. There are no branches or leaves at the stem. The bark is a bit rough, but has only very short p~~inckles~~ p~~inckles~~, Near the ground there are also the sideroots but not as distinct and high over the ground as the komba have. On top of the single stem of the tree there are a number of short side branches and each one has a bundle of leaves, similar to the ones of the komba. In one or in more of these leave-bundles there can be a fruit each year, but a tree has normally only a few fruits. Such a tree looks more like a palm tree then anything else.

If each year each tree has one or more fruits at a time then they have a good harvest. The fruit is round and has the size of a man's head or bigger. The kernels or nuts are arranged as with the komba, that is the seeds are outside and the thalamus inside. But they have not the red or yellow skin, but the seeds are like little nuts and when the fairly soft skin is removed the kernels can be eaten and they taste like nuts. Such a little nut is about 2 cm long and about half to three quarter of a cm thick. Each fruit has several hundreds of these small nuts.

When the pandanus are ripe the fruits are taken from the tree and mostly they split the fruits in halves and roast the parts on fire. One may eat them raw but most probably they contain cyanide and people get sick and diarrhea, if they eat to much of them, if not roasted.

At the time , when the amugl were ripe, there was in the old days a kind of madness amongst the men, which may be connected with the eating of this type of pandanus. I do not wish to say more about that, I just want to mention it.

Harvest time of these fruits was always a big festival. Then men and families go into the amugl gardens, or into the forest where they are, and stay for days or even for weeks. They make special huts for the nights and then feast on amugl. Of course they eat other food beside the amugl nuts. The Kamanuku had not too much of the amugl, so they could not invite friends etc., but in some neighbouring tribes the harvest of amugl is a big occasion.

These nuts can be kept for weeks. The nuts then taste a bit dry but they are still good to eat.

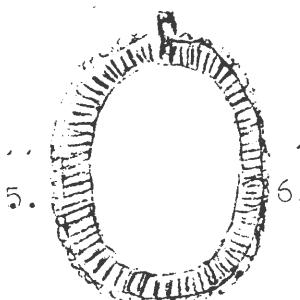
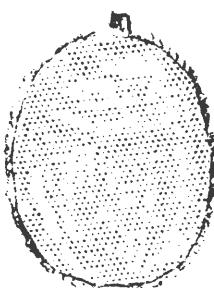
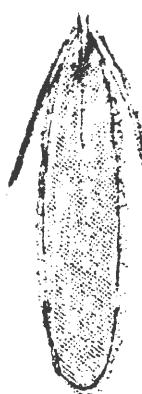
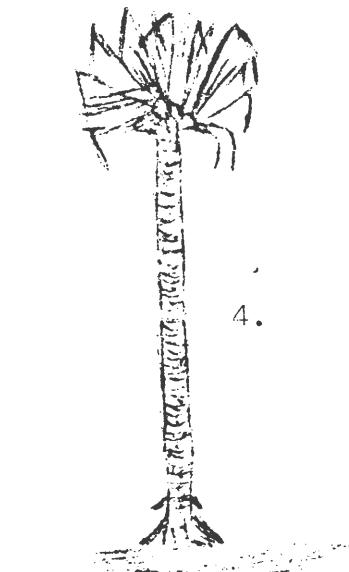
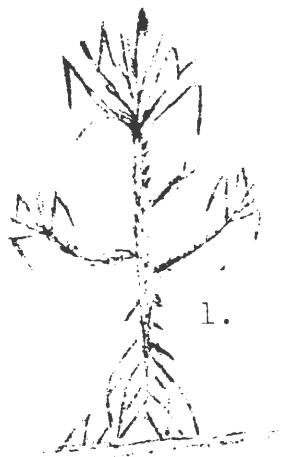
Of this amugl there are also quite a number of species. I want to mention a few of them:

Dagla	kuglame
ekirimbi	miamugl
enamügl	oglkawo
yu	kumba aglmba
kenugla	sie mamdambo
kumbawo	mu glaku

In the forest there also grow wild amugl, which are not planted. Gorogl and keya are two of such wild species. The nuts are a bit harder than the other ones, but they are edible.

The harvest is about the end of the rainy season or the beginning of the dry season, a little later than the komba are ready to be eaten. June - July is about the main harvest time. The harvest varies, one year they have plenty , the other year they are scarce.Climatic conditions may be the cause for that.

1. komba, about 3 m high
2. fruit of komba, 70 cm long, 8 - 10 cm diameter
3. komba, in half
4. amugl tree
5. amugl fruit, 18 cm in diameter
6. amugl fruit, cut in half



3.

6.

2.

1.

4.

5.

The Harvest

As one may have expected of the different kinds of food that has been planted, the harvest is not at one time, but when it starts it will last over months and even over years. The altitude has a big influence on the growth. If one is in an altitude of 15 - 1700 meters the time from planting to harvesting, at least when harvesting can begin, is much shorter than if one lives in an altitude of 2000 meters and higher. It is cooler in the higher altitude and the growth is slower and it takes several months longer until the fields mature and also the yield is mostly less. As a consequence people need bigger gardens in higher altitudes.

In the area of the Kamanuku, which lies towards the Waghivalley and in the lower Chimbu valley, which is comparatively low, about 15 - 1700 meters, the time between planting and the begin of the harvest will be about 6 months (main harvest of sweetpotatoes).

Some of the vegetables planted mature earlier. When the time has come for the first vegetables from the new gardens to be brought in, that has to be done with some kind of celebration. A few rats have to be caught and will be cooked with the first vegetables. If a pig is available to be killed and eaten, all the better. Such celebrations are repeated later, when the first sweetpotatoes are brought in from the new gardens. I wish to try to give the order of succession in which the different vegetables may be harvested:

kungi, which may be harvested for several weeks
suga (cucumbers) will be ripe soon after
dikeri (corn) will be next, then follow
ondugl and miuglá, kind of beans, then
kumba and aglmbá. This last one will last for
a long time, as it always sprouts again
and again and will last over a year or
longer.

Then the sweetpotatoes will be ripe to be eaten. But one does not harvest them all at one time, but only as much as are needed. Each second day a week new supply is brought from the gardens. They would only keep for a few days, not longer than a week. But in the ground they will keep for months. The women, who get the food from the gardens dig always only the biggest sweetpotatoes out, and let the others grow bigger.

The tubers, which are not big enough, they do not disturb, but cover them again with earth, so they can grow on. They are experts in finding the biggest tubers and getting them out, without damaging the smaller ones.

When the harvest of the sweetpotatoes can start, not just one or two people start to eat from the new gardens, but having some kind of celebrations first, they all start at the same time. A special meal has to be prepared with the new food. It is called: guma nejwa. The whole day is a day of celebration.

The bananas and the sugar cane need far longer to mature than any of the other food. Bananas and sugar cane take about one year to mature. Sugar cane they grow very high, before they eat it. But that does not exclude one man or the other cutting some off before it is really mature.

A garden keeps for a long time. They can get their food from it for the whole year and longer. Even in the following year when the new garden is planted and food can be harvested from it, the old one is still always good for something. There are still small sweetpotatoes growing and the women go and collect them and feed them to the pigs.

And if nothing seems to be left in the old garden, then the pigs are taken and put into the garden. If a fence is still there and good enough they may let them run loose, but mostly they are tied with a rope and they dig the ground and look for roots, grubs, beetles etc. Sometimes the people decide to replant an old garden, say after two years. In that case they also let the pigs do the digging and cleaning. If they are in such a garden for a while, not a single grass can be seen. That at least is good preparation for the next planting.

The harvesting of the bananas and the sugarcane is done by the men. They have planted them, they have tended them, and now they harvest them. And when they want to sell them on the market, then the men carry them also to the market.

VII. Animal Food (meat)

In describing making and planting their gardens I tried to show the abundance and the many varieties of the food planted. Also in regard to animal food there is some variety but not very much. One has to differentiate between domesticated animals and wild ones. Both belong to the animal food. As domesticated animals there are only two to be mentioned, the pig and the dog. Perhaps one could also count the fowl to them, but it was not kept in the first place for meat, but to get the feathers, especially the long tailfeathers of the roosters. There were also some other animals which were kept in captivity, but they were not bred, but only fed until they had grown and were ready to be eaten. For example the cassowary, the white cockatoo, kambuteine and some other varieties of birds.

The Pig

Wild pigs do not exist in the highlands. That holds true for the eastern highlands with Kainantu and Goroka, for the Chimbu district and also for the western (Mt. Hagen) district. The wild pig is known and at the fringes of the mentioned areas, in the forests of the border ranges, towards the Ramu valley, the wild pig is living and well known. In some fairy tales it is also mentioned (see: Mondo-Gande) but to conclude from that, that it has existed also here, is not warranted: as it is more than doubtful, that it ever penetrated to this area. If it has ever lived here then it has been extinguished long ago, perhaps by the numerous population (?).

At what time the domesticated pig was introduced: or at what time it was domesticated is also not known, nor by whom. The same holds true also for the Chimbu and Kamanuku. The domesticated pig, which they raise today, is not a real wild pig, but it has without doubt some strain of the wild pig in it. The colour of the pigs is prevalent black or brown, now and again a white spotted one can be seen. Some of the young piglets are striped, yellow stripes as the piglets of the wild pigs very often are.

The pigs they have, grow up to a fair size. Especially at the big pig festivals people were very proud of the size of the pigs which they had to contribute. I have seen pigs up to 5 hundred pounds in weight, enormous pigs, but in latter years, one sees such big pigs very seldom.

People differentiate between several species of pigs. The common name for pig is bugla. The kind commonly raised has no special name besides bugla. Bugla kagle karigl is a type of pig which has 5 toes at the feet. Each foot has two front toes and three smaller ones behind them. This type was not very numerous, but in the first years of our stay here I have seen quite a number of them. I prepared such a foot, to be kept, but in the wartime it was lost. Now it seems this type of pig has nearly died out.

Another type, also with 5 claws(toes) at the feet was called bugla kagle teruwagle. The toes were arranged differently, more side to side and the foot was put down more like a "hand"(on the ground). This type was not often seen, but as they had an extra name for it, it must have appeared to them as a pig of a special kind.

A third type was called by them: Bugla dem kurugl. This type seemed to have a shortened backbone and the tail was very short, only a few cm long with a tuft of hair at the end. In other words the tail was not close to the anus, but about 10 cm more on the back. This pig was not numerous. It is also found in other parts of Newguinea.

To mark the pigs as to ownership they marked them in different ways. Some cut parts of the ear or ears off, or slit them open, or put a hole into them. Sometimes the tail was cut off, but seldom, because the tail was wanted later for decorative purposes, such as for chains around the neck, for decorating the awlons of the men etc.

Men and women were more or less joint owners of the pigs. The men mostly bought the pigs in the first place and of course all the piglets were then his, from generation to generation. But the wife had to feed the pigs and take care of them, put them into the house at night etc. By this she became co-owner of the pig. The men took good care that the women fed the pigs well and if they thought they had not been given enough to eat, they quite often fed them again. Each man was very proud of having good and many pigs. And the more and bigger pigs he could contribute at the pig festivals the more honour he would get. The more pigs one had the more he was esteemed in the community and it showed also his wealth and influence.

The pigs run free in the daytime. They look for anything they can find to eat on the village area and in the grass and in old abandoned gardens - roots, worms, beetles etc. At night they are called and most of them come willingly because it is time to be fed. If they are in a garden and should not roam about, they are tied with a rope to a stump or pole or tree. This rope is put on one of the front legs. The pigs are used to be tied from the time they were little. If the women want to go somewhere and they want to take the pigs along, they follow them like dogs. They know the voices of the women and when they call they come. Each woman calls her pigs individually with her special call, which are mostly different from the calls of other women. Such calls are: aach, aach, or: mm,mm,mm; or: tsch,tsch,tsch; or: en,en,en; or: brr,brr,brr, etc. Also some whistled to call the pigs. At night the pigs were kept in the front room of the family houses.

For breeding purposes normally only very young sows were used. They were old enough, but often still very small. Boars were kept by some men but mostly they were very lean and skinny and were stunted runts mostly. Whether they had not been fed well, or had been put to work too early, I could not say. I only know that I very seldom saw a good looking boar of any size. Sometimes one could see boars with long tusks but their weight was often not more than 70 to 80 pounds (35 - 40 kilos). But they were at least several years old. Because they were so small they could hardly serve

the bigger sows. Most of the other male piglets were castrated when they were several weeks old, sometimes at the age of 2 - 3 months. All pigs grew fairly slowly and the reason for this was, that the food was not as good for them as it should have been. The sows very often were nothing more than skin and bones, especially when they had a litter of piglets.

It is well known that the women very often took the little piglets and put them at their breast and let them drink. That could be observed in the old days nearly daily. Today that is very seldom seen anymore. The young piglets were often taken away from the mother sow when they were only 3 or 4 days old and the women took care of them. The Kamanuku today assert that that is only done now, when the mother sow is sick or dies, but it was not that way 30 or more years ago. The younger generation hardly knows anymore what was done a generation and more ago. I observed more than once that piglets of the size of 40 lbs. not only followed their "foster mothers", but as soon as the woman sat down, they tried to suck, sometimes the pig on one side and on the other side her own child.

If the piglets were big enough to start to eat by themselves, which was within one or two weeks, the women chewed some food and give it to the piglets to eat. No wonder then, that they always followed the women.

If a mother sow was served by a boar and the boar had to be lent for the service, the owner of the sow had to give some payment to the owner of the boar. Very often he had to give at least one of the little piglets, when they were born, or he could pay with a piece of gold lip or some other shell, or with a good piece of meat etc.

If they observed that a mother sow with young piglets got very skinny, then the piglets were put in a special fence until the milk of the mother sow had dried up and the mother sow was getting in better condition again. After that they let them run together again.

The people in the highlands and the Kamanuku included always had a number of pigs. That is still the case today. Each man or family has at least several, which they can call their own, some have several dozen.

To feed the pigs the waste and scraps of food are used, the peelings of the sweetpotatoes, the leaves of vegetables, rotten food and bananas etc. Then they always sort the sweetpotatoes, when they get them from the gardens; and the small ones and the damaged ones etc. are used to feed the pigs. Some feed them the food raw, others boil it for them.

For many years we also had pigs on our station, better types than theirs, and we always had plenty of people, who looked at our pigs and at how they grew. We also tried to let them have better strains of pigs to better their own breeding, by letting them have mother piglets and boars. Other white people did the same, but as a whole, with little success. Their litters have increased but the boars they castrated very soon in most cases, after they had them for 6 months or so. Then they let their own boars serve the 'bought sows again. No wonder; they did not succeed. So much for pig raising.'

The Dog

As second in line of the domesticated animals I want to mention the dog. The dog is not native to Newguinea, just as the pig is not, but it has been in NG for many hundreds of years. Where it came from is not sure. To talk of a special breed of dogs is impossible. They seem to be a mixture of everything. Some of the dogs do not bark but howl at night.

There are not as many dogs as pigs. They were also not kept for the only reason to get meat, but the main purpose was to have a good dog for hunting. Dogs were not taken by the women and fed at their breasts, but were fed if necessary with rats and other food. But like the piglets, they were often carried by the women in their netbags, or on their shoulders. That was the case, not only when they were still small, but also

when they were grown up, when they had been with the women in the gardens and were tired. Then they were taken and put on the load the women were already carrying. The men seldom carried dogs around like that, but occasionally is could be observed.

A good hunting dog was highly esteemed. These were not killed and eaten as soon as the other ones, which were not any good for hunting. They were kept for years (the good ones), until they got old and then they were killed and eaten only when they had found a better one.

Special houses or huts they did not built for dogs. They normally were with the people in the family houses. Very seldom, if at all, were dogs kept at or in the menhouses, where they could have served as watchdogs. Also at the family houses they were hardly any good watchdogs. At the men houses they were perhaps not kept because with their barking they could have disclosed the men who were on guard, especially in war time.

People say there were and still are wild dogs in the remote areas especially on the very high mountains. I was not able to prove or disprove that.

The Fowl

The fowl was known here, when we first arrived, and a few people had some, but not much care was taken to breed them. They were eaten and the eggs were also liked, just as eggs from other birds, but the main reason for keeping fowls was to get the long tail feathers of the roosters, for decorative purposes. The fowls slept somewhere on the branches of trees not far from the houses. They were hardly ever fed, but had to look for their own food, and many were eaten by dogs and pigs and the little chicks were caught by hawks. Of a special breed one can not talk here either, as they were a mixture of many breeds, mostly multi coloured or white. The breed was much smaller than our normal breeds, about inbetween bantoms and the normal size as we know them.

In regard to domesticated animals many things have changed in the course of the years. The breeding of pigs is still basically the same as it has been for generations. If one suggests regular feeding and keeping them in pigstys the answer is: That is far too much work and they do not do well if penned up. That may be true, for who would care for and feed them at least twice a day? And who would have and bring all the feed they would need? But there has been some improvement in keeping pigs in regard to better breeds.

Also the breeding of dogs has improved. Even in the old days such runty dogs as were mostly seen in coastal areas were seldom here. Dogs brought in by newcomers, especially the white people, have intermixed with the local dogs and the dogs today look better and are mostly bigger in size, compared with 30 years ago.

Also the breeding of fowls has improved quite a bit. New breeds have been imported and people look after their fowls a bit better than they did formerly. Many keep fowls today for meat and eggs.

Ducks have been imported and have been kept by the natives for a number of years, but the number is not big. The same must be said of turkeys.

Cattle have been kept by the natives only in recent years. Before it was against government regulations to have cattle (for the natives) as it was feared they could not handle them and also the ticks could not be effectively controlled, because many cattle would go more or less wild. But for a few years now, there have been small herds of cattle here and there in the villages. Sheep have been tried, but with little success. Goats are introduced and one can see herds here and there, but there are not too many of them either. They seem to do better than sheep.

The Cassowary

The cassowary does not belong to the domesticated animals but I want to mention it here, because he is often held in captivity and is fed until he is grown. The cassowary is caught, when still small, in the forest, when hunting, or by people who live close to the forest and is then traded in. But the number which is raised is not very high and it seems to me this number is today smaller than 30 years ago. As long as the cassowaries are still small they let them run around freely. They were tame after a few days. But when they grew older and bigger, they put them into small huts, especially made for them, a few sticks or poles put into the ground and a roof over them. They had to do that, because they could get dangerous for children. At first they kicked with their feet playing with the children, but these kicks when bigger, could be dangerous for children and also for small pigs, as the sharp claws (talons) could easily hurt the children and pigs, as they in fact did sometimes. The birds were fed with small bits of sweetpotatoes, with pieces of bananas etc. which they swallow whole.

When grown they were killed and eaten, mostly at festival occasions. Especially the leading and esteemed men got the meat to eat. In some tribes it was customary to kill and eat a cassowary at the time of a marriage festival and they could not think of having a marriage without having such a cassowary. But they were kept not only for the meat but for the feathers etc. Nearly everything of a cassowary could be used. The feathers were made into pieces of decorations especially for war decorations of the warriors. Most probably there was some magic thinking behind it, because the bird was so strong and also very quick in running, and this could be transferred to the ones who were wearing the decorations of the bird. The bones, especially the bones of the legs, were made into bone daggers, the bill was used as a decoration put on a string around the neck. The bones of the wings (wings without feathers) were worked into needles for the women and/or used as nose decorations (put through the septum) etc.etc.

Kambu teine

Kambu teine, a kind of treekangaroo(?), (nearly as big as the koala bear) was also caught when hunting or was traded in from people who lived near the forest. It was then kept like the cassowary, not on the ground, but in little huts built about 1 meter or so above the ground. They also got tame to a certain extent, but not as tame as the cassowaries. If they were let free, they would mostly run away. They were not kept mainly for the meat but for the skins or furs, which was worked into pieces of decorations, either the whole skins or cut in strips. The small strips were lined up on strings and worn around the neck, over shoulder, back and chest, sometimes also around the head. The meat was of course eaten when the animal was killed.

Tame Birds

Besides the kuá nime(cassowary) several other birds were tamed and kept. For instance the white cockatoo, which does not live here in this area, as the altitude is too high for them, but lives only in lower altitudes. Therefore they have to be traded in. They were fairly easily tamed. They let them fly around after some time and they perch on nearby trees. This bird was not kept in a hut or cage. When tame it would not fly away. It was kept for the white feathers, and especially the yellow crestfeathers.

Also several lory species are sometimes kept in that way, but only here and there.

Also one could see one or two of the hornbills now and again. There were also traded in, as they do not live here, and were kept primarily to get the long bill later, as a piece of decoration. Beside the bill they used also the feathers, for decorative purposes.

Animal Food from Garden and Forest

Besides the animals and birds already mentioned and which served at least partly as meat, there were many other animals and birds which were hunted for food, in the gardens, in the wasteland, in the forest. I think it would be better to say, everything was crept or flew was eaten, with very little exceptions. The area north of the Kamanuku, the mountains and hills of the Bismarck Ranges, was hunting ground for the men, and often they went there and stayed there for days. I cannot go into details, but I want to mention a few animals which were hunted and eaten, mostly in the forest:

Teine	aremba
moltoa	andambo
kambu kigl	binduwe
baglime	kauglange
benda	kondopuglo
bonguro	toa
peru	toko
. bangomugl	
kerema	

These are all more or less animals of some size, tree kangaroos, cuscus, ground kangaroos, big rats etc. Most of them belong to the class of the marsupials (if not all) as far as I know.

Then there are the animals which live not only in the forest, but also in the grasslands. They belong partly under the collective name dua, which means rat, but they are not all rats. I mention a few of them:

Bundua aramugl	{	These animals live in the forest
boma karagle		
dire mambu		
kamburi winogl		
ambundi		
niri ganjo		

kutn dua	(These animals live in grassland
maimbo	(or at the fringes of the forest
piginggi	(in grassland.

Birds (kua)

Also all kinds of birds are hunted, caught and eaten with a single exception, namely the bird called toruo. They say this bird releases an abominable smell if somebody comes near it or near its nest. Others say the meat is edible but not the intestines, and that the meat has to be put in water for some time before it is edible. But they hunt and kill it to get its feathers. As a remedy against the meat, which they assert could be dangerous and fatal if eaten, they used urine of a girl, which the sick one had to drink. Only then would the victim recover: they said.

It is striking and extraordinary that nearly everyone of the adults knows so many of the different kinds of birds. One only has to ask a man and he will without any hesitation count and name 50 different birds or more. Here one has to keep in mind: All that is essential, all that serves as food, and especially animal food, is always remembered. But other things, such as butterflies or moths, which are not eaten, they have no distinction and they have only a single name for the lot. They don't count, because they are worth nothing.

It would not be difficult at all to give the names of 80 to 100 different birds, from the smallest ones to the ones of a fair size, but I shall not bother the reader with that. If anyone is interested he can read the names of birds in a Kuman-German dictionary, which was compiled and published several years ago by me.

The birds are hunted not only for the meat, but often far more for the feathers, which are worked into pieces of ornaments. The plumage of birds of paradise is prevalent in this line. Not only are the birds killed and eaten but they also like to find the nests to get the eggs and the young ones. If they find a nest they often try to catch the young and the old ones. Of the birds of paradise several species live in this area.

Snakes (tekoi)

There are several species of snakes here in this area, but not very many. The Kamanuku say they never ate snakes, but neighbouring tribes eat some kinds, the socalled mingé. They also say that pythons are living here, but I never saw one. That they are living a bit further south: I know (I mean here the big ones) A green python or grass python which lives in the Waghi valley I have never seen here. Anyhow, the snakes as food are of no importance.

Frogs  koglko)

There are also quite a number of frog species and all of them are caught and eaten. A few kinds I shall mention here:

agluwawinogl	kauna
sinag�e	kauglange
ainaglekama	kendaglmba
buglante	kuglka baglka
dembenbogl	mengane areme
dembumbu	muglatakera
gembigle	nanga
gurume	piande
	piande kakandi
	wiwingogl

Beetles, Grubs etc. (buglange)

Also nearly all kinds of beetles, insects, grubs etc. are looked for and eaten. I want to give a few names of some of them:

mongondo	bangeruwagle
mongondo gaimbande	nerawara
singeruwagle	mekondo kambu
peto	gombuglo gambuglo
peto pato	buglante singembe
pondomugl	poglo paglau
agl gogl buanje	kambu moro
amugl buanje	omun
dekindoko	dengiglau
urumberua	dokoro
adluwai kambu	kondauglu
indaun mugl kambu	min kambu

Bats

The Kamanuku differentiate between two kinds only, the big one, the flying fox, and the smaller kind, which they call: kembo kambo. The bigger kind is hunted and eaten and the bones can be used for needles etc. But the smaller kind they don't bother. They are hardly worth catching.

Spiders

Also several kinds of spiders are eaten, but not all kinds. One which is eaten is the big kind, the goglum mambu spider, which lives on trees, and the kurimbi karimbi, a spider with very long legs.

Lizards (guru)

They like to get the eggs of lizards, all kinds of lizards, but the lizards themselves the Kamanuku ate only the egliwe bogl and the ken guru. Other tribes also ate other kinds of lizards.

Wasps (burume)

Of the wasps they ate the young larva and the honey that was found in the honeycombs. They collected both from three kinds of wasps:

kuman burume
diun burume
yungu dinbi kambu.

Some Fish

The rivers are very poor in fish. In the small rivers and streams there are normally only very small fish to be found, as long as a finger or so. In the bigger rivers, such as the Chimbu and the Nera(Waghi), live the catfish which grows up to several pounds in weight, and the toma yombuglo, also fairly big, and occasionally some eels , which are called, kui(different kinds are kuie wan, menda akena and inkomugl). Some did some fishing, but as a whole, not much time was spent catching fish.

Hunting

In the old time men often went hunting. They took bows and arrows and also a supply of food with them(sweetpotatoes etc. They went into the forest and hunted. At night they often slept in small huts, which were erected here and there in the forest. They took their dogs along. A good dog could smell the animals and could chase them towards the hunters. The animals were mostly killed with arrows.

To get birds, especially those which they knew would flock together on special trees, they built a small kind of cover or hunting hut on the trees and waited until the birds arrived to eat the fruit of the trees, and then shot them.

When they had caught a number of animals then they took them along to the sleeping huts and prepared and ate them. But often they also went to get animals for a festival. In that case they brought the animals home, or at least most of them. They were tied to poles and then carried home (often 8 or ten animals to a pole) Two men carried such a pole, one at each end. If the animals were not dead, or if they were biting, they cut out their teeth, so they could not bite any more, or they broke their legs, so they could not run away, especially if they wanted to keep the meat several days, before it could be prepared and eaten. The meat kept "fresh" in that way. The living animals were likewise tied to poles and carried home.

Traps and Snares

(yame -kitn)

They also knew traps and snares. With them they caught animals as well as birds. The dua yame is a kind of trap and the kitn is a snare. The trap was placed on the ground. They made a kind of "road" and put sticks on each side and put at one ende of this road a sweet-potatoe or something similar as a bait. A piece of wood was put over the "road" in a slanting position and under it a small stick, which was connected with the sweet-potatoe. By a movement the stick was released and the heavy piece of wood fell down and killed the rat (or any other animal.)

With kitn they caught animals and also birds. A young sapling or pole rammed in the ground was bent down to the ground or near the ground and at the end a noose or loop was tightened. The loop was made of a thin vine and touched the ground. Behind the loop the bait was put. There was a small crosspiece of wood and when it was touched it released the pole, or sapling and the string was pulled high with a sudden movement and the animal was caught (if they were lucky.).

If they wanted to catch birds, they often put the snare close to the nest, so the birds when they came to sit on their eggs, or to feed the young ones, were caught in such a snare.

If they were lucky and found and caught a young animal or bird which they wanted to feed at home, then they made a kind of basket from split bambu and put the animal or bird into that and carried it home.

To Fish.

If they wanted to catch fish they did it mostly with a kind of spear, most of them had not only one point at the end, but a piece of bambu split and opened so it had many points. Or they caught fish with their hands especially in the dry season, when the fish makes for the source. They also know a kind of weir basket made from bambu or from Spanish reed. It was open only at one end and at the other end the bait was put. The open end had then many points pointing inside. So the fish could not go out, but could go in without hindrance. These weir baskets were made only by a few men and were used to catch eels. These men had a special charm to catch the eels, it was said.

VIII The Preparing of the Food

To cook, roast, and steam the food before it was eaten was known everywhere. Of that a little later. At first I want to describe the killing of a pig and the butchering of it, because the pig is the biggest animal (at least it was) the Kamanuku had, and the preparing of the pig for cooking was a bit different from the way other tribes do it. I do not mean so much the killing of the pig, but the cleaning and the taking out of the entrails of the slaughtered pig.

The Slaughtering of a Pig

The pig was killed by taking a club or cudgel and hitting the pig on the head. Experts could kill them with a single stroke, but most people had to hit the pigs several times until they fell over. If the nose of the pig started to bleed, they held the head high to avoid loosing any blood.

When the pig was dead they made a fire and singed the hair. The fire was made of grass and small twigs of casuarina trees. Above such a fire the pig was held for some time, or they put the fire on top of the pig, first one side and then the other, until most of the hair was singed. Then they rubbed the skin clean with pieces of wood or sticks, so the ashes and the upper skin, which was burned by the fire, was removed with the singed hair.

In the meantime others had brought big leaves, such as banana leaves and other big leaves. On these the pig was put and the cutting could start.

As the taking out of the entrails is different from methods elsewhere, I want to say how they do it. For me the way, in which they do it was new, as I had not seen it done in other parts of New Guinea.

They put the pig on the leaves on its back. Several men help to hold it in this position. The man who did the work now made two cuts along the belly about 15 cm apart. This piece he started to loosen, starting at the rear end nearly to the head and put that over the head, without cutting it at the end. Sometimes such a piece was a bit wider, 20 cm or even 30 cm wide.

When he had done this the abdomen was open and he started to take the intestines out. He started at the anus, which he loosened and pulled through the pelvis, then the big intestines were loosened by hand and then the small ones, stomach and liver etc. Then he took the lot out and put it on leaves. Then it was sorted and the intestines were handed over to some women, as it is always work for the women to clean them. They carry them to a water(stream etc.) and press the faeces out, wash them, blow into them etc. until they are clean. Then they carry them back to the place where the pig is.

Now the man cuts again and opens the cavity of the chest. He is very careful not to spoil any of the blood in the cavity. If there is blood new leaves are always taken and they are soaked in the blood, until nothing is left. (The leaves are of different kinds of vegetables). These are later taken and with the blood steamed in the earth oven, or they are roasted over the fire, or put in bigger leaves and boiled or roasted.

Then the parts of the chest cavity are taken out, all in one piece after it has been loosened with a bambu knife, lungs, heart, larynx and tongue, all hanging together in one piece.

But now the most difficult part begins, which consists of loosening the meat from the bones. In doing this all bones have to be together as they were, the whole skeleton, except the bones in the hind and front legs. The man begins at the tail and loosens the backbone. That is fairly easy, until he comes to the ribs. The meat has to be loosened from them too, which is mostly done with the hands. Seldom is a knife taken to help in loosening the meat. Even the head bones have to stay on the skeleton. If he is finished, there are only two parts of the pig, the skeleton of all the bones (except the leg bones) and the meat of the whole pig in one piece. To do this works needs skill and takes several hours to do properly.

To butcher a pig in this way was a firm custom at least at all festival occasions, such as pig festivals, marriages etc. One might say it was more or less a firm ritual, and it has been that way even until today.

At other occasions, for example, if one wanted to kill a pig for himself or for his own family, the pig could also be cut into pieces before it was cooked, perhaps because it was easier to handle and they did not need such big cooking utensils.

The dogs were not killed by hitting them on the head, at least not on the front of the head, but on the backside of the head. They hit them from the tail end to the front. Or they were not hit at all, but were choked. They put a rope around their neck and put one end of the rope over a tree branch and pulled the dog up. As soon as the dog finished struggling, they knew that he was dead. Then it also was singed and cut open at the belly side, and the intestines taken out. Here also the meat was loosened from the bones, just as they did with the pigs.

Cassowaries were killed again in a different way. Two men took a strong stick and held it across the pen, in which the cassowary was. A third man gave the bird something to eat. To get it the cassowary put the head through the sticks of the house. Then a second stick which was held in readiness was put down over the head of the cassowary and the two sticks were pressed together, until the bird was dead. Perhaps the reason for this was, that the grown cassowaries can be very dangerous with their feet and could easily hurt the men if they were loose. But with the body inside the house or pen, they cannot do any harm.

Another way to kill them was this: A man offered the cassowary something to eat and when it tried to snap and take it, it was taken at its neck and held strongly, while it was hit on the head with a stick, until it was dead.

They were then plucked and all "feathers" were carefully kept, because feathers of the cassowary were especially high in value. Most of them were made into headdresses worn by warriors. When the feathers are pulled out, they make a long cut at the undersidé, from neck to tail. If they intend to cook it undivided, then only the intestines of the abdomen are taken out and are in one piece, and the other piece is meat and skin (plus the bones of the leg.) The bones are valuable too, because nearly all of them are made into some kind of tools etc.

At neighbouring tribes towards the west it was customary to kill at least one cassowary at a marriage festival, but the Kamanuku did not have that custom. Some of them did however, perhaps because the woman was from that area or some of their relatives.

The cassowaries were killed by the Kamanuku at special occasions, for example: In a fight one or more men were killed by the enemies. In that case the man who had talked them into starting the war, was (or were) blamed for being guilty of the death of the men. If they had not talked the others into the fight, the men would still be alive. If they were blamed in that way, then they killed a cassowary, if they had one, and distributed the meat to the warriors. They ate it and calmed down.

Other animals were prepared for cooking in similar fashion. If they were small only the intestines and the stomach were removed, in other words, only the cavity of the abdomen was cleaned. The same was done with the birds. Also the birds were plucked, except the ones which they wanted to make into plumages. They had to be skinned and the skins dried. The feathers of other birds were valuable, but they were used either as single feathers, or worked into pieces of decoration. Beetles and grubs were normally cooked as they were, without cleaning them beforehand. Several kinds were even eaten raw.

2. The Cooking of the Food

When I use the word "cooking" this does not only mean the boiling in water, but all the preparing of food by heating, may it by boiling, steaming, frying, rasting etc. It should be commonly known, that the main meal in the highlands, at least in the Chimbu and also in the Mt. Hagen districts, was prepared in wooden pots or drums, or in stones in the ground. But I still want to say a few words to describe the following kinds of cooking:

1. The preparing of the food in mondono
2. The preparing of the food in ground ovens
3. The roasting of the food.

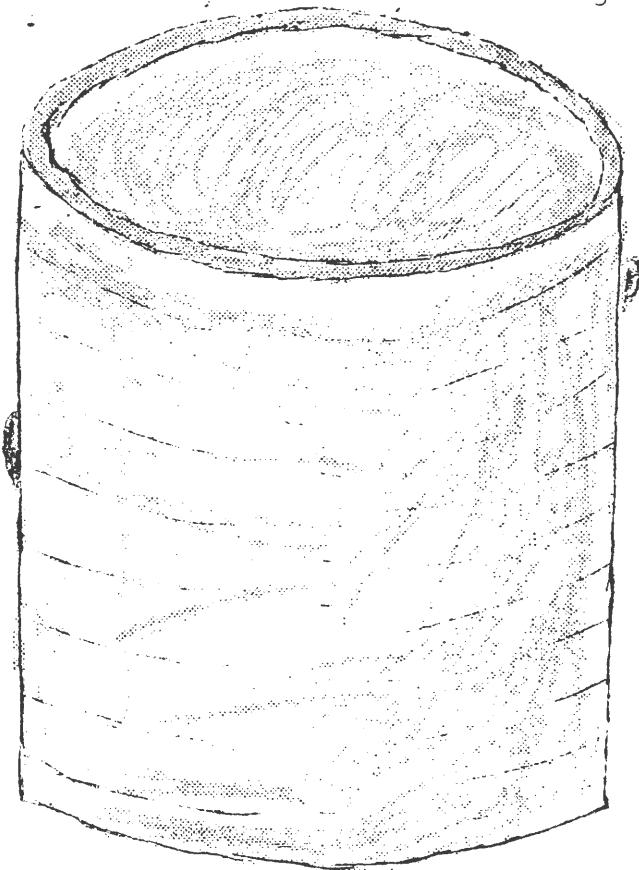
1. The Preparing of the Food in Mondono

The daily quantity of food was normally steamed in mondono, the big wooden pots or drums. Each family has several of these big wooden pots. As these were nearly the only pots they had, and as they were used normally daily, I want to tell about them first. These pots are called mondono. There are several kinds of them in use, small and big ones, high and low ones. The small ones are about 15 to 30 cm in diameter and are about 50 cm high. The big ones may have to 60 and 70 cm in diameter and can be about 80 cm high, or even higher. They are made from tree trunks and are mostly only open at the upper end. Several kinds of mondono may be mentioned here:

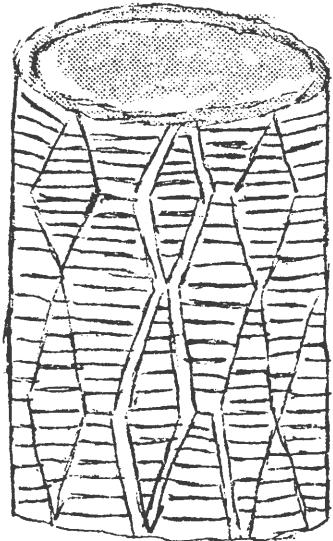
Mondono poglumbo	a very big kind
mondono sumbange	also a big kind
mondono datngi	long and narrow, higher than other small kinds
mondono kuanande	a small kind
mondono peu	only a kind of wooden tube or cylinder, open on both ends.

Mondono : 1. big, without ornaments
2. small, carved; 3. small and high

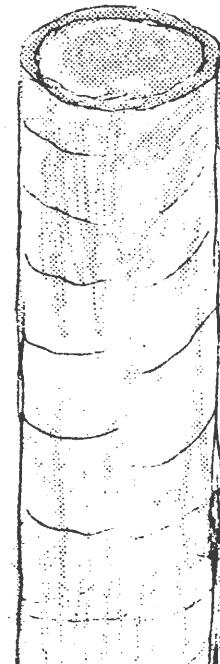
1.



2.



3.



To make these mondono is men's work. How they are made will be described later, see under tools etc. later in this volume.

If the people want to cook, they have to prepare beforehand: the stones they will need, the firewood, the food, the leaves and grass and also water. The wood is piled into a heap, always putting one layer lengthwise the other crosswise, either in the first room of the house, or in the cook house or on the village square. On top of the heap of wood, stones are piled and the wood is lit. The stones are then heated until they are white hot. In the meantime the women peel the sweet potatoes and make the vegetables ready. Also leaves etc. are put into readiness. Some cook the sweet-potatoes and take the skin off later with their finger nails. As soon as the stones are hot enough, they put first some leaves into the mondono. That protects the wood and it does not burn. Then a layer of hot stones is put in and then a layer of sweetpotatoes, then stones again and sweetpotatoes and so on until the pot is nearly full. When it is about threequarters full, the vegetables are put on. When everything is in, sometimes the mondono is full up to the brim and higher, then the leaves, which were put at the sides and are hanging outside the mondono, are taken and put over the full pot from each side. After they have poured some water over the vegetables

other leaves are taken and put over the top and the whole lot is then fastened with ropes(vines) so not much steam can escape. The hot stones they put into the mondono with a kind of firetongs, a piece of stick, split on one end. The water, which is put on, when coming in contact with the hot stones, evaporates and the hot steam penetrates everything in the pot. There is some pressure according to the tightness of the cover of the pot and one could say this whole procedure is quite modern, steamcooking or pressure cooking, even if the means are primitive.

By experience they of course know exactly how many stones they have to put in and how much water they have to put over and how long they have to leave everything in the pot until it is done. Normally it will take at least one hour, mostly one and a half to two hours until they have the food ready and take it out of the pot. They take it out carefully and put it on leaves to cool off, then the meal is ready.

2. The Cooking of the Food in Earth Ovens

If guests are present or when many people are there who have to be fed, and if the contents of a mondono would not be enough for them, then they cook the food in an "earth oven" or in a pit. This kind of cooking is called: kombuglo kejgwa, or maugl kejgwa. At the big festivals nearly all the food is prepared in these earth ovens. The size of the pits depends on the amount of food, they want to cook in it. When one or more big pigs have to be cooked and the amount of sweetpotatoes and vegetables which are needed besides the meat, then the pit must be fairly big. (It will be remembered that the pigs are cooked in one piece without cutting them into smaller pieces.). But the procedure is basically the same as already told under 1, with the mondono, only everything is bigger. The heap of firewood must be accordingly, the stones have to be plenty etc. A little difference is the fact, that some people pile the heap of firewood and stones up beside the pit, and others put the wood and stones over the pit, and when it is burnt the hot coals and the hot stones fall by themselves down into the pit. When everything is ready, then the pit is filled, firstly leaves, then hot stones, then some sweetpotatoes, leaves, pigs, leaves, then hot stones, then some sweetpotatoes and so on until the pit is full and even piled up into a big heap above the pit. Then grass, leaves, earth is put on until everything is firmly covered. Some put water over the heap before they put the last cover over, some take hardly any water or none at all. The steam developing inside, makes the food cook. If meat is in the pit, normally only the men pack the oven and later, after a few hours, up to 6 hours, the bigger the pit the longer it takes to be done. Also the men take everything out of the pit. Later, when everything is taken out of the pit, the stones are normally put back into the pit and lightly covered, especially if they want to use the oven again soon, otherwise they may not bother and leave everything lying as it is.

3. The Roasting

The main meals, or the food for the main meals, as described under 1. and 2. are prepared in the afternoon, so it is ready in the later afternoon or early evening; but on festivals the cooking can be done at any time. Sometimes it is done late in the evening; so the food is ready in the morning, or early in the morning, so the meal is ready about noon time.

But at other times some food can be prepared and eaten. It may also happen that for one reason or the other no food has been prepared in the mondono or in the pit. In that case they roast some food in the ashes (meat sometimes over the open flame). All kinds of tubers can be roasted in the ashes, also maize, kungi, kumba etc.. They may do that at any time, in the morning, or in the afternoon, or late at night.

To do this they put the tubers, sweetpotatoes or whatever in the hot ashes or on the open fire. The tubers then roast. From time to time they have to be turned, to avoid burning them. Sometimes they are taken out and the ashes and burned skin are scraped away with a stick or a piece of wood. If the outside is hard, then they have to take them out of the open fire and put them into ashes or hot coals and let them bake slowly. They also wrap beans and vegetables in leaves and roast them over or in the fire. Sometimes one can observe, that people cut an end of bambu tube, fill it with vegetables, meat etc. and roast them in the same way as the tubers over the fire or in the ashes. When the outside (bambu) is dry or nearly burnt, the contents of the bambu are mostly well done.

Also small animals, and now and again pieces of pig meat, are roasted in open fire. They are wrapped into leaves and put in the fire, or in the hot ashes, and must be turned every few minutes, to avoid burning. Small animals such as rats and also small birds, they often put on a spit and roast them over the flame.

Also in preparing the food, there have been quite a few changes in the last 30 years. Iron pots, cast iron and sheet iron pots are much in use etc., But apart from that, the old methods of preparing the food are still very much in use.

3. The Fire

To cook, one needs fire. Fire has been known to the people for centuries. The people do not know how fire came, except for an indication in their myths (see No. 1 in volume III). Perhaps one could also conclude, that people think of a time, in which there was no fire known to them.

Fire is made by friction. A single man can make fire, but more often 2 or 3 men help together to make fire. What they need is: A piece of a stick, easily inflammable material and a string, mostly of split bambu or of cane (Spanish reed). The piece of wood, a stick of 3 - 4 cm in diameter and about one meter long, is split at one end and a small wedge is put at the end of the split. The easily inflammable material such as fine grass, rubbed very fine etc., is put just beside the wedge into the split of the stick.

Then they take the string and put it over the stick, near the wedge crosswise. Under the stick a piece of wood, a small tree etc., is put to elevate it a little. With his feet the man holds now the split stick and takes an end of the string in each hand and pulls the string over the stick in quick motion from side to side. That gives a good friction. Some put the string under the stick and pull on both sides a little upwards, with the same effect.

After a few motions to each side smoke can be seen developing at the place of friction. The man bends down and blows into the spark, the material starts to glow and soon the flame can be seen. He puts further material on it and soon he has the fire going. It takes only about half a minute or so to make fire, if all goes well, but often the string tears and he has to start anew.

There may be some little variations on this method of starting a fire, instead of one man ,2 or three men may help together, or two men may pull the string, each on either side of the stick, and a third one stooping down to blow. Also two men may hold the stick and a third man may do the pulling, but basically it is all done in the same way.

Of such strings or small ropes for making fire, each man had at least one, some had 2 or three around their arms in the old days. In case they needed fire, they were always ready to make some.

But if there was fire in a house nearby, they preferred to go there and ask for fire. Then they did not need to do the work of making fire themselves.

4. Spices

To prepare the food, at least some kinds of food, they also used spices. The main item to be mentioned here is salt.

There were different methods of making salt. One kind, which the Kamanuku made themselves, was called: mundi engere. As the word indicates, it was made from the engere grass which is a kind of bambu grass.

If they wanted to make salt, they first built a little house in the vicinity of a place where there was plenty of this kind of grass. It grows mainly on moist places near creeks or rivers. Such a house was made of the akirika type. Then they cut bundles of fresh engere grass and let it dry in the sun. They then made a pit and burnt the grass in the pit or over it. They needed the ashes and it needed quite a lot of grass and quite some time, until they had enough of it. Several weeks they had to cut grass, dry and burn it, until the pit was about full with ashes.

When they had burnt enough engere and the heap of ashes was big enough, they made big bundles of the ash and carried it home to their houses. There they distilled the ash. They put it in big funnels made from treebark, and poured water on top of it. At the lower end some pipes of bambu were put and by them the water went into a kind of basket, made of banana leaves. This container was then put on treebark or on big stones and fire was made underneath. In this way it was heated and the water slowly evaporated. A thick layer of "salt" was the result (in the container). The containers in which the salt was evaporated were called: Gogla. At the top of the container a stick (cross stick) was fastened, so the container could be carried, or lifted up, when it was hot.

But not only engere was worked into salt but also other plants, as for example: kuragl was worked into salt and kumba. In the forest, north of the Gena people, a kind of vine with long leaves was used for salt making. This area is north of the Kamanuku. The name of this plant is yaugl, mundi yaugl. This plant was traded in for other goods and was used as salt. At the Kou people, not far from the Kamanuku, but towards east, there was a salt spring, mundi nigl. This water was traded in and then boiled. When the water had evaporated they had salt. But mostly the local people made this water into salt and traded the salt in for other goods, such as shells, bird plumes etc.

Near rivers there was also in swampy areas a plant, which was called suogl dambugl. This plant was collected and burnt to ashes, and this ash was used as salt, - at least they asserted that it tasted like salt.

A day's walk southward of the Kamanuku there was quite a bit of salt made in the old days. Most of the salt used here by the Kamanuku came from there and had to be paid for. The price was very high. The Kamanuku did not go there to make it, but traded the salt in from there. However, since most of their salt came from there, I want to mention it here.

The Waghi valley(Nera river) turns eastward at the place, where the Marel tributary joins the river just south of Omkolai. And at that place was for many years a kind of salt factory. At the south banks of the river there were several salt springs. The rock formation is limestone and the water of these springs contains salt and it is worked into salt.

In the year 1948 I could see for myself the making of the salt. In the years earlier the area was restricted, otherwise I would have gone there much earlier. The place was called Buglume , at least the Kamanuku called it that. At this place there was a large number of houses and the place looked like a big village. A good bridge led over the Waghi river to the southside, so it was not difficult for us at all to visit the place. At that time there were about 150 huts there, I say huts, because nobody lived there , for the huts were only built to make salt. Quite a number of tribes had the privilege or right of making salt here. Years earlier may a fight was fought to secure these rights.

When we inspected the "huts" a bit more closely, we discovered, that the huts consisted only of a few posts with a roof over them. Each hut was about 5 meters long and about 3 meters wide.

Not far from these huts there were the salt springs. There was one with a steady trickle of water, salt water, and two others with less water. Many other springs in the vicinity had some water, but no saltwater. The saltwater trickled slowly out of the limestone and was caught into a stone trough, which was about 40 by 80 cm. These stonetroughs may have taken the shape they have today by long usage, or the stones may have been worked at and deepened in the middle. The edges were made a bit higher by little walls of clay.

These little rims helped also to keep other water out, which always drips down from the steep mountain walls. We tried the water. It took about half a minute to fill a waterglass. It tasted salty, but it seemed also that other minerals were contained in the water. The water drips of course day and night and the people try to catch every drop of it.

To make this water into salt, the procedure is very similar to that already mentioned. The saltwater is there. Women have to select different kinds of grass and bring it to the place. The men then take the saltwater and pour it over the grass, which is bundled in small bundles of about 20 to 30 cm in diameter and put into the houses in pits and there it is soaked with the saltwater. The men carry the saltwater in small bambu containers and pour it over the grass for several days. When it is saturated, then they take the bundles out of the pits and dry them in the sun. When it is dry it is stacked into heaps, and when they are big enough, then they burn the grass. The ashes were bundled into enormous bundles, about 2 meters long and 50 cm in diameter, and then carried on long poles by the men into the villages. Here then the second phase, the purification of the ashes or salt could begin.

The salt was (ashes) put into huge funnels of tree bark and on top water was poured. At the lower end bambu pipes were put and the water, that seeped through the ashes and contained salt, was caught in these pipes and led into ready made containers, of banana leaves etc. The containers, in which the salt was evaporated were made with much skill. The containers were put on big flat stones and under the stones a fire was made for hours and days. The water evaporated slowly and a white broth remained, which thickened, when cold. This was the salt. Such a piece of salt was about 20 cm in width (diameter) and 3 - 4 cm thick. It had a greyish white colour and was very expensive. For such a piece of salt the people had to pay a small pig or a similar piece of the same value (shells, goldlip, plumes etc.)

One may ask why the people do not just take the saltwater and evaporate the water. But tests have shown, that the salt, they make, in the way described above, is more like our salt, than if they should only evaporate the saltwater by heating.

Our children, who accompanied me on one of my trips, made the test. They had a small bottle along and filled that with saltwater. At home they heated the water until it was all evaporated. When it was cooled, they had a layer of salt in the bottle. It kept well and was nearly white (white-grey). But when they took the cork off, a few days later, and left the glass open, the thick salt very soon became fluid again.

Then they took samples with them to Australia and had them analysed. They had a sample of the evaporated salt and a sample of the salt which the people make,. The test gave the following:

Saltwater, only evaporated; gave:

64% sodium chloride (Na Cl) and
12 % calcium chloride (CaCl_2)

But the salt the people ha made gave the following:

81 % NaCl and
4 % CaCl_2 and
5% potash (by burning)

How they came to get or make salt in this way, is hard to say today anymore. People only know that it has been made in this way as long as grandparents and ancestors could remember, in other words it has been made that way for ever(according to their thinking).

Today the salt village has disappeared. Salt may be bought far cheaper than made, in any of the many trade stores.

The salt was used foremost to put on pigmeat and other meat. The salting of the meat was done in the following way: The man who did it took a piece of salt in his mouth and chewed it fine, sometimes mixed with several herbs, and then blew it over the meat, which had been taken out of the oven and was put on leaves to get cool. This blowing over the meat was done with a big noise of the lips (prrrr). To describe this action in a single verb, I do not know the word, but the natives have a word for it.

Other Spices

I want to mention here a few more spices, or herbs, which were used as spices to season the meat and other food. Many of them were chewed together with the salt and blown over the meat with the salt. But others were used as seasonings.

Kirai dondonqo are leaves of a shrub,
kirai qigl guql are leaves similar to cabbageleaves
with a dark colour.

maume are also leaves of a creeper or vine. These leaves were given to boys and girls and should help their growth. They had to chew the leaves.
kuql kirai is a small plant which grows among grass.
hamunauql are leaves of a eucalyptus tree, which grows in this area, between Kerowagi and here, it is native to Newguinea.

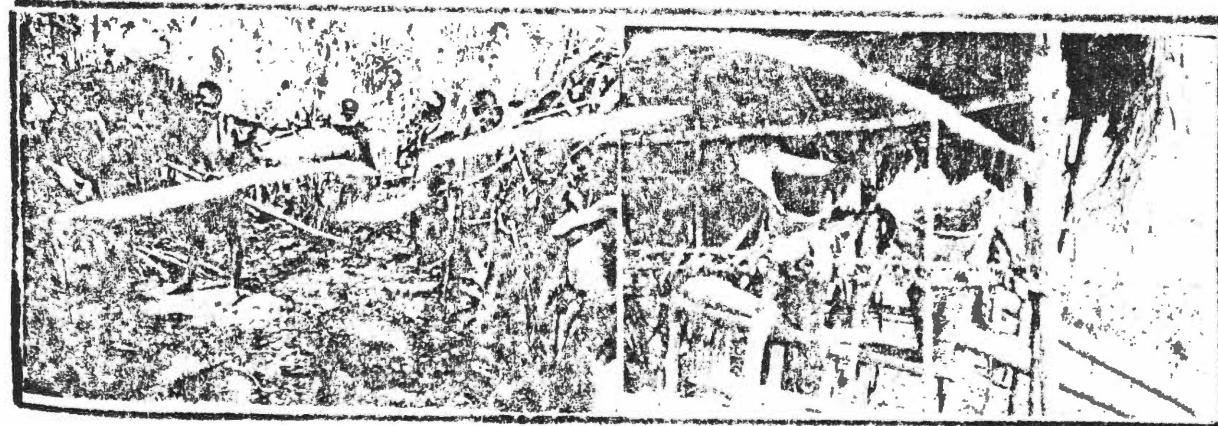
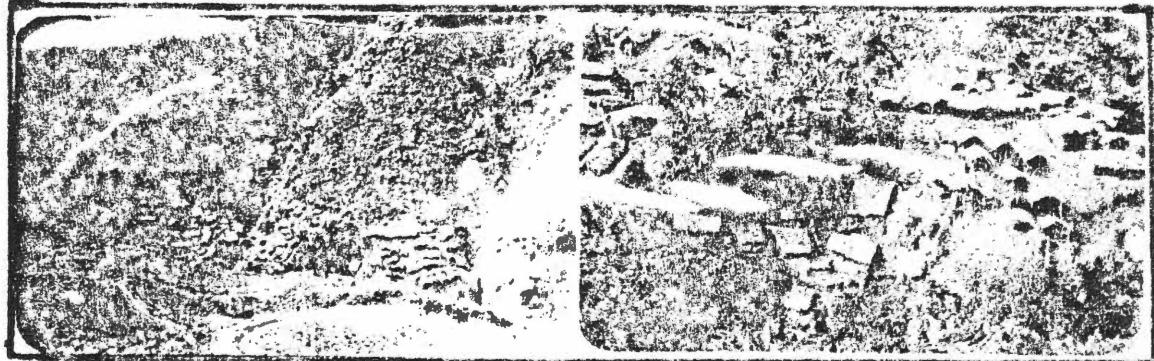
murumbo are leaves, which are chewed together with salt and then blown over the meat. Or they can be used to eat beside or with meat as seasoning.

qutn diun. This herb they put in the pig stomach and it was cooked with that and then eaten.

kan koai are fruits of a vine. They were gathered and kept, and when at a later date a pig was killed, these fruits were warmed on

Making salt

1. Salt village near the Nera river
2. Huts for soaking grass with saltwater
3. Ashes bundled and carried home
4. Ashes are filtered(strained)



3

4

on hot stones, then hit to get the seed, which was then pulverised with stones, then mixed with salt and also gene(ginger) and that mixture was put in the blood of the pig, then boiled and eaten.

Gene (ginger) was also used as spice. It was often chewed together with salt and blown over the meat in the said way, or the gene was eaten with the meat as seasoning.

Those are only a few leaves etc. which were put on the meat or eaten as seasonings with the meat, to give it a better taste, but these mentioned are not all by far, of the many which were used. Not all of these leaves(spices) were put on the meat at one time, but sometimes one lot, some times another. At the same time 2 or three could be used at the same time. One would like this taste, another a different one.

5. Luxuries

In this branch there is not much to say. Besides the tobacco one may mention the gene(ginger) which was used as spice, as medicine and also as a luxury, for eating or chewing.

The Tocacco (usi)

Tobacco was known here, when we arrived in this area in 1934. But only a few men smoked. They could tell the names of the men who smoked and also the fathers who had smoked before them. That only a few men smoked is perhaps proof that smoking had not been known for a long time, perhaps for two generations, but hardly longer. As far as I could find out tobacco came from the north, in other words from Madang, via Ramu valley.

Tobacco was in no way cured. They broke off the green leaves, when they intended to smoke, and held them for a while over an open fire, so the leaves got dry and brittle, then they rolled the leaves together in a tobacco leaf which was not quite as dry, or they took a dry banana leaf

and wrapped that around the tobacco. Then the ready-made cigar was put into a smoke-pipe, lit and smoked. Some inhaled the smoke, but it was very strong and caused coughing.

The "pipe" is a piece of bambu. It could be of different lengths and the thickness also varied. 3 - 4 cm in diameter and up to 30 - 40 cm long was most common. There was a slight difference, as one type had both ends open and in one open end the cigar was put; the other type had only one end open and not far from the other end a hole was made in the side wall of the bambu and here the cigar was put or held with one hand. They usually took only a few whiffs. Then the pipe was handed over to the neighbour and he had a go.

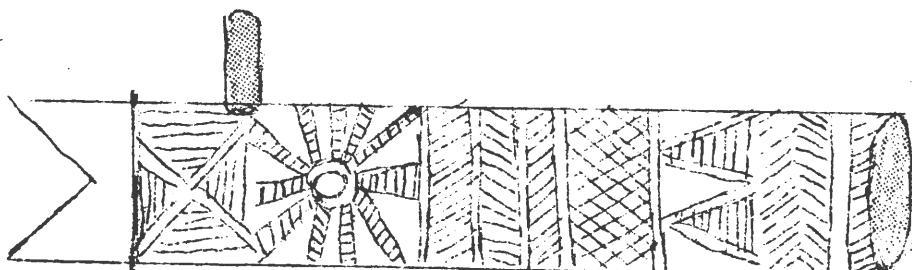
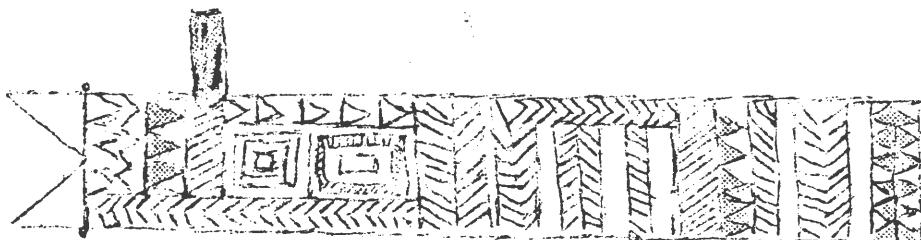
Smoking is today a common luxury. There is no difference between men and women, both may smoke if they like. Also small children can be seen smoking. Today there is of course imported tobacco and cigarettes can be bought readily everywhere.

Ginger (gene)

Ginger may also be counted under luxuries to a certain extent. Ginger green as well as dried was chewed by many a man or woman. Normally they had some of it along in their netbags, when they were away from home. They chewed when working, when on the road, when tired, when they got a dry throat etc. That ginger was also used as spice and also as medicine, I have already said. Here we could compare it with tobacco for chewing, as it was used in the same way and for the same purpose. So it would count under luxuries.

Smoke pipes

pattern - sketch (diverse length and diameter)



IX Tools and Implements

Even if they lived primitive lives and on the whole were still in the stone age, the Kamanuku people had quite a number of tools and implements which were used to work. They had been developed in the course of time and the art of making them as well as the way in which they were used was inherited from generation to generation. I want to name in the following a number of these tools and implements and only partly describe them. This given list is not complete but the tools mentioned may give an impression of, and an insight into the cultural state of these people, and the state of development they had reached at the time when we arrived among them.

1. The Stone axes (di)

Of the stone axes only those have to be mentioned here, which were used as tools to do different kinds of work, not the mostly nicely ornamented stone axes and the ones used for fighting. With these stone axes trees were cut down, or when they were too big, only ringbarked. Trees were cut into logs and the logs split into posts etc. The posts were sharpened or pointed, posts for housebuilding were smoothed and at the end a shoulder was often made etc. To do the different work there were different stone axes to be used. Here are a few of the stone axes used for work:

di bire, a stoneaxe for common use, felling trees and splitting them to posts and poles etc.

di gaima, pieces of stone axes used to smooth wood ,

di yonga, a kind of aze,

di kuruo, was used to smooth trees,

kenduwapo tengiringe was also used to smooth wood.

kombuglo beire, was used to split trees,

aglmba gombe was used for splitting and sharpening trees,

di gaima taka dungwa, used for splitting and sharpening, kenduwapo bugla munduo used for splitting and sharpening of posts,

di tenduwagle is a small stone axe which was used when they cleaned and prepared pigs.

2. Knives (pigl)

Knives existed only in a single kind in different sizes. It was made from split bambu. It is nothing else and nothing more than just a piece of split bambu which was sharpened from the middle to one end, sometimes also on both sides. When they were fresh, - only green bambu could be used, - they were really sharp. These knives were used at quite different occasions; for example: To cut meat into pieces when it was tough, to butcher pigs, to peel sweetpotatoes, if they were peeled before cooking etc. It was not difficult at all to make such a knife. A piece of bambu and an axe was all they needed to make one. They could work with them for a while, and when they got blunt, they either sharpened them again, or threw them away and made a new one. One is surprised to observe how much they can cut with such knives.

3. Di gotn

These are only pieces of the stones of a stone axe, or splinters of a special stone. One could count them also under knives, but as they use an extra word, and as they are of stone, I used the native word to mention them here. These di gotn were mainly used to smooth the wood of spears, arrows and other weapons. With these stone splinters they also performed "operations", for example: If an arrow stuck somewhere and had to be removed, they cut them out with these di gotn. (The barbed arrows could not just be pulled out without doing too much damage).

4. Grindstones (di dumugl)

Of these stones there were two kinds in use:

dumugl yondua, a stone with dark colour, and
dumugl gaglkombuglo, a stone with lighter colour,
sometimes a kind of sandstone.

If the stones were big, then they put them on the ground and rubbed the stone axes or whatever it was, on the stone, with or without water

and also the few iron parts which they had. Also the shells were rubbed on these stones and the rough skin was removed in that way. Or, when the stones were small, they took the object to be sharpened in one hand and rubbed it with the stone held in the other hand. Also other objects could be prepared for use, sharpened, pointed etc. such as: Bones made into daggers, bones made into needles, pieces to put into the nose (septum) etc.

5. The Digging Stick and Spade (igan)

For working in the garden the women had the digging stick. But to work in the garden 3 tools had been developed. 1. the digging stick, 2. the spade and 3. the hoe. All three were made of wood.

The digging stick is only a stick, part of a young tree or a piece of a branch of a tree. It can also be made of a piece of split wood. It is round at the upper end and sharpened to a point at the lower end. It is about 3 - 4 cm in diameter and has a length of 40 - 50 cm. This instrument is only used by the women and they always had such a digging stick with them when they went into the garden to dig sweetpotatoes, to loosen the ground, to weed etc.

The men use no digging stick but the spade. It has already been mentioned under preparing the garden, in this volume, so I do not need to repeat what is said there. In principle it is the same as the digging stick, but much larger, and has the "blade" on one or on both ends of the handle. The spade is made of one piece of wood. Besides the spade, which is mainly used to make the ditches in the gardens, the men also use strong poles, sharpened on one end, to get the roots etc. out of the ground. These were always made when needed, but the spades they kept in the houses. If they got blunt, they took an axe and sharpened them from time to time.

6. The Hoe (tome)

The hoe I have also already mentioned under preparing the garden." Therefore I do not need to repeat, what has been said there.

7. Bone Daggers (kare kuipo)

Bone daggers are of importance and these are made from the leg bones of the cassowary. They are very strong and hard. The bone is sharply pointed at one end. The other end, with the rounding of the joint, is the handle. These daggers are used to do various work, such as loosening the seeds(kernels) from the pandanus etc. Also the legbones of pigs are used to make daggers. If necessary such a dagger can also be used as a weapon, but normally they are only used for different kinds of work.

8. Needles (kare)

The bone daggers are instruments for the men and are used by them. The needles belong to the women. There are very different sizes, very small ones and very big ones, with all the sizes in between. Very often they were made from bones, but other materials could also be used to make them. The biggest kind I have seen was made from the rib of a pig. A middle sized needle is made from the stubs of a cassowary wing, and the smallest kind are made from the bones of the wing membrane of bats(flying foxes, and also from the small bats). Others are made from hard wood.

With these needles thy sew different material together, such as leaves for sleeping mats. They also used needles to make belts. But in that case they were not really needles (with an eye on one end) but little daggers, which were put into the woven material to put the new strands of material through for ornamental purposes. In this case they were also used by the men. Also to make the better kind cf aprons for the men, such bones were needed. There was also a special kind of charm in which such a bone needle or dagger was used(gene kare).

Besides bones they used buglo tambuno, the ribs of leaves of a special fern. From these needles were made. To make the eye into such needles, needs a good portion of skill and patience, especially to make them into very hard material.

9. Spoons (buglo)

They had a kind of spoon but it was not used very often. Only when they had a kind of broth or soup in a wooden dish, or if they ate the sap of pandanus, the "spoon" was used. They were made of a piece of bambu, just a flat piece, without a handle, or they made such an instrument from the bark of casuarinas, or a piece of a big shell. Sometimes such "spoons" were richly ornamented. Some called them: komba buglo, others said pigl gamba, or pigl kunduglu. The komba buglo was mostly used to eat the sap of the pandanus(komba).

10. Forks (buglo)

Forks were hardly ever used for eating purposes. But when the food was still hot then people sometimes took a piece of wood, a stick, and put that into the food (sweetpotatoes) and ate in that way. They were made when needed and after they were used they were thrown away. They were used when the food was still too hot to eat. They took it then on such a stick and held it in the air for a while, until the food (sweetpotatoes or meat) was cool enough to eat.

11. Pipes for Water.

Water was usually fetched in bambu pipes. Bambu grows in different sizes and the pipes used for bringing water to the houses are also of very different sizes. They take a suitable piece of the bambu and push all the connections of each section of the bambu out with a stick, except the one at the bottom end. Then the water container is ready. With these bambu containers they go to good springs and get the water and bring it home. Normally they see to it that the water is clean and if possible they take running water. Each house has usually quite a number of such bambu pipes at the entrance of the house.

At the upper end (opening) they put a few leaves in to close the end, so no dust or insects can get in. These leaves are made into a plug or stopper, before being pressed in. In this way the people have nearly always fresh drinking water handy, water for cooking purposes etc. The water is fetched daily, for the supply does not last long. As bambu the mengagle is mostly taken. This type has a fairly thin wall, and is not heavy, compared with other types. If no mengagle is available, other kinds can be used too. The bambu pipes for water containers can be made by the men or by the women. The water can also be fetched by either sex, but very often it is done by the women and children. Sometimes such bambu containers are ornamented (decorated with different carvings).

12 Diri mingi

Diri mingi, also called wam mingi or kungi mingi, are a kind of bottle, made from a kind of gourd. When these fruits are ripe, all "meat" and kernels are taken out through the bottle neck and only the outer skin stays, which is then carefully dried. The the bottle is ready to be used. There are fairly big ones, which may take up to 5 liters fluit. The smaller bottles of this kind are called peepe, and the big ones are called kopiamé. They are used to store fat in them, pig fat and also pandanus "fat". Both are later used for greasing the skin of the body. There are also different forms of this kind of bottle, just as the fruit of which they are made, has different form.

13. Mingi

Bambu pipes, normally 30 - 40cm long, are also called mingi and are used to hold meat, or vegetables of different kinds for cooking them on the fire. The containers have to be turned all the time while on fire, to avoid the bambu pipes burning through

and the contents being destroyed also. Of course it is necessary always to take green bambu for these containers, otherwise they would burn quickly and would not be any good for cooking purposes. If one has no pot etc. one can cook a meal in such a bambu pipe, especially if one is away from home, for example in the forest hunting or on a similar errand. Such a pipe can of course only be used once.

14. Mingi

Once again pipes. Here are meant small and short pipes, made of bambu of different thickness (diameter) and different lengths, but mostly fairly small and short (about 20 cm long). These small containers are used for keeping some seeds, shells, beads, hair of animals etc., also different kinds of paints are kept in such small containers. Most of the women always have some of them in their netbags. Some of these containers are decorated with different patterns of "carving."

15. Kambe yaundo

This piece is a bit of a banana leaf, which is folded like a cup and is used to drink out of. It can be used for fetching water and drinking it, but it can also be used instead of a spoon for getting soup or broth out of a dish. If one takes other kinds of leaves then these "cups" are called eglka. It is only made for the momentary use, and when it has been used it is thrown away.

16. Wedaes (pu, endi pu)

Here wooden wedges are meant, either sharpened, flat or pointed, and they are used to split trees etc. Bigger trees are normally first split in several pieces before they ~~were~~ cut into logs, because they were then easier to cut with the stone axes. Instead of short wedges, they often used long ones, that means, they sharpened or pointed poles and rammed them into a split or crack, which had been made by stone axes at one end of the tree. There were always two of them used at the same time

and when both were rammed into the crack of the tree, one was bent over to one side and the other to the other, each by one man, or by two men, and when the trees were big also several men could press the poles to either side. In that way a fairly big tree could be split in several parts, without using the stone axe anymore than to get the initial crack. If they used short wedges then they put them into a crack and hit them with a big wooden piece, which was used as "hammer".

17 Hammer (kumba)

These are not real hammers in our sense, but they are instruments to hit with, a fairly heavy piece of wood, or a kind of club, with the handle a bit thinner and the other end thicker, all made out of one piece of wood. The size is of course dependent on the purpose for which they are used. Such pieces are called kumba goine and kumba kia. These instruments are used only by the men.

18 Wooden Pots

It has already been mentioned under "preparing the food" that for daily use the cooking is mostly done in wooden pots. These pots are made from trees, either near the home, if there was a tree fitted for such a pot, or in the forest. Not every tree can be used for such a pot. It has to be softwood, otherwise they cannot work it; and then such a tree must not crack when drying, for a cracked pot is useless. But there are quite a number of trees which can be used to make such pots, which were called mondono: for example, alan, gatne, gaumbange, irugl, kurumba, ouye, poglumé, mene, mondo, porongo, poglko, tamungugl and others.

That there were different sizes of these pots, has also already been mentioned, small ones of about 30 cm diameter and only 50 cm high, and very big ones of 70 cm in diameter and higher than 90 cm.

Or, if a man had no tree suitable for making a mondono and if there was no tree in the vicinity, which he could obtain by swapping - or at least one end of such a tree sufficient for a pot - then he had to go into the forest and cut a tree there, or, if he did not want to do that, he could buy a ready made pot from a friend or from a man near the forest, who had made some for sale.

It cost a lot of work to make such a mondono. Especially plenty of time and patience are needed. They start at the upper end of the block (end of tree) with stone axes to make a hole. They go as deep as the can. That takes days, as progress is very slow. The outer wall they leave at 4 - 5 cm thick and later they can thin it if needed. When the hole in the middle is so deep, that they cannot work anymore with the stoneaxes, then they take the stone from the axe and bind and fasten it to a straight stick and then work slowly down. Sometimes they also took fire and burnt that in the middle. After a while some coal and ashes can be scraped out. So it takes weeks and months to get a mondono ready. The bottom is left in, at least with most kinds of mondono, but there are a few kinds without a bottom and they can be worked from both ends. Such mondono are put about 10 to 15 cm into the ground, when used for cooking. Some kinds of mondono which were in use by the Kamanuku were called:

poglumbo and datngi both fairly big
peu and kuanande, both fairly small.

If a mondono is fairly old and the bottom has rotted away from always being wet and standing on wet soil, then such a mondono is still used. The end without the bottom one can dig into the ground and the pot can be used for another year or so.

When the mondono is ready, that means if the hole is deep enough and the walls thinned to the wanted thickness, which is about 3 to 5 cm, according to the size of the mondono, then it has to be carefully dried, not in the sun, because it might crack. Then some kinds of mondono are decorated on the outside with different patterns of carvings.

19 Wooden Bowls (bagle kugl)

The people had a number of wooden bowls or dishes. Some of them were in round form, others were long (oblong) and some were rectangular. Some had a grip or handle on one side, others on both sides and others had none. Some had a small draining pipe worked at the topend at one side. The latter was made to pour out the pandanus sap, when the seeds were cooked and pressed.

Sometimes these wooden implements were used to serve food in, or they put the cooked food into them to let it cool off. Mostly however the food was served on banana leaves or other big leaves, or even without any plates or leaves, just given into the hands of each person. To make the wooden bowls was work for the men. Decorations on these implements were very rare.

20. The Netbag (gagl)

The rule is: netbags are made by the women. I never heard or observed that a man made a netbag, that is only women's work. One very seldom sees a woman sitting and doing nothing. When she has to wait for one reason or the other, then she takes her "knitting gear" and starts to work. She nearly always has the material with her. The material to make the strings she mostly works at home, but the fibre she carries along, when she goes anywhere. If she has time or has to wait, she takes the fibre and starts to make strings. She needs hands and thigh to do this. With her hands she "spins" the threads and on her thigh she puts the twist in, first in each strand (there are always two strands in each string) and then she puts the two together, in one swift movement. When the string is long enough, maybe 20 or 30 meters, then she can dye it at the same time. To do this she puts the string over the big toe and the thumb on one hand and reels the string over to a chain. Holding it that way she takes the prepared colour (paint) and rubbes it on the string (bundle of strings), either the whole length, or only partly, and lets it dry, which does not take long. Now the string is ready to be worked into a netbag. The meshes are

put around small strips of bambu or strong long leaves, to give the exact width of the meshes. These strips are removed, when the netbag is finished, or if a part of it is finished. This work is not exactly "knitting", as the string has to be pulled through each mesh for the whole length and the string is reeled up by hand on thumb and small finger. If the whole string is pulled through one mesh is finished. So it takes a long time and much work to make a netbag. But time does not count, at least not so far. The netbag is also a bit different in form from the ones they make near the coast, namely, there is no real "handle" at the upper end of the netbag. But both sides are tapered and end in a kind of wide string. These two ends are then tied together, when worn. Women always carry one netbag with them, sometimes several. Men have a very small netbag with them, carried over the left shoulder. The women carry the netbag over their head. The colours of the netbags and the pattern of colour differ also from the ones at the coast. Some of the bigger types of netbags are:

gagl koragle	kambu kumo gagl
gagl ekirike	gagl kun etc.
gagl gogl	

Then there are many kinds of netbags, small and very small, in which things are carried which are daily used. Men may have tobacco etc. in the small netbags, women carry tubes or bambu pipes in them with paint, animal hair, beads, needles, shells etc. Such small netbags are: gagl kambane, kinde gagl and gagl pugla.

21. String Binding Material (kan)

The fibre which is used to make small and thin strings, as well as the coarse material of tree bark and also the vines used as material for binding, are all called: kan. There are very different plants, trees etc. which are used to make this material. Of the following trees the bark is used (the inner bark):

kan koragle, numbu, maya, aragl, bingum, mandigl etc.

Bugla kane are ropes to fasten the pigs when they are tied to a tree or to a post or peg in the gardens, so they can dig the ground. These ropes are always tied to one of the front legs. That is also done when they lead the pigs from one place to another, if the pigs do not follow the owner freely, without a rope. Such ropes are made from treebark and they are braided, mostly three strands.

As material used in house building to bind posts and trees together, either strong treebark is used or vines from the grassland or from the forest (grass land vines or forest vines). Also the fences are tied on top with this material, but there are many other kinds of vines, which may be used as:

kan kinduwa, neçl kinduwa, pare kagl, ançum yom-
buglo, siwinagl, yagle kan, gaglema kugl, ga kanmę,
kurumba, maiugl, gondomambo, sŋgere gongo kan etc.

22. Resin (endi muglo)

Resin and similar material is obtained from various trees. The Kamanuku used such resin to fasten the arrow head into the arrow shaft, at least with some of the arrows they made. Also in making shields resin was used at the upper edge of the shield. Resin was obtained mostly of the gaglma tree, but also from dem dimbin etc.

23. Kuie kire

Kuie kire is a kind of weir basket. These are made from split bambu. The holes are small enough so that an eel cannot slip through. This weir basket is open at one end only and here, facing the inside are fastened many pointed ends of bambu, narrowing towards the inside, so an eel can go in without hindrance, but cannot come out. At the other end of the weir basket the bait is fastened. With these kuie kire only eels are caught.

24. Snares (kitn)

Snares were set for animals and also for birds. For the animals they were normally put on the ground, but for the birds near their nests. On the ground they made a kind of road or gangway and put small sticks in the ground on both sides of this gangway, so the animals would be led to the snare. Then a young tree or sapling was bent down and at its' end a sling was fastened. This sling touched the ground. In the ground a bend piece of bambu was put, a half circle. The bambu was split and the sling was put between the slit. Then there was a short piece of stick and at the end of it the sling was fastened and the other end was connected with the bait. If the bait was moved, the cross piece of wood was released and by it the string or sling, and the animal or bird, which moved the bait with its head, was caught by the sling around the neck and choked. People living near the forest made dozens of snares in this way, very often besides the main roads and after a day or so, the man who put the snares had to go around to see if he had caught anything.

25. Traps (yame)

Traps are used to catch small animals. Here also a small "road" or gangway is made, which leads to the trap. The animal is thus lead to the trap. Firstly they put a bait at the end of this gangway, without putting the trap there, a piece of sweetpotatoe or something similar. When the animals have eaten the bait several days and are used to finding something there, they put the trap, a piece of wood, flat at one side, in a slanting position, the one end resting on the ground, and put a small stick under the other end on a piece of wood or stone (on the ground). At this piece of wood or stone the bait is tied. If the animal touches the bait or tries to pull it away, the stick is released and the big piece of wood falls down and kills the animal.

26. Diglimbi kumba

This is a kind of hammer made from the thigh bone of a pig's leg. With this "hammer" the inner bark of trees was beaten until it got soft. These strips of bark were then used for the back dresses of the women, called: diglimbi. Only when they were softened up to a certain degree with these "hammers", other pieces of wood etc. were taken to give the bark the finishing touches.

27. Digimbi kumba

The name is the same as in 26, but here are meant some instruments made from wood or stones. In these instruments some designs were engraved and with these "hammers", mostly without handle, the designs were hammered or pressed into the ready diglimbi. By doing this the designs were made on the diglimbi. There were different designs on these diglimbi kumba, for example:

gaglma muno and sugla taugla.

28. The Stretcher(gagle)

The people knew how to make a "stretcher" or litter. They took two poles and braided some split bambu in between. The braiding was done according to what they wanted to carry on this stretcher. Sick people or wounded warriors could be carried, but also cooked pigs from place to place, especially when marriages took place. Of these stretchers or litters there were several kinds in use:

yomba yagle stretcher for men

bugla yagle pig litter

komba yagle litter to carry komba(pandanus)

mokona yagle stretcher to carry vegetables etc.

29. Pigl qamba

That piece is a piece of bambu, the one end of it is very much decorated with poker picture and patterns. The other end is tapered to a point. One could call it a kind of knife, and sometimes it is used instead of a knife, but is it different from the knife "pigl". This instrument is carried at the upper arm under an armring. It is used for different purposes as:

1. As a kind of spoon to eat the pandanus sap.
2. To cut a piece of meat, especially if it is too tough to bite it off.
3. To scratch the head with, if the lice caused too much itching and they could not get down enough with their fingers into the hair. Then this piece was taken and the itching part of the head was scratched.
4. Some others use this instrument if the small braids of the hair are matted, when they want to loosen them and they cannot get them loose with their fingers.

In this case this instrument was taken and the braids were loosened, or if they were matted to such an extent, that even with this instrument they could not get the braids loose, then they just cut the braid off and threw it away.

30. Buglo tambuno

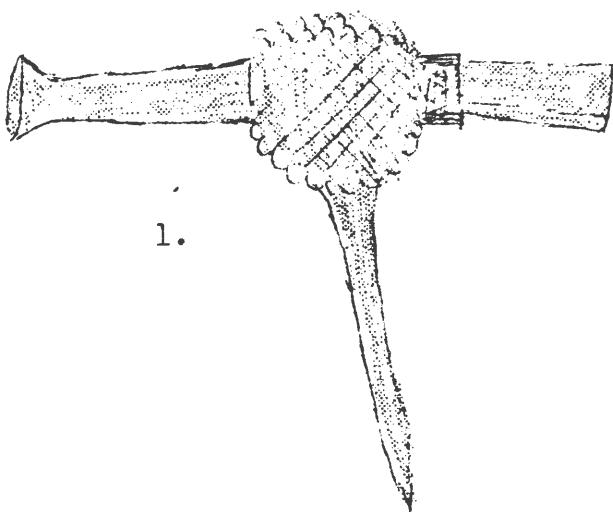
This is a similar piece to pigl gamba, but still a bit different. It is mostly made from a kind of fern, seldom from bambu. It is carried not at the upper arm, but in the hair. The piece mostly has a dark colour, nearly black. It is about 2 cm wide and is tapered at one or at both ends running into a point. The length will be of 15 - 20 cm. These pieces are not decorated but smooth.

They are used:

1. to scratch lice.
2. If people want to put a piece of ornament into the hair, which is fastened to a pointed piece of wood, and this piece does not go down into the matted hair, the buglo tambuno is taken first and a hole is made to put the piece of ornament in.
3. If they want to make the ginger charm this needle is used to push or poke into the ginger. If it is loose, that means negative, if it sticks firm the answer is positive.
4. This instrument can also be used as a needle, when one has a splinter of wood, a thorn or something similar in his hand or foot, to dig it out.

With that I want to conclude this paragraph. One could say a lot more about this or that, but this may be enough.

- 1' Simple stone axe
2. bambu knife

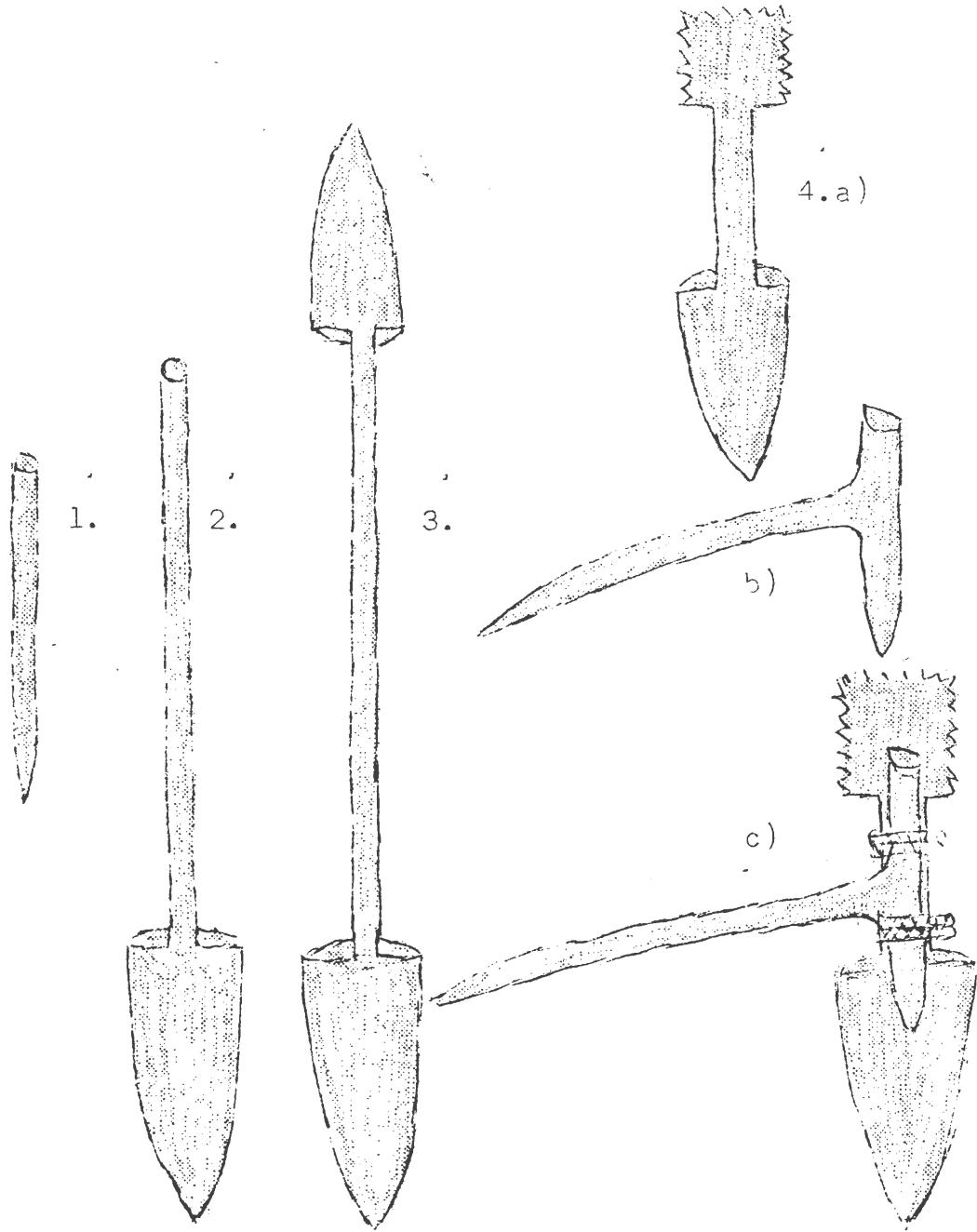


1.

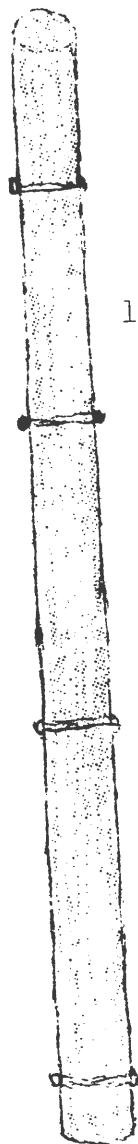
2.



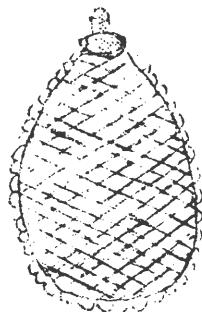
1. Digging stick, 2. spade, 3. double spade,
4. hoe, a) the blade, b. the handle, c the full hoe



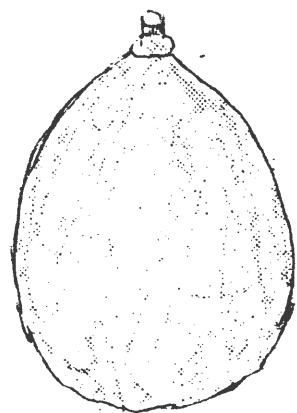
1. Water container of bambu
2. Containers for fat (a) woven around, (b) plain



1.

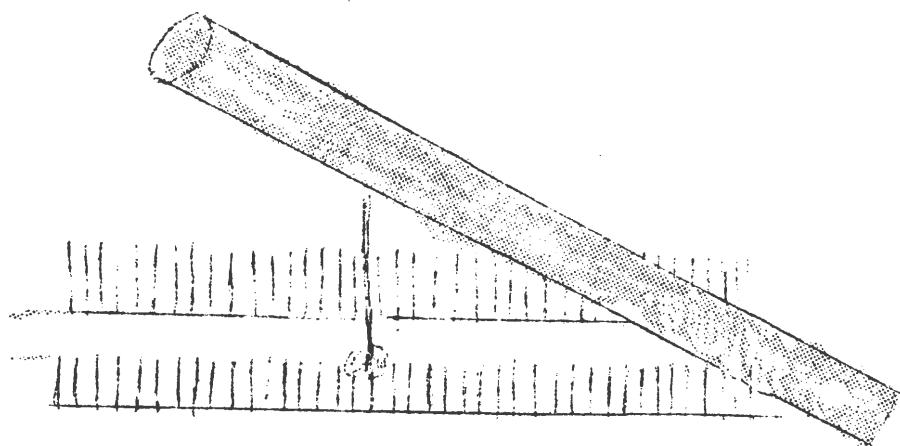


2. a)



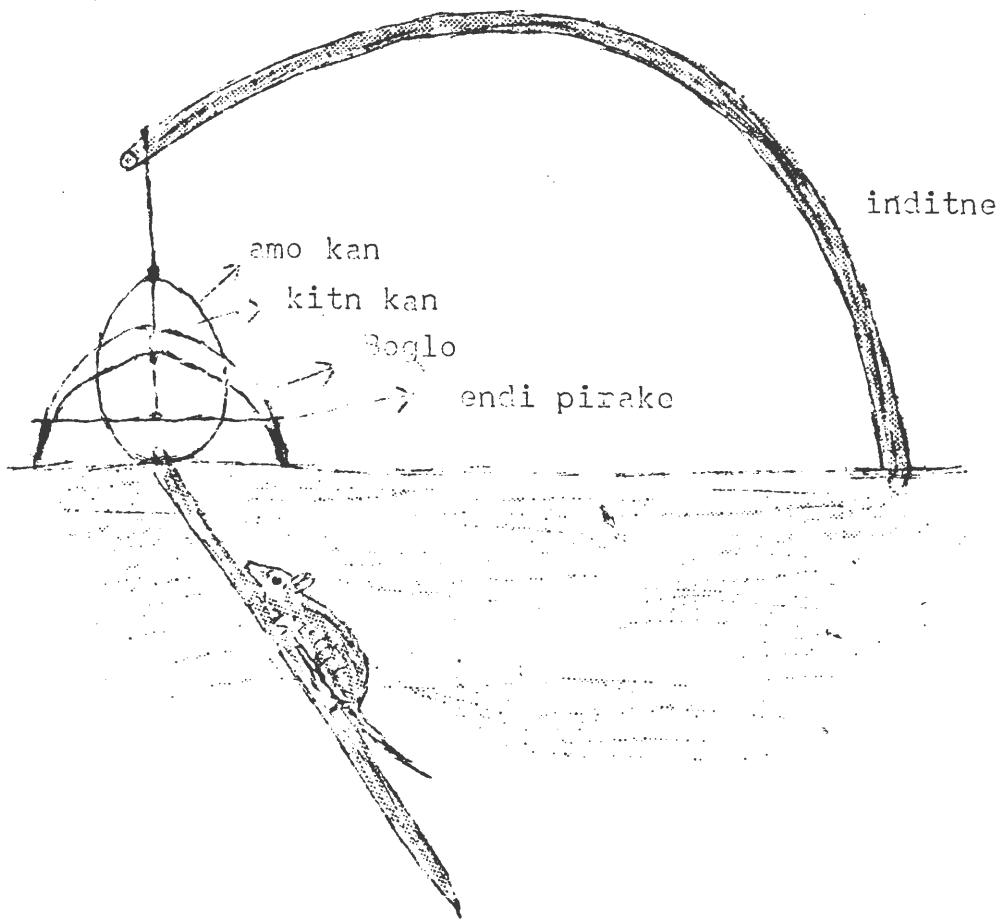
2.b)

Trap (yame)

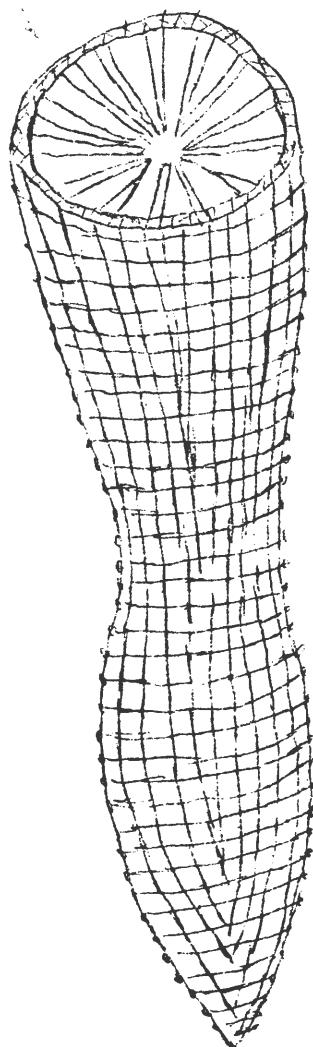


-- 1647 --

Kith:

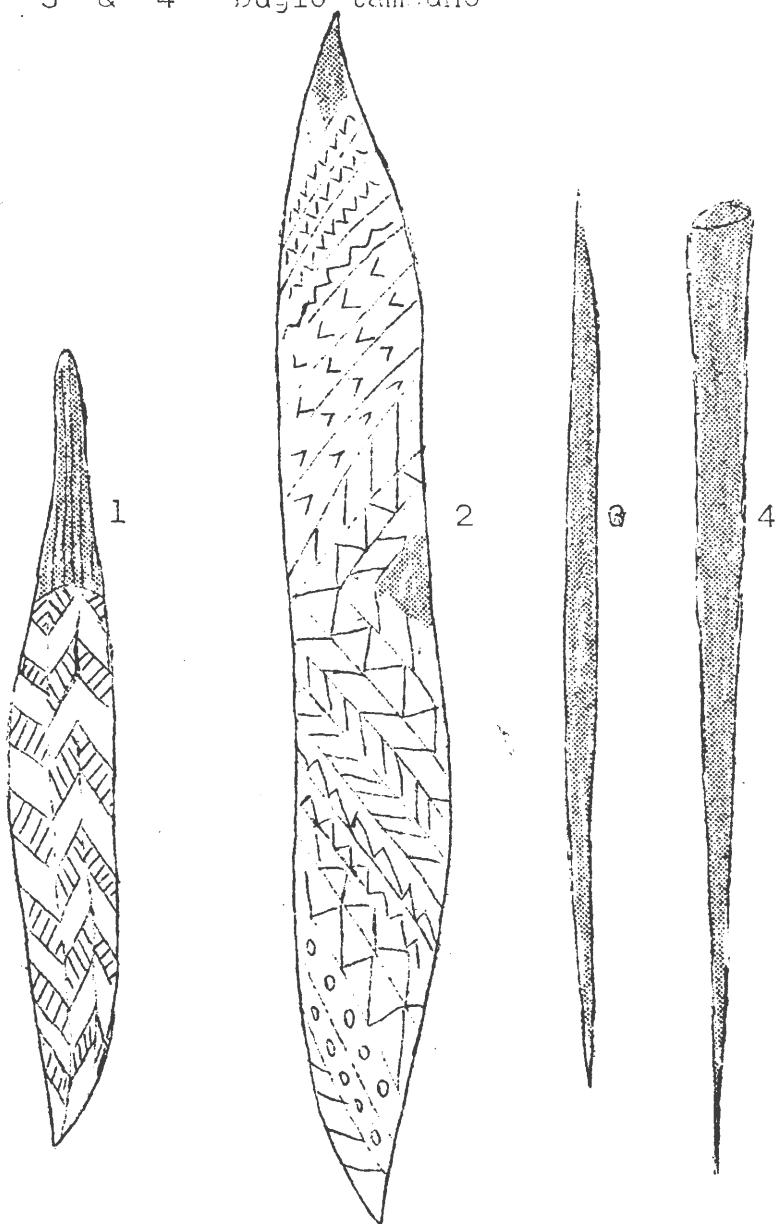


Weir basket

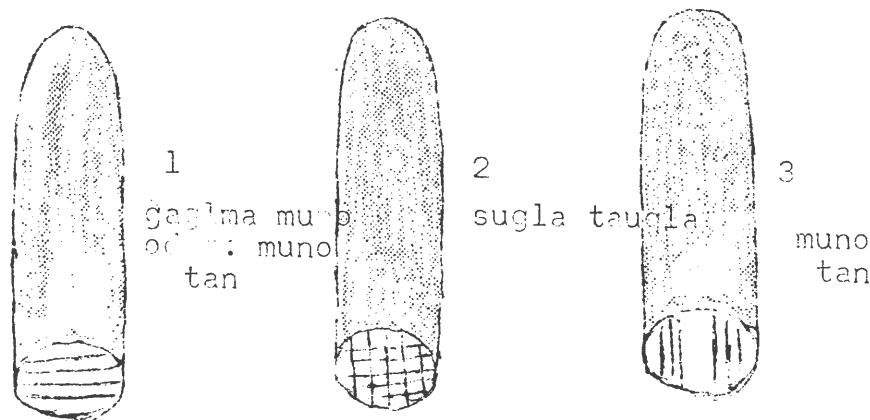


1 & 2 pigl gamba

3 & 4 buglo tambuno



Diglimbi kumba, tools to impress patterns on diglimbi, women's back dress; 1-3 made of stone, 10 to 15 cm long and 2 - 4 cm in diameter.
No 4 is made of wood, its diameter is 3 - 4 cm and its length 30 cm



X Paints

Paints were obtained from different material, but most of the ones used were from soil, clay or stones. Some soil was burned first and then rubbed fine, stones were rubbed as they were, for example graphite. These paints are prepared and then put in small bambu containers and kept till they are used.. Most of the paints are kept in the houses, some are carried along in the netbags. Most of the paints are made to decorate the body or parts thereof, for instance, face, nose, etc. Others are used to decorate shields, arrows, geroa, etc. Others again are used to colour the strings for the netbags, diglimbi etc. The paints used to decorate the body do not need to last long, but the ones which are used to colour the netbags should last for a long time, also the decorations of the shields etc. Some paints are mixed with fat, before they are applied.

I want to mention a few of these paints:

gamba ogl	red(gamba is soil)
gamba kilen	yellow(clay)
gamba kama	black
gamba kum	blue
gamba ira	yellowish, silvershining
gamba moro dungwa	blueish
gamba guma dungwa	whitish, shines like graphite
gamba ba	white grey
gamba dengigl	greenish
gamba kundu	white
gamba pine	(soil or stone) graphite, shining silvery, violet.

Then there are quite a number of plants or fruits of plants, or trees from whose leaves, fruits etc. paints are obtained, as for example:

different kinds of "dead nettel". From this plant they get a violet fluid from the leaves, which is used to colour the strings of netbags etc.

From a fruit called:gona endi mojgo, a red paint is obtained. This fruit is from the goná tree and the seeds are embedded in this red stuff.

Also the leaves of several flowers are used for colouring. They just call them:taragl kuic(something that belongs to flowers). From them several paints, or colours are obtained.

The colours are mostly not bright but a bit dull. But the brighter the colours, the more they like them.

The red colour is liked best of all. This is preferred over all the other colours and used most, if they have that colour or can afford to get it. Then black will be next, then white(especiallly to paint the body, and then the other colours.

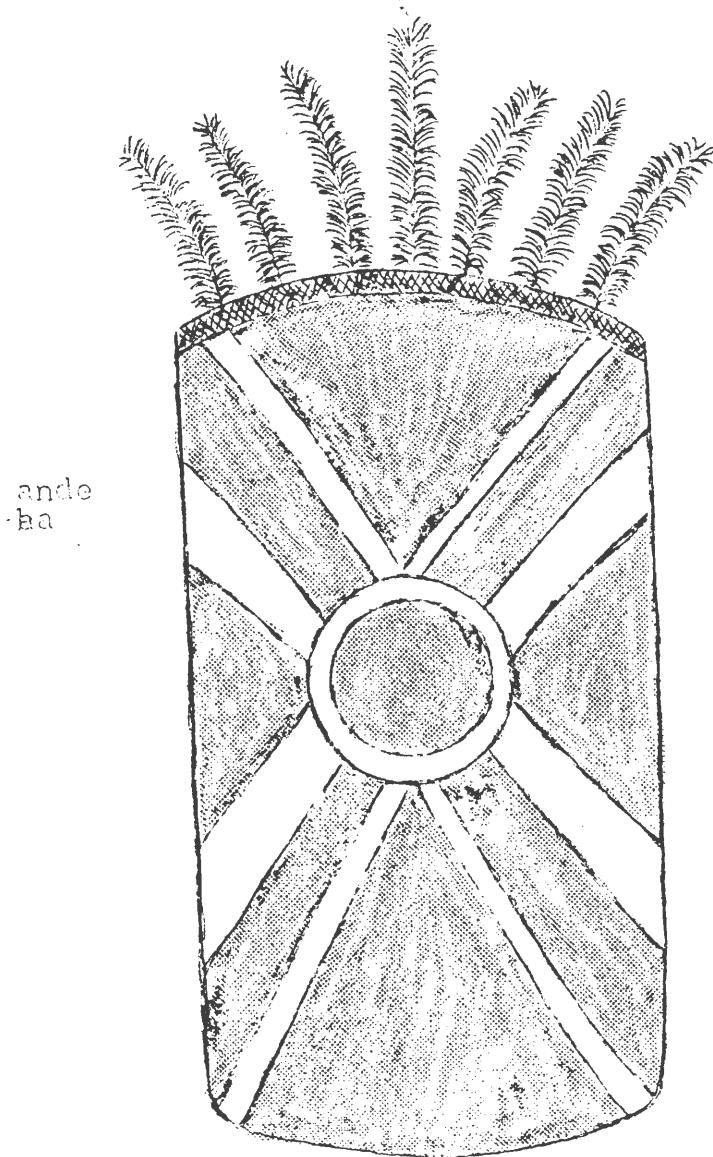
XI Weapons

As the Kamanuku had nearly continuous wars and fights with their neighbours, it is understandable that they had quite a number of defensive and offensive weapons. In the old days nobody (of the men) ever went away from house and home without his weapons with him, at least bow and arrows. In the house they were put at a place, where they could be reached at any moment. If times were peaceful, the men carried their bows and arrows over their shoulder, the string of the bow not tightened (only on one end of the bow). Then they had also only a few arrows along with them, perhaps only 5 or so, and some of them might have been for shooting birds. But in wartime they had mostly several dozen arrows along. In the following I want to say a few words about the different weapons the Kamanuku had and used.

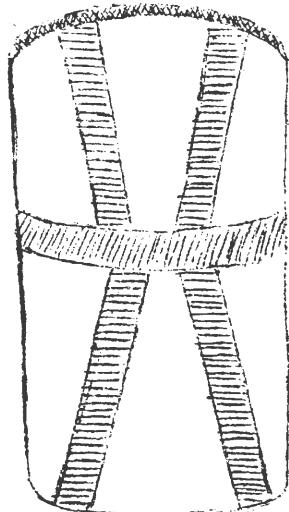
1. The Shield (awagle)

The shields were made out of big trees, namely the outside of a tree. They were made of one piece of wood. They were about 130 cm to 150 cm high and about 70 cm wide, and about 3 cm thick. They were slightly arched, as the tree, from which they were made, would give the form. About the middle at the inner side there was a kind of handle fastened, through which an arm could be put (left arm) and also for it to be hung over the shoulder. In fights the shield was carried with the left arm, for the right one was used to carry and throw the spear. Above the shield could be seen a number of decorations made from cassowary feathers, up to 50 cm or so long. Half a dozen or more of these decorations, called: kau-gange, were mostly put on the shields. The paintings and the patterns of the shields on the front side were very different but the form and the size of the shields were very similar. They were made from softwood.

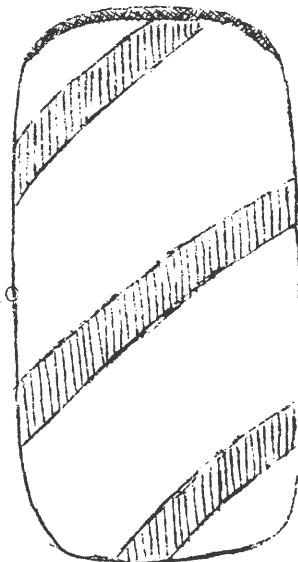
Shield: ande ba
width 70cm, hight 1.40 m



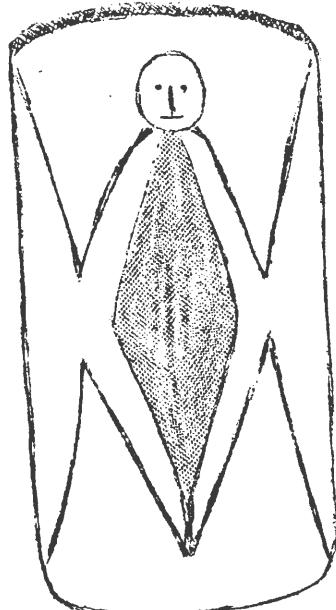
Shield as on previous page. The feathers have been omitted to save room on the page. The different patterns of decorations have different names.



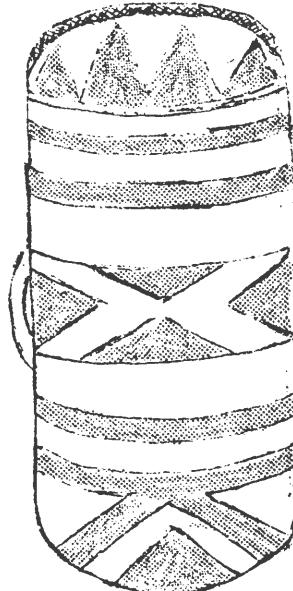
left:
awagle konkana
or: munø tan



right:
awagle munø
ekirika



left:
awagle
yokondo



right:
awagle
munø
piråke

This had to be done for two reasons: Softwood is easier to work and the softwood is lighter, hard-wood would be too heavy to carry. The trees from which the shields were made were quite a number, for instance: kurumba, gurosi, umbana, gotne, gambagle and others.

The names of the shields are taken from the paintings and patterns of the paintings at the front side. The paintings were of course not only meant to look nice, but had a deeper meaning. The ande- ba shield had without any doubt something to do with the rays of the sun. Ande is sun and ba is moon. Awagl yokondo has the same paintings as the geroa pieces used in the ancestor cult and is in some ways connected with the ancestors, and so on.

So we have to mention only a few kinds of shields:

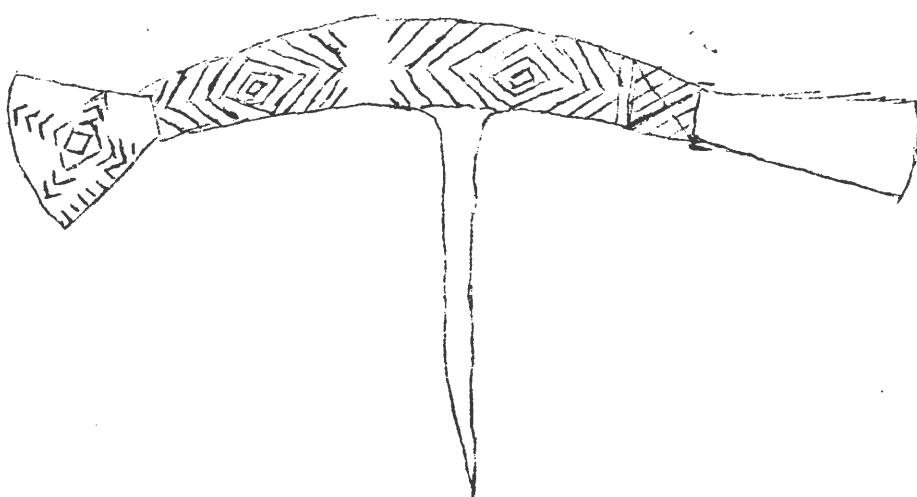
awagle konkana
awagle ande ba
awagle yokondo
awagle ongan gera
awagle muno ekirika etc.

2. The Stone axes (di)

The stone axes were not often used in fights, but it happened now and again, that they were used, therefore they are not only instruments for use as tools, or carried for decorative purposes, but at the same time they have to be mentioned also under weapons. In open fights the stone axes were seldom used, but more often when two or a few persons had a brawl. The fancy stone axes with the fine and wide stoneblades and well decorated, they mostly left at home and took the less valuable ones along. Two kinds of stone axes were mostly used in fights, the di puglumbo and the di kenduwapo.

The stone axes were always ready to be picked from the belts, where they were worn, either put behind the belt with the handle from up to down, or the handle was put from down upward. Before the fight started they often took the stone axes into their hands and swayed them in the air while they performed the war dance.

As to the pattern of braiding and decorations of the wooden part of the stone axes it must be said that such patterns are very different and of an enormous variety. The whole middle part, from the stone upward is mostly decorated with patterns made from split bamboo and other material, Spanish reed etc. On the pattern given below, only a rough sketch is made and the fine work not even indicated. It is not possible to do this on ordinary stencils. The patterns are made sketchy, only to give an indication.



3. The Spears (kuglange)

The spears had a bigger role in fights, compared with the stone axes. Mostly the fights were carried out with bow and arrows, but usually there were several men in each group, who carried shield and spears. If the spear carriers went to the attack, they were usually "covered" by several men who had bows and arrows, and sometimes the shield carriers also had bow and arrows hanging over their shoulder, as a reserve weapon. Covered by their shields the spear carriers pressed forward until they came within throwing distance to the enemy and then threw their spears. They tried to kill one of the enemies with a good throw. As there were always a few men on each side who covered the spear thrower and as, when he missed he could always quickly retreat before the other side could attack him with bow and arrow, or even with his own spear, he mostly escaped injuries.

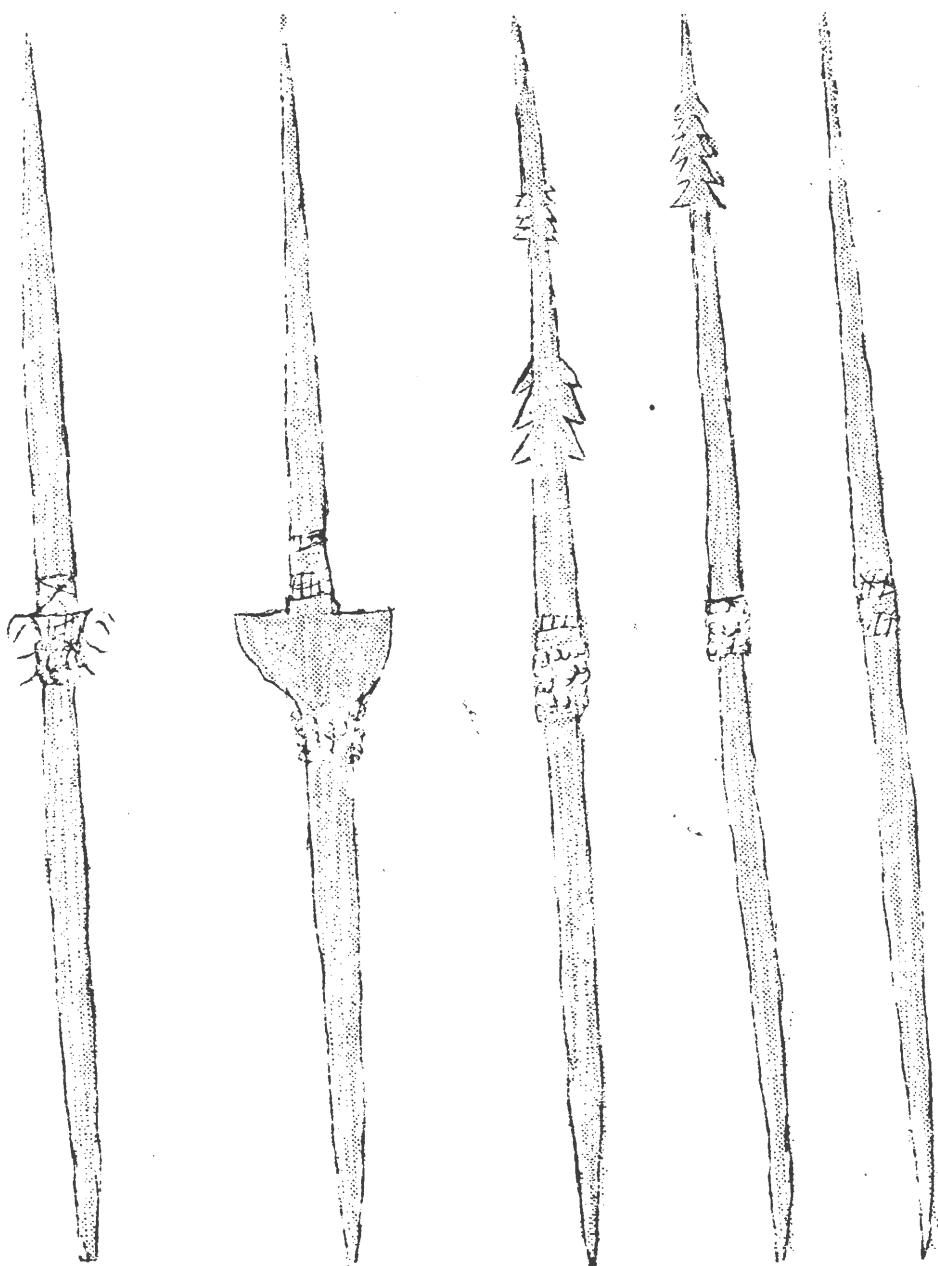
Most of the spears used in such attacks were only long "sticks" or small smooth spears, pointed at one end. The good ones, the three pronged and four pronged spears, were mostly left at home, but sometimes they were used too in hand to hand fighting.

The spears are always made of one piece of wood, the three and the four pronged ones as well. One can imagine how long it may take to work the tree down to the size of the spear and how carefully they have to work to have the long prongs undamaged. Just under the prongs on the shaft of the spear there is mostly a skin around the shaft, of animal skin. There were some types of spears with a bone, mostly a cassowary, either a legbone or one of the claws, sometimes also bones of dogs, which served as the points of the spears.

Some kinds of the spears are the following:

Datngi
enkama kuglange
wai kuglange
kuglange gorua
kuglange luglo luglo
kuglange dimbin
kuglange giglenji

Spears: kuglange diglimbi, datngi etc.
Length about 3 meters



4. The Bow (kimbiri)

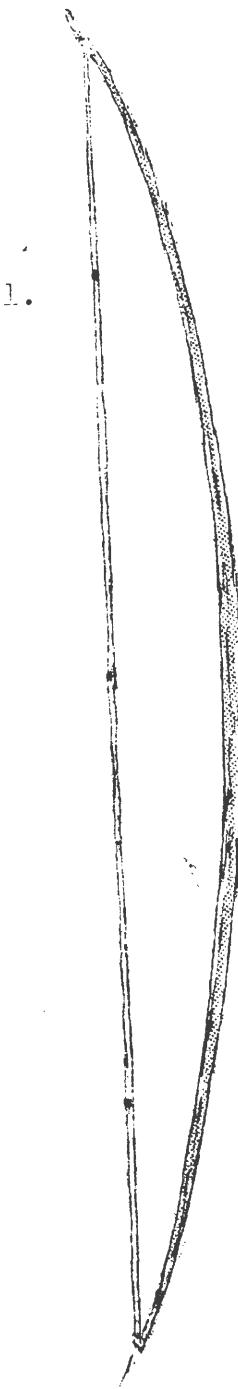
There was no man who did not always have bow and arrows with him. Also small boys already carried small bows and arrows with them, the arrows first from grass shafts, later real arrows, even if smaller. They played hitting objects with them and occasionally caught a rat or a bird or other small animal.

There were two kinds of bows, not in size or form, but according to the material from which they were made. One kind was the kimbiri buna, made from hardwood, the outer side of a kind of palm. This palm does not grow here and had to be obtained from the forest area. Sometimes they got it from there personally, but more often they traded the pieces of wood in, from people who lived close to the forest. The other kind is called kimbiri wai. It is made of the wai bambu. The bow has a length of about 1.50 m., just a little shorter than the height of a man. They reach about to the mouth and/or nose. On both ends the bows taper into a point. About 3cm from the point there is a kind of knot (thickening of the bow) to hold the string in position, when it is slipped over the end. In the middle the bow is about 4 cm wide and about 2 cm thick.

As bow strings mostly split bambu was used, but sometimes also cane (Spanish reed). The following varieties of bambu could be used for bow strings: gundú, guimbo and mekimbi.

The bowstring is called yere wan. If not in actual fight, or in times of "peace" the bowstring was carried only on one end on the bow. But in seconds, the bow could be ready for shooting. To put the string on the bow, one end of the bow was put on the ground and held with one foot, between the big toe and the next, the knee was pressed against the bow in the middle and the bow bent over the knee and the string could be slipped over the top end of the bow. The knots on the strings at each end were firm and stayed in shape. Then they tried the string with one hand to see if it gave the right sound.

1. Bow with string
2. and 3: knots of the string on both ends



5. Arrows (yere)

Arrows the Kamanuku had , like all the other tribes, very many and quite a variety. Today one sees only the ones which are used for hunting, but mostly the people have still some arrows from the old times in their houses.

Each arrow consists basically of two parts, the shaft and the sharp pointed head. The shaft is made of grass, the pointed head, which is about a third of the length of the arrow, is made from hardwood of different trees, as: buna, kiu yoware, benduru, dangema, kama and others. Also amugl roots were used. Other varieties of arrows have the "head" made of bambu, either wide and flat, or of a thin bambu and just sharpened at the end, sharp as a knife and pointed like a dagger, or the "head" is of bambu with half a dozen points which are divided at the end in a circle. These arrows are used to shoot birds. There are many arrow"heads" which are smooth, others have small carved decorations, others have barbes. The barbed ones are made in many varieties, short barbs, very long barbs and all the sizes in between. Between the barbs the arrows are often decorated with a yellow bark of an orchid. The pictures of the following pages may illustrate what has been said here, at least a little.

The connection between shaft and head was sometimes made by using resin, but mostly a woven ring was put around the shaft. The head or point is put into the shaft and then the connection is fastened around. A few names of different arrows my follow:

yere pumamb	yere mugla
yere tene	yere mingi mundu
yere bongoramo	yere kuimbo
yere baglango bendijgwa	yere bungu
yere nigl kumba sunjwa	
yere kapa dane bogl	
yere gunanando	
yere paglkane	

Some arrow varieties

1. Numambo, 2. tene, 3. buglange bendijgwa, 4. pa.lkane
5. Dumbu

1.00 - 120 Meter.
average length

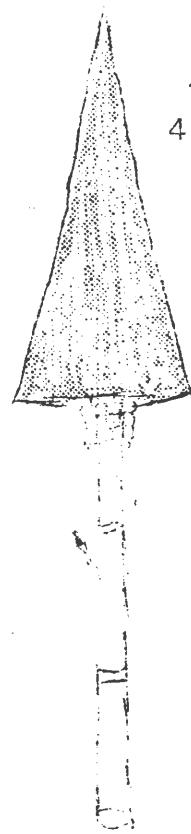
1.



2.



3.



4.



5.

Cermons

1. wakiqwa, 2. kapá, 3. koggerane, 4. paglkane,
5. yutlo, 6. angiri.

1 m. 1.20 m.



The length of the arrow depends partly on the kind of arrow "head" used. The bird arrows normally have a far longer shaft than the ones with hardwood heads, and also the ones with bambu heads have a longer shaft. The arrows on an average are about 1 meter to 1,20 m. long. Most of them are about a meter long.

Miscelenious

With that the weapons mostly used have been accounted for. If necessary anything which is near and can be picked up can serve as a weapon. Not seldom they just took sticks and polés, fenceposts etc. and attacked, or defended themselves. Or if they had the opportunity they took stones and threw them or hit each other with them.

Sometimes even fire had to serve in wartime. Not only did they set fire to the houses and gardens, as far as there was material that could be burnt, but they also took burning material and put that on the arrows and shot them into the houses of the enemy. That did not happen often however, as most of the fighting was open fighting and the parties kept some distance from each other. And these fights were often fought in an area where no people lived, in no-mans-land.

XII Musicinstruments

Music instruments : They had developed a number of them. They were used at dance festivals, at the big pig , festivals(and weeks before these festivals).They were used for courtship and to attract the opposite sex etc. The instruments mostly in use were: the drum, the pig flutes, the jewsharp, small long flutes and some others which have no great importance.

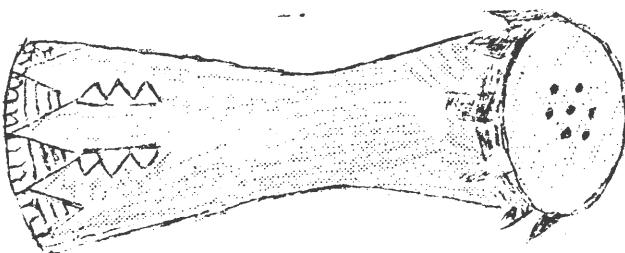
The Drum (ongon)

Whether the Kamanuku have théir own variety of drum or not I can not say definitely. I only know that the ones in use are of different sizes and also form.The ones used are all tapered and smaller in the middle than on both ends.All have the skin only on one end. Some have a handle in the middle, others have none. There are small varieties with only 40 cm in léngh and 12 - 15 cm in diañter and there are big ones. One I measured was 70 cm long and had 18 cm in diameter at the end where the skin is. Most of the drums have the narrow part not exactly in the middle but somewhat to one end.The end with the skin on is the longer one.Another one I measured had 44 cm in diameter at the end with the skin and 26 cm at the other end.

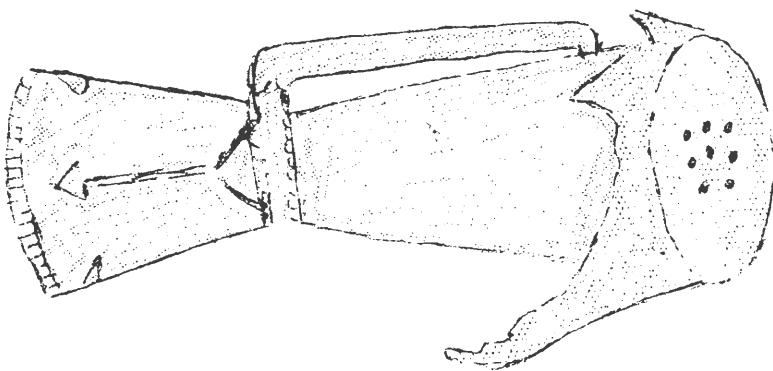
The drums are made from soft wood(trees) such as: kurumba, umbapa, wanggi and others. Making the hollow is done in a similar way to the making of mondono (wooden pots).The thin wall at the outside is only about one half to one cm thick. When the drum is prepared, dried and smoked, then the one end is covered with the skin of an animal, namely of the binduwo, andambo or keremane. The hair is pulled out and the skin is rubbed with a kind of clay pap or mush, then they chew kuraçl leaves and spit them over the skin(done by mouth).That seems to make the skin pliant so the skin does not crack or tear.Then the skin is pulled over the end of the drum.

Drums

1. engun datndi 40 cm long, 15 cm in diameter
2. engun poglumbo, 70 cm long, 44 cm diameter at the skin end and 28 cm at the open end



2.



When the tension is sufficient then the edge is bound fast with a kind of string. Then it has to dry. When it is dry enough, which takes a few days, the string is taken off. The skin then stays firm on the one end of the drum. Instead of clay they may also take the pulp of taro when putting the skin on the drum with the same effect.

In the middle of the skin they then put a few "buttons" which are made from resin(gaglma nuglo) or from the honey of a kind of wasp(boma). This is made pliant and put on the drum skin in about the middle. Each drum has 6 - 8 of these "buttons". Without them they do not sound good, they claim. Some drums are decorated with some carving designs, others are not.

The Pig Flutes (nerembare)

The pig flutes are made from bambu. They are of different sizes as far as length and diameter is concerned. There are small ones with 2 - 3 cm in diameter and only 20 - 30 cm long and there are big ones with 5 - 6 cm in diameter and as long as 50 cm and longer. There are thin ones and very long, 4 cm in diameter and 80 - 90 cm long. They are decorated outside with very different patterns of poker work. The flutes are open at one end and closed at the other end (that is, they left the piece of membrane in the bambu pipe). Not far from the closed end is a hole in the sidewall, mostly burnt in, of about one cm in diameter. The hole in the sidewall is made by burning casuarina sticks. In this hole they blow, when they play the flute. The open end is covered partly with one hand and because of this, open, half open etc. they can make different notes (of different pitches). According to the different melodies, the names are given. It is not easy to blow these flutes and not every one can do it, or not do it well.

I called this type of flutes "pigflutes" because they are primarily blown at the big pig festivals and in the weeks preceding these festivals.

In the weeks before the pig festivals they are blown each day in the evening and at night for weeks and for months. There were always two men together, each one blowing his flute and going through and around the "villages". The blowing of the flutes should help to make the pigs grow fast and fat. The thought was perhaps, that the ancestors should hear the sound of the flutes and bless the pigs. Women were not supposed to see the flutes, but they were not very careful in hiding them. At least I could observe, that women and girls were in the vicinity when the flutes were blown. They covered their faces (eyes) with their hands, but looked through the fingers anyhow. That the different sizes give also different sounds is easily understandable, but also the rhythm is different in the different melodies. More about this perhaps in volume IV of this monograph.

I want to mention here different kinds of melodies, or different ways of blowing these flutes. I only give the native names. They may not explain much, but it is an indication of the many varieties:

kua bugla su
kua gena boglo
kua bongoro
kua mokona kie
kua yokondo
kua winagle
kua wam bugla mongo
kua koigle waigle
kua binde guglu
kua gandia
kua wai sime
kua tengé
kua dingi
kua bauhdo kuglo.

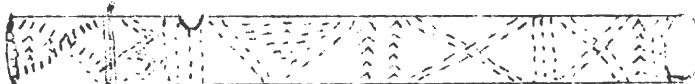
Pig flutes (kua teine, nerembare)

1. plain, 2. decorated, middle size about 55 cm long and 5 - 6 cm in diameter
3. and 4. small flutes(dingi) 25 cm long, 3 cm diameter
3 plain, 4. decorated.
5 and 6, long flutes(winagle) 90 cm long, 3 - 4 cm in diameter; 5. plain, 6. decorated
(The decorations are only sketchy).

1.



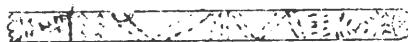
2.



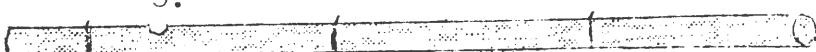
3.



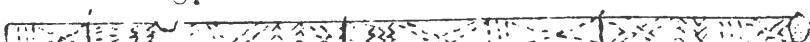
4.



5.



6.



Long Flutes (pu mingi)

A quite different variety of flutes is the socalled pu mingi. This flute is also made of a very thin bambu. The flute is about 50 cm long, some longer, and the diameter is only one to one and a half cm. The flute is nothing other than a piece of bambu. Both ends are open. At the one end (down) there are 4 holes which can be covered with the fingers when the flute is blown. Therefore quite a variety of notes can be produced, real melodies. Of course the tone scale is limited. It is not even one octave. The sound is soft and gentle.

It is an art to blow these flutes and not everyone masters the art. The one end is held to the lips and is partly covered by them. Then it is softly blown. Not much wind is needed and not much power. From the mouth downward the flute is held to the right side and the holes are covered with both hands (left hand thumb under the flute) and with two fingers two holes can be covered or left open. The other two holes are worked with the right hand. They told me that this type of flute is often blown in the men houses, either late at night or early in the morning. Also at the courtship dances they were blown. The tunes are gentle and soft and pleasing to hear. This flute is mostly blown by the men.

This type of flute is often very much decorated, but there are plain ones too. Only after the initiation are the boys permitted to blow these flutes, and after the ceremony of the initiation somebody teaches them for weeks to blow also these flutes. Most probably a certain love charm is performed by blowing the flutes.

As they need very long ends of bambu (without a membrane in the middle) only certain types of bambu can be used to make these flutes. Suitable are the following types: gurutn, kura, gaglkin and mengagle.

Fu mingi

about 80 cm long and 1 - 2 cm in diameter. Made
of bambu from the forest. Long ends without membranes.
1. plain, 2. decorated. 3. wider drawn to get the
pattern to show, pattern only sketchy.

1.



2.



3.



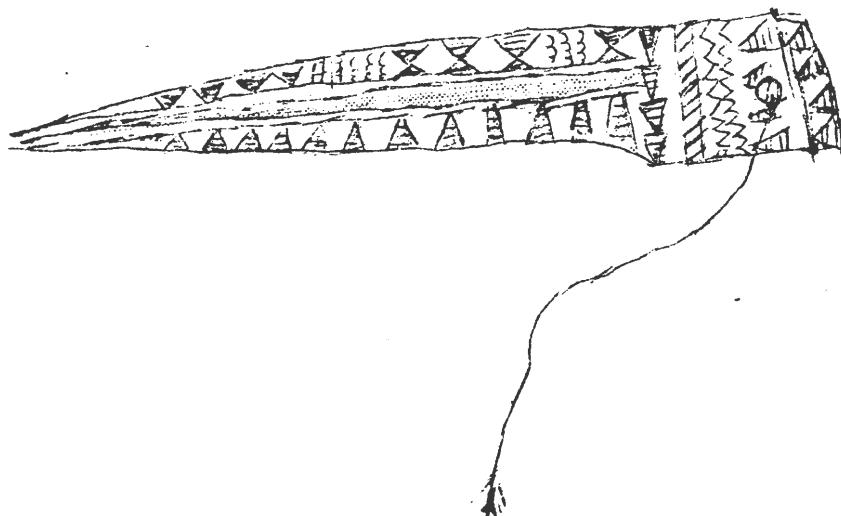
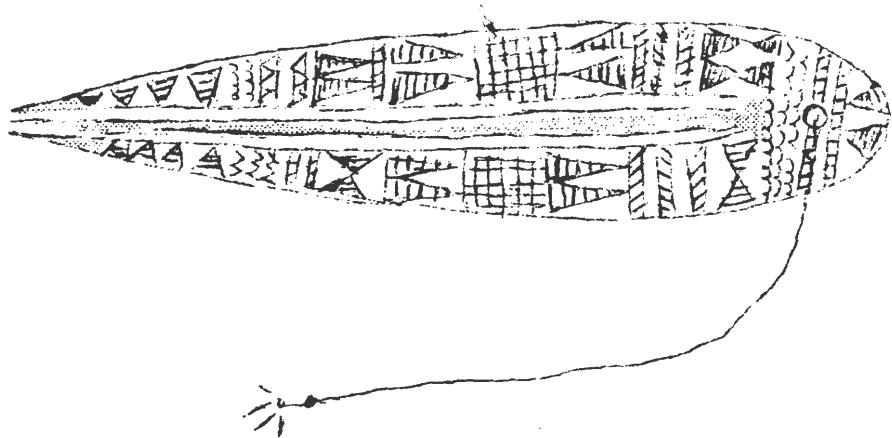
Jewsharp (tambagle)

The socalled jewsharp is known nearly everywhere in Newguinea. The jewsharp is mostly played by young men, but now and again one can see girls playing them too.

Boys' and girl play them when they feel inclined to do so. One may hear them at any time of the day. Playing them it seems some courtship thoughts are expressed. They think the other sex is attracted and pleased by hearing the jewsharp played.

The jewsharp is made of a piece of bambu about 4 cm wide or up to 6 cm and the length is about 20 cm. At the wide end the thickness of the membrane is partly left on the piece, to make it stronger, then the piece tapers to a point at the other end. In the middle is the tongue. About 1 to 2 mm of bambu is removed at each side of the tongue, so it can swing or vibrate freely. Sometimes at the very point a bit of string is put around both sides but in a way that the tongue can vibrate freely. A string is fastened at the other end. Playing the jewsharp the pointed end is put between the lips or teeth, but only both sides and with the string jerking motions are made so the tongue starts to swing. The notes produced are subject to the position of teeth, tongue and lips and also of the breath (inhale and exhale). In this way they produce quite a variety of sounds, which are soft and gentle.

Cowshare (tambaglo) made of bambu, mostly richly decorated.



Mondomongo

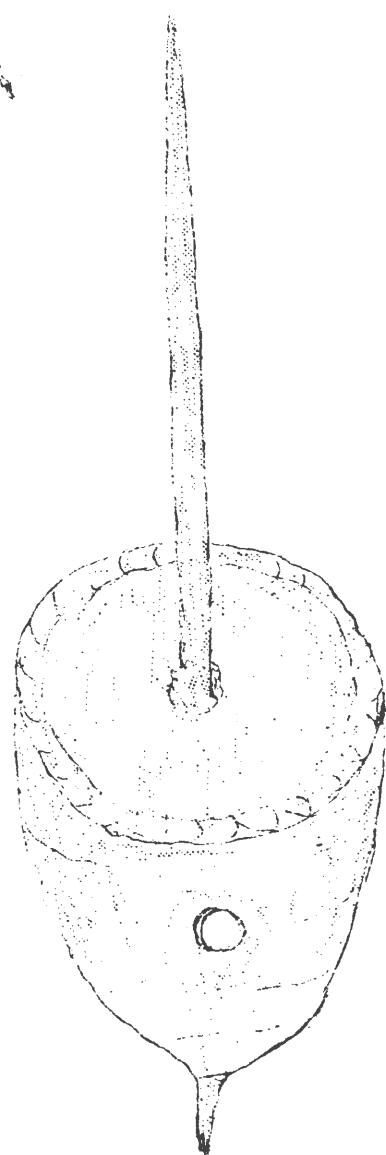
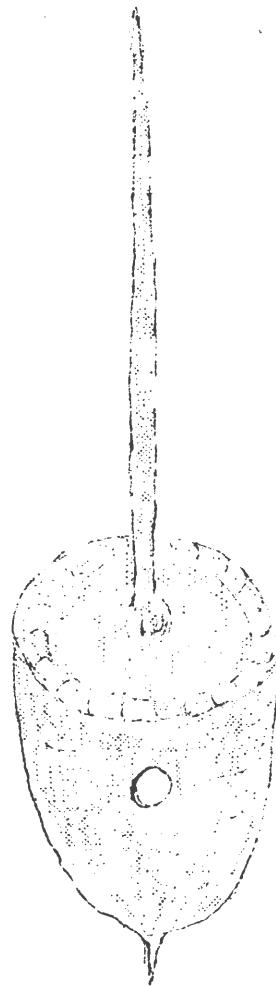
Mondomongo is a tree fruit, the fruit of the mongo tree. If the seed is removed a fairly hard shell is left. This is taken and a small music instrument is made of it. The shell is at first yellow, but it gets dark coloured later, nearly black. On top a hole is made and through the hole the kernel is removed and this hole is used to blow into. Then they make two small holes at each side in front of the seed (fruit). These can be open or can be covered alternatively. In this way a number of sounds can be produced.

These mondomongo are played by boys as well as by girls. The playing of them is thought to be an invitation to the opposite sex. They say: If boys blow them the girls hear them and are willing to come and vice versa the girls say the same of the boys.

A similar instrument, which is called by the same name, is made from clay. In principle it is the same as the mondomongo but the form often differs very much. But there is always a hole on top of such an instrument and always two holes in the front side of it. The forms can be round and flat, fishform, animal forms etc.

One could also say the form is the torso of a human body minus head and limbs and the two holes are the breasts of a female. They are very often very distinctly indicated. As they are made from clay and only dried to get hard, they normally do not keep long, but that does not matter, as they can be easily made again. Often these little instruments were also decorated by impressions in the clay and also by paints. Quite different patterns could be observed in the different instruments.

Honce mono, made of a big variety of acorn. Humming top.
About natural size.



The next two items I want to mention do perhaps not belong under musicinstruments, but more or less under toys for children. They are only mentioned here, because they also give a sound when played with.

Nenge mongo

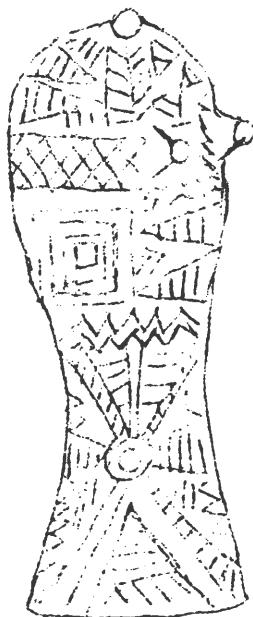
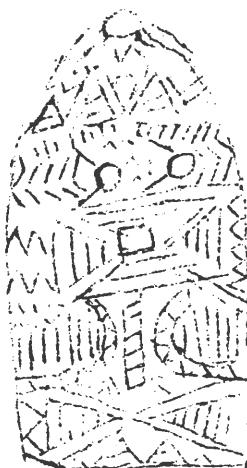
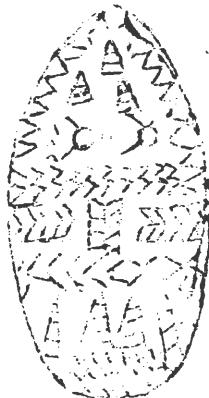
Nenge mongo means: fruit of the oak tree or acorn. This kind of acorn is fairly big, about 4 cm in diameter. A hole is made on top, and the kernel is removed. Then a stick is put through the hole and protrudes at the lower end for about 1 cm. On top the stick protrudes for about 10 to 15 cm. Then one hole is made in the sidewall. Then the top is ready and mostly children like to play with it. The protruding stick at the upper end is taken between the two hands(flat) and by a swift movement of the hands the top is made to spin and the lower end is dropped to the ground. Then it gives also a sound.

Okomai mu kimbiri

This is a piece of wood, about 30 cm long and flat, and 3 - 4 cm wide. Children, boys as well as girls play with it in this way: A string is put to one end of the piece of wood and this string is put to the end of a stick and then the piece of wood is swung around in the air. That gives a humming voice. It is a kind of bullroarer. But as already said, this is more play than music.

(Some other play has already been mentioned in volume I of this monograph and I do not intend to go further into details about other plays.)

Mondo fongo made from clay and dried. A few forms and patterns. About half to threequarter of natural size



XIII Art

If one understands art only as painting(pictures), carving of figures etc. then one will not find very much that the Kamanuku have developed; but if one takes art in a wider sense, one can find quite a few things that belong to art. I do not want to elaborate about art, but give only a few headlines or catch words what I understand to be art. The many ornaments and decorations they have made and still make, will also belong, at least partly, under art. It is hard to differentiate between art and ornamental pieces, as many of these pieces are both. At least this will be so from the viewpoint of the natives.

I count as art for example:

1. Tatooing
2. Painting of the body
3. Painting of the shields
4. Making and painting of the geroa
5. Patterns of the netbags
6. Pattern of the women dresses(diglimbi)
7. Pattern of belts, arm and leg rings
8. Men aprons
9. Patterns on drums and others
10. Pattern on mondono and bowls
11. Making the spears and arrows
12. Poker work on jewsharps, on flutes, on smoke pipes etc.

(That they made figures out of clay, has already been mentioned in the previous chapter, men, animals, fishes etc. These little instruments were very common amongst boys and girls. In recent years I have seen less and less of them. Perhaps the interest of the people is focused on other things today.)

XIV Numbers, Measurements, Time

The Kamanuku had only a few numbers. They could count to 20 and higher, but that was tiresome. Real words for numbers exist only for one and two. Three is already combined of two and one. 4 is two and two, 5 is the thumb and 10 is both hands. 2 hands and one foot is 15. and two hands and two feet is 20 and so on.

Another way to count was done in pairs, 2 and 2 and 2... They pointed with thumb and forefinger of the right hand on the left hand, always getting a bit higher and higher, starting with the fingers, up to the shoulders. But if one does not keep track he will never know what the distance was between each number said, therefore this system was not very exact.

For measurements in the garden, by making fences, for making ditches and so on, strings or vines were used, also in building houses. The strings or vines used for this purpose were at the same time measurement for length and also to keep the line straight. If they wanted to measure a post or a rafter and wanted others of the same length, then they held a vine at the one object and then measured the others in the same length. If they wanted the thickness, they put the string around. Sometimes they also put a knot in the string, as a sign of the length of the one object, and then measured the other accordingly.

A string with knots in it served also as sign of remembrance. Each knot meant a new happening for example:

If one had killed somebody,
if one had danced with a girl,
if one had intercourse with the woman of another man,
if one had traded in skins, plumages, stone axes etc,
and had not paid for them.

How many pigs one had killed for others at the big festival and expected to be repaid etc.

How much meat one had received and :is obliged to pay back etc.

Instead of making knots in a string, some people put notches into a tree, for the same reason, one notch over the other, sometimes right up to the top of a tree. I have often seen trees with notches carved in of 80 and 100 notches one over the other.

For a number of days extra words had been developed, for the past as well as for the future. But some words can have different meanings, for instance the word for yesterday can also mean the day before yesterday or recently. If one counts this way he starts always with today as the first day.

ereme today
barema tomorrow
tagl the third day
ci the fourth day
kitna the fifth day
wetna the sixth day.

They know of course the length of a month, not exactly, but approximately. They count according to the luna month, but to say exactly how many days it is from one new moon to the other, or from fullmoon to full moon, nobody can tell you.

Also the movement of the sun has been observed. That is essential for them. They know that the sun does not rise all the year round at the same spot (geographically), over that hill or that mountain) even if the difference is here, near the equator, not very significant. If the sun turns north and has reached such and such a spot, then it is time to plant. If they plant during this time everything will grow well. As the solstice coincides with the rainy and dry season, at least to a certain extent, one may also say, that they can start to plant at the beginning of the dry season. (For south and north they use local mountains to indicate the movement of the sun).

But if the sun is towards the south, then they cannot plant. The crop would not grow and the harvest would not be any good. So June- July is the main time for planting.

Also the time of the festivals were decided upon according to the sun. When the sun comes back and is about half way, then is the best time for the pig festivals, they said. In that time the pigs are in good condition. That other factors are involved, I am well aware of, dry season, food in the gardens etc.

They also know a few other signs - for example when the trees start to get new foliage. However there are only a few trees which loose their leaves in the "winter".

They do not count the cycle of the year as we do, at least they do not pay any attention to it. They know that the sun goes north and south, but that this happens exactly after so many days and months they do not know. If you ask somebody how old he is, he will hardly ever say the year in which he was born. He does not know that, because they had no conception of the year, but he will answer somewhat like this: 3 or 5 pigfestivals. But as these follow each other at different intervals, these dates are not exact for us, but they are near enough for them. The pig festivals may be at intervals from 4 - 7 years. So nobody can tell you how old he is. And the number of months he does not know either nor the days. They do not count the months nor the days and have no names for them.

"His beard is growing" or "the hair in the armpit is growing" are expressions for the age of boys and girls. Also the teeth, when the milk teeth fall out, is an indication for the age, especially with children. Otherwise one may name this or that occasion or happening as: When the first white man came here, or: When the first plane landed, when this or that man died etc.

XV Bridges

If they wanted to cross little streams or creeks they put some poles or trees across them, so that they could cross the obstacle. Very small creeks or streams were just waded through, but it might be necessary to have a bridge in time of flood. Such trees were often only 10 to 15 cm in diameter. Two or three of them were mostly sufficient. There are no real big rivers in the Kamanuku area except the Chimga river, which is a tributary of the Chimbū river. Over this river there are such tree bridges at several places. Mostly they are without any railings. But the bridges over the big rivers, the Chimbū and the Nera(Waghi) rivers were quite different. Over the Chimbū river towards the Yongumugl was a steep bridge, more like a ladder, the one end rested on a big stone, the other end was leaning to a steep rockwall. But the place was fairly narrow and the bridge did not cover a long distance. They seldom waded through water, when it reached much above the knees, as the rivers ran swiftly and they were afraid to be taken away by the water. They were the more afraid as they did not know how to swim. If the rivers were in flood they just could not cross them, if there were no bridges.

Suspension Bridges.

A real good suspension bridge did not exist in the Kamanuku area, but just a bit southward there was a good one over the Waghi(Nera) river. Even if the Kamanuku were not the builders of the bridge, they made use of it when they visited the tribes south of the Waghi. And as they crossed it, some of the Kamanuku people without doubt gave a helping hand in building the bridge. In the following paragraphs I want to say a few words describing such a bridge.

These big suspension bridges are well known in the whole Chimbū and Waghi river areas. I know several of them and have crossed them repeatedly. In the Ramu area as well as in the Goroka area including Kainantu, I have never seen any bridge like these. Today the bridge south of Ega(Mirani) which I want to describe, is not there any more, but has been replaced by a steel wire(cable) bridge.

The suspension bridges as they were build in the old time, were a splendid piece of workmanship for such primitive people and for the primitive tools at their disposal.

At first it is of course necessary to find a suitable place. As the rivers, when in flood, rise to a high level, such a bridge must be high over the water. Steep banks, and, if possible, with hard and rocky ground, is preferable. The Nera(Waghi) river has at the site of the bridge a width of about 60 meters. They like it very much too, if they can locate the bridge at a site, where at each side of the river some big trees are standing, with sidebranches spreading and reaching partly over the river. The type of casuarina trees, which grows near the rivers, is ideal for the bridges. Here at the site of this bridge all these conditions were given.

Now they start to build the bridge heads. They ram trees and posts and long poles into the ground, fairly close together, in two rows, according to the width of the bridge and toward the river these poles are slanted and have to be longer and longer. Then small beams or poles have to be tied across the line of posts, so that the bridgeheads reach quite a distance over the river, and the distance of the ropes from bank to the other is shortened accordingly.

In the meantime good and strong forest vines have been gathered and been brought by other people to the river. Sometimes they also use cane(Spanish red) which does not grow here but further south in the Bomai area. The thickness of the vines is up to 3 - 4 cm and they are as long as they can get them, but none is long enough to reach the other side of the river, therefore they have to be tied together with knots.

When the bridgeheads have been firmly established and the cross poles are also firmly tied and connected with the upright posts, then they can start to pull the "ropes". The people at the other side of the river have also finished in the meantime their bridgehead in the same fashion as the people at this side have.

But how do they get the connection from one side to the other? They cannot throw the vines over from one side to the other and they cannot cross the river by swimming. They take at first a very thin vine and fasten a heavy object at the one end, a piece of wood or stone, swing it and throw it across the river. To this thin vine they then tie a bigger one and pull it across and if necessary still a bigger one. When the first vine is pulled over and firmly fastened with the bridge head, the others can be pulled over. These vines are not just put side by side but wound around the first one and then each one is fastened in the same manner. These vines are firmly tied to cross-pieces of wood, laid over the bridge head ~~and~~ which are in turn tied with ropes to the posts or poles on each side of the bridgehead. So there is a gangway from the side of the bank toward the middle of the river of about 6 - 8 meters. Here is where the ropes start. At the bottom is only one strand of ropes, 8, 10, or 12 of them, according to the strength they want. If this bundle of ropes has been finished and tied securely then they pull more ropes over the river and start to make the "railings". These ropes are about 1 meter higher than the lower ropes and about 1 meter or so apart on top. These ropes are then connected with the lower ones with smaller vines in a distance of about 25 to 30 cm. Then in a distance of several meters side vines are fastened at each side of the bridge and connected with branches of the trees near the bank. In this way too much swinging and swaying of the bridge is avoided. The bridge I am talking of had a length of 90 meters all in all, the bridge heads on either side were about 15 meters long, so the length for the rope bridge in the middle was about 60 meters. Naturally they hang down in the middle, but it was high enough to be, even in flood time, 3 - 4 meters over the water.

Over such a bridge people could cross the rivers safely, especially when the bridge was new. 6 - 8 persons could cross the bridge at the same time, walking one after the other. They never passed each other in the middle of the bridge, but each one let the others walk over and then started to walk from the other side.

But as all material(wood etc.) exposed to the sun and rain does not keep long, at least not in Newguinea, such bridges always needed repairs from time to time. People responsible for the bridges did that.

As the rivers such as the Nera(Waghi) are fairly deep it is impossible to wade through. And as the people did not know how to swim (and if they could have swom it would have been dangerous, as the banks are steep and rocky and the water runs through with some force), such bridges were the only possibility for the people to cross the river to have connection with the people at the other side.

Most of this kind of suspension bridges have disappeared today, and the few existing ones are deteriorating. Mostly they have been replaced by strands of wire or wire suspension bridges, especially at the spots where main roads lead to the rivers. But even now, there are still a few of these old bridges in use. One for instance was still there a few years ago, not far from Omkolai over the Nera river, about 25 km south of Ega.

Suspension bridge.

1. The full bridge
2. a bridge head



XVI Letters, Characters

The Kamanuku did not know how to read or to write. They had not the faintest idea and were very surprised to learn, that a piece of paper could speak to the white man, or convey a message to him. But still there were some signs by which they could make each other understand, or which served as signs to remember certain occasions. This may be counted as the beginning of writing, even if very rudimentary.

There were for example the knots, which I have already mentioned occasionally, which they made in strings. Nearly every man had one or more of such strings, especially of the killings they had done. Other occasions which were reasons to make such a knot in a string have already been mentioned previously.

Such strings and knots were also used if several parties fixed a date, for pig festivals etc. Each knot then meant one day; or someone would send a string with knots to announce the time of their visits to trade goods.

Another sign, the notches in trees I have mentioned, also. These were often signs of remembrance of people killed and for debts owed to others or others to them. These notches could of course not be sent to others.

Then there were a number of prohibiting signs. They were made on roads, if they did not want others to go there. A tree or a branch of a tree put across the road, a bundle or a handful of grass etc. would indicate that.

To bind a handful of grass or a piece of treebark around a tree or around a fruit tree meant: "Don't touch me", or: "I am the owner". They were also used as a warning against theft. If somebody made such a sign of warning, he frequently murmured an enchantment as he did so. Then he was fairly sure that nobody would touch the thing and take it away.

Also signs of the road could be given in this way. A twig with a few leaves broken off and put on the road could mean: We went this way and you must follow. They were then put lengthwise in the way in which they should go.

Also a few other things could be mentioned here, for example: The decorations with pig tails for ornaments of the aprons, around the neck etc. They show the wealth and influence of the man who is wearing them. That is true also in regards to other pieces of ornaments as for instance with the goldlip shell etc. Certainly these are pieces of ornaments, but the number of them the girl wears around her neck indicates at the same time that she is rich (or her relatives) and that they expect quite a big bride price for her.

The pig jaws, which are lined up on trees or over the houses after the festivals, also indicate wealth and are at the same time a sign, to show everybody who sees them, how much these people have given for the honour and enjoyment of the clan.

Measuring a pig with a string was well known, mostly in cases where they wanted to trade in a pig, or if the man to whom it was traded claimed it was not big enough, and the one he gave was as big as the string indicated. Or if there were several pigs and each one claimed his pig bigger than those of the others.

One could say more about this subject, but this may be enough. The rudiments of signs to make the other understand, without seeing or talking to him were there.

XII Miscelanious

Mirror. Mirrors in our sense were unknown, but they knew how to see their own picture or reflection. They used water to do that. "Nigl minman" they said for the reflection in the water.

They would have learned by experience how to see the reflection in the water. They knew two ways of reproducing such reflections: One was that they put a bit of water into the cooking pot(mondeno) and then looked down into it. Then they could see their image. They liked to do that when they decorated themselves and wanted to see how it looked.

If they had no mondono at hand, they also sometimes took a big leaf(banana or similar), made a kind of cup of it or a kind of dish, put water in it and looked. Doing this they put it on the ground and sat beside the leaf of water. In that way they could look into the "mirror", and put all the decoration on, especially on face and head.

Light

In the evening and at night they mostly had no light in the houses, the fire burning was sufficient. But if they wanted to go outside, or had to make some distance on the road, then they made a torch and lit that. A bundle of strong grass, bound together, or split bambu etc. Such a torch burnt for quite a while, half an hour or longer.

All other things to make light are of newer dates. All lamps and lanterns, also castor oil beans, which were lined up on a stick or on a string and burnt one after the other(wambugla).

Herewith I want to conclude the description of the material culture of the Kamanuku people. It would not be difficult to mention this or that more, or elaborate on this or that in more length, but I do not mean to claim that everything is dealt with in what I have said and that the description is complete in every way. But I hope to have given a little insight into the material culture of these people anyhow.

Translated in the second half of the year 1971

W.Bergmann.

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