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NOVA GUINEA

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Nova Guinea.

UITKOMSTEN

DER

NEDERLANDSCHE NIEUW-GUINEA-EXPEDITIE

IN

1903

ONDER LEIDING VAN

Dr. ARTHUR WICHMANN,
Professor te Utrecht.

MET MEDEWERKING VAN DE MAATSCHAPPIJ TER BEVORDERING VAN HET NATUURKUNDIG ONDERZOEK DER NEDERLANDSCHE KOLONIËN, HET INDISCH COMITÉ VOOR WETENSCHAPPELIJKE ONDERZOEKINGEN EN HET MINISTERIE VAN KOLONIËN.

LEIDEN
BOEKHANDEL EN DRUKKERIJ
voorheen
E. J. BRILL.
1907.

Fb.gn. 350

Nova Guinea.

RÉSULTATS
DE
L'EXPEDITION SCIENTIFIQUE NÉERLANDAISE À LA NOUVELLE-GUINÉE.
EN
1903
SOUS LES AUSPICES
DE
ARTHUR WICHMANN
CHEF DE L'EXPÉDITION

VOL. III.

ETHNOGRAPHY AND ANTHROPOLOGY

BY

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Surgeon Dutch Royal Navy.

With 50 plates, 216 textfigures and a map.

LATE E. J. BRILL
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PREFACE.

In composing this volume I have striven to connect the ethnographical and anthropological results obtained by the Expedition, with what has already been written by others about New Guinea.

To those who have rendered me assistance in this work I beg to tender my sincerest thanks. In the first place to Dr. J. D. E. SCHMELTZ Director of the "Rijks Ethnographisch Museum" at Leiden; also to Mr. J. J. JESWIET, Curator of the "Koloniaal Museum" at Haarlem, who defined the botanical products, and to Dr. P. N. VAN KAMPEN formerly Assistant at the Zoological Museum of the University of Amsterdam, for his informations respecting zoology.

Mr. T. A. JOYCE, Honorary Secretary of the Anthropological Institute, was kind enough to look over the anthropological chapter.

The defects which will undoubtedly be found in this work, result from the fact, that in ethnographical and anthropological matters I am merely an amateur; moreover the Expedition remained as a rule only a short time at the different places visited.

On board H. M. S. "Admiraal van Wassenaer".

Amsterdam, April 1907.

G. A. J. VAN DER SANDE.

CONTENTS.

Chapter I. Food, Drink and Delicacies . . . . . Page 1.
" II. Clothing and Ornament . . . . . " 35.
" III. Habitations and Furniture . . . . . " 127.
" IV. Hunting and Fishing . . . . . " 153.
" V. Agriculture . . . . . " 172.
" VI. Navigation . . . . . " 193.
" VII. Trade and Communications . . . . . " 214.
" VIII. Industry . . . . . " 232.
" IX. Arms . . . . . " 240.
" X. Customs and Government . . . . . " 265.
" XI. Art . . . . . " 283.
" XII. Religion . . . . . " 287.
" XIII. Anthropology . . . . . " 315.
Alphabetical List of literature mentioned in the text . . . . . " 364.
List of Alterations . . . . . " 374.
Alphabetical List . . . . . " 375.
Description of Plates . . . . . " 385.

CHAPTER I.

FOOD, DRINK AND DELICACIES.

The articles of food of the inhabitant of Netherlands New Guinea are only of vegetable and animal nature. For the so-called eatable earth which, amongst other things, was offered by people from the country of Sěkå to FINSCH [1888, 346], was afterwards proved by him, [1888—93, 226] to be only used as a pigment. On inquiry in the neighbouring Humboldt Bay I found this confirmed. Neither is it used as a medicine. KRIEGER [1899, 218] who still mentions this clay as eatable earth must therefore be mistaken. One of the places where the clay is found, is the hill Dei Mâge, situated behind the village of Tobádi. At the request of the leader of the expedition, the men from this village fetched a basketful of this clay in a moist and kneadable condition; a small sample of this is mentioned as pigment under N°. 228.

Meanwhile HELLWIG in Nachrichten [1889, 43] has mentioned a greasy, darker coloured clay, containing iron, found by him at the foot of the Saddle Mountain behind Port Finsch, said to be eaten by the Papuans, (See also SCHELLONG [1905, 609]). In British New Guinea, white as well as red clay in single instances is used (ANNUAL REPORT [1899—1900, 102]).

Of anthropophagy, known on Netherlands territory of the Karōn and the Tugeri, I have not been able to find a trace during the expedition; this custom is certainly not as common as stated by PÖCH [1905, 442] of K. W. Land and ascribed by him to a want of animal food. According to MACGREGOR [1897, 76] in British N. G. cannibalism is very rare.

In the case of the common people, animal food should only be considered as a luxury as HAGEN [1899, 247] expresses it; but FINSCH certainly goes too far when he writes [1888, 54] that neither the Papuan dog nor his master are hunters, but on the contrary vegetarians. This conclusion may be doubted, particularly by the dog itself, of which FINSCH states that it is kept purposely with the object of being eaten; its meat is said to be of pleasant taste owing to the frequent consumption of cocoa-nut. Besides, in K. W. Land, the dog s only eaten as a festive dish and as such a living specimen was once offered to FINSCH [1888, 157]. A similar experience is mentioned by HAGEN [1899, 196] and NACHRICHTEN [1886, 127; Augusta River], from British N. G. by MACGREGOR [1897, 68].

Consequently a condition still exists here to which the judgment of LANGKAVEL [1895,

110] is applicable: that man in the first stages of his existence, has seized upon the dog, as well as upon other animals, in order to use them as food.

As against the above, it may be stated explicitly that from the north coast of Netherlands New Guinea dog's meat has never been mentioned as food and that the experience of the present expedition in different places, never visited before, entirely confirms this. Besides, dog's skulls have never been found in dwellings, and necklaces of dog's teeth are here so rare and expensive, that I could not get hold of one; they are therefore probably imported.

The pig however is hunted generally on this coast, for the sake of the meat, as far as the Islam has not made itself felt; young pigs obtained by hunting, are reared, and in many places the breeding of pigs is carried on systematically.

When a big pig is shot, this naturally provides meat for many mouths, and as a bartering trade does not appear to exist in this article (and preserving by drying or smoking is not customary in these parts, as far as I could find out), the success of the hunt always forms an inducement for a banquet, to which in Humboldt Bay all the men from the village and from adjacent or tribal villages are invited. The guests are not obliged always to consume their share on the spot, at all events the members of the expedition, who were treated on the footing of the most friendly power, after visiting such a feast immediately received a piece of raw meat, which was sent to their home. (In K. W. Land dog's meat as well as pork, according to BIRO [1901, 55] is smoked).

On the other hand, on the occasion of joint festivals a pig is killed, sometimes even more than one.

At a feast at Tiggedu, according to NACHRICHTEN [1889, 38] as many as 36 big pigs were killed at one time (PITCAIRN [1891, 68] even mentions the killing of 100 pigs on the occasion of a harvest festival). A spear was thrust behind the shoulder blade in the direction of the head, and the wound afterwards still widened, until death took place in consequence of internal bleeding. Here also a part of the meat was taken home by the guests at the conclusion of the feast. I don't know how the pig is killed in Humboldt Bay, at all events no blood is collected, it was allowed to run away, as CHALMERS [1885, 84] reports from the Aroma district. The hair is singed off by fire and the slices of meat are roasted on the embers of the wood fire.

During the visit of the expedition to Nimbúran two pigs were being killed for a feast within the precincts of the village, but out of the presence of the women, in the shade, palm leaves having been spread out on the ground.

At Tobádi all this took place in the temple and it may be taken for granted that here the women do not in any way participate. That the prohibition of animal food for women is carried as far as in K. W. Land, where according to HAGEN [1899, 247] it includes absolutely every kind of flesh even of fishes, I have however not found to be the case on Netherlands territory. But it must here be observed that PARKINSON [1900, 39] noticed in common huts long rows of pig's lower jaws, from which I should conclude that in this part of K. W. Land, at all events pork is consumed in the households and therefore also by women and children. I saw the same thing in the houses of the Maníkion. In Tobádi I do not remember having met with pig's skulls, except in the temples (see fig. 187, 188), where women and children were never admitted. The report of PARKINSON [1900, 40], that on

Tamara (Tumleo) the men eat no pork, as according to their opinion the soul of the dead transmigrates into the bodies of the pigs, must be considered as an isolated, though none the less curious statement. Perhaps a remnant of totemism is hidden here, which according to KOHLER [1886, 369] forbids the killing and even the touching of the totem animal. For certain districts of the adjacent K. W. Land, NACHRICHTEN [1897, 87] mention such a connection with the crocodile and pig with great certainty; similar is reported from British New Guinea (UNNUAL REPORT [1897—98, 134]). In Geelvink Bay the profession of blacksmith carries with it the abstention from pork. VAN HASSELT [1886, 583] does not mention the reason, and it is therefore a mere guess on my part, when I presume that this abstention originates from an imitation of the Mohammedan blacksmiths, to whom the people are indebted for the smith's craft.

Alongside of the pig, fish comes into consideration as the principal ingredient of animal food; for places along the coast salt water fish, for those situated in the interior fresh water fish.

Villages so exceptionally favourably situated for fishing as those of Humboldt Bay (see Chapter IV), consume large quantities. Fresh and also smoked fish were even often offered for sale to visitors of this bay. BINK [1897, 148], who remained here from August to November 1893, then already received the impression that no day passes without fish food, and our expedition, which stayed here during the months March—July 1903, can confirm this and has shared during the second part of its stay some times in this abundance. The presence of smoked fish however gives rise to the supposition that the abundance of fish in the inner bay is not always equally great, probably in connection with the reigning monsoon and with the biological habits of the fishes; possibly the west monsoon is in this respect less favourable.

On Lake Sentáni fish, I found, was also the principal ingredient of animal food and as the great fish of prey, *kā joi*, which visits the lake in or after February, disappears again after a short time, this fish is then caught in large quantities and preserved by smoking. In this condition I saw the men still using it in June. But smaller fishes are also eaten smoked. Fresh fish is here simply held over the wood fire and half roasted, half smoked, and thus obtains a somewhat smoky but not unpleasant taste. At Asé I also saw the men at their morning meal eating fresh water snails, *Paludina*, *gĕre* or *fĕre*, which could easily be extracted from the shell after having been boiled, by the use of a scratcher from the hair, *ongai*, or with a pointed bone nose-staff, *itjă*.

Amongst animal food, noticed by ourselves as being used, I may still mention a red snake, which being too much damaged by a charge of shot to be included in the zoölogical collection, was eagerly carried off for consumption by a man from Tobádi. The snake and its eggs must indeed be a tasty dish for the Papuan; for the people at the back of Port Moresby told CHALMERS [1885, 105] that the pig was nothing in comparison with it. The same thing took place with a Varanus; but this was not allowed to be eaten by the younger men. In the villages on Lake Sentáni I saw several skulls of crocodiles, *kaikĕrum*, of which apparently the meat had been eaten; I do not know however how this was prepared. In K. W. Land it appears, according to the illustration which HAGEN [1899, Pl. 38] gives, to be boiled in pots. There it is a festive dish and according to NACHRICHTEN [1890, 25] a living specimen was offered to European visitors as food. Turtle eggs, which according to VAN

DER GOES [1858, 120] are boiled, on the south west coast, between three sticks above the fire, are not despised either on the north coast of Netherlands New Guinea. The Papuan guides and carriers of the expedition showed more than once great cunning in the finding of the eggs, where these were buried in the sandy beach of the lagoons and could not be prevailed upon to move on further, before the booty was secured. Great garlands of dried shells are hanging on the outside of many temples.

I will not examine in detail the list of animal dishes, which the Papuan eats when an opportunity presents itself; it includes practically everything that is harmless, for the Papuan has no aversion to anything on account of outward appearance. The necklaces of skeleton parts of chitine in use elsewhere, are here unknown and it may therefore be presumed that beetles are not eaten. Of the use of hornet's nests (*Vespida*), as a delicacy, mentioned by BIRO [1899, 96], our expedition was unable to find a trace.

Of the vegetable articles of food used in Netherlands North New Guinea the sago is, generally speaking, the first, as it grows wild in marshy parts and in extensive forests round the lakes.

Full particulars are given by DE CLERCQ and SCHMELTZ [1893, 56—58].

Freshly prepared sago was generally kept in stock in Tobádi in baskets, containing 15 Kilo (N°. 1, Pl. I, fig. 21). Immediately after the washing and whilst still moist it is poured out into the baskets, the water drips out slowly and the sago will then keep for a long time. Occasionally I noticed amongst the male visitors from Tobádi one holding a piece of a greyish white material in his hand, of which a bite was now and then taken; this appeared to me to be raw sago. At all events I consider it improbable that this material consisted of the pith of the sago tree dried in the sun and eaten in its crude state, as STRACHAN [1888, 103] mentions of the south coast. At least I have never seen the people, spitting out the woody fibres contained in the pith. In Humboldt Bay and its surroundings sago is prepared in two ways, which are also mentioned by PARKINSON [1900, 39] of the Berlin Harbour section: 1° as pancake-shaped slices and 2° as sago-porridge. In other parts it is also baked into small cakes or according to DE CLERCQ and SCHMELTZ [1893, 56] roasted in a leaf of *Barringtonia speciosa*.

The young men from the temple of Tobádi, who rowed the expedition, during the night between the 10th and the 11th of May 1903, in about 5 hours from Humboldt Bay to the village of Nächeibe, had taken with them from their homes flat, tough, but soft cakes wrapped up in fresh leaves. With a small piece of smoked fish, this was consumed in the morning shortly after sunrise. But at home the sago-porridge, a somewhat translucent material, like fresh starch, is the usual form in which the principal food is consumed. It is prepared here by the women inside their houses with fresh water, therefore not as stated by VAN DER GOES [1858, 149] of Doré, with salt water, and is sometimes whiter, sometimes darker, which amongst other causes may depend on the water used for washing.

A couple of times I have sat in the circle of the eaters, around a full pot, but the company of older men, accustomed to the extensive chewing of siri, was not of a nature to make me accept the invitation to help myself, however cordially a fork was placed into my hand.

Besides, BINK [1897, 193] has already informed us that this porridge is fairly palatable. The use of the here customary culinary utensils is however not so easily acquired. The

simplest amongst them are after all the spoons made out of the shell of the cocoa-nut (N°. 2—27, Pl. I, fig. 12, 13, 17) which are used largely on Lake Sentani, are found in most of the men's bags and are often provided with carved ornaments. Only once I met with such a spoon in Humboldt Bay (N°. 28); this explains why until now no mention was made of these spoons from Netherlands New Guinea. Never is a handle attached to it, very rarely is a real handle cut out with the spoon from a single piece, as for instance characteristic of the spoons of English New Guinea.

One of these articles, in the possession of the Leyden Museum Ser. 592, N°. 13, from Yule Island, shows an animal head. FINSCH [1888—93, 109] mentioning similar spoons of the Motu, considers these objects, also on account of the hardness of the material, their best products of art. LOEBER [1903, 60] describing such spoons of the inhabitants of Timor, also points out how extremely difficult it is to work the cocoa-nut shell. Remembering the Malay people, who eat rice with their fingers, LOEBER considers that the people of Timor, on account of the use of spoons, stand higher. For the Papuans however, such a comparison cannot hold good. For the sago-porridge cannot be eaten with the fingers and some other means must therefore be devised.

Almost everlasting, the spoons of the collection date for the greater part from the stone period. The fish ornament is predominant on these spoons and sometimes covers the whole surface, whilst the cut-out parts are often coloured white with lime.

Similar spoons from K. W. Land are according to FINSCH [1888—93, 198] very often quite plain, but from Astrolabe Bay, BIRO [1901, 94, fig. 42] shows some specimens only ornamented at the point, intended for the use of women and children, and which were shown to him in great secrecy. Still more beautiful are the spoons which PARKINSON [1900, Pl. XVIII, fig. 12, 13) shows as scrapers (?) made out of cocoa-nut shell. The same shape, in mother of pearl, used also as scraper (?), BIRO [1901, 95, fig. 43] found amongst the coast people; again different from these and made from Turbo and Melcagrina, are those which DE CLERCQ and SCHMELTZ mention [1]) from the west, where also tortoise shell spoons are met with.

Another kind of spoons is made of bone. The collection contains some specimens of these, but amongst them not a single one made out of the shoulder blade of the pig, as formerly met with by FINSCH [1888—93, 198] in Humboldt Bay. They are made out of femur (N°. 29—31, Pl. I, fig. 11) or tibia (N°. 32—36, Pl. I, fig. 16) of the pig, out of the tarso-metatarsus of the cassowary (N°. 37), out of the radius of Dendrolagus (N°. 38, Pl. I, fig. 14) or out of the tibia of cassowary (N°. 39 and 40, Pl. I, fig. 18). The last numbers have the spatula shape and have erroneously been taken for lime spatulas, whilst DE CLERCQ and SCHMELTZ [2]) add the name of *kamau*, which in Humboldt Bay is however intended for „dagger". But it is perfectly certain that the bone dagger (See Chapter IX), which is almost without exception made out of the tibia of the cassowary, is never used here for domestic purposes, as represented by FINSCH [1888[a], Pl. V, fig. 7] as knife and breaker from K. W. Land. BIRO [1899, 38, fig. 5] even suggests that his universal instrument is used for three purposes, as a knife, a culinary utensil and a weapon. The bone spoons of which N°. 31, Pl. I, fig. 11 especially, is beautifully carved, are used principally for the eating of the sago-porridge; as planes or scrapers of hard objects an ordinary bone can be of no use. For this purpose, on account of its greater hardness, the boar's tusk is used, (see Chapter VIII). Besides, these people were already in possession of steel knives. The wear, caused by the

1) 1893, 67, N°. 319—325, Pl. XV, fig. 1, 2, 3.

2) 1893, 69, N°. 334, Pl. XVII, fig. 18.

use against the inside of the sago pot is plainly visible in N°. 34, Pl. I, fig. 16. When not used, the spoons are generally, as shown in several of the photo's, stuck by both men and women, between the upper armlet, whilst they are prevented by a hook from falling out.

More even than these spoons, I found the three-pronged forks in use. DE CLERCQ [1]) has collected such a fork from Wandisiau; the prongs of this object, now in the Museum at Leyden, are however lying in a plane. But in the case of the forks now met with in Humboldt Bay and on Lake Sentáni, they are placed in a triangle (N°. 41, Pl. I, fig. 3, N°. 42, 43 and 44, Pl. I, fig. 2) which is certainly more favourable for use. PLEYTE [1896, 203, fig. 2] declined to accept for the above named objects the name of fork, because „they are used in the same way as the Chinese use their chopsticks." Still I feel justified in concluding from the sharp points of some of the forks to which I refer, that they are c. q. also used for pricking the food. With other specimens and in particular with the bone specimen from Asé (N°. 45, Pl. I, fig. 7) the prongs are worn off obliquely by the wear against the inside of the earthenware pots in which the sago-porridge is prepared and from which it is also eaten.

The consistency of this broth makes it very difficult for the uninitiated to get hold of anything with the fork, the slimy substance slips through the prongs and must each time be caught, by a dexterous swinging movement, on the upper part of the horizontally kept fork. The fork is then brought across and into the opening of the mouth and the clod is removed inside transversely.

BINK [1897, 193] tells us that before the sago meal such a trident was handed to him, but I am willing to bet that he could not manage to eat with it.

It seems curious that this kind of fork is not mentioned from K. W. Land, and it explains why a real trident from Humboldt Bay with the prongs in a triangle was placed in the Museum at Berlin (N°. 13153) amongst the combs. N°. 15289 of the same Museum, although presented by a trader as a „comb", may also safely be placed amongst the forks, even though the prongs, as in the case of the specimen of DE CLERCQ, are lying in a plane.

N°. 46, Pl. I, fig. 6 of the collection is made of the same kind of wood, but turned into a four-pronged fork by splitting the middle prong. This shape is rare. Two specimens of the Rotterdam Museum (N°. 6224 and 6225), of white wood, are also mentioned as „combs" from Geelvink Bay, they are however according to shape and ornament (eye ornament) without a doubt forks originating from more eastern parts. The next highly primitive culinary utensil (N°. 47, 48 and 49, Pl. I, fig. 8 and 10) from Humboldt Bay and Lake Sentáni, exclusively intended for the eating of sago-broth is manufactured from the middle nerve of the side leaves of the sago palm, bent double into a pair of tongs, both ends blunt and one of the two here carved flat over a few centimeters, the other part usually left three sided.

PLEYTE [1896, 203, fig. 2*a*] mentioned the specimen first found, and now in Leyden (Ser. 1122, N°. 3) as a specimen from Wandamen. I have however ascertained that it is widely distributed along the eastern parts of the Netherlands north coast and is there very often met with, caught between the upper armlet (see fig. 33). They are also found in the

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1) DE CLERCQ and SCHMELTZ [1893, 70, N°. 395, Pl. XXI, fig. 19].

cylindrical bamboe cases of the men; for N°. 49, Pl. I, fig. 10 from Ifär a special, small, ornamented cylinder has been constructed in which the instrument fits exactly and is kept clean. The use is for the first beginner even more difficult than the regular fork, for exactly as PLEYTE described it, the middle finger must be kept between the tongs, and must regulate the spreading out according to the greater or lesser liquidity of the porridge. The part which is flattened, is probably the one which is brought transversely into the mouth.

Moreover I discovered in Humboldt Bay and on Lake Sentáni another culinary utensil (N°. 50, 51, Pl. I, fig. 4 and 52, Pl. I, fig. 9), which must be handled in a similar way, also a pair of tongs, but consisting of two separate, small sticks, of a dark brown wood, which are laid alongside each other, and held together, close to one of the ends, by one or more narrow rings, which enables the other ends to diverge some centimeters.

In the case of those specimens of which the ends are shaped into points (N°. 53 and 54, Pl. I, fig. 5 from Asé) a double purpose is evidently intended, as in the case of the pointed forks, namely, to be able to prick consistent food.

Fig. 1 shows how again these forks are carried between the upper armlet. It may here be mentioned that MARTIN [1894, 236, Pl. XXIX, fig. 17] met with similar instruments amongs the Alfures of Ceram (Seran), but these were made out of deer bone, and not pointed, therefore exclusively intended for the eating of sago-porridge (*papeda*). The collection of the Utrecht Mission Society contains something similar under N°. 353 but made out of small pieces of bamboo, unused, carelessly finished, possibly made according to special instructions and in a great hurry, brought home by BINK from Humboldt Bay, under the name of *aki*. Such a bamboo specimen I have never seen in use and I cannot locate the name. Finally amongst the eating tongs must decidedly be placed the small instruments of which the Leyden Museum contains two (Ser. 300, N°. 231 and 232), the Amsterdam collection one specimen (Ser. 8, N°. 27 from Ansus) and which are described as „hairpins" and „double fork-shaped hairpin". They show a variety of the last mentioned kind, which consists in each of the tongs ending in two long points. The sloping way in which the points were worn off by the contact with the inside of the sagopot, already removed all doubt as to the destination of these objects, but it was moreover possible to prove chemically on one of them, with certainty, the presence of fecula.

Dr. C. KERBERT, director of the society „Natura Artis Magistra", kindly allowed me to take a photo of the Amsterdam specimen (Pl. I, fig. 1) on the scale of $^2/_7$.

It is really curious that of all the eating implements named above as forks, chopsticks, tongs, etc. no mention whatever is made from K. W. Land. (On a photo of MEYER and PARKINSON [1900, Pl. 6] from Mumre, I even fancy I can recognise in the left upper armlet of the third man from the left, a pair of eating tongs, exactly similar to my N°. 50; the authors do not, however, mention the object).

HAGEN only states [1899, 183] that the small sticks from the hair [l.c. 171] are used as forks and BIRO [1901, 95, fig. 44] only mentions small wooden sticks shaped like knitting needles cut from the main rib of the side leaf of the cocoa-nut palm and also used as a turning spit for roasting lobster, fish, caterpillar or beetle larva. I have already stated that in Asé, the scratchers from the hair N°. 232, Pl. VII, fig. 8 are also used as an eating instrument.

The wooden or bone combs from English New Guinea similar to those in the possession of the Berlin Museum (f. i. N°. 15291 from the Central District) do indeed very closely resemble both in shape and usefulness the forks; especially one of these combs, with four prongs manufactured from the cylindrical

wall of a long bone, may be called remarkable. MACGREGOR [1897, 72] mentions similar five and six-pronged objects, of hard cassowary bone, as forks.

I am unable from personal observation to give a proper summary of other vegetable articles of food, as the meals were generally taken inside the houses. After sago, *Colocasium antiquorum* (*taro*), several kinds of *Dioscorea* (*Yams*) and *Batata edulis* (*ubi*) form the principal food. Besides *Musa* which is roasted in the skin, in the same way as *Artocarpus* fruit, of which both meat and seeds are eaten, one often comes across sugar-cane (*Saccharum officinarum*) and the pieces which were presented to me on Lake Sentáni, were according to the Malay kuli's of a particularly sweet taste.

A few times the members of the expedition have eaten the young shoots of the wild *Lagenaria* boiled, whilst the fruits of *Inocarpus edulis*, which also grew plentifully in a garden close to the bivouac at Jåga, on Lake Sentáni, were roasted for use.

The milk of the cocoa-nut is drunk and the meat is scraped out with *Cardium*-shell (N°. 55), the husk, the mesocarpium, having been first opened with wooden instruments, cut like chisels, mentioned also from other parts and to be found in most of the men's bags, which are stuck with great force between the fibres and then forced down (like a lever). I presume that the elegantly carved object, N°. 56, Pl. I, fig. 20, from Tobádi, presented as a knife, is nothing else but such a cocoa-nut opener, of which the collection contains some five specimens (N°. 57—61, Pl. I, fig. 19). Possibly N°. 56 may also have been intended to be used in tearing off the fibres of the aërial root of *Pandanus*, for the carved ornament is similar to that on the small sticks (N°. 580—582, Pl. XX, fig. 16) which are used for this purpose. It would not be the only instance, where objects intended for the same purpose are ornamented in a similar manner!

The cocoa-nut just sprouting, contains inside a ball-shaped, spungy mass, of a sweety taste (diastase), which, as well as the young shoot, is much eaten, by preference at festivities. Amongst the literature at my disposal, I found only mention made by ERDWEG [1902, 338] that this is the way most fancied by the Papuan of the north coast for enjoying the cocoa-nut. Now and then one notices in a village a great quantity of these sprouting cocoa-nuts, hanging about, but it would be a mistake to consider them as intended for young plantations. On fig. 2, from Kaptiau, a long row of these nuts may be noticed, strung up behind the festive dancers, and the photo of the village of Serr by MEYER and PARKINSON [1900, Pl. 7] shows a similar row, a certain proof that here also a feast is about to take place.

The preparation of the dishes, when fire is required, seldom takes place in Netherlands North New Guinea outside the houses, whereas in K. W. Land this is the rule. It is also almost exclusively the duty of the women, who do their work in the semi-darkness of the houses. Except in the case of people who prepared their food when they were on an expedition, I only once saw a fireplace in the open air, namely at Asé at the foot of a tree. On board of the boats a fire is also often kept burning on potsherds (see also FINSCH [1888—93, 199]) or on carapaces of small turtles, for the purpose of roasting fish.

For the smoking of fish, I met in the temple of Nácheibe with a cylindrical apparatus (N°. 62, Pl. I, fig. 15) with a grating at the lower and a cover at the upper end, suspended immediately over a fireplace and identical with the apparatus which



Fig. 1. Burning lime out of shells at Asé (pag. 22).

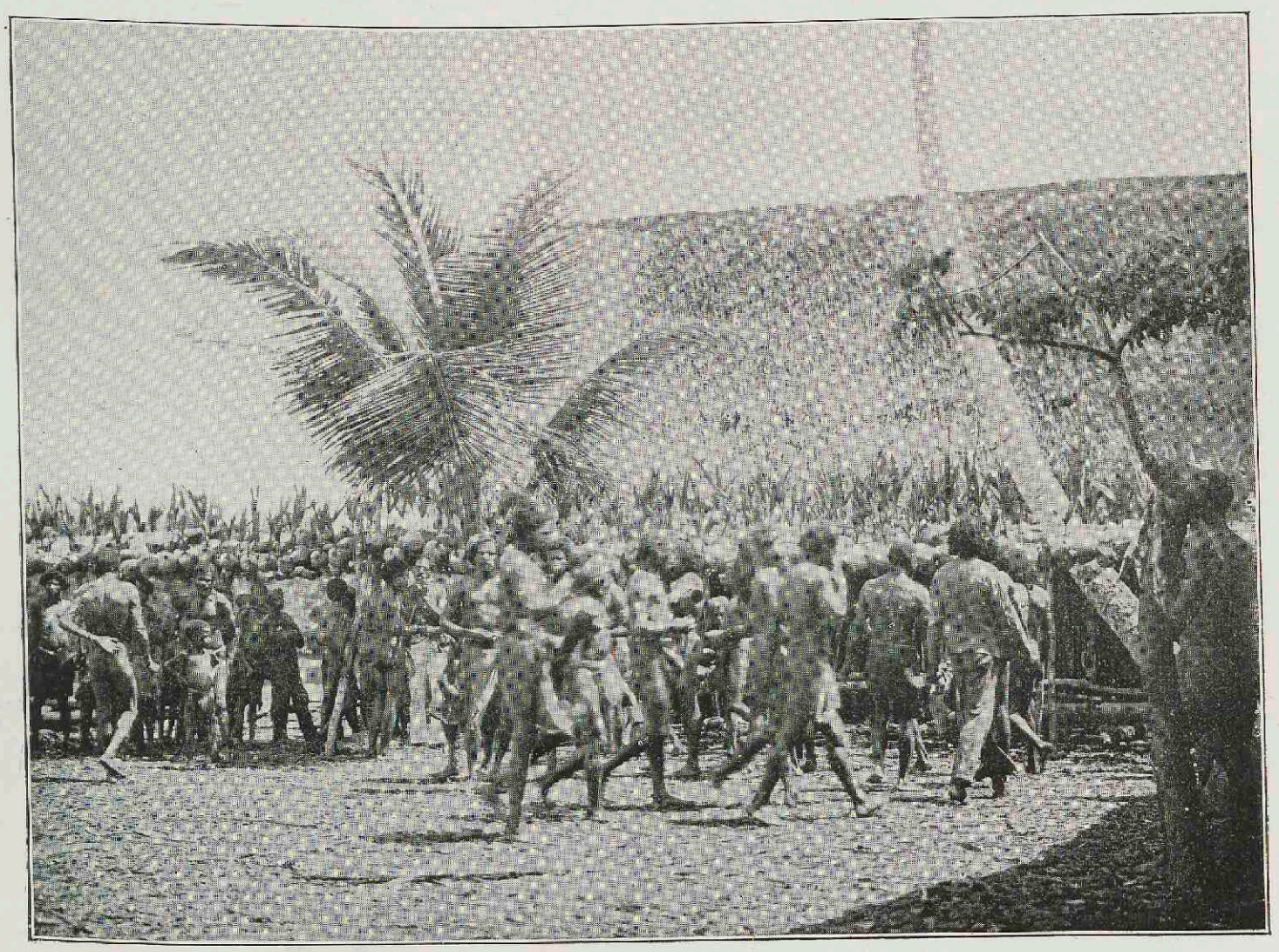


Fig. 2. Dance at Kaptiau; on the background cocoa-nuts with young shoots are suspended for the banquet (pag. 8).

was seen by DE CLERCQ [1]) in Tanah Merah, of which the illustration, however, deviates.

From Tumleo it is reported by ERDWEG [1902, fig. 233] in the cylindrical but somewhat modified shape. On a sailing boat from Ali, North New Guinea, (MEYER and PARKINSON [1894, Pl. 45]), I recognise in the object which in the text, on page 13, is indicated by mistake as a drum, exactly the same smoking cylinder, of which the bars of the grating are just visible on the side which is turned away from the spectator.

For bigger fishes the apparatus is too small, these are treated for immediate use, on sticks over the fire, half roasted, half smoked, at least the flesh is finally rather dry. There are still other methods for smoking small fishes; those that have to be preserved for a longer period or are intended for trading purposes are strung in great quantities in a curious manner by the heads and tails on to long pieces of wood. I fancy FINSCH has sent specimens of these to the Berlin Museum, that are very similar to what I noticed on Lake Sentáni. My specimen got lost in the stomachs of the kuli's. I have not seen the boiling of fish-dishes; it is certainly not as common in Humboldt Bay and surroundings as in K. W. Land, where according to FINSCH [1888—93, 201] and SCHELLONG [1905, 613] nearly all food is boiled. Still, pieces of meat or fish, wrapped up in Musa-leaves, are sometimes roasted in hot ashes. The preparation of the sago-porridge sometimes takes place in bamboo, as VAN DER GOES [1858, 110] saw amongst the inhabitants of Adi (south west coast), but generally in earthenware pots. Those in use in Humboldt Bay are made at Kajó Jenbí, situated on the outer bay, from where they find their way to the coast-districts and apparently also to Lake Sentáni. PREUSS [1899, 163] places their origin on the Tanah Merah Bay and FINSCH [1888, 353] calls them *uro* and looks upon them as products from the villages of the inner bay, whilst the mountain Mèr, situated on this bay, is supposed to provide the clay used for the manufacture. Both authors are in error (see Chapter VIII). All the same, these pots decidedly deserve the attention given to them by the different visitors of Humboldt Bay.

The collection contains some five specimens (N°. 63—67) in the form of a globe, of which one must imagine a segment to have been cut off and the edge of the opening, thus formed, turned slightly outwards. They thus resemble the Bilibili pot, illustrated by HAGEN [1899, Pl. 25] and by BIRO [1901, Pl. VII, fig. 5]. The measurements also correspond. Only the rim of the Bilibili pot is much broader and more turned up, the bottom part of the pot somewhat flatter; thus with the same diameter, the pot of Humboldt Bay is higher. The pot which DE CLERCQ [2]) saw in the neighbouring Wandisiau, is also globe-shaped but the bent rim is wanting, as is also the case with a pot which FINSCH [1888 a, Pl. IV, fig. 2] met with at the Sechstroh River, therefore in the district of Sčkå. Possibly these originate from Tumleo (see ERDWEG [1902, 354, fig. 243 *f*]). This island also furnishes pots, which stand half way between the Bilibili pot and the Humboldt Bay pot (MEYER and PARKINSON [1900, Pl. 17]) but according to ERDWEG's description also a variety of other forms. EDGE PARTINGTON [1890, Pl. 310, N°. 1] illustrates a pot of Redscar Bay which resembles much the pot of Humboldt Bay.

The Humboldt Bay pot is striking on account of the purity of the globular shape, also the even thickness of the walls, which vary between 5 and 7 m.m., whilst the bottom is only a trace thicker. Thus it has been possible to manufacture a pot which, as N°. 64, with

1) DE CLERCQ and SCHMELTZ [1893, 59, fig. 17]. 2) DE CLERCQ and SCHMELTZ [1893, 61, N°. 307, Pl. XVI, fig. 15].

a weight of only 2.85 K.G. has a capacity of 14 L. Placed on a flat plane it can stand up with the opening fairly horizontal, another proof of the regularity of the composition.

As great cleanliness is generally observed here in preparing the food, the pot after having been used, as already observed by BINK [1897, 194], is thoroughly cleaned.

This cleaning however appears very necessary for these pots, after sago has been prepared in them, otherwise at all events precaution must be taken that the sago sticking to the inside does not dry. For in the case of a couple of the pots of the collection, this thin fleece of sago has begun to tear and curl up inwards, and has at the same time, curiously enough, torn off parts of the material. A repetition of this would soon render the pots useless, but possibly this does not happen in the moister atmosphere of the tropics, at least at first the insides of all the pots were quite smooth. The decoration of the pots shows no baked on relief, but along the border lineal figures are noticed, scratched in with the nail, amongst them, frequently, one in W-shape, as well as small curves and circles which evidently (see Chapter II, tattooing) represent leeches and eyes of fishes; these being probably not intended as a trademark, but to be connected with the mental life of the manufacturers. On the bodies, the painting is executed in red, black and white; this was the work of the young men from the temple, who made it appear as if these pots had hereby undergone a certain consecration.

The animal figure on pot N°. 63, (Pl. II, fig. 1 and 1a) was called „*ame*", the same as N°. 1320 the Triton shell (see Chapter XII), but I don't know what is the meaning of it. The representation on pot N°. 65 (Pl. II, fig. 2 and 2a) may however be taken for a ray, that on pot N°. 66 possibly for a sawfish.

The pots of Lake Sentáni (N°. 68—73, Pl. I, fig. 22, 23 and 25) are shaped like basins, as a half globe, sometimes with a rim somewhat bent outwards or broadened. They are of a brown black colour and much coarser than those of Humboldt Bay. The average thickness of the walls is 7—11 m.m., of the bottom fully 19 m.m., therefore the weight of these pots in comparison to the capacity is much more unfavourable; pot N°. 69 f. i. has with a weight of 3.45 K.G., only a capacity of 9.5 L. Contrary to the previous category, these pots generally have raised borders baked on, undulating and circular, whilst scratched-in ornaments are absolutely wanting. All these pots were obtained in the village of Abar, which, according to the guides from Humboldt Bay, owed a reputation to this industry. I also saw here a pot being made, which had the „globe" shape and it is therefore very probable that not all the globe-shaped pots, which are also used on Lake Sentáni for the preparation of sago, are imported by the inhabitants of Humboldt Bay.

The next object (N°. 74, Pl. I, fig. 24), the sago oven of Kwatisoré, is also baked out of clay and allows the preparation of sago-cakes. For this purpose the oven is previously heated, after this the flour is poured into the partitions in a moist state, the whole is then covered up and when the oven has cooled down the cakes are done, but still very soft. Drying in the sun for a few days makes them dry and hard. In this state they can be preserved for a long time, but they are very tasteless. To the east of Geelvink Bay these cakes are quite unknown. A man from Tobádi who, following my example, tasted them, quickly spat out every thing. This small oven is manufactured at Surué; DE CLERCQ already stated that it forms there a product of native industry, for which the necessary clay is produced by the neighbouring hills; it was also exported to Rasjé (Wandamen). I remember

coming across it even at Angádi on Lake Jamūr, where daily freshly baked sago cakes were eaten. Sago-porridge on the other hand was not eaten here. The cakes have, as may be concluded from the form of the oven, not all the same shape. The square oven which DE CLERCQ and SCHMELTZ [1893, 61, N°. 286, Pl. XIX, fig. 6] mention from Waigeu, yields exclusively square cakes as can be seen on the photo of MEYER and PARKINSON [1894, Pl. 54] of a group of people from the South Eastern Islands, close to the feet of the man standing.

Sago-porridge is generally eaten from the same pot in which it is prepared; the pots decorated on the outside with coloured figures represent dishes for serving up the food, these are not placed on the fire. Besides, it is not the custom here to give each eater his share of the porridge separately. They all sit together round the pot and help themselves. At all events this is what took place amongst the men on the platform in front of the temple at Tobádi and at a watch-house at Asć amongst the people who had been at work on the building of a house for the son of the village chief; fig. 93. The heads of the family do not always take their food in the family circle; I often saw the master of the house at Asé separately served on the staging in front of the house, where he often dined on sweet potatoes and a dish of freshwater snails, *Paludina*; at the same time other members of the household were eating inside the house.

In connection with the pots I must mention, as certainly of very practical use, the plaited rattan rings, which, of convenient width, serve as a support for the pots, to prevent their falling over on the often very shaky floors of the houses (N°. 75—79). As the ordinary pots are all of the same size, the rings, which come from Tobádi and Kajó are of the same width as those which I met with on Lake Sentáni. The height is such (see N°. 75, Pl. III, fig. 12) that the pot is supported all round and that the bottom remains free from the floor. In its simplicity it is thus a useful piece of furniture. Those which come from private houses, appear to be the property of the women, at least at Asé the persons, who wanted to deal with me in these articles, *möwda*, were women.

It is remarkable that the three specimens (N°. 77, 78, Pl. III, fig. 11 and 79, Pl. III, fig. 10), which were made in the temples, had rattan ornaments, described as snake and dog's tails, whilst the small rings which are fastened on to the side of N°. 79, are possibly intended for small pots with condiments. These last three objects again had something mysterious, something holy about them, and the people were loath to talk about them. In the literature at my disposal I find no mention made of these ring-shaped supports for pots, neither did I find them on the many very good photo's from K. W. Land.

In the Berlin Museum I saw rings twisted from thick strips of rattan and with some loose leaves in them (N°. 9791) collected by FINSCH in the Massim District of British N. G., which reminded me of small pot supports; they are however bracelets. The collection further contains a round wooden vessel (N°. 80) from Manokwari and an oval, shallower one (N°. 81, Pl. III, fig. 2) from Kwatisoré, which possibly may also serve for sago or liquid food, as stated by DE CLERCQ and SCHMELTZ [1893, 61].

According to these authors, the black colour of these objects is obtained by rubbing in a mixture of charcoal and the sticky juice of a forest tree; after having been properly dried, the outside is smoothed down with fish scales. FINSCH [1888 a, 7] surmises that in K. W. Land a black mineral (graphite or manganese) is used for the purpose. The wooden trays are here [l. c. Pl. III. fig. 3] often boat-shaped and

also higher, of which HAGEN [1899, Pl. 38] and BIRO [1901, Pl. VI] give good illustrations. Flat wooden dishes, but circular, are found, according to PARKINSON [1896, Pl. XIV, fig. 27, 27a] on the Matty and Durour Islands, and HAGEN [1899, 181] saw boat-shaped ones on the Tami Islands.

Differing from all these forms are the wooden dishes found by me on Lake Sentáni, (N°. 82—86, Pl. III, fig. 13, 14, 15, 16) besides they furnish a, for the Netherlands territory, isolated instance of dishes, which are ornamented with carvings over the outside surface, sometimes in its entirety, sometimes in part (see SCHMELTZ [1896, 114]). Flat and round, more often oblong oval, somewhat concave and with a low standing rim, they were used at Asé to dish up fish, which was also carried on these open dishes from the private houses to the watch-houses, where the men eat together. The ornaments consist generally of loop coils, but snakelike undulating lines also appear, and unfinished fish-ornaments. I am not going to venture a disintegration of this style of ornament. The black, with which the raised parts are coloured, appears to me to be soot, as generally obtained here from the smoke of rosin, mixed with a liquid. The black colour of N°. 82 is perhaps only caused by smoke and grease in the use, as SCHMELTZ [1895, 242] supposes of the dishes from Konstantin Harbour. Another dish for serving up the food, which I saw in use at Asé, consisted simply of a kind of flat basket (N°. 87, Pl. III, fig. 17), made out of the leaf of the cocoa-nut tree and therefore, only available for dry food.

Before leaving the subject of culinary utensils I may still mention the *spatula's* for stirring up, N°. 88, Pl. III, fig. 9 and the spoons for scooping up the food (N°. 89—92), articles which are used in the kitchen and never for the purpose of eating. The handle of N°. 90, Pl. III, fig. 8 from Tobádi, represents a female figure, that of N°. 91, Pl. III, fig. 7 and 7a from Ingrau, a male figure.

In all cases where I found men in their own surroundings at meals, flesh food was never wanting. It is not quite clear to me how many meals are taken in the space of twenty four hours. My interpreter maintained that on Lake Sentáni only one meal was customary, about 11 o'clock in the forenoon, but I found that eating also took place about 4 or 5 o'clock, only a few quarters of an hour after the women had returned from the gardens with vegetables. HAGEN [1899, 244] talks of a morning meal at 8 o'clock and an evening meal at 6 o'clock, SCHELLONG [1905, 611] calls this the principal meal; it is prepared by the men themselves. BIRO [1901, 92, fig. 41] gives an illustration of this, showing some older and younger men watching a great many pots standing on the fire. In Humboldt Bay this is not at all the custom, the meals are exclusively prepared by the women, even the food, which on festive occasions is carried into the temple in a raw state by the men amidst singing and dancing, is afterwards again taken to the private houses to be prepared; the same thing is the case in the watch-houses on Lake Sentáni. Of British New Guinea MACGREGOR [1897, 72] mentions also one real meal a day, taken in the evening.

Generally speaking, these people eat much and often; already at the sight of a large quantity of food, they become excited and MACLAY [1873a, 242] mentioning the prominent bellies of the children, states that in the case of the men, one easily notices after the meal the increased circumference of the belly; fig. 3, a group of the Manikion, might also serve as an illustration of this.

BINK [1897, 193] relates of Lake Sentáni how some Papuans after a heavy meal,

were immediately ready to tackle a second sago-meal of similar proportions, how some even gathered round the porridge pot for a third time. During the meal no drink is taken, a peculiarity which also struck PFEIL [1899, 41] in the Bismarck Archipelago, generally however, they rinse their mouths after the meal. The Papuan from Humboldt Bay to the Amberno River does not know any kind of stimulating drink. He best likes the milk from the cocoa-nut and ordinary river or well water and fortunately has no liking for our fermented liquor or spirits. Water-buckets made out of the broad bract of the wild pinang, folded (N°. 93, Pl. III, fig. 18) are often used in these parts in order to carry the water from the brooks to the houses. At Săgcisârâ such a tray stood, turned upside down, on the grave (fig. 168) of a child, as it appeared to me, not only with the object to prevent the accumulation of the rain water. It was evidently intended to remain there.



Fig. 3. Papuans of Horna.

When the Papuans who were accompanying us, saw a piece of such a bract, lying in the forest, they eagerly seized it and purposely took it with them to their houses, a sure proof that this material was duly prized for the purpose. In K. W. Land these buckets are also used, folded in exactly the same way, and sometimes only fastened with a thorn; they can be seen on the photo of the village of Serr, by MEYER and PARKINSON [1900, Pl. 7]. According to MACGREGOR [1897, 71], they consist of folded sheaths of the sago leaf. Inside the houses the water is poured out into big earthenware pots; those of Tobádi must be pretty large and in shape resemble the pots foı drinking water of Surué, of which DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 61]) collected a fine specimen, glazed by rubbing rosin over the surface, after heating the pot. In Kwatisoré, as well as in other parts of Geelvink Bay, a large calabash (N°. 94, Pl. III, fig. 1) is used as a reservoir for drinking water; the specimen in the collection has a capacity of 12 Litres and is evidently very precious, as proved by the repairs which have been made with some sticky material (BIRO [1901, 61] talks of a kind of pitch) and rattan. I doubt whether the thirsty person brings this calabash directly to the mouth, as in the case of the cocoa-nut shell without a handle of Angádi (N°. 95) and of the same article with a handle (N°. 96—98). The last are also used occasionally in the preparation of food, not for the purpose of stirring it up, but only to scoop up water, sometimes also in order to drink out of them, therefore as a drinking cup

with a handle; the name of ladle which DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 67]) gives them, does not take this latter custom into sufficient account. The strength and evident technical perspicacity with which the handle is fastened on to the cocoa-nut shell, simply with strips of rattan (N°. 96 and 97, Pl. III, fig. 4 and 5), is very well worth noticing. N°. 98 (Pl. III, fig. 6) a cocoa-nut shell, into which a handle is fastened, only by jamming, is a poor piece of furniture of the Sĕkánto, a tribe in the interior behind Humboldt Bay, which has got into a great state of decline by the persecutions of neighbouring tribes. Possibly the article is still unfinished. A variety from all these objects is N°. 99 (Pl. III, fig. 3) of Angádi where, instead of the cocoa-nut, a thin calabash shell is fastened to the handle. Outside the house, the Papuan uses a leaf of the first shrub he comes across, folded up, as a cup. Still more simple was what the people of Angádi did, who accompanied the expedition; they stood still for a moment in a mountain stream which we passed on the march and with their right hand, in quick tempo's, threw small handfulls of water into their mouths, so cleverly, that they did not wet their faces. The same way of drinking is reported by STEVENS [1897, 184] from the *orang laut* of the peninsula of Malacca.

The mountaineers, as f. i. the Hátam, obtain their drinking water, according to VON ROSENBERG [1875, 104], by pressing the moist moss, which grows on the trees and bushes, sometimes they also dig pits in which the rainwater remains standing for a long time. Where the mountain bamboo grows, the water of the internodes is drunk in times of scarcity, as experienced by VAN DISSEL [1904, 952] in West New Guinea. The officers of H. M.'s Ceram, who in 1901 climbed the Dafónsĕro, top of the Cyclope Mountains, were offered this bamboo water by the Papuans from Tanah Merah, who accompanied them. By the way I must here remark that the offer of drinking water in trays or leaves was formerly intended in Humboldt Bay and elsewhere as a welcome (see farther Chapter X).

In strong contrast with the sobriety of these people, is the abuse made of the sagueir in Geelvink Bay. As well known, this palm wine is obtained from different palms, but by preference from *Arenga saccharifera*, by cutting off the inflorescence, collecting the liquid which drips out and leaving it to ferment. According to KRIEGER [1899, 429] it is sufficient, with Nipa and cocoa-nut palms, to bore a hole in the rind. As a rule the liquid is collected in a bamboo like N°. 100 of the collection. A small sieve is procured from a piece of the bract of *Arenga*, of which the softer tissues are decayed and of which the stronger nerves, running in two directions, have been retained.

The inhabitants of the mountains, do not know the sagueir and we therefore presume that the habit has been introduced from elsewhere; this I found confirmed by the Maníkion and, as far as the veracity of the people can be relied upon, also in Angádi (Lake Jamūr). I did not meet here with the characteristic appearance of the abuser of sagueir: a shining face, red nose and swollen eyelids. But these people are none the less warlike for all that, as was proved by the recent murder and robbing raids of the lake-inhabitants in the southern districts. In Geelvink Bay, according to the experience of the missionaries and the government officials, the murderous raids, *rāk*, are generally planned on days when much sagueir is being drunk. Finally the Kawa or Kial, as it is called in K. W. Land, the greenish juice, which is obtained by chewing the root of *Piper methysticum* and for which nicely carved cups of cocoa-nut shell (BIRO [1901, 103, fig. 55]) are often used is, as far as I am aware, never used in Netherlands New Guinea.

Salt is not used in Humboldt Bay and on Lake Sentáni; the food is prepared with fresh water. True, the salt which BINK [1897, 208] gave to the people of Lake Sentáni to taste, was much appreciated by them, whilst the short distance from the lake to the Jótéfa Bay (2 hours on foot), would offer no impediment to fetching salt water; but they apparently dont think it worth the trouble. Of a regular salt industry, by evaporation, I have never noticed anything on the tours of the expedition. VAN DER GOES [1858, 149] noticed the use of salt water in the sago-porridge at Doré; the ashes of beach wood, saturated with seawater are here also added to the food. The inhabitants of Astrolabe Bay, according to BIRO [1901, 97, fig. 4], often walk about sucking such a piece of charred wood and they have special bamboo cases to preserve the ashes. But this salt, according to HAGEN [1899, 246], must be used quickly after preparation, as it liquifies very rapidly. Many of the inhabitants of the mountains are equally fond of salt and carry back to the mountains, when they return from the markets along the coast, bamboo's filled with seawater, in the same way as, according to VON ROSENBERG [1875, 94, 104], the people of Hátam and Arfak, according to MACLAY and others, the inhabitants of the mountains in K. W. Land. It therefore appears from this, that Humboldt Bay and surroundings form a saltless territory in the middle of salt consumers to the east as well as to the west. It still deserves to be mentioned that I found in a man's bag (N°. 632) at Oináke, the root of a plant (wrapped up in a leaf N°. 101) *Maranta* spec. (Scitamineae), possibly used as food or condiment; the same bag contained a small piece of masoi of *Sassafras goesianum* (*Massoia aromatica* Becc.) which however, as far as I know, is not used by the Papuans themselves, but collected here on the north coast for account of the traders from Ternate, whose commercial relations have been extended, during the last few years, across the Netherlands German frontier.

The inquiry as to the distribution of tobacco in New Guinea, has produced the remarkable fact, that its use was until recently quite unknown in several places along the coast, whilst it is found at the same time in good quality on the upper reaches of the Fly and Augusta Rivers. Besides, since memory of man, the tobacco of the Arfak Mountains has a good reputation and serves on a large scale as an article of barter. According to BIRO [1901, 98] the plant grows wild in the deepest interior, for which reason KRIEGER [1899, 215] considers it without any doubt a native plant. HAGEN [1899, 245] expresses himself in this way: that the people living in central New Guinea have introduced, together with the tobacco, the manner of cultivation. One feels inclined to conclude, from the fact that the people of the mountains actually produce the best tobacco, that this luxury has reached the coast population from the interior to the coast districts. HADDON [1894, 256] thinks, that in the propagation of the tobacco, which was met with on the Fly River 570 miles from its mouth, this river has been, to a certain extent, what may be termed a culture route and that the natives of the higher reaches have not only indirect communication with those of the north coast of New Guinea, but that, along this river, the tobacco found its way to Torres Straits and the Gulf District, and thence to the south east.

MAC FARLANE [1888, 125] maintained just the reverse and thought, that the natives of the Fly River District acquired the habit of smoking from the Torres Straits natives and these in their turn from the mother of pearl fishermen.

The experience of the expedition with regard to this question has not resulted into anything new; everywhere it was found that the inhabitants, however much they appreciated European tobacco, cultivated their own tobacco, and also smoked it; of a trade in tobacco, between people living on the coast and those in the interior, as occurs in a great many places

and f. i. is reported by ELLIS [1888, 52, 56] of Tanah Merah and Tarfia, no new facts have been ascertained. I have never seen large quantities of tobacco in the houses, and the small quantities, which the people of Humboldt Bay and Lake Sentáni carried about with them, consisted generally of loose leaves, sometimes however of bundles of 5—7 leaves, as HAGEN [1899, 245] mentions of K. W. Land. Pieces of prepared bark (N°. 103—105) are often used as tobacco pouch, sometimes sewn into a bag (N°. 104, Pl. IV, N°. 6) with or without a piece of string wound round, as the case may be. Naturally this tobacco pouch also serves to put away the fork or other small things and often a few pieces of dried banana leaf, intended to serve as a wrapper (N°. 106). It is remarkable that tobacco leaves themselves are never used as wrapper. In the west the young Pandan leaf is used; this is also the case in the coast districts of K. W. Land, although here the fresh leaves of *Hibiscus tiliaceus* also serve the purpose. Between these lies the district with the banana leaf wrapper.

Still this has been seen used, in single instances, by the mountain tribes of German New Guinea, according to NACHRICHTEN [1891, 55], on the upper reaches of the Gogol River. It is much thinner and less strong than the Pandanus leaf, a decimeter square not weighing more than 470 m. Gr. Still it is easily torn and it is therefore carried about, wrapped up in a strong piece of the sheath of a palm leaf, as N°. 107 of the collection, obtained at Ingrås, exactly corresponding with what BIRO [1901, 98, fig. 50] reports of Astrolabe Bay. N°. 108—111 represent small tobacco baskets of Humboldt Bay and surroundings, exclusively used by the men, who however also put away in them Areca-nuts and siri fruits. The way these are manufactured out of two strips of a stalk of a palm leaf, of which the blades are split lengthwise and twisted together, is, at the same time, simple and ingenious and is also found applied to other baskets; (see the food basket N°. 87, Pl. III, fig. 17, of Asé). As an ornament on the baskets, the black strips of quills (N°. 111, Pl. IV, fig. 7) are very effective, as well as the small pieces of black *mycelium* (N°. 109, Pl. IV, fig. 9). This material calls for a little closer attention, as it is so widely distributed over New Guinea and is used from west to east for ornamentation. Most ethnographers indicate it as a root fibre. Mr. J. JESWIET, conservator of the Colonial Museum at Harlem, was kind enough to examine it more closely, and by microscopical examination found it to be the mycelium of a fungus. It could not be made out what fungus it was. It grows, amongst other places, on the moist southerly slope of the Cyclope Mountains. A member of our expedition, there saw a couple of Papuans, busy at the foot of a tree, digging out these black threads with their hands. The vanes of the black *Rhytidoceros* feathers, attached as an ornament to N°. 110 and 111, Pl. IV, fig. 7, are, as is also often the case with the feathers of the hairdress, cut in the shape of birds. Of quite a different shape is the basket made out of reeds, N°. 112, Pl. IV, fig. 8, of Angádi, with two handles of strips of bark, twisted into flat plaits, as fig. 4.

It should be noticed that the margin of this basket is braided with cord, in the same manner as basket N°. 623 of Kwatisoré. It is shown in fig. 5, of which the vertical turns pass through the twisted work of the basket, the horizontal ones resting on the margin. HOLMES [1897, 43, fig. 1 and Pl. XI] found the same pattern of looping cord, used in fastening teeth of Papuan crania.

Besides baskets, bags made out of cord, are also used for carrying about the tobacco,

the collection contains some four very small breast bags (N°. 642—645) which are, no doubt, exclusively intended for tobacco and betel nuts and are carried on a sling round the neck and hanging down on the breast, but which, for the better technical survey, I intend to consider together with the women's bags under agriculture (Chapter V).

After all, the bamboo cylinders are the best adapted for keeping the dry tobacco, which is thus protected from being crushed and turned into powder. Of these the collection contains a great number from Humboldt Bay and surroundings and besides, some from the western districts, visited by the expedition. The first group (N°. 113—155) is principally obtained from Lake Sentáni, where to a certain extent an industry of these cylinders exists for the bartering trade, at least of some specimens obtained in Tobádi and Kajó, the owners declared, that they had been manufactured on the said lake. Nowhere did I see the bamboo cylinders so generally used as here. Sometimes the cylinder is simply carried under the arm, sometimes it is lying in the bag, closed with a lump of bark, or leaves, or some other material. I never saw here covers of bamboo, as often occur to the east in K. W. Land, according to HAGEN [1899, 184] and to the west in Geelvink Bay, as the next group proves. Generally the cylinders are ornamented over the whole surface with carved ornaments, as against the little or not at all ornamented cylinders which BIRO [1901, 60] illustrates of K. W. Land. Plain and loop coils, circles, zigzag lines, fish figures, etc. are used; the cut-out parts being very rarely coloured.

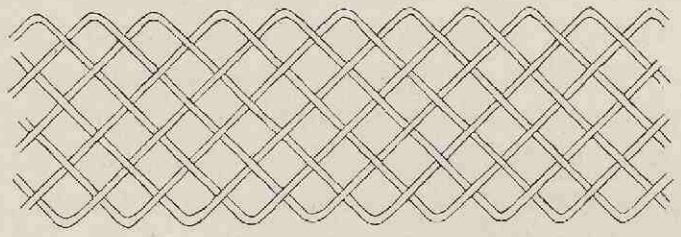


Fig. 4. Pattern of simple plaiting.

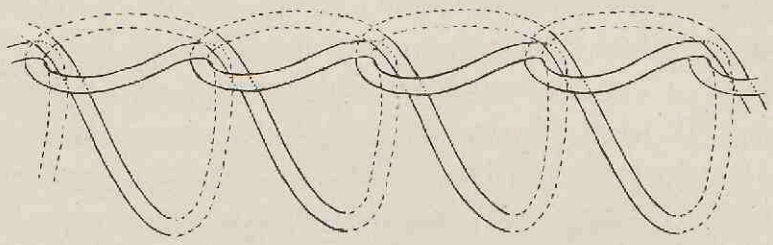


Fig. 5. Rope binding for baskets.

I am inclined to suppose that all these ornaments have their decided meaning, just as with the tatooing in these parts every stripe or curve has its fixed meaning. The deciphering of this writing in ornaments, demands in the first place the explanation of the Papuans themselves and therefore cannot as yet be undertaken, with the faulty knowledge of the Sentáni language; see Chapter XI. The second group of cylinders (N°. 156—168) is derived from Geelvink Bay and surroundings and is characterised principally by the fact that here the hatching and the hook and the curl, also some reversed coil figures appear, of which the meaning has been studied by UHLE [1886, 7, Pl. V], and of which, in order to increase the contrast, the cut-out parts are often smeared over with very dark red pigments. The human figure, according to UHLE, only seldom appears on these cylinders and as such is only found on two of our specimens N°. 159 (Pl. V, fig. 5 and 5a) from Wári and N°. 165 (Pl. V, fig. 6 and 6a) from Kwatisoré.

N°. 166—168 (Pl. IV, fig. 32—34) are obtained from Lake Jamur and prove by the ornament, so entirely in the style of Geelvink Bay, that the district of this lake, although belonging by language and intercourse to the south west coast, stands, as far as technique and art are concerned, in close relationship to the said bay. It should be

remarked that all the ornamented bamboo cylinders are carved, but that burnt-in figures, as appearing, according to FINSCH [1888—93, 202], on the cylinders of K. W. Land and according to HADDON [1894, 143] on bamboo pipes in the Central district of Br. New Guinea, are absolutely wanting. To the east of the Amberno River, tobacco is smoked in the form of cigarettes, by both men and women; pipes are equally unknown, as in K. W. Land. In Humboldt Bay smoking by the young men in the temple is not allowed, on Lake Sentáni however, the boys smoke as soon as they serve in the watch-houses. These matters appear to be arranged by fixed rules; young children with tobacco or pipes, as noticed from other parts, are never seen here. In contrast with the experience of H. M's. ETNA in 1858, when, according to VAN DER GOES [1858, 89], cut tobacco was declined by the Papuans, the shag of the firm of VAN NELLE in Rotterdam is now very much liked and was for our expedition a very practical article of barter, as by the consumption the demand remained always large. In order to roll a cigarette the necessary leaves of tobacco are held by preference over the fire for a few moments to dry them properly and to enable them to crumble somewhat when rolled up in the Banana leaf wrapper; the cigarette, of clumsy shape, then often requires a piece of fibre to keep it closed. If this is neglected one is obliged to keep the cigarette constantly firmly squeezed between the lips or fingers to prevent unrolling. If it goes out, it is sometimes squeezed, for the time being, into the upper armlet, or in the hole in the lobe of the ear, but often the smoker carries a piece of smouldering wood to light again. The cutting of tobacco does not occur here. Extremely curious is the custom, also reported from several other places in New Guinea, to hand the cigagarette now and then to others, who also have a few pulls. In Humboldt Bay as well as on Lake Sentáni it actually belongs to the good manners and BINK [1897, 192, 193] experienced on arrival there, when he was offered a freshly rolled cigarette successively by one host and two hostesses, that, each time, they first had a few pulls at it themselves. It is therefore quite natural, that a Humboldt Bay man asks for your cigar, after you have been smoking it for some time. This he does now-a-days exactly as at the time of VAN DER GOES [1858, 89]; after handing over your cigar, it generally is passed all round. Meanwhile, it is not at all part of the customs, what an impertinent Tobádier once did, who, on taking leave from three of us, very cleverly removed the burning cigars from our mouths, and took them away with him. In Geelvink Bay, according to DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 71]), the tobacco is either or not cut or torn, dried above the fire, and rolled in Pandanus leaves, and cigarettes made in this way are then sometimes spirally wound round with a strip of bark. Finally, on Lake Jamur I saw fresh tobacco just cut, lying on big mats, to dry in the sun, for the use of men and women; it had hardly any smell. The basket N°. 112, Pl. IV, fig. 8, from Angádi, contains such tobacco. As far as the smoking of pipes by the Papuans is concerned, we know since several years that on the south coast of New Guinea pieces of more or less thick bamboo (the Berlin Museum possesses a very big specimen (N°. 4341) from the Central District, surrounded with a broad plaited work of cord) are used as pipes. FINSCH [1888, 268], CHALMERS [1885, 170], EDGE PARTINGTON [1890, Pl. 318], MACGREGOR [1897, 74] gave illustrations. They represent (JOEST [1888, 176]) the supposed weapons of Cook, the signal tube of MÜLLER, MODERA, etc. and also pass round from mouth to mouth. HADDON [1901, 75] noticed the same custom on Murray

Island; it is also remarkable that very young children are there allowed to smoke. FINSCH saw how such young children of Aroani were already quite accustomed to the narcotic influence of this peculiar way of smoking see (ANNUAL REPORT [1899, Pl. I]). But also in the north west tobacco pipes are found; by WALLACE [1869 II, 188], VON ROSENBERG [1875, 104, Pl. XIII], DE CLERCQ and SCHMELTZ [1893, 73, N°. 384, Pl. XIV, fig. 7] and others, they have become known of Hátam and Andai. These pipes, however, are not made out of bamboo, but out of a single piece of red brown wood, often with an ear-shaped handle. The three pipes of the present collection (N°. 169—171) are brought from the same part of New Guinea, but from other tribes, and to this probably owe the modified form, which comes to this, that the handle lies as a straight stem in the prolongation of the head and in the middle, transversely, a short mouthpiece is carved out. N°. 169, Pl. IV, fig. 31 and N°. 170 of the tribe of the Manikion, which cultivates its own tobacco, have a somewhat sword-shaped handle. The Amsterdam collection contains such a pipe (Ser. 103, N°. 3) with the origin given as „Doré", which appears to me to be wrong.

N°. 171, Pl. IV, fig. 30, from the Arfak Mountains has a bodkin-shaped handle. D'ALBERTIS [1880, 132] illustrates amongst his pipes from the Arfak Mountains a similar specimen, only provided at the end with a small button. When not in use, it is stuck in the upper armlet. The Manikion do the same thing, thus differing from the Hátam people, who let the pipe hang from a string round the neck in front of the chest. I have not noticed that the pipe was allowed to circulate here. Instead of the piece of smouldering wood with which the Humboldt Bay man lights his cigarette, a t i n d e r b o x is used here, consisting of a small bamboo cylinder, on which a piece of superior earthenware, probably of Chinese origin and on the fracture almost like porcelain, is struck, in order to set fire to a small piece of tinder, all these things being carried inside the cylinder. Probably the kind of bamboo used is very hard and rich in siliceous acid. The tinder, the guide said, was from the pohon bahru (Malay = new tree); according to DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 72]) it is found on the inside of the broadened lower end of the branches of the Nibung palm. The tinder of the two tinder boxes (N°. 172, Pl. IV, fig. 29 and 29^a and N°. 173) of the collection is derived from *Lycoperdinaceae*, however, evidently on purpose, mixed with very fine fibres of charcoal, which possibly increases the durability and the inflamability. When used, the bamboo is taken vertically in the left hand, the piece of porcelain in the right. In striking down with a quick, strong and rubbing stroke, the spark shows itself behind the point of contact, over the piece of porcelain, and it is therefore against this point that the fingers of the right hand hold pressed at the same time a small lump of tinder. It is not difficult to make fire in this way and the tinder burns very quickly. In the case of the primitive tinder box, found by VON ROSENBERG [1875, 95] on the Arfak Mountains, a flint was used, and it is reported that no tinder, but picked and sundried bark is used.

Just like the Malays, the Papuans appear to find the tobacco too strong to chew unmixed; still this habit was reported from Waropen by DE CLERCQ and SCHMELTZ [1893, 71]. The c h e w i n g o f b e t e l is on the other hand quite common in New Guinea, as well by the men as by the women and even outdoes in certain places the tobacco, as a popular luxury. In the district south of Maccluer's Gulf, according to VAN DISSEL [1904, 958] no young man may chew siri before he has killed somebody; in Humboldt Bay it is not allowed as long as the young men still

remain in the temple. For this and the surrounding district one would be justified in talking of Areca chewing, for one or two Areca-nuts, *pū*, are first placed into the mouth, after that some lime is taken and then only a small piece of the siri fruit, *sidi*; the mixture, which finally fills the mouth, is principally derived from Areca. It is also reported from more westerly parts (DE CLERCQ and SCHMELTZ [1893, 72]), that fruits, sometimes also the stalk, of *Chavica siriboa* Miq. (*Piper siriboa* L.) are used and not at all always the leaves of *Chavica betle* Miq. (*Piper betle* L.), as mentioned by GRABOWSKY [1888, 191].

Therefore, a great difference exists between the way it is used here and the customary use in K. W. Land as observed by HAGEN [1899, 199] and BIRO [1901, 99], where besides the Areca-nut a little tobacco and some lime is folded up in a siri leaf. BIRO [l. c. fig. 54], like MACGREGOR [1897, 74] in Br. New Guinea, found small mortars for pulverizing and mixing the ingredients. According to BIRO gambir is also used in certain districts, therefore entirely according to the Malay prescription (GRABOWSKY [1888, 188]. All this appears to me to be very improbable, for the preparation of gambir from twigs and leaves of *Uncaria gambir* Roxb. is still unknown to the, by Malay influence more cultivated western Papuans and this material is according to DE CLERCQ and SCHMELTZ [1893, 72]. imported by traders, whilst the missionaries sometimes, on religious festivals, distribute a little of it. How the people of Astrolabe Bay obtain their gambir, is not reported by BIRO, neither does he mention amongst the materials belonging to the chewing of the betel, the siri fruit, although he has collected it under N°. 297. I noticed in Humboldt Bay, that *never* the tobacco, and *never* the leaf but always the fruit of siri is used; indeed the same thing proved to be the case in Oinâke. Of Br. New Guinea WYATT GILL [1885, 316] mentions the chewing of the bark of *Chavica betle* Miq. The mouths of the men on Lake Sentáni and in Humboldt Bay are often so full, the segregation of saliva so abundant, and the spitting so frequent, that these people, especially when joining at the same time in the conversation, form very unpleasant company. KONING [1903, 252] and others have already pointed to this, to the consequent indistinctness of the speech and to the dark colour of the teeth. In fact the teeth, which, with the younger people are beautifully white, become dark red by the use of siri.

Where, as in Humboldt Bay and on Lake Sentáni, no caries of the teeth occurs (see Chapter XIII), it is certainly more easily explained, that there is no objection to each other's saliva and, like the cigarette, the siri quid is passed round. A used quid of a grown-up person is chewed afterwards by the children with evident pleasure.

I remember a festive dance on the platform of Tobádi, where a number of boys and girls joined in the dancing. An old man, who passed this group, handed his used quid to a little girl, apparently no more than 5 years old, who immediately took hold of the present with joyful eyes, but was all at once forced by the other young girls to divide the quid, after which all rejoined the dance, chewing and laughing with evident satisfaction.

Whilst siri fruit and Areca-nuts are usually carried loose in the bag, it is the general custom to the east of the Amberno River to use a small calabash with superficially burnt-in ornaments for the lime. At the spot where the stalk joins the calabash a circular opening has been made into which a wooden or bone pin is inserted, closing the aperture. On Lake Sentáni they are generally egg- or pear-shaped, often more like a sausage, and in a finished condition they are traded away from here to Humboldt Bay. DE CLERCQ and SCHMELTZ

[1893, 79, N°. 389, Pl. XIV, fig. 15] already illustrate such a typical object of Humboldt Bay, of which the handle of the pin is carved into a human figure the same as with N°. 177 and 195 (Pl. IV, fig. 35 and 24) of the collection. The manufacture of these lime receptacles out of calabashes is, on Lake Sentáni, carried on by the men. With a long pointed piece of wood the empty calabash is scraped out clean, whilst the outside skin is probably rubbed off with sand. I saw them exposed to the sun, stuck upside down on wooden pins, on the outside of the roof of a watch-house for men. In this way they obtain the nice yellow colour. At my request the burning in of the figures was shown. For this purpose, on a certain dark evening, a small wood fire was lit and close to it a large quantity of narrow strips of the leaf-sheath of the cocoa-nut palm were deposited, so close that the points took fire. One after another the sticks were now taken up and by knocking against them, the glowing part was removed as far as it was consumed, whereby a small stave was obtained with a more or less hard, somewhat conical, glowing point, with which the design is drawn. By constantly blowing on it, the point of the little stick is meanwhile kept glowing for a long time. Possibly darkness is necessary for this work, in order to be able to judge correctly of the glowing of the pencils, with which it is allowed to scorch thoroughly, but in no case to burn deeply. Fine lines cannot be obtained by this means, for this purpose the glowing points are too blunt. In those parts where the design obtains an increase of plane, it is also composed of lines connecting sideways. The proceedings here described resemble closely those reported by VON LUSCHAN [1898, 397] from the Bismarck Archipelago, where however glowing pieces of cocoa-nut shell were used, with which a much finer design can be obtained.

The form and the ornament of the calabashes vary in different districts. Thus the calabashes in the western part of K. W. Land, are generally without any ornament, but on the other hand they are often provided with a piece of string for the purpose of carrying, (BIRO [1901, 60, fig. 1]), which is seldom noticed on Netherlands territory. To the east of Venus Point the bottle-shape becomes general and the decoration takes place by sticking on seeds, etc. (FINSCH [1888—93, 203, Pl. 11, fig. 1; 1888a, Pl. V, fig. 1]; BIRO [1901, 60, fig. 2]) but the Berlin Museum also possesses from there, ball-shaped specimens beautifully burnt, as THOMSON [1892, 170] illustrates of the Tugeri. The Museum at Leyden possesses of the south west coast a club-shaped calabash (Ser. 941, N°. 61) without any ornament and with a sling for the purpose of carrying, whilst the opening is made sideways close to the upper end (SCHMELTZ [1904, Pl. XII, fig. 9]).

In Geelvink Bay the calabash is very seldom seen; I only saw one at Kwatisoré (N°. 205, Pl. IV, fig. 17), here bamboo lime cylinders are generally used. The cocoa-nut, nicely carved, is also used for the same purpose, but as such does not appear to be very widely distributed. The Berlin Museum possesses several of K. W. Land and the five specimens (N°. 196—200), of the collection, all come from Lake Sentáni and surroundings. DE CLERCQ [1]) obtained an exactly similar object from Liki, provided near the opening with a strap for carrying. My specimen, N°. 197 from Tobádi, has in the same place two small conical holes, possibly intended for a sling for carrying.

In Humboldt Bay I was informed, that this kind of lime receptacle is exclusively intended for women, but this report requires confirmation. It is indeed curious that whilst in the language of Jótĕfa all lime calabashes are simply called *nau* after the lime, the lime

1) DE CLERCQ and SCHMELTZ [1893, 78, N°. 387, Pl. XIX, fig. 10].

cocoa-nuts were always talked of as *moinigwi*, in which the word *moi* = *monje* = woman, appears. The remark made in the case of the carved spoons made out of cocoa-nut shell, as to the difficulty in working this hard material, is in a much higher degree applicable to the entire nuts; the cut-out portions are also often covered with lime. The ornamental designs offer some variations, but at the lower pole a star figure is often found; besides fish figures (N°. 197), figures of crocodiles, snakes (N°. 200, Pl. IV, fig. 20) and an abundance of spirals (N°. 198 and 199, Pl. IV, fig. 22 and 21). DE CLERCQ thought that he could recognise on his specimen two pairs of conventional hands, with the pulses joined together; this interpretation however becomes improbable, as N°. 197 has the same figure but without any indication of the fingers, ergo hourglass-shaped. The lime receptacle and the Papuan are almost inseparable. When he leaves his home, it is his faithful companion, either in his bag or under his arm (or attached to the sling, wherever this is used). For one and the same betel-quid he repeatedly takes the pin-shaped bone or wooden, either smooth or cross-ribbed, spatula out of his box and places the lime between his lips. More or less moistened, the pin is returned to the receptacle and immediately a fresh supply of lime for the next occasion sticks to it. As the pin must fit closely in the opening of the lime box, to prevent the loss of lime, many specimens have a small, somewhat conical, hollow piece of brown larval envelope passed over the pin, at the spot where it fits in the opening. In the case of N°. 200 simply a rolled-up leaf is placed in such a larval envelope and thus used by way of a cork.

Bamboo lime cylinders are never used in Humboldt Bay, in the district of Sĕkâ or on Lake Sentáni, only to the east, in K. W. Land and also to the west where, according to N°. 201—202, they were already met with at Nimbúran, with carved-in ornaments, the cut-out parts blackened on purpose. A folded-up leaf sometimes serves as a plug, the specimen from Wári (N°. 203, Pl. IV, fig. 19) has however a cover, and the one from Kwatisoré (N°. 204, Pl. V, fig. 2) is ornamented over the greater part of the surface, which is unusual with most of the lime holders from Geelvink Bay.

Both the lime boxes from Kwatisoré (N°. 206 and 207, Pl. VI, fig. 5 and 5[a]) made out of *Pandanus* leaf, in which pieces of gambir are also kept, are entirely in the same style as those which DE CLERCQ [1]) mentions from the western islands and the Gulf of Maccluer. To the east of Geelvink Bay these boxes do not appear to be known. I have already mentioned above that the gambir is imported by traders. The lime is probably manufactured from burnt coral in many places on the north coast (FINSCH [1888—93, 202]). On the island as Tumleo (Berlin Harbour) according to ERDWEG [1902, 323] shells are however used for the purpose. On Lake Sentáni, shells, *götjă*, from this freshwater lake are used, which for this purpose, as I saw at Asé (fig. 1), are packed in great quantities in an oblong bundle of dry sago or cocoa-nut leaves. After igniting, the fire slowly creeps in the direction of the stalks; in the compact glowing mass the shells can be seen in a state of white heat. The whole of the bundle, which lies on the ground, is now often shaken a little and each time moved somewhat to windward by the boy in charge, who has selected for this work the weather side of the island, and by this shaking, as the leaves are being turned into ashes, the white burnt shells fall out and remain lying on the ground in a streak. After cooling down,

1) DE CLERCQ and SCHMELTZ [1893, 75 and 76, Pl. XIX].

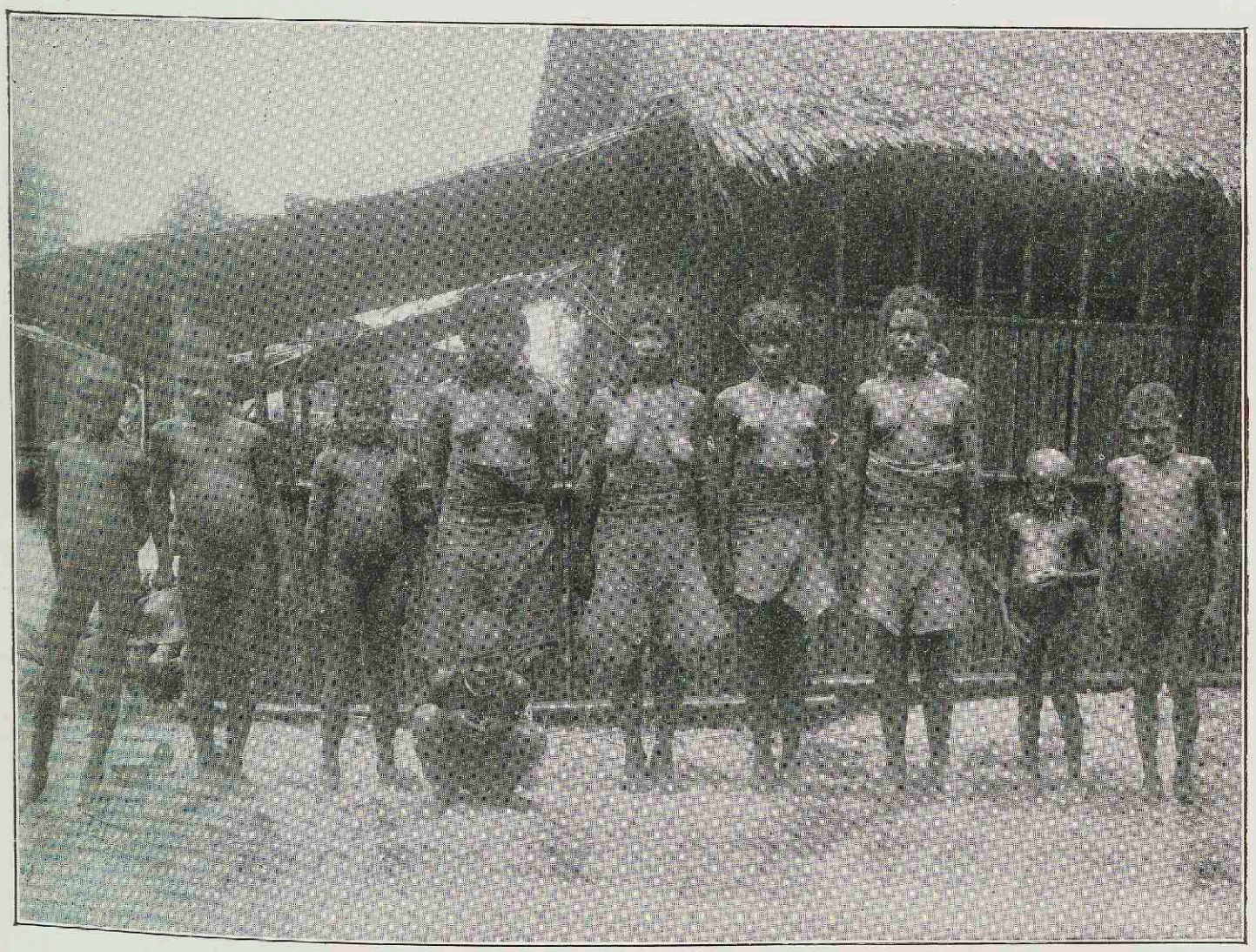


Fig. 6. Women and children of the Jótĕfa tribe.



Fig. 7. Women and children of Nimbúran.

they can be reduced to powder between the fingers, sometimes however small pieces of the shells are found unburnt in the lime of the boxes.

CULINARY UTENSILS.

N°. 1. Pl. I, fig. 21. 1/7. *Năsĕnār*. Tobádi; basket, *nār*, with sago, *nas*, cylindrical, made out of six horizontal rings of strips of sago leaf stalks, each twice the length of the circumference, interwoven with similar double strips, rising under 60°, and after winding spirally round the upper ring, again descending in the other direction, also under 60° and forming the bottom. The sides thus show five horizontal rows of hexagons. The bottom and sides covered on the inside with pieces of a leaf-sheath, presumably of wild Areca.

N°. 2—27. N°. 2, 11 and 15 on Pl. I, fig. 13, 17, 12. 2/7. *Suwè* or *suwai*. Ajápo and Asé; spoons made out of the shell of a cocoa-nut, *kŏ*, as a sector from pole to pole, often with a germ-point at the narrowest end, which serves as a handle, *kobă*, *gŏbang*, the other end broader and sharpened somewhat from outside to inside. Length 9—14.5 c.m., width 3—7.5 c.m. Some are ornamented, *semâ*, on the inner surface of the handle with superficial incisions, the outer surface generally with single or multiple fish, *kā*, ornament, head and body united, long side- and tail-fins; eye, *jŏche*, as a circle or as a spiral. Sometimes several fish figures gathered in one large fish form. Besides spirals, eye-ornaments, twisted lines, etc. The cut-out portions often covered with lime, *au*. Specially used in eating, *anèro*, sago-porridge, *fi*, also for drinking, *ansi*, *antji*, water, *pu*. Generally carried in the bags.

N°. 28. *Prèw*. Tobádi; as before, without ornament, found in a man's bag.

N°. 29. *Dā*. Tobádi; spoon made out of the forepart of the left femur of a pig, *por*; an oblong piece, 17,5 c.m. long, with the head of the joint, 18 c.m. wide (1/3 of the circumference of the bone), the end rounded off and sharp. Used for eating sago-, *nas*, porridge, for loosening the flesh of cocoa-nut, etc. Generally carried between the upper armlet or in the bag.

N°. 30. *Dā*. Tobádi; made out of right femur, length 16 c.m., the end irregularly broken off.

N°. 31. Pl. I, fig. 11. 2/7. *Tām* or *tjām*. Asé; spoon made out of left femur of a pig, *ŏbŏ*, with head of joint, *jū*, retained. The convex side, *fèw*, with ornaments, *sĕmâ*, scratched in. For eating sago-broth, *fi*, and for this reason also called *fitām* or *fitjām*.

N°. 32. *Dā*. Tobádi; made out of lower end of tibia of a pig, *por*, and consisting of the surface of the joint, with a 12.5 c.m. long and 1.2—2.3 c.m. broad, at the end a sharpened and rounded-off strip of the diaphysis, and diametrically opposite to this a narrow, 3.5 c.m. long pointed piece of the diaphysis; between both a slit 2.5 c.m. deep. Generally carried between the upper armlet, with the point towards the outside and with the slit resting on the armlet. Use as before.

N°. 33. *Bagai*. Kaptiau; almost entirely as N°. 32, length 16.5, largest width 3, point 2.5 c.m. Use as before.

N°. 34. Pl. I, fig. 16. 2/7. *Torang*. Nimbúran; as N°. 32, the head of the joint filed down across the longitudinal direction of both concavities. The end worn off blunt by use.

The slit between the point and the spoon proper only 1 c.m. deep. Use as before.

N°. 35. *Dā*. Ingrâs; as N°. 32, but without a point and the surface of the joint halved; length 16.5, largest width 3.4 c.m. Found in man's bag, N°. 634. Use as before.

N°. 36. *Nè*. Thaë; as N°. 35 the surface of the joint with one concavity, length 15, width at the semi-circular sharpened end 3 c.m. Use as before.

N°. 37. *Torang*. Nimbúran; made out of the tarsometatarsus of a cassowary, the surface of the joint slightly filed off; the convex side of the 19 c.m. long, 2 c.m. broad diaphysis ornamented with scratched-in crossing lines. Use as before.

N°. 38. Pl. I, fig. 14. 1/4. *Kwâkidan.* Sáweh; made out of radius of *Dendrolagus*, capitulum and tuberositas radii retained; half of the diaphysis removed lengthwise. Use as before.

N°. 39. Pl. I, fig. 18. 2/7. *Ijām* or *fitām.* Asé; longitudinal piece of tibia of cassowary, *abwache*, the rounded end sharpened. Used amongst other things for eating, *fite*, sago-porridge.

N°. 40. *Nè.* Thaë; like N°. 39, the grip end somewhat broader.

N°. 41. Pl. I, fig. 3. 2/7 and N°. 42. *Dintong, sidoi* or *siroi.* Ingrâs; wooden fork carved out on the border of dark brown and light yellow brown palmwood. The handle with a knob and with two encircling incisions, close to the base of the three diverging sharp prongs, placed in a triangle; the middle prong turned towards the dark side of the palmwood. Used to prick the food, also to eat the sago-broth, *nas*. Sometimes worn between the upper armlet.

N°. 43. *Sidoi.* Ingrâs; similar to N°. 41, but the handle without a knob and quite cylindric, 12 c.m. long, 6 m.m. thick; band-shaped broadening over the base of the prongs; spread of the prongs 2.4 c.m. Found in man's bag N°. 634. Use as before. Bink gives to the same kind of fork, brought from Humboldt Bay (Collection Utrecht Missionary Society N°. 318) the name of *woksewe* (see name of N°. 46).

N°. 44. Pl. I, fig. 2. 2/7. Abār; like N°. 41, but carved at the end into a small ring. Use as before.

N°. 45. Pl. I, fig. 7. 2/7. *Sidoi.* Asé; made out of the 4 m.m. thick wall of cassowary tibia, with three prongs *sidoi-ŏtŏ*, (*ŏtŏ* = lower limb), which, by the cylindrical shape of the bone, are placed in a triangle and are worn off at the end from outside to inside. Handle on both sides with incised ornament, *sĕmä*, of chevrons. For eating sago, also for pricking, *sèránja*, consistent food.

N°. 46. Pl. I, fig. 6. 2/7. *Usuwē.* Tobádi; of wood; the middle prong, somewhat thicker and longer than the two outside ones, ending in two points. The broadened part of the handle on one side flat on the other side transversely convex, here with two incised circles, between which diagonal and horizontal incisions.

N°. 47. *Chaibŏ.* Kajó; three sided rib of the sago leaf, long 48 c.m. nipped in the middle, and moveable like a pair of tongs; one of the parts flattened, by paring off, over the last 6 c.m. of its length, whereby it comes into contact with the flat side of the other one. Exclusively used for eating sago-, *nas*, broth. See De Clercq and Schmeltz [1893, 67, N°. 322, Pl. XV, fig. 10].

N°. 48. Pl. I, fig. 8. 2/7. *Chaibe.* Tobádi; like N°. 47 but shorter; in Sĕkā called *fè.*

N°. 49. Pl. I, fig. 10. 2/7. *Kanjār.* Ifār; like N°. 47, the shafts 23 c.m. long; fitting exactly in an open cylinder of bamboo, *pĕsī*, ornamented with incisions. Used by men as before.

N°. 50. *Ganjè.* Waba; two dark brown wooden sticks long 18.5 c.m., thick 3 m.m. both from a small knob at the end, 8 m.m. wide, pared off on both sides to 5 m.m. and from this point again widening to 8 m.m. at the rounded-off end; placed against each other, and loosely held together below the small knobs by two rings twisted out of fine rattan, 5 m.m. broad, by which a spreading of the ends, ± 4 c.m. wide, becomes possible. For eating sago-broth; taken from the bamboo cylinder, *pontsjè*, of a man.

N°. 51. Pl. I, fig. 4. 2/7. *Chaibe.* Ingrâs; like N°. 50, only one rattan ring, spreading to ± 10 c.m.

N°. 52. Pl. I, fig. 9. 2/7. *Kanjái* Asé; as N°. 50 and 51 but the knobs, *kobŭ*, longer, two rings, *áĭĕdŏ*; broadened towards the rounded ends; spreading to 9 c.m. For eating, *ănándè*, sago, *fī.*

N°. 53. *Kanjái.* Asé; like N°. 52, three rings made out of grass; at the ends a point, *jŏmŏ*, 1.3 c.m. long is obtained by paring away the edges concavely on both sides; spreading to 14 c.m. Used for eating sago-broth, but also for pricking consistent food.

N°. 54. Pl. I, fig. 5. 2/7. *Kanjái.* Asé; like N°. 53, only one small twisted rattan ring; the points, *jŏmŏ*, formed by the continuation of one of the edges, whilst the other edge is pared off concavely; spreading to 12 c.m. Use as for N°. 53.

N°. 55. *Tèvanki.* Ingrås; a *Cardium*-shell 5.5 by 4.8 c.m. Used to scrape cocoa-nut kernel. Found in man's bag N°. 634.

N°. 56. Pl. I, fig. 20. $^2/_7$. *Ubrèrèrè.* Tobádi; knife of light yellow brown wood, the round handle carved with the same ornament as on N°. 580, Pl. XX, fig. 16, and N°. 581; at the end a human head, *charchărau* or *chărau*, hairdress like a half globe, face triangular, eyes circular with lateral triangle, nose like a vertical ridge, mouth like a transverse, concave slit with the points turned up; thin, cylindrical neck. The direction of the face differs 180° from that of N°. 580.

Under the handle gradually flattening and narrowing; point rounded.

N°. 57. Pl. I, fig. 19. $^2/_7$. *Nahana.* Jámbuë; piece of wood, striped black brown, 1 c.m. thick, the tonguelike and sharpened end slightly bent out of the plane. Used for taking off the husk, the mesocarpium, of the cocoa-nut. Often carried by the men in their bags.

N°. 58. *Nahana.* Thaë; entirely as N°. 57.

N°. 59. *Jār.* Ingrås; 1.4 c.m. thick, otherwise like N°. 57. From man's bag N°. 634. Also used on Lake Sentáni and there called *gåte.*

N°. 60 and 61. Oinåke; as before, 24 and 21.5 c.m. long; the blunt as well as the sharp end comparatively broader than with the other specimens.

N°. 62. Pl. I, fig. 15. $^1/_8$. *Chaimbĕru.* Nächeibe; cylinder made by sewing together with rattan strips the elevated edges of two vertically placed pieces of the leaf-sheath of wild *Areca*; as well along the lower as along the upper edge a rattan ring, *entè*, fastened with strips of rattan. The grating, *bucha* or *buka*, formed on the lower part by a layer of 12 parallel wooden pins, stuck transversely through the cylinder and a similar layer of 9 pins at right angles with and resting on the above mentioned. The cover, *bŏnáncha*, made out of sago-stalks, the convex sides fitting in the hollow sides, connected by wooden pins stuck through, and rattan lashings. Two three-stranded ropes for suspending, pass from the upper margin through two holes in the cover, thus preventing it from shifting when the apparatus is suspended. Inside and below covered with a thin layer of soot. Found in the temple, suspended over a fireplace; for smoking fish.

N°. 63. Pl. II, fig. 1. $^1/_6$ and fig. 1a. $^1/_5$. *Anène.* Tobádi; brown earthenware pot, shaped like a globe of which a segment has been cut off, and with a rim turned outwards. Whilst the pot is still in a soft condition, seven triangles bounded by a double zigzag line, are scratched in the outer surface along the rim, every other one of which is ornamented with two horizontal rows of inclined lines, which fill up the triangle, or with two sets of parallel lines at the top. At one spot, where the triangles do not join, a combined figure is scratched in (bird? fish? frog?) with symmetrically placed semicircles (leech?) and small circles (fish eyes). The coloured ornament, fig. 1a, *anène åne*, made with red clay, *mĭre*, and white lime, *nau*, almost occupies the whole of the convex surface, and represents an „*áme*" of which the head, *chăbúr*, has a pointed beak, *sĕwibŏ*, two eyes, *úwendú*, surrounded with lines, and many spines, *chare*, on the back also similar spines, *sĕwi*, several appendices, *faukwè* = fins, on the sides and a broad tail, *chiwaitje.* Manufactured in Kajó Jenbí and here called *ude*; painted by young men in the temple of Tobádi. Used for sago-broth. Capacity ± 12 L.

N°. 64. *Anène.* Tobádi; as N°. 63, more red brown; shape and figures round the rim as on N°. 63 but with eight triangles. The animal depicted on the outside surface (crocodile?) done in black, (soot, *kană*, of rosin, *jĕchĕjú*) red and white. Weight 2.85 Kilo. Capacity 14 L. Used as N°. 63.

N°. 65. Pl. II, fig. 2. $^1/_6$ and fig. 2a. $^1/_5$. *Anène.* Tobádi; as before, the colour more red. Along the rim seven triangles, of which four with the same figures on the top as in N°. 63 and 64. Ornamentation in black, white and yellow, (*khĕrŏ*, see N°. 713) representing a ray. Capacity 12 L.

N°. 66. *Anène.* Tobádi; as N°. 63, diameter of the globe 30.5, of the opening 20.6, height 23.3 c.m. The scratched figures along the rim consist of four obtuse triangles, in the middle, in the top

angle and in the intermediate angles provided with two scratched W's. The colouring in black, white and red represents a sawfish, *tĕri*. Capacity 10.5 L. Used as N°. 63.

N°. 67. *Anène*. Tobádi; lighter red, measurements 32.4, 22.7 and 25 c.m. Along the rim only two diametrically placed marks: one a zigzag line descending from the rim, the other a compound figure as in N°. 63, to which are added two ramified lines, which somewhat resemble a limb with fingers. Used as N°. 63.

N°. 68. Pl. I, fig. 25. 1/8. *Hĕrai* or *ébé*. Abār; dark red, in the shape of a half globe, thickness of the sides 7—10 m.m., at the bottom 17 m.m. The rim broadened slightly, outwards and inwards; halfway up a circular raised border of 4 m.m. height and width baked on; between this border and the rim a similar raised border twisted like a snake, with twelve curves. Roughly finished, burst at the bottom, probably during the baking; leaky. Manufactured by women out of moistened, dim coloured, black clay. Weight 4.3 Kilo.

N°. 69. *Hĕrai* or *ébé*. Abār; like N°. 68, but the wall near the rim bent somewhat outwards, diameter of the opening 37.1, height 19.4 c.m. Thickness of the walls average 7 (5—9 m.m.) at the bottom 13 m.m. Outside ornamentation only a circular, snakelike twisted border of eleven curves, baked on. Roughly finished, many pebbles and cracks on the outside. Weight 3.45 Kilo, capacity 9.5 L.

N°. 70. Pl. I, fig. 23. 1/8. Abār; half globe as N°. 68. but smaller, thickness of the walls 8—11 m.m., at the bottom 17 m.m. At two diametrically placed spots, just below the rim a couple of small holes, made before the baking; parallel with the rim two baked-on borders (the upper one half lost) between which a snakelike twisted one. On the inside some red clay is attached, the same as is used for colouring the hair of the head. Weight 1.65 Kilo, capacity 1.5 L.

N°. 71. Pl. I, fig. 22. 1/8. Abār; half globe, a little oblique, thickness of the sides 7 m.m., at the bottom 14 m.m. On the outside, along the rim a snakelike twisted, raised border of twenty curvatures.

Inside reddish. Of the many cracks on the outside some are leaking.

N°. 72 and 73. Abār; shaped like half globes; with thickness of the walls as before, resp. diameter 24 and 18.5 c.m., 3 and 1 Liter capacity. Without ornament.

N°. 74. Pl. I, fig. 24. 1/6. *Rarígrè*. Kwatisoré; half globe, divided into four quadrants by two partitions each 1 c.m. thick, which are carried through the axis at right angles; each quadrant again divided into three spaces by two parallel partitions. Manufactured and obtained at Surué; intended for baking sago cakes.

N°. 75. Pl. III, fig. 12. 1/8. *Mudá (murá)* or *mĕdjuá*. Tobádi; ring twisted out of strong strips of rattan, like a low, somewhat bulky cylinder. Lashed transversely with the end of one of the strips at a single spot. Manufactured by men. Intended to be placed under globe-shaped pots.

N°. 76. *Mĕdjuá*. Tobádi; as N°. 75, 13 c.m. high and with 30 c.m. diameter, lashed in four places with separate strips of rattan.

N°. 77. *Mĕdĕmárŏ*. Kajó Entsáu; as N°. 76, but in the middle of each lashing a bundle of thin rattan strips or grassblades, cut transversely to a length of 5 c.m. and sticking out horizontally like four small brooms, *nĕchonje*, (perhaps derived from *chonje* = dog). Manufactured in the temple.

N°. 78. Pl. III, fig. 11. 1/8. *Mĕdĕmárŏ*. Kajó Entsáu; as N°. 76, only three rattan lashings, each with small broom of grassblades; a long, 1 c.m. broad rattan strip, the whole of which is spirally entwined by a narrower one, is fastened round the middle of the periphery, in six horizontal outstanding curvatures, with small rattan lashings: representation of a snake, *bäruarŏ*, of which the head, *bäruarŏ pĕrchöre*, sticks out of one of the curvatures, like a long loop (not intended for suspending). Manufactured in the temple and only intended for use there.

N°. 79. Pl. III, fig. 10. 1/8. *Mĕdjuá*. Tobádi; as N°. 76 with four lashings, in three of these rattan brooms, *chijĕtŏ*; imitation snake, *máte*, made out of liana with rattan twisted round, is fastened by

the lashings and stands out between these in four curvatures. The loop at one end represents the head, *máte chăbúr*, the little broom at the other end the tail, *máte chăjuwétje*. At the fourth lashing as well as on one of the curvatures two more supports for a pot but of smaller size are fastened, resp. with three and with two small brooms. Manufactured in the temple by the resident young men, under the patronage of the spirit *Krū*. Was not allowed to be seen by the women.

N°. 80. *Sajĕr*. Monokwari; vessel made from specific light wood, apparently cut entirely outside the core; mortar-shaped, largest measurement 33, depth 12.3, thickness of the walls 1.3 to 2 c.m. On the outside half-way up a flat rim, *ărauwè*, 1.5 c.m. broad.

Round the bottom, *röpúkri*, a rim 2 c.m. broad. Coloured black.

N°. 81. Pl. III, fig. 2. $^1/_{10}$. *Dudjè*. Kwatisoré; oblong oval vessel made from specific light wood, with two spoutlike prolongations at the short curvatures of the border, the cavity of half ovoid form, outside with flat bottom. Two strips of red calico, *hibiè*, in a loop of cord, *wuáriè*, fastened in a transversal opening in one of the spouts. Weight 415 gram, capacity 2 L. Made on the spot.

N°. 82. Pl. III, fig. 16. $^1/_{10}$. *Soitjè*. Asé; brown black, oval, slightly concave, wooden dish, average thickness 8 m.m., with a standing rim ± 1 c.m. high and broad. On the back at one of the ends of the long axis a handle, *joi*, with transversal opening, *puru*, in which a loop of yellow white two-stranded cord, *sa*. Weight 269 gram. Used as a dish for fish.

N°. 83. Pl. III, fig. 13. $^1/_{10}$. *Soitjè*. Asé; as before, but no standing rim. Thickness 4—18 m.m. On the back at one of the ends a handle, *joi*, sticking out, with slitlike opening, *puru*, in which is a loop, *ĕbru*, made out of barkfibres, *sa*. The lower part, with the exception of an oval strip in the middle, ornamented, *sĕmă*, with three incised transverse rows of spirals; the spaces in between, with oval scallops. Weight 600 gram. Used as above; scales of fishes, *kā*, sticking on.

N°. 84. *Soitjè*. Asé; long 69, broad 18 c.m., thick 7—20 m.m. slightly concave, with standing rim. At one of the ends a longitudinally placed handle, *joi*, rim-shaped, with crescent-shaped opening, *puru*, in which a rattan loop. The lower surface ornamented with transverse rows of carved longitudinal loop coils; some fish figures. The relief parts blackened, as appears from the spilling over the edges, with a fluid colouring matter (soot of rosin, *kană*, in water?). The cut-out parts have the yellow brown colour of the wood. Use as above.

N°. 85. Pl. III, fig. 14. $^1/_{10}$. *Soitjè*. Asé; as N°. 84, thick 1—2 c.m. Rattan loop in the handle. The carved ornament, *sĕmă*, which does not cover the end opposed to the handle, consists of spirals and two rows of three fish figures, with circular or spiral-shaped eyes. Along one of the sides a seventh fish figure with several pairs of fins. Blackened like N°. 84.

N°. 86. Pl. III, fig. 15. $^1/_{10}$. *Soitjè*. Asé; as N°. 85, thick 1—2 c.m. The handle, *joi*, placed endwise. Carved ornament, *sĕmă*, consisting of five transverse rows of longitudinal loop coils connected by undulating lines; (snake motive, the spiral as head?) Evenly brown black by dust and smoke.

N°. 87. Pl. III, fig. 17. $^1/_{10}$. *Pèj*. Asé; basket manufactured by twisting the obliquely placed lengthwise folded up, side leaves of two stalks of the cocoa palm leaf, *kŏ*, each halved lengthwise and forming the border. The ends of the leaves are lying like two plaits along the border and are stuck into the same. On this sweet potatoes, *fām*, and freshwatersnails, *fĕre*, *gĕre*, (Paludina) *ambu*, (Melania) were served.

N°. 88. Pl. III, fig. 9. $^1/_{11}$. *Jancháru*. Asé; spatula for stirring up, made out of a straight piece of moderately heavy wood, the handle, *kobă*, round; by carved encircling bands, *forfŏri*, a grip is marked off. The blade, *fèrw*, 1.3 c.m. thick, worn off round at the end by using it in the round sago pots. Provided with a loop of cord, *sa*.

N°. 89. *Jancháru*. Asé; household spoon made out of a flat piece of a fairly light wood, long 35, thick 1.5 c.m.; the handle 14 c.m. long, bulging in the middle, has near the end two

incisions, *forfŏri*, to which a cord loop, *sa*, is fastened. The blade, *fèw*, oblong oval, largest width 6.5 c.m. with a standing rim, except at the pared-off, semi-circular end. Used in stirring or dishing up the food.

N°. 90. Pl. III, fig. 8. $^1/_7$. *Járu.* Tobádi; as before, made of heavy, dark wood, the handle round, a female figure, *charchărau*, without lower limbs, carved at the top. The rounded end represents the moplike hairdress, below, tapering off, the triangular face, the neck and the throat; the nose indicated by a vertical ridge; eyes and mouth by transverse slits, the latter with the points turned up. Shoulders and shoulderblades in relief, continued in slightly bent arms, the five-fingered hands on both sides of a vertical incision (rima vulvae), mammae pendulae. Navel as a circle, the belly surrounded by a carved line. In the middle of the back a longitudinal incision. The blade oblong oval and concave, partly with a standing rim.

N°. 91. Pl. III, fig. 7 and 7a. $^1/_7$. *Járu.* Ingrau; as N°. 90, but the handle like a male figure, *charchărau*. On the rounded end (hairdress) a spiral is indicated in red on a black ground; face, triangular with two carved circles for the eyes; mouth as above. Throat and trunk nearly cylindrical, navel circular, a vertical ridge as penis. On the shoulders a carved spiral. Front of figure turned towards the left, the five-fingered hands below the penis resting on the left edge of the spoon, one in front, the other at the back; seven triangles are also carved on the edge. On the back of the blade a set of eye ornaments (with noses?); the cut-out parts covered with lime.

N°. 92. *Járu.* Ingrâs; as before, of fairly heavy wood, long 29 c.m. of which 12 c.m. for the 1.5 c.m. thick, 2.3 c.m. broad handle, with somewhat broader button. The transversely slightly concave blade close to the handle 4 c.m., towards the rounded end 8 c.m. broad. Sago sticking to it.

N°. 93. Pl. III, fig. 18. $^1/_{10}$. *Sábe.* Tobádi; water vessel made out of the leaf-sheath of the wild Areca-palm; the edges turned up 90°, the two ends erected into oblique sides, *săblúmui*, and the folds caused at the corners closed with four rattan sewings, *ŭsĕrige*. The plane of the bottom rhomboid.

N°. 94. Pl. III, fig. 1. $^1/_{10}$. *Edjiè.* Kwatisoré; shell of *Lagenaria vulgaris*, in the shape of a bottle, wall 2—4 m.m. thick. Cracks partly closed with rosin, a loose piece at the opening repaired with the rattan lashings and a small strip of wood placed against it inside. Round the neck a rattan halter, *nadjia grè*, spirally entwined. Weight 348 gr.; capacity 12 L. Used for water and sagueir (palmwine). Obtained from Surué on the south coast of the island of Japen. De Clercq and Schmeltz [1893, 63, N°. 291 and 294] show similar objects from Rōn and Rasjé.

N°. 95. *Ititrăi.* Angádi; dark brown, globe-shaped cocao-nut shell, *utiri*, with a diameter of 14, at the opening of 8 c.m., scraped smooth outside; around the opening the wall somewhat thinner and surrounded with an incised line. Capacity 1 L.; used for drinking water, *mi*.

N°. 96. Pl. III, fig. 4. $^1/_{10}$. *Geās.* Ingrâs; Waterladle made out of cocoa-nut shell; the plane of the opening parallel with the botanical axis and the handle, reaching 5 c.m. inside a perforated germ-pore, fastened with strips of rattan, in two ways: the first, to prevent its shaking in the vertical plane, surrounds the handle over 8 c.m. of its length and then passes with a 4 c.m. broad plaited work over the outer surface and edge to the inside end of the handle; the second, to prevent its shaking in the horizontal plane, stretches from a horizontal hole made transversely in the handle 10 c.m. outside the shell, a flat plaited work in the direction of two small holes bored near the edge at a mutual distance of 6.5 c.m. and reaches from here to the inside end of the handle. Capacity 0.65 L. By De Clercq and Schmeltz [1893, 67, N°. 350, Pl. XVII, fig. 1] called *keasu*.

N°. 97. Pl. III, fig. 5. $^1/_{10}$. *Kŏrei.* Asé; the handle, *mĕ*, with a hook, *mĕ seibŏ*, made of a branch from which the bark has been removed, caught in a perforated germ-pore, reaches 8 c.m. inside. At the edge of the opening a point 3 c.m. long has been retained. A piece of plaited strips of rattan, *kè*, stretches over the edge, (encircling the said point) from the inside end of the handle to

a horizontal hole in the handle at a distance of 3 c.m. outside the shell and prevents moving in the vertical plane. A strip of rattan stretching between the same points, but running through two small openings placed near the edge to the left and right, at a mutual distance of 5 c.m. prevents moving in the horizontal plane. Exclusively used for ladling, *tègŏ*, water, *pu* or *bu*.

N°. 98. Pl. III, fig. 6. $^1/_{10}$. Sĕkánto; as above, the cocoa-nut shell halved perpendicularly on the botanical axis, not scraped, with a ramified twig caught in a side opening for a handle. Possibly unfinished.

N°. 99. Pl. III, fig. 3. $^1/_{10}$. *Tirapu*. Angádi; as above; shell of a calabash, 2 m.m. thick, wooden handle, *ŏté*, caught in two small diametrically placed holes, situated near the edge; no rattan fastening, *kèmă* or *kèma*. At another place of the circumference, a small conical hole, from which two cracks start, points apparently to a previous effort to bore a hole for the handle from the outside with a conical instrument.

N°. 100. *Făsi amin*. Wári; bamboo for sagueir, diameter 7.5 c.m. and length 1.05 M. with three nodes, the partitions of the upper two perforated. Below the top node encircled by four twists of a strip of rattan through which a ring for carrying, *ăpar*, of the same material. In the opening a small piece of a semi-decayed bract, *aria*, of which the nerves form the meshes of a sieve. See De Clercq and Schmeltz [1893, 64, N°. 303, Pl. XV, fig. 14].

N°. 101. Oinăke; rhizom of *Maranta*, (*Scitamineae*) tied up in a leaf. Found in man's bag N°. 632.

N°. 102. Oinăke; small piece of masoi, rind of *Massoia aromatica*. Found as above.

Smoking materials. Various tobacco holders.

N°. 103. Oinăke; piece of prepared bark, long 30, broad 18 c.m. in which are wrapped up a few leaves of tobacco. From a man's bag.

N°. 104. Pl. IV, fig. 6. $^1/_5$. *Marâ huwă*. Abār; strip of prepared bark, *marâ*, folded up and made into a bag by sewing it with a continuous, two-stranded cord of fine fibre. Rolled up parallel with the run of its fibres; contains loose tobacco leaves, *sabĕgai* or *sachĕbai*, a dried *Musa*-leaf as wrapper, *infè* or *mè sachĕbai*. Also contained the fork N°. 44 and the bead, *simbóni*, N°. 684.

N°. 105. *Chĕbăchai mār*. Ingrăs; piece of prepared bark, *mār* or *marâ*, sewed like N°. 104 and used as a bag, containing two bundles each of seven tobacco leaves, *chĕbăchai* or *săbăchei*, the stalks tied together with vegetable fibres and dried *Musa*-leaves as wrapper. Rolled up and wound round with a brown string 1.40 M. long. Also contained the bone bodkin N°. 698. From man's bag N°. 634.

N°. 106. *Infé*. Asé; dried pieces of *Musa*-leaves, taken outside the midrib, average 7 c.m. square. Weight per square d.m. 470 m.gr. As a wrapper for cigars.

N°. 107. Ingrăs; part of the spathe of a palm, (*Musa*?), 27 c.m. long, 23 c.m. broad, rolled up parallel with the direction of the nerves, contains material, *udau*, as N°. 106. From man's bag No. 634.

N°. 108. Oinăke; basket for carrying tobacco, etc. made out of two strips of a palm leaf stalk 28 c.m. long, 1.2 c.m. broad, each with 10 side leaves which, deprived of the middle nerve and split up in three or four strips, form together, by being plaited, the body of the basket about 10 c.m. high. Half-way up a horizontal row of black, shining strips of the scapus of the tailfeathers of *Rhyticeros plicatus* (hornbill) is interwoven; the four corners ornamented with the same. A carrying loop of 50 c.m., made out of three-stranded rope, runs through one of the upper edges to the other, in which way, when suspended by the loop, the basket closes by its own weight. Used by the men. Contained N°. 61, N°. 103 and N°. 520.

N°. 109. Pl. IV, fig. 9. $^1/_8$. *Kaikari* or *kaikări*. Asé; as N°. 108, but the leaf material, *jèw*, of the palm leaf stalks, *wè*, split finer, hence the horizontal herring bone design of the basket work is finer. The whole basket is double, as all the strips have been plaited downwards on one side and round the bottom upwards on the other side. Half-way up two horizontal interwoven rows of

lengthwise halved mycelium threads, *nau*. At both of the lower corners, *jömö*, the same threads plaited crossways. Loop for carrying, *ĕbui*, out of two-stranded cord, *sa pörö*.

N°. 110. *Tĕbrä*. Tobádi; as N°. 108 but smaller, the strips of the leaf stalks, *tĕbra aidje*, each with seven side leaves. Suspended at the four corners, feathers, *mane fauke*, of *Rhyticeros plicatus*, *tăbār*, cut into symmetrical bird(?) figures. Carrying loop, *tār*, 32 c.m. long.

N°. 111. Pl. IV, fig. 7. 1/8. *La*. Jambuë; as N°. 110 but the strips of leaf stalk, *larö*, still shorter; ornamented with strips of black feather's quills, *pwälai*; at the four corners cut *Rhyticeros*-feathers, *tenghö*. The carrying loop, *ti*, *la-ti*, in front with tassel of vegetable fibres, *arong*.

N°. 112. Pl. IV, fig. 8. 1/10. *Etühè*. Angádi; tobacco basket made out of a kind of rushes, *mötömö*, *(Juncaceae)*; square bottom, the margin braided with rope, *tĕmani*, according to fig. 5, pag. 17 and provided with two handles, as per fig. 4, pag. 17, plaited out of 5—7 strips of bark, *kama*, contains cut green tobacco, *käpáū*, and strips of Pandanus leaf, *käpinähè*, used as wrapper. From a man.

Bamboo tobacco cylinders.

N°. 113. *Pösè*. Ajápo; carved with three horizontal circles of spirals, towards the ends with triangular spaces and circular lines. Closed with a plug of vegetable fibres; length 23, diameter 2.5 c.m.

N°. 114. Pl. IV, fig. 5. 1/7. *Pösè*. Ajápo; two horizontal circles of spirals; below a hatched band. Closed with a folded-up leaf.

N°. 115—118. *Pösè*. Ajápo; three to five circles of three or four spirals; below and above circular carvings or hatched bands; 22.5—38.5 × 3—5.5 c.m.

N°. 119. Pl. IV, fig. 4. 1/7. *Pösè*. Ajápo; five circles of spirals, along the upper and lower edges carvings of serrated semi-circles.

N°. 120. *Pösè*. Ajápo; three circles of spirals with flagelli-forms between them; at the bottom and at the top circular lines. Plug of vegetable fibres; 18.5 × 2.2 c.m.

N°. 121. Pl. IV, fig. 3. 1/7. *Pösè*. Ajápo; four circles of spirals; below these, spaces with carvings in different directions.

N°. 122. *Pösè*. Ajápo; a circle of loop coils, with a small raised disk in each of the central curves; above and below spear-shaped ornaments; 23 × 4 c.m.

N°. 123. *Pösè*. Ajápo; two circles of spirals with spearpoint-shaped additions; above and below a band of cross-hatchings with comb-shaped, toothed figures; 31.5 × 5 c.m.

N°. 124. Pl. IV, fig. 2. 1/7. *Pösè*. Ajápo; four circles of spirals connected by lengthwise running zig-zag lines; along the lower edge toothed combs and a hatched band.

N°. 125. *Pösè*. Ajápo; as N°. 115, four circles of spirals and circles, connected as in N°. 124; along the lower edge carved squares and triangles, along the upper edge toothed disks.

N°. 126. Pl. IV, fig. 1. 1/7. *Pösè*. Ajápo; five circles of incomplete spirals, the centra as toothed disks; above and below a carved band.

N°. 127. Pl. IV, fig. 18. 1/7. *Pösè*. Ajápo; two circles of loop coils, between these, spaces with points and small circles; three circles of zigzag bands.

N°. 128. *Pösè*. Ajápo; as N°. 127, the intervening spaces with semi-circles and triangles; 21 × 2.3. c.m.

N°. 129. *Pösè*. Ajápo; one circle of sprirals, the intervening spaces with triangularly compressed spirals, the upper and lower band divided by spearpointlike figures; 27 × 4 c.m.

N°. 130. Pl. IV, fig. 16. 1/7. *Pösè*. Ajápo; three circles of partly triangularly compressed spirals, upper and lower band cross-hatched and divided into spaces by spearpointlike figures.

N°. 131 and 132. *Pösè*. Ajápo; six circles of four incomplete spirals, compressed in triangles; plug of folded-up leaf; 40 × 5 c.m. N°. 132 at both ends a hatched band.

N°. 133. Pl. IV, fig. 15. 1/7. *Pösè*. Ajápo; two circles of alternatively placed triangles, in each of which near the base two spirals with ends stretching towards the apex.

N°. 134 and 135. *Pösè*. Ajápo; two circles of triangular spaces, in each of which four congruent triangular figures with round base. Bands with transversely stretched ovals; 32 × 4.6 c.m.

N°. 136. Pl. V, fig. 1. 1/4 and 1a. 1/2. *Pösè*. Ajápo; as N°. 135 but three circles, divided by bands; in each figure a small circle with spearpoint-shaped appendix.

N°. 137. *Pösè*. Ajápo; three circles of triangles with rounded apices; bands of circular carvings; plug of vegetable fibres; 21 × 2.8 c.m.

N°. 138. Pl. IV, fig. 14. 1/7. *Pösè*. Ajápo; three circles of triangles, each at the base a toothed semi-circle, over which a semi-circular line with spearpoint figure.

N°. 139. Pl. IV, fig. 13. 1/7. *Pösè*. Ajápo; more elaborately carved with a number of spirals, the small ones in pairs. Bands with small circles; broad upper band divided by spearpoint figures into three panels.

N°. 140. Pl. IV, fig. 12. 1/7. *Pösè* or *pöhè*. Asé; middle part with ornament, *sëmâ*, of spirals compressed in three- and four-cornered spaces; close to the opening, *puru*, and near the nodium, *ji*, a broad band divided into panels by spearpoint figures. Plug of prepared bark, *marâ*.

N°. 141. *Pösè*. Ifār; five circles of alternatively placed triangles; 26.5 × 3.3 c.m.

N°. 142. Poë; in the middle with three loop coils which each pass at both ends into a triangular broadening with lateral scallops; also a snakelike band passing into such a broadening; 14 × 2.7. c.m.

N°. 143. *Ponsjè* or *pontsjè*. Waba; two circles of four spirals divided and bordered by cross-hatched bands; 28.5 × 4 c.m.

N°. 144. Pl. V, fig. 4. 2/3. *Ponsjè*. Waba; three circles of spirals between which bird figures; below a band of toothed combs, the same at the top and here two holes for a carrying string.

N°. 145. *Ponsjè*. Waba; four circles of transversely stretched ovals, between which circles of triangles, the bases on the ovals; below a cross-hatched band. Cracked, and strengthened at the top by a plaited rattan ring; 17 × 2.8 c.m.

N°. 146. *Ponze* or *fonze*. Tobádi; two circles of eight spirals, upper band of circular carvings; 33 × 5.8 c.m. Manufactured on Lake Sentáni.

N°. 147. *Ponze* or *fonze*. Tobádi; in the middle a band of transversely stretched ovals, besides three circles of triangles, with figures as on N°. 138; 21 × 3 c.m. Manufactured on Lake Sentáni.

N°. 148. *Chö*. Kajó Entsáu; two circles of loop coils, each with both ends ending in a triangle with carvings; 27 × 5 c.m. Manufactured on Lake Sentáni.

N°. 149. Pl. IV, fig. 11. 1/7. *Chö*. Kajó Entsáu; as N°. 148, the spirals passing into triangular broadenings with conventional fish figure. Manufactured on Lake Sentáni.

N°. 150. *Pö*. Jámbuë; the carved ornament, *pöböbö*, consists of two circles of triangles, in which transverse semi-circles; 14 × 3.7 c.m.

N°. 150a. Oinâke; no ornament, plug of vegetable fibres; contains European tobacco; 12 × 2.3 c.m.; from man's bag N°. 632.

N°. 151. *Pötè*. Sägeisårâ; two circles of five spirals, connected with the intervening triangles, in which many semi-circles; 19.5 × 3.6 c.m.

N°. 152. *Pötè*. Sägeisårâ; like N°. 151; two of the triangles like those of N°. 149; 30 × 5 c.m.

N°. 153. Pl. V, fig. 3. 1/2. *Pötè*. Sägeisårâ; four circles of alternatively placed triangles which are connected in longitudinal rows, between these lengthwise zigzag lines; at the bottom a hatched band, at the top a circle of spirals with feathered centra.

N°. 154. *Bösâ*. Tanah Merah; three spiral circles, partly connected by snakelike relief borders. Cracked, but strengthened with plaited rattan; 24 × 4.3 cm.

N°. 155. Pl. IV, fig. 10. 1/7. *Bösâ*. Tanah Merah; lower part smooth, upper part, between two cross-hatched bands, ornamented with reversed coil figures in square and triangular spaces.

N°. 156. *Amĭn.* Wári; with cover, *dŏkĭr*, out of bamboo, *sosef*; ornamented, *fase*, with five bands of longitudinal scratchings, *inoi*; 26 × 5 c.m.

N°. 157. *Amĭn.* Wári; seven raised bands, partly cross-hatched, between these, four bands quite deprived of the rind and blackened and two bands with standing ovals; 19 × 4 c.m.

N°. 158. *Amĭn.* Wári; with cover, red brown; three bands of hook- and curl-shaped figures on a background, hatched in black; 31 × 5.5 c.m.

N°. 159. Pl. V, fig. 5. 1/4 and 5a. 1/1. *Amĭn.* Wári; lower part scraped and blackened, at the top a band of hooks and curls; in the centre two human figures, the head towards the bottom end. Circumference of the face, the eyes and the nose, with the wings of the nose, in relief; the limbs strongly curved and with many curls, the feet turned up against the shins.

N°. 160. *Odjiè* or *ăru dŏbrè.* Kwatisoré; length 18.5, diameter of opening, *ŏdŏ grè*, 3.4 c.m.; lower part scraped and blackened, the incised ornaments, *ŏnu unè* or *ochnu unè*, as bands of lying and standing reversed coils and small circular disks.

N°. 161. *Odjiè.* Kwatisoré; red brown, upper and lower end scraped, the remainder with bands of hooks, curls, spirals, circles and reversed coils; 27 × 6 c.m.

N°. 162. *Odjiè.* Kwatisoré; lower end scraped and blackened, the remainder with numerous horizontal bands, of which nine with hook-shaped curls; 8.5 × 3.9 c.m.

N°. 163. *Odjiè.* Kwatisoré; upper and lower end scraped and blackened, also three bands of triangles, small squares and curls; 23 × 4 c.m.

N°. 164. *Odjiè.* Kwatisoré; as N°. 163, three bands of ridges and curls; at the top two diametrical holes for carrying loop; 14.5 × 3.5 c.m.

N°. 165. Pl. V, fig. 6. 1/4, 6a. 1/1, 6b. 1/1. *Uhámba ure.* Kwatisoré; bamboo, *odjá biè*, ornamented with bands of hooks and curls (fig. 6b); at the edge two squating human figures, *jŏmĕnŏ idjè*, (fig. 6a) through which a loop for carrying made out of tanned cotton cord, *ɯ(u)áriè hibiè*, with beads, *nă grè* or *năhab grè*, and small calico-tassel, *hibiè*.

N°. 166. Pl. IV, fig. 34. 1/7. *Pŏre rèbè.* Angádi; both ends scraped, the remaining surface with reversed coil- and hook-shaped figures, in standing rows; the incisions not blackened.

N°. 167. Pl. IV, fig. 33. 1/7. *Pŏre rèbè.* Angádi; as N°. 166, entirely covered with carved lines, curls and hooks, near the opening diametrically two holes; not artificially blackened.

N°. 168. Pl. IV, fig. 32. 1/6. *Pŏre rèbè.* Angádi; as N°. 166, with reversed coils and hooks; on the edge two broad points, each with square hole, through which a loop of cord, *tèmani*.

TOBACCO PIPES AND TINDER BOXES.

N°. 169. Pl. IV, fig. 31. 1/5. Mapār; pipe made out of hard brown wood, conical bowl and sword-shaped handle lying in a straight line. Where the transverse mouthpiece deviates, a circular relief band. On one side of the handle a zigzag band is carved. Used by men and women.

N°. 170. Mapār; as N°. 169, but only 12 c.m. long, the handle with ridges on both side surfaces; no circular relief band.

N°. 171. Pl. IV, fig. 30. 2/11. *Aipiè.* Pokémbo. (Arfak Mountains) shaped as before, but the stem, square and pointed at the end, near the bowl with two relief bands.

N°. 172. Pl. IV, fig. 29 and 29a. 1/4. Mapār. Tinder box out of a bamboo cylinder with nodium as bottom; near the opening a circular band with cross-hatching; contents: a piece of blue porcelain (China?, fig. 29a) and brown tinder (*Lycoperdinaceae*) mixed with charcoal fibres. From the bag carried by a man.

N°. 173. Mapār; as N°. 172, near the opening bands hatched with zigzags; two pieces of porcelain; closed by a plug of leaves; 21 × 2.5 c.m.

LIME BOXES. A. CALABASHES.

N°. 174. Pl. IV, fig. 28. 1/7. *Aubanka.* Asé; calabash, *banka*, *panga*, pear-shaped; burnt ornament, *sĕmâ*, consisting of three circles round the opening, *puru*, besides irregular spirals; contains lime, *au*, burnt from shells, *gŏtjä*, *kĕdjä*; wooden lime spatula, *èmi*, with cylindrical handle.

N°. 175. Pl. VI, fig. 1. 1/4 and 1a. 1/2. *Aubanka.* Ajápo; pear-shaped, two circles burnt round the opening; on the circumference the same figure repeated four times: fig. 1a; closed with plug of fibre.

N°. 176. *Aubanka.* Ajápo; pear-shaped, three circles round the opening; lower down four large spirals alternating with four small ones. Bone spatula 20 c.m. long, round the spot where it fits in the opening a coat of larval envelope; 25 × 7.5 c.m.

N°. 177. Pl. IV, fig. 35. 1/6. *Aubanka.* Ajápo; no ornament, handle, *kobă*, of wooden spatula, *èmi*, carved into a human figure, *tŏtĕre unŏ*, *rătĕre unŏ*. On the head, *farim*, a half globe, which indicates the mop, *ma*; eyes, *jŏre*, *jŏche*, nose. *joï*, mouth, *öjä*, *öchwă*, *höwejă*, and ears, *angai*, *ankai*, in a natural way; shoulders, *nate*, and shoulderblades, *kanduru*, in relief; hands, *mĕ*, lying on the breast, *nime*; nates, *ătwauwáu*, thighs, *pädö*, penis, *mā*, and scrotum, *sără*, in relief.

N°. 178. Pl. IV, fig. 27. 1/7. *Aubanka.* Ajápo; three circles round opening, below these, two circles of six spirals; wooden spatula with encircling notches and perforated oval in which a vertical bar.

N°. 179. Pl. VI, fig. 3 and 3a. 1/3. *Aubanka.* Ajápo; two diametrically placed spirals, between which twice four small ones in dark (burnt) spaces; spatula with relief circles connected by ridges.

N°. 180. *Aubanka.* Ifār; pear-shaped, two circles round opening, below these semi-circular lines with ramified ends; bone spatula with cylinder of larval envelope like N°. 176; 26 × 8.6 c.m.

N°. 181. Pl. IV. fig. 26. 1/7. *Aubanka.* Ifār; three circles of five spirals; wooden spatula.

N°. 182. *Aubanka.* Ifār; sausage-shaped, two circles of four spirals; handle of wooden spatula 6 c.m. long in the shape of a turned-up cone on a small disk; 31 × 5.5 c.m.

N°. 183. *Aubanka.* Ifar; two diametrically placed spirals (prolonged upwards with a curvature at the top, to which a few small cross lines) between which two sets of three small spirals on dark burnt ground; wooden spatula; 26.5 × 7.7 c.m.

N°. 184. *Aubanka.* Ifār; sausage-shaped, burnt as N°. 178 and 183 but with two sets of eight small spirals; wooden spatula; 35 × 5.6 c.m.

N°. 185. Pl. IV, fig. 25. 1/7. *Aubanka.* Ifār; pear-shaped, round the opening six pointed triangles, below which and in between six spirals, connected in pairs; wooden spatula, with relief borders in zig-zag line as on N°. 153, rests with small oval disk on the calabash.

N°. 186. Pl. VI, fig. 4. 1/12 and 4a. 2/3. *Aubanka.* Ifār; as N°. 185, but with six toothed lines descending between the spirals.

N°. 187. Seisărâ; sausage-shaped, without ornament; spatula with three notched bars, which together carry a small cupola; 23.5 × 5 c.m.

N°. 188. Dójo; as N°. 184, but with two sets of four spirals; bone spatula; 29 × 6.6 c.m.

N°. 189. Dójo; as N°. 188, but with lines reaching upwards, the ends bent back and with a few small cross lines.

N°. 190. *Nau, nauânām.* Tobádi; sausage-shaped; ornament, *ăne*, (therefore: *nauănām*) as N°. 188; wooden spatula, *sĕnor*, *sĕnŏ*, *nau sĕnor*; 28 × 6.8 c.m. Manufactured on Lake Sentáni.

N°. 191. *Nau.* Tobádi; as N°. 190, but two sets of five stars, *chimĕrère*; wooden spatula.

N°. 192. Pl. VI, fig. 2. 1/3 and 2a. 2/3. *Nau.* Tobádi; ornament (see fig. 2a) descending from a circle round the opening; wooden spatula. Manufactured as before.

N°. 193. Pl. IV, fig. 23. 1/7. *Nau.* Tobádi; round the opening three pointed triangles, between which three figures of Varanus, *prom*, and crocodile, *tĕchom*, heads towards the opening; wooden spatula, in the opening surrounded with string of fibre, *ime*, of aërial root of Pandanus.

N°. 193a. Oinăke; without ornament; wooden spatula; from bag N°. 632; 22 × 8 c.m.

N°. 194. *Laintsánŏ*. Săgeisărå; pear-shaped, two circles of eight spirals, those of the upper one all mutually connected, those of the lower one in pairs; handle of wooden spatula, *njau-njau*, with six disk-shaped projections; 28 × 11 c.m.

N°. 195. Pl. IV, fig. 24. 1/6. *Laintsánŏ*. Săgeisărå; without ornament; spatula carved into a man's figure; head with eyes, nose, mouth, chin and ears well defined; arms à jour, elbows sideways, hands on the hips. Musc. pectoralis on both sides in relief, navel circular, genitals large.

B. Cocoa-nuts.

N°. 196. *Mŏ(n)jnïgwi*. Tobádi; diameter 13, of the opening 1.7 c.m., surface covered with carvings; the lower pole a star, further with spirals, stars and circles; the cut-out portions with lime; near the opening two holes for carrying string. Said to be only intended for women, *mŏ(n)je*.

N°. 197. *Mŏ(n)jnïgwi*. Tobádi; as N°. 196, diameter 8 c.m.; carved also with hatched planes and ribbons; near the opening an hour-glass figure and two holes for carrying rope.

N°. 198. Pl. IV, fig. 22. 1/6. *Au kŏ*. Ifār; poles without ornament, the remainder with meridianal series of six spirals, between which triangular spaces, transversely carved and with spearpoint-shaped projections; no holes for carrying string. Wooden spatula.

N°. 199. Pl. IV, fig. 21. 1/6. *Au kŏ*. Ifār; three circles of 8—9 spirals, the triangular intervening spaces, with mouth-nose-eye ornament(?); the cut-out portions with lime. Wooden spatula.

N°. 200. Pl. IV, fig. 20. 2/11. *Kantjáno*. Săgeisărå; lower pole with a star; remainder divided into four spaces with crocodile- and snake-shaped figures and stars; near the opening many small spirals and two hour-glass figures as in N°. 197. The opening closed with a rolled-up leaf stuck into a conical piece of a larval envelope.

C. Bamboo cylinders.

N°. 201. *Kup*. Nimbúran; near the opening a band of zigzag lines between two circular ones; lower down, three spirals, between these, longitudinal spearpoint-shaped figures; 15 × 4 c.m.

N°. 202. *Kup*. Nimbúran; a spiral stretched lengthwise and a set of standing concentric ovals, the cut-out parts black; plug of folded leaf; 24 × 4.5 c.m.

N°. 203. Pl. IV, fig. 19. 1/7. *Amïn*. Wári; two pieces of bamboo, *dŏkir*, each with nodium as bottom; one piece widened by paring off inside, fits as a cover, *soseſ*, over the other; both scraped outside along the opening and blackened; carved, *inoi*, ornament, *fase*, curl-shaped.

N°. 204. Pl. V, fig. 2. 1/2. *Odjiè, ärru dŏbrè, ädu dŏbrè*. Kwatisoré; lower part scraped and blackened, remainder ornamented, *ŏnu unè, ochnu unè*, with bands of round disks, alternating with bands of triangles, the rounded apices either or not with buttons. The cut-out parts black.

N°. 205. Pl. IV, fig. 17. 1/7. *Odjiè, èdjiè*. Kwatisoré; bottle-shaped calabash, neck strongly curved, opening on the convex side with small lip; contains white lime, *wïprè*. Weight 24 gram.

N°. 206. Pl. VI, fig. 5. 1/4 and 5a. 2/3. *Abŏbrè*. Kwatisoré; box made out of Pandanus leaves; the four turned-up sides formed out of one strip, but doubled by two crossing strips which also form bottom and flaps; one of these flaps lengthened with a lip, intended for a slit of the opposite wall. Sewn with imported thread. One side with a square of interwoven leaf strips in yellow, red and black (fig. 5a). Manufactured at Mánsinam. Contains lime, *wïprè*, and gambir, *paibrè*.

N°. 207. *Abŏbrè*. Kwatisoré; as N°. 206, height 3, width and length 5 c.m. closed with a lip as above; the three remaining flaps with toothed edge. Without ornament. Locally made. Contents as above.

CHAPTER II.

CLOTHING AND ORNAMENT.

In the state of civilisation which is now-a-days still found to exist amongst the most primitive of the known tribes on New Guinea, it is not easy to draw a line between the objects mentioned at the head of this chapter. „By preference a Papuan does not dress, as neither climate nor surroundings induce him to this"; thus DE CLERCQ [1]) commences the chapter referred to, acknowledging as the origin of clothing: 1° protection against influences of weather, 2° a feeling of propriety.

To the people of the north coast, as far as they are living on the level of the sea or a little above it, the climate does not appear to offer any inducement for clothing. The Papuan on Lake Sentáni (situated about 80 M. above the level of the sea), walks about, as fig. 8 shows, without the least bodily covering, uses in his house, even if no fire is burning, often no mat to lie upon, much less a piece of prepared bark to protect himself against the cold. In the temple of Sågeisårå, situated in a hilly country at an altitude of 320 M., the men also slept without covering, whilst the outside air was much cooled down by the night's rain. In the dwellings at Inagói and Mapār (fig. 73), resp. 142 M. and 125 M. above the sea and situated pretty far in the interior, small fires were smouldering, whilst in the latter house a fireplace extended under the whole length of the men's raised frames for sleeping. This arrangement, which VAN OOSTERZEE

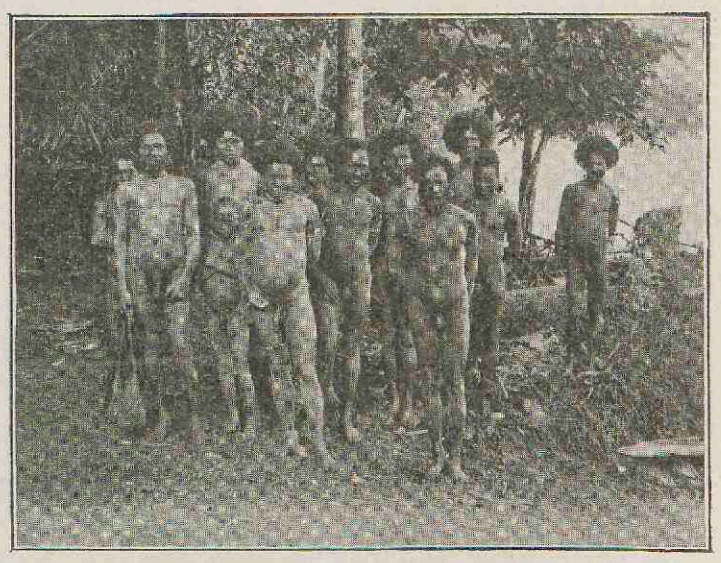


Fig. 8. Papuans on Lake Sentáni.

1) DE CLERCQ and SCHMELTZ [1893, 9].

[1904, 1006] also met with in the dwellings of the related tribe of the Ménam, may be intended for driving away the mosquitoes and at the same time to warm the sleepers during the night, but there is no question here either, of any cover. On the island of Angádi in Lake Jamūr, situated 40 M. above the sea and in the deserted houses of the other villages on the shores of this lake, I never saw such raised sleeping frames, but here pieces of prepared bark, *pau urä*, served as a covering during the night. Such pieces of bark, VAN DER CHYS mentions in his catalogue [1894, 162, N°. 6951] as blankets, which are said to come from H. B.; I presume these are women's petticoats, at least our Papuan carriers from Humboldt Bay were always able to manage without blankets on our expeditions. Although no friends of rain, which c. q. may damage the hairdress, they bore it very patiently when necessary. They covered, during a shower, as faithful servants, their load of rice with leaves and usually allowed themselves to get wet. Their night-bivouac in the forest, a sloping roof of leaves, under which they slept quite naked, as a rule protected them more against rain than that of the Malay coolies. Usually they then slept on a number of branches placed alongside each other; absolutely no use was made of a mat, as de CLERCQ [1]) saw the western Papuans always carrying with them in the forest. During the fresh morning hours, the Humboldt Bay man may sometimes, shivering on account of the landwind, stand with his arms crossed over the chest, the hands on the shoulders, „wrapped up in his own skin", when presently the sun rises over the hills, this son of nature begins to unfold and his coffeebrown catches with delight the rays, which caused blisters on the skin of the members of the expedition, especially in boats on smooth water. The broad wooden rim (N°. 264, Pl. IX, fig. 8) according to original reports in the village of Ifār (Lake Sentáni) used against the rays of the sun, proved afterwards to be a painted ornament for festivities and in a modified form also occurred elsewhere. The same may be said of similar, entire or half rims twisted out of rattan, which occur here (N°. 270—276, Pl. IX, fig. 1, Pl. X, fig. 2) and therefore I can only take the corresponding headcovering collected by DE CLERCQ [2]) and according to him used to keep off the rays of the sun, to be an ornament. WILLEMOES-SUHM [1877, 161] called it „a diadem of basketware, in which they stick flowers". The hat of DE CLERCQ, originating from Humboldt Bay [3]), is probably unique. For if this headcovering was really intended for the said purpose, namely „for protection against the rays of the sun", and used otherwise than in exceptional cases, the members of this expedition should certainly have seen it worn on the numerous occasions when they saw close upon a hundred fishermen, at the most trying hour of the solar day, occupied with fishing on the banks. The Berlin Museum possesses a still larger hat (N°. 7312) from Prau(?), Netherlands north coast, and another one collected by FINSCH at the mouth of the Tami River, described as „basket, hatshaped" (N°. 9240).

The browband of the island of Liki [4]) composed of hairtresses, and as understood from the Papuans intended as a protection against the rain, is, I found out (N°. 221, Pl. VII, fig. 13), worn out of attachment towards deceased or living persons, and thus one looks in vain in

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1) DE CLERCQ and SCHMELTZ [1893, 82]. 2) DE CLERCQ and SCHMELTZ [1893, 18, N°. 36, Pl. IV, fig. 6].
3) DE CLERCQ and SCHMELTZ [1893, 18, N°. 39, fig. 2].
4) DE CLERCQ and SCHMELTZ [1893, 19, N°. 35, Pl. II, fig. 3].

these parts for any form of clothing as a protection against climatic influences. The same was experienced by MIKLUCHO MACLAY [1873, 248], during his stay on Astrolabe Bay, where night covering was also not customary, but where under the bamboo sleeping frames in the houses a fire could be made. Afterwards a cap has been met with on the upper Ramu River (Berlin Museum, N°. 15024) which was made out of rope with the simple „figure eight" stitch of fig. 9, but it could not yet be made out whether this was intended as a protection for bald people or as an emblem of dignity for the seniores. The woman's cap from Finsch Harbour (Berlin Museum, N°. 9520), made with the same stitch is probably also an occasional wear for mourning widows, who, according to HAGEN [1899, 262, Pl. 39 and 40], hang round their bodies very large and similarly knitted bags. Caps made out of matting to be worn by women over the head and seen on Tugèri women with a prolongation at the back (SCHMELTZ [1904, 214, Pl. XII, fig. 4]) are also meant for mourning wear; the same with network caps of British New Guinea (EDGE PARTINGTON [1895, Pl. 191, N°. 2]). Again, no single piece of clothing to be found as a protection against climatic influences!

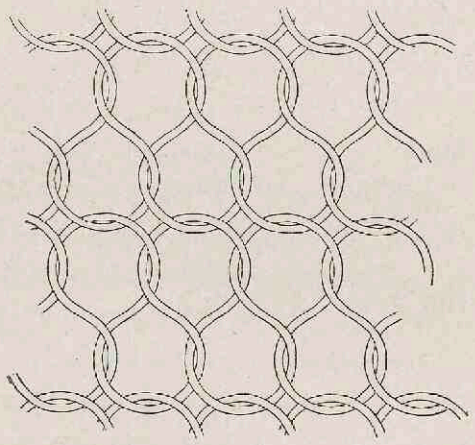


Fig. 9. „Figure eight" stitch.

What then is the position with regard to the feeling of shame as a motive for dress? From those who come into contact with a primitive race, data are expected, collected on the spot, which in the old quarrel whether shame is inborn or not, can produce new arguments. However as an exchange of thoughts on such an abstract topic is utterly impossible with insufficient knowledge of the language and insufficient interpreters, observation remains in this case, the only source. Humboldt Bay is in this respect no longer a „pure ground". The contact with foreign morals is already much too plentiful there; Chinese and Ternatian traders and hunters, some of them married to Papuan women, who wear sarong and kabaia, are already living there since a long time. And now, that fourteen young men from the villages of Tobádi and Ingrås, engaged as carriers by the expedition, have had an opportunity to see another civilisation at Ternate, the ideas about dress will no doubt be further modified. These young men all returned to their native land with a box full of clothing, bought with their wages, exchanged against their arms and ornaments, and begged from the Europeans. To possess clothing was evidently their greatest desire, but meanwhile their daily costume was hardly changed; everything being evidently kept in order to use it later on at home as an ornament. As far as the women and girls are concerned, since FINSCH [1888, 354] illustrated his „ladies of Humboldt Bay", the situation has changed so much, that when visitors arrive at the villages, the naked girls hide themselves entirely or quickly cover themselves with a piece of bark or calico. The girls, with the exception of the very youngest, see fig. 6, who came to our houses out of curiosity, for the purpose of barter, medical advice or as carriers of transports, always wore a small petticoat. On adjacent Lake Sentáni the conditions are however still unsullied. According to the western acceptance of the word every man here still goes about naked, even if he were a man of rank and means and dressed accordingly. Still I was often asked for clothes out of my outfit. At the end of my stay, wishing to utilise a few pieces of white cotton bandages as objects of barter, I called

the attention of the people to the fact that they could use the calico, in imitation of some men in Humboldt Bay, as a pubic covering; but they left it quietly on my hands, as it was not red, indicating however that a large piece would be accepted if my servant were allowed to make a small jacket with sleeves out of it. Indeed it appeared that with these people a small jacket, even if it only reached to the navel, was much more in demand than a pair of trousers, in which they had soon discovered a tasteless object. The girls and unmarried women, of whatever age they may be, are here and in many other places seldom visited (see fig. 7 and 10), going about quite naked. But on the day when the bride is led towards her bridegroom, she wears a petticoat of prepared bark, which reaches one turn and a half round her waist, here supported by a girdle, and hanging down below the knees. This petticoat she further continues to wear as a married woman and also as a widow. The question therefore arises, why, of all the persons here forming the society, only one category wears a dress which one would feel inclined to take for a pubic covering.

It can hardly be imagined that this dress was introduced at the desire of the women themselves. The petticoat is put on, after the amount of the purchase money has been verified by the parents of the girl and before the bride is handed over to the bridegroom. The maiden herself has certainly no voice in it; for girls have nothing to say in this society. The social order is ruled by the views of the male population and it is therefore very improbable that the men, who give no indication of possessing themselves the sexual feeling of shame, would formulate an instruction for dress of married women, which would be connected with a feeling of propriety. Alongside of cases in which, at the approach of members of the expedition, first of all young and unclothed women hid themselves in the houses, other cases occurred, where unmarried and therefore undressed women, moved about amongst us with perfect ease, there being therefore no question of a sense of propriety on account of conscious nakedness. Thus an adult girl of Ajápo was induced by a promise of tobacco to be led before the photographical apparatus which was erected for anthropological purposes. During the preparations however, the men standing round raised some objections and at their instigation the girl suddenly ran away, after which there was here no further chance of taking photo's of undressed women, no doubt in consequence of the prohibition by the men. The Malay name of Papua Talandjang (= land of the naked Papuans) by no means, as supposed by FINSCH [1903, 133], an arbitrary new name, therefore has this historical and biological meaning, that the civilising influence of the Malay coast traders and navigators, who have long ago introduced the sarong into Geelvink Bay (fig. 11), has until now only partly influenced the naked customs of the said country. The man from the West, arrived in these parts, finds himself at first confronted by these conditions as by a psychological problem and very likely he considers the protest arising within himself, as a spontaneous expression of wounded conviction, perfectly justified. Even FINSCH [1888, 136] allowed himself to be influenced thereby, when he wrote of the people of Parsi Point that, although behaving themselves in a very orderly manner, they made an unfavourable impression on account of their deficient clothing. But after a short time the European, living amongst these people, has to face another problem, when he discovers that, with regard to the Papuans, he has already entirely abandoned the demand for a pubic covering. He then feels, that his opinion of the inhabitants becomes fairer, that his former protest did these people an injustice.

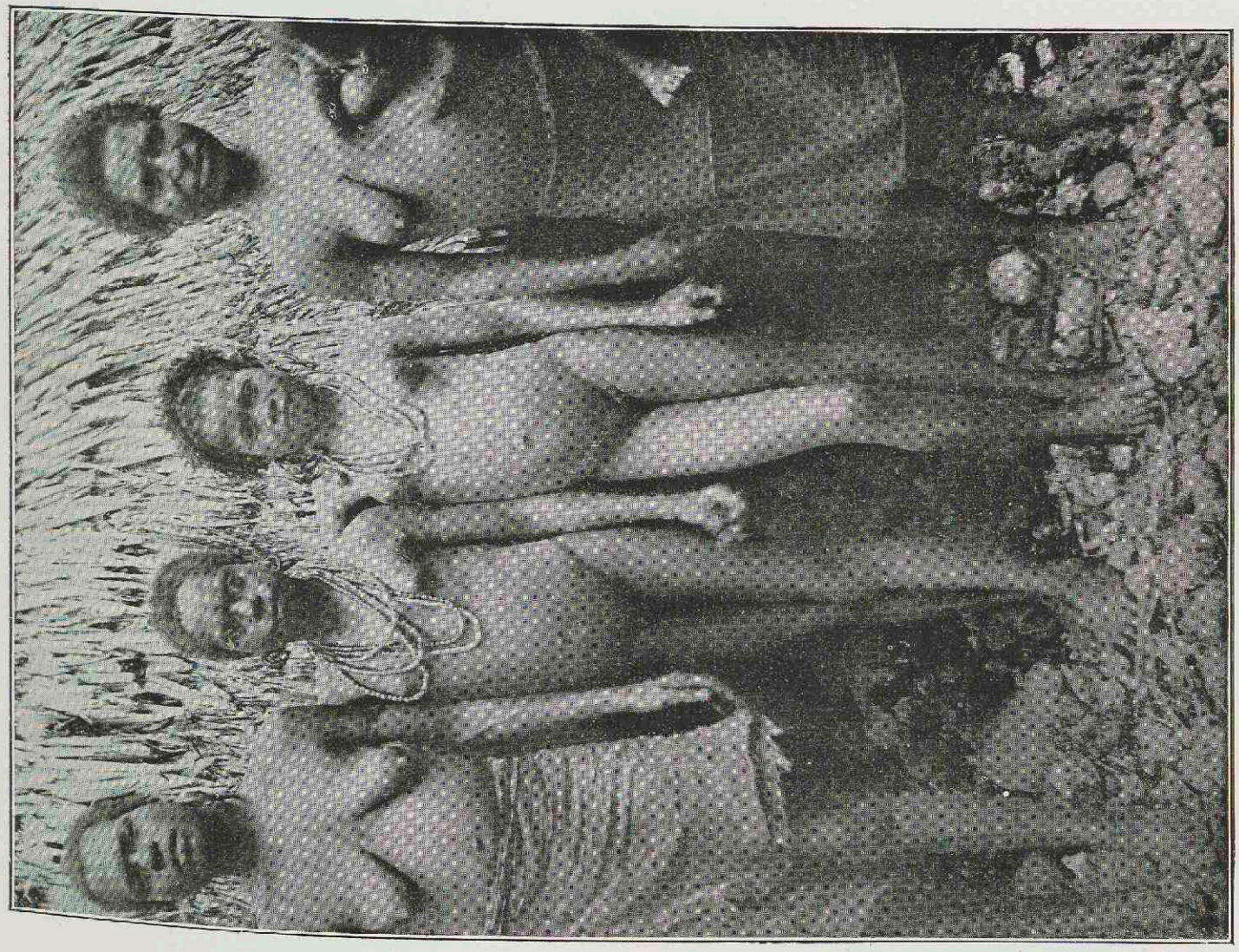


Fig. 10. Women and girls of Tanah Merah.

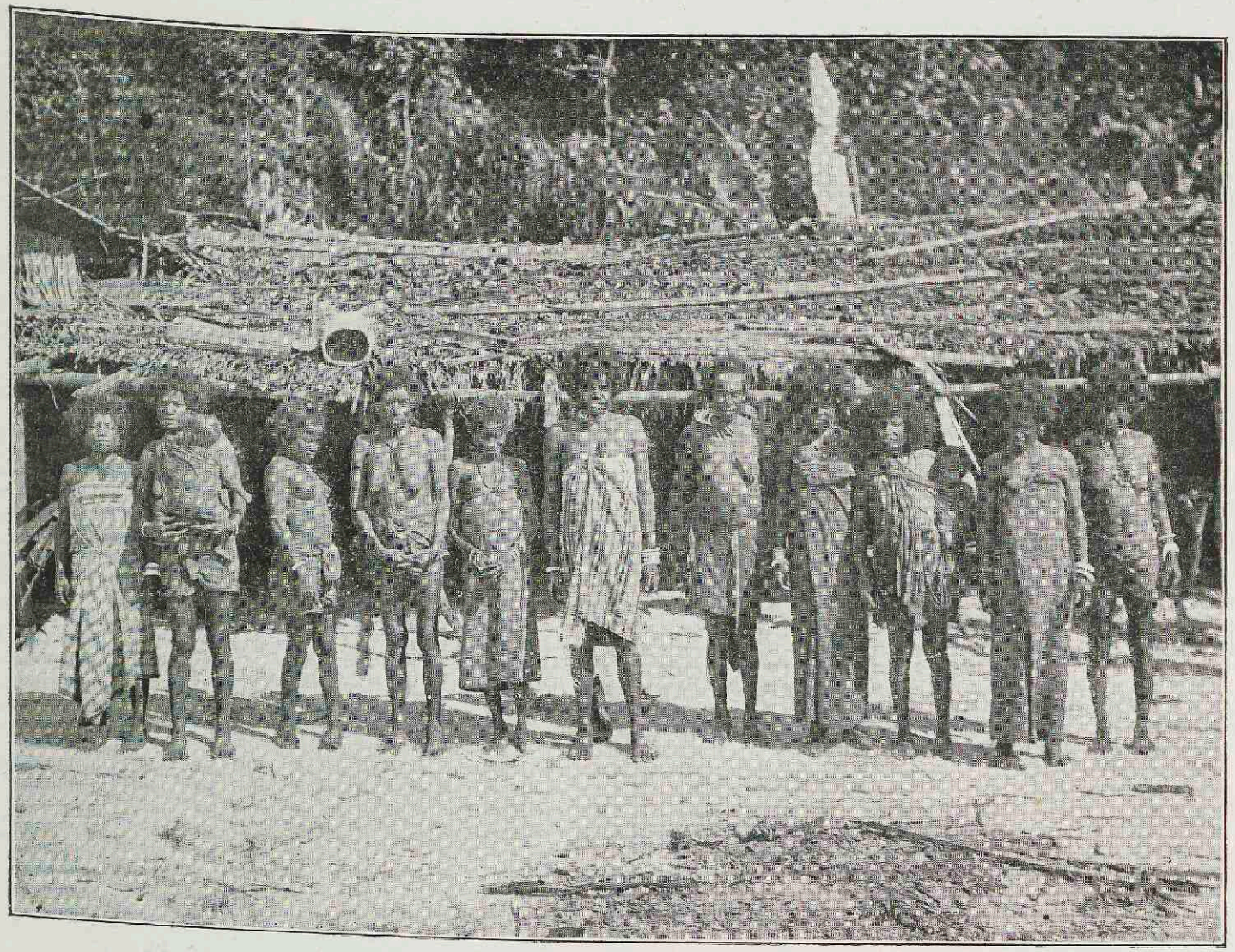


Fig. 11. Group at Nápan.

Amongst the population of Papua Talandjang also, no connection could be found between nakedness and respectability. When he wishes to satisfy his natural wants this Papuan withdraws or at all events turns away from the others, and behaves himself like a man of good manners. We were never shocked in this respect. Nor have we ever noticed anything improper of sexual emotions.

Whoever regards with RATZEL [1894, 89] nakedness as moral degeneration, would be all the better for a somewhat lengthy stay amongst, and a more than superficial acquaintance with, the Papuans of Lake Sentáni. Their nakedness is sexually purer than many a western dress. The members of the expedition owe their friends yonder, this word of protest. — I must still mention here our first meeting in the district of Sĕkâ, where all the adult men wear a calabash containing the penis. Coming from Humboldt Bay and already accustomed to the there ruling nakedness, we all found the calabash really „shocking". The yellow calabash generally provided with black burnt ornaments (N°. 433—442, Pl. XV, fig. 4 and 5, Pl. XVI, fig. 11 and 12), although hiding the sexual organs, called, according to our feeling, in an impudent manner the attention to the sexual sphere. We were even surprised that this piece of „clothing", which really met prudity half way, had such an opposite effect upon us, confirming the judgment of WESTERMARK [1891, 186] that in opposition to nakedness, clothing is indecent. It however still remains a question whether this wearing of the calabash is caused by a sexual feeling of shame. It is indeed not always possible to buy instantly such a calabash of the wearer; he appears to be ashamed to take off the object. On one of the expeditions undertaken in 1901 by the officers of Hr. Ms. Ceram, a guide from Sĕkâ broke his calabash and declared, on this account, to be obliged to return home. This Papuan was then however suspected of only trying to find an excuse in order to be relieved of the troublesome journey. Taking it, for a moment, for granted that the calabash is worn on the ground of a sexual feeling of shame (and as an indication of higher civilisation?), it is indeed remarkable that this custom was not adopted by the men of adjacent Humboldt Bay. People from the village of Thaë, (district of Sĕkâ), all wearing the calabash (see fig. 200) remain very often for days at festivities in Tobádi; on the other hand I met in May 1903 a great number of men from Humboldt Bay at a wedding-feast in Sĕkâ (see fig. 12), where apparently nobody found it unusual that, also in the presence of girls and women, the guests were going about quite naked, and where they were not at all treated like people of less civilisation. On the contrary,

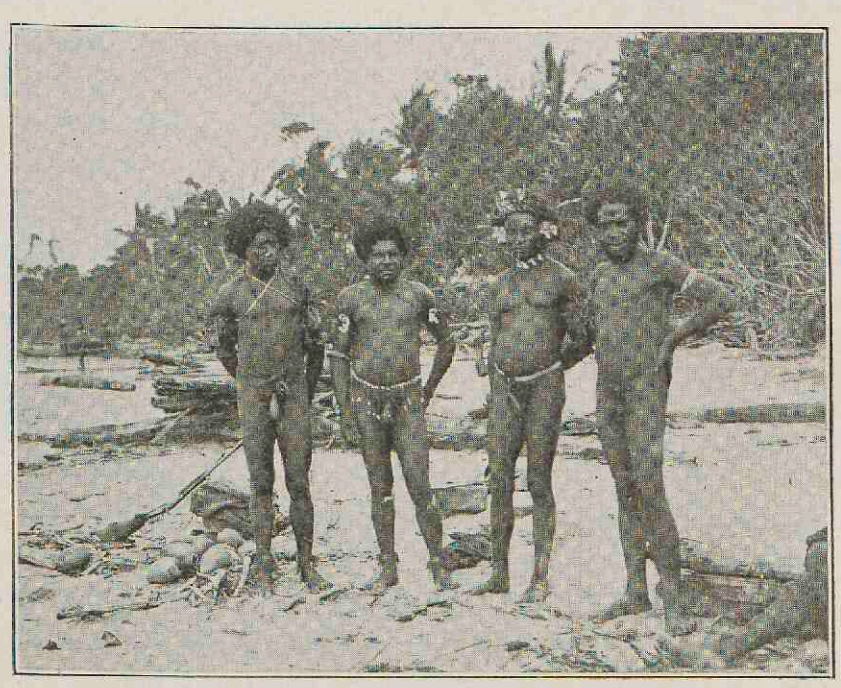


Fig. 12. Three men of Sĕkâ, one (to the right) of Humboldt Bay.

the inhabitants of Humboldt Bay are looked upon in the whole neighbourhood as of higher rank. Often they also procure for themselves such calabashes, probably however exclusively on account of the ornament worked on, for never is such a calabash worn there. For the same reason such an object is then again offered for sale to the western visitors. See Chapter X.

If the supposition is correct that originally the calabash has been worn on account of the ornament, the case of the Sĕkâ people illustrates once more the opinion of WESTERMARK [1891, 211], GROSSE [1894, 95] and others, that the feeling of shame, far from being the original cause of man's covering his body, is on the contrary a result of this custom. The opinion that clothing has originated with ornament is indeed very acceptable and relieves me of the difficulty to indicate a line between both.

HAGEN [1899, 169] became convinced by observation that a breast ornament can cover the whole chest by increasing density and thus pass into clothing. Thus DE CLERCQ and SCHMELTZ [1893, 31] also report the communication of the Papuans of Sègèt that the tattooing of the girls served as an ornament, to take the place of clothing, in order to charm the young men. I consider therefore that I may not separate all these matters: clothing, ornaments, tattooing, scars and painting of the skin and firstly deal with:

TATTOOING AND SCARIFICATION. — The judgment of MAGITOT [1]: „L'action de se faire tatouer indique presque toujours une mentalité spéciale", combines in its generality the partisans of the religious meaning of tattooing as well as those who consider tattooing as a means to draw together, by increasing the outward charm, the individuals of both sexes.

The religious as well as the amorous meaning of tattooing has numerous expert followers. The above cited information from Sègèt is, no doubt, confirmed in a very pronounced manner by the custom which according to PARKINSON [1898, 194] exists on the Ongtong-Java Islands, to decorate the girls before marriage from the navel to the knee, and only later on over the body and the limbs, as KUBARY also mentions the particular care, with which the genitals of the girls on the Nukuoro Islands are tattooed. Thus JOEST [1887, 18, 25] does not mention religion, and thinks tattooing is nothing else but an amusement, a kind of adornment which at the utmost is connected with the arrival at the age of puberty. Inhabitants of the Polynesian Islands declared of their tattooing, according to THILENIUS [1903, 49—51], „that it only represented an ornament and a proof of courage. Whoever is not tattooed is considered a coward, it is said of him that he cannot catch fish, and when he wants to get married, he finds at the best a widow, willing to follow him". Meanwhile this author still believes in the religious meaning of tattooing as well as SCHMELTZ [1888, 114] who, replying to JOEST, argues that the festivities at the age of puberty are generally connected with the religious contemplations of primitive races and that sufficient cases are known in which totem-signs, of which the religious meaning can at all events not be denied, form the subject of tattooing. TEN KATE [1895, 3] also wishes the chapter „tattooing" to be brought under religion, where he met on Timor the figure of the crocodile, without any doubt of religious meaning, as an ornament on the arm of a woman. STRATZ [1904, 76] mentions a whole list of explorers who are of a different opinion and calls it as objectionable to derive the painting of the body and tattooing from symbolical and religious customs as the clothing from a feeling of propriety, as in both cases cause and effect have been mixed up. It may be mentioned at once that the observations on the subject of tattooing by the present expedition have, I am sorry to say, not led to such results as either to accept or to decline the above mentioned

1) La Pratique Dermatologique. ERNEST BESNIER, L. BROCQ et L. JACQUET. Tatouage, par Barthélemy. p. 435.

opinions. But I must agree with WYATT GILL, when he says [1885, 288] that a beautiful tattooing of a naked person creates in our mind the same impression as a beautiful dress. Tattooing did not appear to be equally in use amongst all the tribes visited by our expedition. This varying frequency has also been noticed elsewhere. Whilst FINSCH [1888—93, 86] met with frequent tattooing in South and South East New Guinea — with men f. i. as an indication of achievements in war, but still more with women, a. o. as Andreas and Maltese crosses — and HADDON [1901, 101] noticed illustrations of plants (cocoa- and nipa-palm, Diacaena) and animals (crab, cassowary and crocodile legs) as indications of totems, tattooing only appears very seldom in K. W. Land. It seems limited here to the Berlin Harbour district and is according to PARKINSON [1900, 24] almost exclusively found on the face and the chest of women. Concerning Netherl. N. G. it is f. i. known that the inhabitants of the Arfak Mountains do not apply any tattooing at all, (VAN DER GOES [1858, 165]), the people of the island of Adi, situated on the S. W. coast [l. c. 112] only very moderately, the men of Ajambori, in the interior of Doré, more often on chest, arms and forehead [l. c. 160], whilst in the bay of Kaimani the forehead of the men is fairly generally decorated. The report of the same [l. c. 147], that the coast people of Doré allow figures without any meaning to be pricked into the skin and thereby indicate no mourning, has since been improved by DE CLERCQ and SCHMELTZ [1893, 31]. In some cases, without any doubt, mourning is intended, which is also reported by LING ROTH [1900, 198] of the Sandwich Islands.

As far as the inhabitants of Humboldt Bay are concerned, of whom I collected most data, tattooing is in use with both sexes. On account of the dark colour of the skin of the men the design is not very easily noticed and it is necessary to look very close if one does not wish often to overlook a figure. Thus it was possible for casual visitors like MOSELY [1879, 440] and FINSCH [1888, 362] (see also JOEST [1887, 40]) not to notice any tattooing of the men; FINSCH (see JOEST [l. c. 37]) states however, no doubt somewhat carelessly: „on the skin of the Melanesian, tattooing shows off very well". This is usually the case when no tinea imbricata, *chăsè*, exists. Not only do the dirty grey brown scales of the skin then form an impediment to the light to penetrate, but the design in the long run becomes indistinct with these sufferers, at all events one of my patients, suffering from this disease, who was nearly cured and already showed a smooth skin, now possessed a more faded drawing than his fellow-villagers of the same age.

Apart from this, there is here certainly not a single man who is not decorated in several places with certain ornaments. In considering the designs of tattooing it is best to place oneself on the standpoint occupied by PREUSS [1897, 83]: „The tattooing must be judged together with the whole of the ornament of the tribe, with the lines of which it generally agrees". Strange to say, it is very difficult to discover this agreement amongst the tribe of the Jótĕfa; on the contrary it would appear that for tattooing, motives are generally used, which for other ornaments are seldom or never applied.

The motive occurring most, for the tattooing of the men, is no doubt the fish-eye, *idje ruwèntúge*, — *wèntúge*, — *windú*, represented by an exactly round circle of 2—3 c.m. in diameter and very often to be found on the forehead, just above the root of the nose and besides on the backs of the hands, the thighs and generally in large numbers on both halves of the back, distributed amongst other ornaments. Without knowing their meaning, FINSCH [1888—93, 226] has already noticed and mentioned these rings on the forehead of a man in the district of Sĕkâ. Everywhere where I met with such a small circle in the skin, it was always called fish-eye. Unquestionably the beautiful, irreproachably circular design of the

natural fish-eye must have struck these fishermen, but whether it derives its use as a motive for tattooing, only from this cause and whether special importance is to be attached to the peculiar position of such an eye above the root of the nose, excites the curiosity, but could not yet be made out. In the case of some of the young men, besides this small circle, a kidney-shaped figure was also met with in the same place, the concave side upwards, either or not connected by a small vertical line from the middle of the convex side with the small circle; sometimes the latter is also wanting. Fig. 13, *1*—*6* represents the various figures noticed. Fig. 13, *3* I also saw on the forehead of men from Lake Sentáni, the small line continued on the root of the nose. Sometimes the word „*änáte*" was pronounced at the same

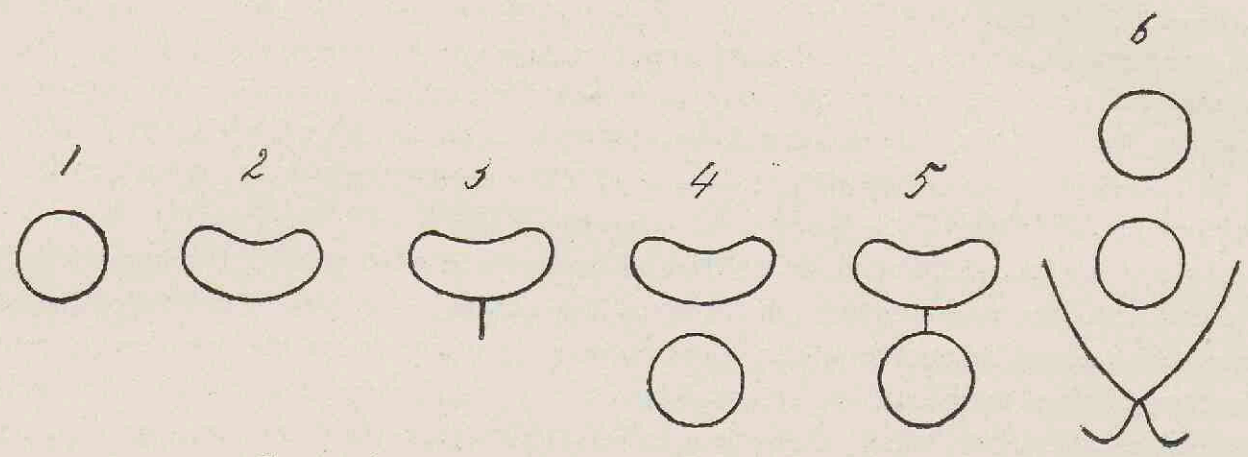


Fig. 13. 1/2. Tattooing motive: „fish-eye"; Humboldt Bay.

time, but I could not make the meaning clear. One of the most intelligent young men of Tobádi was to give me, at my request, a further explanation of the design and then sketched fig. 13, *6* which, judging by the satisfaction of the drawer, was a success and again called *idje windú*. Possibly, the added curved lines represent the lines of the jaws, but this is a mere guess. As far as I can remember the small circle does not occur amongst the tattooing marks of the women, who, it may be useful here to remember, do not in Humboldt Bay participate in the fishing.

Another motive consists of some parallel dashes, 4—5 c.m. long, with a mutual distance of 2—3 c.m. on the extensor side of the forearm. The largest number noticed in one row amounted to eight, on the right forearm; they are however met with as well on the left as on the right arm, also with the same individual. The usual number is three; the figure is then generally close to the wrist. Once it was found that the proximal dash was longer than the two others and its two ends were curved round in the direction of the shoulders (fig. 14, *1*). All these dashes are always called *säbe*, but in explaining the above eight, the word „*änáte*" was again heard. With a man of Tobádi three parallel longitudinal dashes with a cross dash below (fig. 14, *2*) were met with on the front part of the right thigh; whether this ornament had the same name, I omitted to make a note of.

The leech, *chine*, forms a third motive, which is often applied and in this respect comes close to the fish-eye. It is represented in two ways, namely, as a semi-circular curved line, but also as a reversed coil (fig. 15, *1* and *2*). Both represen-

tations are found on men almost exclusively in the skin of the back, often in great numbers, with some fish-eyes in the neighbourhood of the large figures which generally decorate the back, but apparently without being connected with these and only to utilize the open spaces. Once two semi-circular leeches were met with on the back of the left hand, close to the 2nd and the 5th metacarpo-phalangeal joint, the concave side turned towards the fingers. The back of the hand itself was taken up by a larger figure. Why the leech is so much used as a motive for tattooing, I have not been able to ascertain and it is therefore only a guess when I express the suspicion, that it is on account of the elegant curves which this little animal can assume.

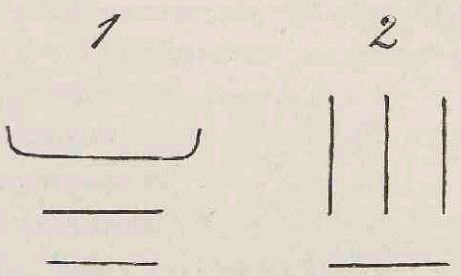


Fig. 14. 1/4. Tattooing figure: „*sābe*"; Humboldt Bay.

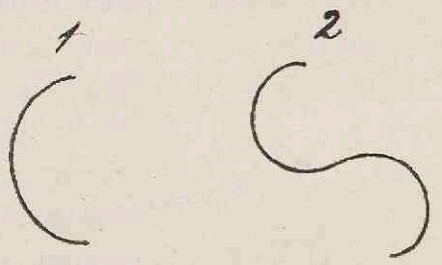


Fig. 15. 1/2. Tattooing motive: „*chine*"; Humboldt Bay.

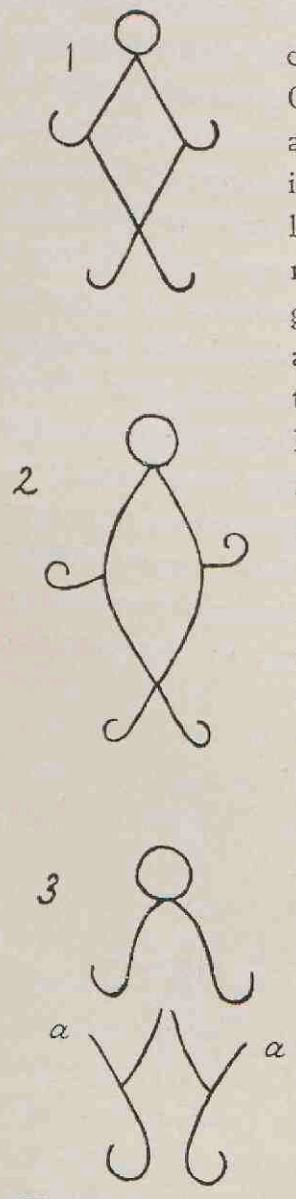


Fig. 16. 1/3. Tattooing motive: „*manai*"; Humboldt Bay.

Indeed, the forest leech, with which everybody who has travelled in New Guinea has no doubt become acquainted, and to the attacks of which the Papuan is also exposed (once I came across a leech which had fastened itself to the mucous membrane of the eyeball of a young girl), is a graceful animal. When it moves about quickly, the whole body stands at times in an elegant curve and when taken hold of, it twists itself in all directions. Another very common motive for tattooing is that of *Rhyticeros plicatus* Forst. the hornbill, in most cases represented by a square with two small, hook-shaped lines as a tail, the opposite corner with a small circle as a head, whilst the wings are represented by a small hook at each of the obtuse angles, fig. 16, *1*. I saw this ornament exclusively on the wrist and the back of the hand, always with the head end turned towards the fingers; on several occasions both hands of the same individual were decorated in this manner. The bird is represented flying, at the moment when the wings are stretched out forward, a manner of representation very common amongst the people of Papua Talandjang and for the ethnographer the most reliable characteristic that he has a bird and not a fish before him. In single instances the body had the shape of an oval (fig. 16, *2*), whilst on another occasion a deviating figure, to some extent a disintegration of the drawing, was met with on a man from Tobádi (fig. 16, *3*) where it would appear that at point *a* a couple of legs or a second pair of wings is indicated. The wearer was not suffering from tinea imbricata, and no doubt this is the figure that was originally applied. The total length was 9.3 c.m., the breadth 5.8 c.m.; in all other cases, the length varied between 9 and 10 c.m., the breadth between 6.8 and 7.3 c.m. The ornament is called in the language of the Jótĕfa „*manai*" = hornbill, which is however also called *māntūbār* or *māndābār*.

Another tattooing decoration, also sometimes met with on articles of clothing or ornament, consists of a small circle 3 c.m. in diameter, to the periphery of which five hooks have been added at regular intervals; the hooks curved differently. If the information obtained has been well understood, the whole is to represent a crab. Once it was met with on the front side of the right upper arm in the lengthening of a series of paired curves, as in fig. 17.

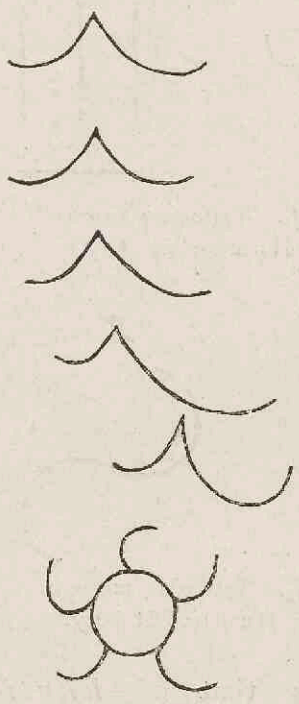


Fig. 17. 1/3. Tattooing figure, the lower part a crab; Humboldt Bay.

Of the larger decorations the frog, in the language of Jótĕfa „*chărau*" is the most common. It is found, to the length of 23—30 c.m. and to the breadth of 11—13 c.m. in the skin of the backs of a great many men, at the side of the vertebral column, sometimes to the left but more often to the right. Although I only examined a limited number of men, I found on three occasions that both halves of the back were ornamented with this figure and in one of these cases, a third smaller specimen had been drawn in the region of the loins to the left. It can rarely be made out which end represents the head of the animal, because the figure is as a rule symmetrical, the explanations given however indicated the end reaching upwards to or on the angulus scapulae as the head. Fig. 18, *1* gives the most familiar form where *a* represents the head, *chăbúr*, *b* the hind part of the body, *mĕdiwå*, *c* the back or vertebral column, *oikoini*, *d* the fingers, *chărau iè*, *e* the young ones (or eggs) *chărau natu*. As a rule the intervening space between each pair of legs is filled up with a leech figure, *f* = *chine*, so symmetrically that one is apt to take them for a part of the frog figure. Generally a similar set of semi-circular leeches is seen at the side of the dashes which represent the young ones, the concavity turned outwards. Fish-eyes and reversed coil-shaped leeches, which, as stated often, occur in large numbers in the skin of the back, sometimes also go astray inside the frog figure. Fig. 18, *2* represents

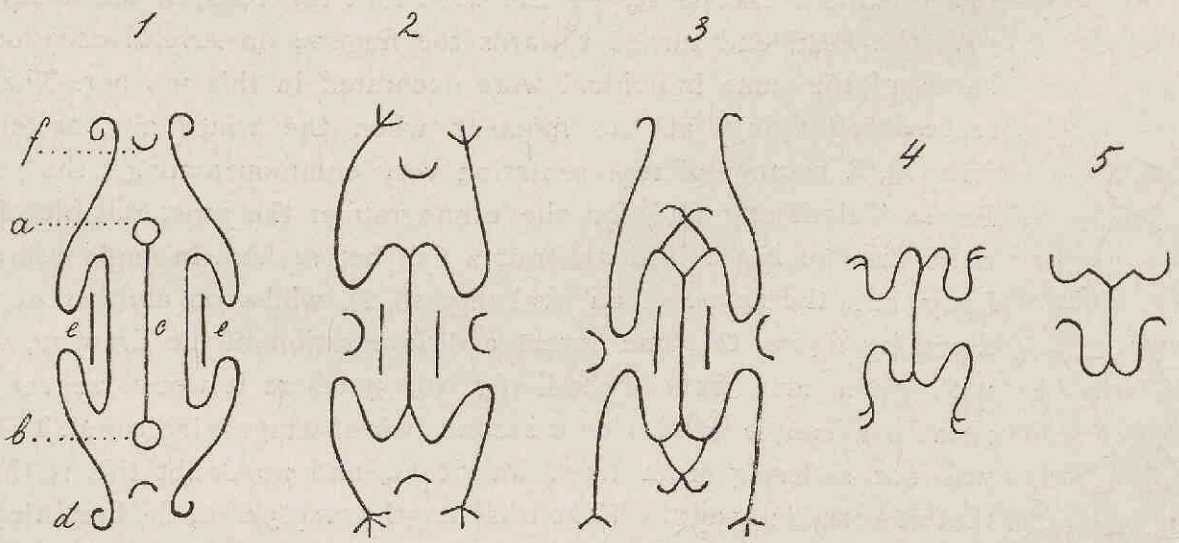


Fig. 18. *1*, *2*, *3*, *4*: 1/8; *5*: 1/4. Tattooing motive: *chărau*; Humboldt Bay.

another common form; here also the *chărau natu* are not wanting, and at each of the limbs

three or four fingers are added, of which the most outside one is called, *chărau aiè*, like the small finger of the human hand. Fig. 18, *3* of the left half of the back of a man is provided with hooks as well in front as at the back, and one feels inclined to think of a doubling or joining of two animals. The small figure indicated above, drawn in the loins and reaching as far as the nates, resembled fig. 18, *4* and once the *chărau* was found in the shape of fig. 18, *5* on the middle of the forehead, only 5 c.m. high and 5.3 c.m. broad. In mentioning the great predilection with which the figures here enumerated are used in tattooing I should remark that the word „*chărau*", sometimes „*chărchărau*", is also often used for the human being. The figure therefore merits the attention of a further inquiry.

The same is the case with *ăbekwĕ*, also called *bĕgwe*, representing a mollusc living in a spiral shell. This drawing is almost met with as frequently as that of the frog, always in the skin of the back, either to the left or to the right, but never two on the back of the same individual. The length varies between 18.3 and 25.5, the width between 9.4 and 12.5 c.m. Fig. 19, *1* represents the most common form, of which the head, *chăbúr* or *chăbúre*, is always pointing upwards. Often however hooks, *isj*, have been added to the spiral, which possibly represents parts of the shell, whilst a short dash along the neck, noticed now and then, (fig. 19, *2*), presumably represents, as in the case of the frog, young ones or eggs. This motive was also met with several times on the back of the right hand, ± 13 c.m. in length, 7.5 c.m. wide, reaching with the head on the lower arm, sometimes with the spiral twisted to the left, once (fig. 19, *3*) with an interruption in the representation of the head, at another time so reduced (fig. 19, *4*), that the figure is limited to the back of the hand, but yet with the head turned towards the lower arm.

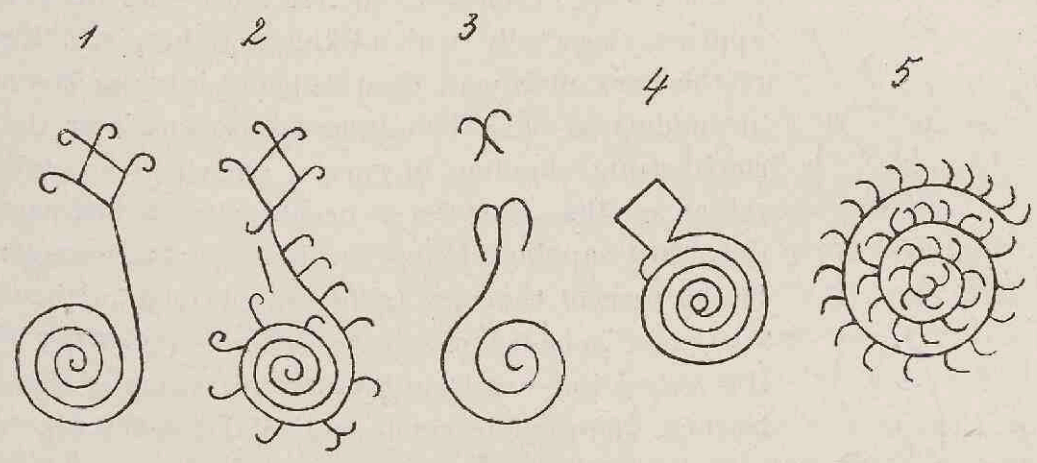


Fig. 19. 1/6. Tattooing motive: „*abĕkwe*"; Humboldt Bay.

A Papuan of Tobádi who, when asked, wished to make clear what was an *ăbĕkwe*, made with pen and ink the drawing of fig. 19, *5* in my pocketbook. The hooks, *isj* or *bĕgwisjam* should be curved in the same manner; when this became somewhat irksome to the drawer, he made, evidently for his own convenience, a curvature in another direction, but then turned the piece of paper round in order to go on in the right manner. The artist still stated that foreigners, *ambèri*, call the object *mărĕgwa* (emphasis on the second syllable), possibly the Ternatean name for a shell with commercial value. With fig. 20 the list of tattooing figures taken from the animal world is closed; it was only met with once and then to a length of ± 23 c.m. on the left upper arm of a young man. What animal it represents has not been found out; the name, *nánĭgi*, told me nothing.

As a very commonly used tattooing motive, the ornamented bow has to be men-

tioned, exclusively intended for the back and as it appears, by preference, for the right half.



Fig. 20. 1/3. Tattooing motive: „*nánïgï*"; H.B.

A man of Tobádi who was decorated on each half of his back with a large frog, had, besides numerous fish-eyes and leeches, two bows to the right and one to the left. One of his fellow-villagers decorated in the same manner with frogs, had added above it a horizontal bow in the middle of the skin of the back, thus extending over both halves of the back. This formed an exception to the rule, to treat each half of the back as a separate space. The most common design is reproduced in fig. 21, *1* in which the wood of the bow, *pembi-tĕní*, is represented at both ends with a large curl; both rattan strings, *pembi-chi*, (when travelling and therefore presumably also in war a reserve string is always carried) each only fastened to the bow by one end, have an ornament at the free end, which, in reality only occurs on the wood of the bow, whilst the arrow, *pembi-natu* = child of the bow, stands with a forked line against the concave side. What this forked line means: a third string, drawn by the arrow placed on it (in casu behind), or the indication of a double pointed fish arrow or perhaps the representation of the bundle of arrows has not become clear to me. It must here be noticed that the forked line appears repeatedly without the straight piece. Fig. 21, *2* of the right half of the back of a man from Tobádi pleads in favour of the first supposition, an undulating line being here substituted for the forked line, probably a slack string standing in curves, on which no straight piece as a representation of the arrow now occurs either. The curls at the bow are also differently applied here. The bow as a tattooing motive occurs much less in the case of the men of Ingrâs and Ingrau than with those of the ruling village of Tobádi and if it does occur (fig. 21, *3* of Ingrâs), the arrow and the forked line are wanting and this space is then generally filled up with leeches. I myself began to notice this difference too late to determine by a closer and more extensive investigation whether the tattooing with an armed bow, probably a symbol of fitness for war, was forbidden to the inhabitants of Ingrâs and Ingrau; a similar prohibition issued by Tobádi would be entirely fitting in the existing relations.

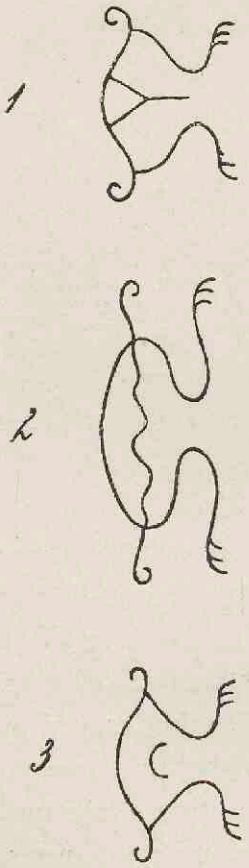


Fig. 21. 1/3. Tattooing motive: „Arrow and bow"; Humboldt Bay.

All the above mentioned figures were met with equally on young and adult men, and according to current reports they were made in youth by an old woman. All the young men who had been admitted to the temple (see Chapter XII), had already an equally abundant tattooing as the older men. The fact that the tattooing takes place so early in life and moreover by a woman, to whom no part in the religious life can be ascribed, makes it very doubtful whether in the villages of Humboldt Bay any religious importance can possibly be attached to it. Leaving this in the middle, it no doubt appears that the opinion of DE CLERCQ and SCHMELTZ [1893, 32] „special figures have no separate names", cannot be applied here; on the contrary it must be positively formulated that with these people not a single dot or dash occurs in the skin, which has not got its distinct meaning. At other places visited by the expedition

I seldom or never met with tattooing designs which corresponded with those of H. B.; something which to some extent resembles the bow is illustrated by DE CLERCQ and SCHMELTZ [1893, 32, fig. 11] of Jamna, where it occurs on the chest of a man; the name „*kana*" given for this by the natives to DE CLERCQ, probably refers to the rosin, which, when burnt, provides the soot for the tattooing and which is called „*kanä*" in the closely allied language of Lake Sentáni. On the face of the women of Nagramádu, a settlement half-way between Kwatisoré and Lake Jamūr, I saw a drawing like fig. 22, a crossing of two reversed coils, but where, probably as a matter of convenience, the drawer has placed one of the curls in the wrong way. Similar reversed coils are mentioned by DE CLERCQ and SCHMELTZ [1893, 32] on the faces of men and women at Wendèsi and Wandamèn as well as [l. c. 31] on the chest and shoulders of people of Bonggòse and Sirito; it has however not been ascertained whether these curls have the same meaning here as in Humboldt Bay. FINSCH [1888, 362] gives an illustration of the tattooing of the women in H. B. amongst which the leech, the bow and the hornbill can be recognised, I however, believe that he can only have seen the bow on the men. Besides the chest and arms, the back, the hands, the upper and the lower leg, the forehead, the cheeks and the chin are also tattooed, but the two latter places always remain free in the case of the men. These tattooing designs of the H. B. women have not escaped the notice of a single visitor, a clear proof that the skin of the women is indeed of a somewhat lighter colour than that of the men, thus allowing the blue black figures to stand out more clearly.

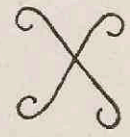


Fig. 22. 1/2. Tattooing figure of the face; Nagramádu.

On Lake Sentáni tattooing is much less used by men; a great many are entirely without it, but some designs of H. B. amongst others the fish-eye (by preference in the middle of the forehead) are found back here. When I had intimated in the village of Asé, the desire to be allowed to witness the tattooing of a boy, the fathers declared to be unable to assist me in this matter, as there happened not to be a single boy who wished to be tattooed. Evidently the choice of the proper time, is left to the boys themselves, even if between certain fixed limits. I here remember how DE CLERCQ and SCHMELTZ [1893, 32] reported that children were never tattooed at the request of the parents, but entirely according to their own choice. In the village of Waba, which, although situated in H. B., belongs to the tribe of the Sentáni, the tattooing customs are the same as on the lake. The women have commonly an abundant tattooing of the front of the body, often consisting of a quantity of parallel zigzag lines, often only the bosom is decorated. In the villages of Nächeibe and Sägeisårå I found on the chest of the men a drawing as fig. 23, *1* extending from shoulder to shoulder, on the back generally a symmetrical drawing called *náturarå* (perhaps the word *natu* here means: child). Some calves were also decorated, but the diversity of the designs did not appear to me to be very great. Here it was again said, that tattooing was the work of the women, these, themselves, were, as well as on Lake Sentáni, tattooed abundantly on the backs and the lower legs but especially between the mammae. This latter tattooing, that on the backs of the men, the name given to this and no less the design, illustrated in fig. 23, *2*, give rise to the supposition that the meaning of it all will, on further examination, prove to be more or less identical with the breast plate-shaped tattooing (*gatto*) which, according to FINSCH [1888—93, 89, fig. 5] indicates with the Motu

women of the S. E. coast the married state, but which is sometimes already applied during the engagement, and of which the inside one is called *natuna* (child) the outer one *sinana* (mother). THILENIUS [1902, 47] illustrates the tattooing of a woman of position of the Laughlan Islands, in which a similar chest ornament occurs, which was said to serve in order to get afterwards to heaven. From Hula WYATT GILL [1885, 288] also reports a necklace or chain tattooed round the neck exclusively for married women. The design fig. 23, *2* referred to above, was met with on the breast of a widow in the village of Siarí, with a downward curve, descending to the 5th rib, extending from shoulder to shoulder; the tattooing on the back was too indistinct to be made out. The same person had in the middle of the forehead a square-shaped design with a small circle in the middle (fig. 24). The arms were without any tattooing, also according to her statement (she was wearing a sarong), the legs, but another woman laughingly betrayed the secret that her legs were also tattooed. The whole of it was done in her youth, and apparently, in her case, no mourning tattooing had been added at the death of her husband. The population of Siarí has probably originated from a crossing of Wendèsi and Numfōr people. The missionary JENS thinks [1904, 54] that tattooing of the forehead, and also that of cheeks and upper arms, are sometimes distinctive of certain families and in the case of girls is executed at the age of 14—16, whilst some inhabitants of the coast attach to it a preserving force. Not improbably the idea of „totem" is hidden behind this. On the occasion of a short visit to the village of Wári on Wiak I found the tattooing of the men plentiful and sometimes very elegant, the women also were here more tattooed than was reported of the other places on this island (DE CLERCQ and SCHMELTZ [1893, 32]). At Kwatisoré, on the contrary, I noticed no tattooing on the men, but the women were tattooed on the face. The men of Nagramádu had simple dashes on the skin of the arms and their faces were decorated in the same way as those of the women (fig. 22).

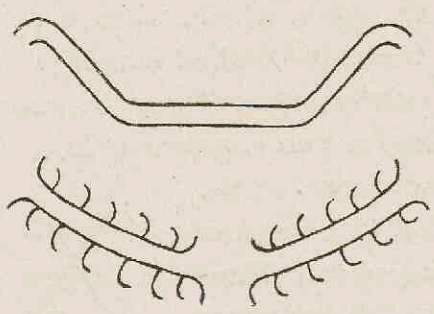


Fig. 23. 1/7. Tattooing figures of (*1*) back; Sägeisârâ. (*2*) breast; Siarí.

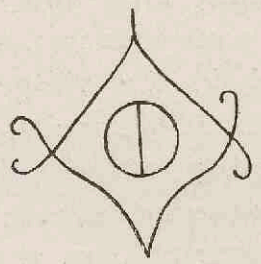


Fig. 24. 1/2. Tattooing figure of the forehead; Siarí.

Amongst the tribe of the Sĕkánto, living on the Jafúri, (the outflow of Lake Sentáni to the Tami River) with whom, during this expedition, the first intercourse was obtained, according to the government official P. E. MOOLENBURGH [1904, 185] tattooing does not occur. As further on amongst another inland tribe, the Maníkion, I did not notice any tattooing, (the inhabitants of the Arfak Mountains according to VAN DER GOES [1858, 165] and VON ROSENBERG [1875, 89] also entirely abstaining), the supposition arises that the inland and mountain population generally do not make use of it, or at all events, to a smaller extent; and, as far as they do, the custom may perhaps have been taken over from the coast people; a question which from an anthropogeographical point of view deserves every attention.

It is hardly possible to give here a review of everything that is worth noticing concerning the custom of tattooing in English and German New Guinea, all the more as, superficially considered, the customs in this respect vary a good deal. Thus, it is very remarkable that in the Berlin Harbour district, in the imme-

diate vicinity of Humboldt Bay, tattooing is so very rare. ERDWEG [1902] makes no mention of it concerning the here situated island of Tumleo and PARKINSON [1900, 24] only mentions that the women are tattooed, exclusively on the face and breast. Further to the east tattooing disappears altogether. WYATT GILL [1885, 287] wrote of British New Guinea that each tattooing mark of the men indicated a life violently taken; the black people of the west do not practise tattooing (MACGREGOR [1897, 51]).

The manner in which tattooing is applied, and the instrument used for the purpose also differ locally. DE CLERCQ and SCHMELTZ [1893, 31] report of Netherl. N. G. that the figures are first pricked and afterwards rubbed with charcoal. In Humboldt Bay and surroundings soot is used, obtained by partial burning of a dammarlike kind of rosin (see N°. 224 and 225), which is collected from the trunk, or from the soil at the foot of trees. With this soot the skin is sprinkled and then a moderately long piece of wood, as a handle, to the end of which a sago thorn is transversely fastened, is taken in the left hand. By knocking lightly with the fingers of the right hand on the handle, this is brought into a springy motion, by which the thorn each time enters the skin, and from the red figure which gradually shows through the black layer the design obtained can be judged.

Next to the tattooing, the cicatrices of the skin form a kind of ornament, which appeared to exist in all the different parts visited by the expedition. What the meaning is of the custom and what all the figures created represent, I have not been able to discover. One of the objects is certainly ornament and in fact a naked Papuan in his naturally plain skin makes on the European, who, by a stay of some duration, has become accustomed to skin ornament, a less cared for impression than another whose skin is provided with well executed scars. Such raised figures, burnt in on the backs of women, standing out over the surface of the skin to the thickness of a pipe stem, are already reported from H. B. by VAN DER GOES [1858, 172], and FINSCH [1888, 362] noted that not only the men, but also the women were decorated in this manner. Now-a-days they are seldom seen here on the men (Pl. XLV, fig. 3) but very often amongst the women and the frequency of a snake or reversed coil figure, not unlike the leeches noticed amongst the tattooing, but provided at one of the ends with a loop (Pl. XLVII and XLVIII), is particularly striking. Figures of this size, so regularly smooth of surface and raised so much (3—6 m.m.) above the level of the skin, I have not met with anywhere else amongst women. This scar pattern is however of wide distribution; thus in British N. G. as „tabu", with women on the arms and also on both sides below the loins (REPORTS [1904, 168 and Pl. IX, fig. 2]) whilst FINSCH [1888, 334, fig. *d*] illustrates of K. W. Land as an ornament with men, snakes, which have the same shape of head as those of the H. B. women. Such raised snakes, but without a head I found on several men of the district Sěkå on the skin of the backs and also with a young man of Angádi. The latter had his left shoulder decorated with it (according to THOMSON [1892, 126], in British N. G., the spot where the tribal crest is applied by preference), but the connective tissue had accidentally been torn right across and naturally healed only very slowly. As such big raised scars do not appear to occur in Geelvink Bay itself, an analogy of customs again appears here with the south west coast (with which Angádi has also the language in common) and from where ROBIDÉ VAN DER AA [1879, 164] reports burnt-in crosses and other figures on the chest and upper arm of the men, adding that these serve to please the fair sex. Lineal raised scars occurred over the whole length of the thighs, along the lateral side with men of Kaptiau, as shown on fig. 191

and 192 and with a man from Síluwār on Liki (Arimoa Islands) on both buttocks, to the length of 8—14 c.m. and 8 m.m. wide.

Round, raised spots are also often met with in Geelvink Bay, in groups of small circles of 6 or more on the shoulders and upper arms of the men (see fig. 27, with the second man from the left also round the navel). In the case of some men from Kwatisoré I saw, on the front of the body, two rows of such slightly raised scars, starting from the navel, like a letter V extending to both shoulders, where they joined groups of those spots on each of both upper arms. At Wári also the raised scars occurred on men. It appears that raised scars can be produced in different ways. From information obtained in Humboldt Bay I gather that the skin is first cut and the granulations arising in the wound are scorched at intervals, by holding red-hot strips of the leaf stalk of the cocoa-nut palm over them, and the epidermis is only allowed to grow over it after the granulation tissue has been raised by extensive growth. This certainly corresponds with the information of MÜLLER [1857, 69] from the south coast, where the skin was cut with a stone or shell and the wound caused was burnt; according to MODERA [1830, 75] these scars were lying on the skin to the thickness of the little finger. A trader at Siarí told me that the raised stains in Geelvink Bay are obtained by placing on the skin, without previous incision, a somewhat moistened plug of cotton of the *pohon baru* (Malay for „new tree") and then lighting it, that some then walked up and down with pain, but that the operation was always continued for the sake of embellishment.

DE CLERCQ and SCHMELTZ [1893, 32] call the material „fungus" and state that each time after a distant journey the number of the raised spots is increased by one, — a peculiarity, which was communicated to HORST [1889, 238] on the island of Japen, as also, that the girls at dances give the young men such wounds with burning wood. ROBIDÉ VAN DER AA [1879, 168] turns these matters round where he writes of Karas, on the south west coast: „On these islands they are fond of giving proof of manly strength, a sport is made out of it and one man challenges another to see who can best endure pain. Thus f. i. fibres of cocoa-nut husk are placed on upper arm or chest, and then ignited; whoever can stand the deepest wounds to be burnt, without giving any sign of pain, is the hero".

FINSCH [1888—93, 345] who found the round, raised stains often on women of Astrolabe Bay on shoulders and arms, was told that they serve as a memento at the death of near relations, but also as a proof of courage, whilst in the Gilbert Archipelago he saw young girls causing such scars on themselves with a red-hot nut shell, „out of fun". He states further on [1888, 333] that in K. W. Land as well as on New Britain [1888—93, 14] a repeated incision leads to the same results, but that several months are required for the purpose. MC FARLANE [1888, 126] however writes, concerning this, of the Gulf tribes „by cutting and inserting into the wound powdered shell, which gives it when healed a swollen, rib-like appearance".

Much more common than the raised scars the flat scars occur in Netherl. New Guinea, as well lineal, as in the shape of round spots. Lineal ones I found with men of Nagramádu; in still larger quantities and distinguished from the surroundings by a somewhat lighter colour, in the skin of the backs of the women, apparently without regularity, to the length of ± 8 c.m. mixed up anyhow; so narrow, that they can only have been obtained by incision. On a man at Liki I found, on the other hand, such lineal scars in the skin of the chest and the belly very regularly placed, all running vertically and 4—6 c.m. long to the number of 20, and on another, about eleven shorter ones, vertical and parallel, distributed over the whole breadth of the forehead. With the object of this arrangement I have not become acquainted. The wide distribution on the individual is opposed to the idea that they have

served for the local abstraction of blood. Where this is usual, as in K. W. Land, according to HAGEN [1899, 257] deep insertions are made with pieces of glass, in cases of head-ache, f. i. above the root of the nose, sometimes down to the bone, whereby deep scars are caused [l. c. Pl. 23]. These also occur in the Berlin Harbour section and are according to PARKINSON [1900, 24] easily distinguished from proper ornamental scars. As far to the west as Tumleo, this custom does not appear to exist, at all events ERDWEG [1902] does not report it of this island; wherefore it may be safely accepted that the superficial scars have no therapeutic meaning on Netherlands coast territory.

Finally of very wide distribution, are the stainlike, non raised scars, noticed by a slight difference in colour from the surrounding skin. Nowhere did I see these scars so abundant as with the men of Nagramádu; from the middle of the region of the loins two rows of small round stains ran like a letter V, the lines outward somewhat concave, up to the arm-pits; from a point just below the navel a similarly curved line, like the left half of a V ascended to near and outside the left nipple, the shoulder was covered with the same stains and from there they reached in a wide strip along the outside of the arm down to the elbow joint. HORST [1889, 243] has seen similar scars between the breasts of marriageable women on Anús, caused by the burning of scrapings of the leaf stalk of the cocoa palm, whilst DE CLERCQ and SCHMELTZ [1893, 32] still mention a number of places in and near Geelvink Bay. In Humboldt Bay these scars from burning, *nèwisji*, also occur, and by no means rarely as VAN DER GOES [1858, 171] thinks. Of fourteen carriers of the expedition from the villages of this bay six were ornamented in this way, principally on the skin of the chest, which perhaps on this account, remains free from tattooing. Thus *Pitjär* of Ingrås had, besides 3 stains in the region of the stomach, 31 distributed over the right breast and 17 on the left one in a double row from the shoulder under the clavicle and running down along the left side of the breast bone. With the five others, only one half of the breast and in the case of four the left half was ornamented with curved rows (1—3) from the shoulder down along the nipple. Otherwise they only occur here on the upper and forearm, as well on the extensor as on the flexor side. On Lake Sentáni and in the allied village of Waba these scars, *mangu*, are again more rare; here I also saw them again on the shoulder. From everything stated above, it is proved that in Netherl. New Guinea the scars of the skin are more common than was assumed by DE CLERCQ and SCHMELTZ [1893, 214] and being by no means limited to the places to the west of Arimoa (Kumamba) [l. c. 33], are probably most handsome in Humboldt Bay. I have not obtained myself any data as to the deeper meaning, and it is thus still undecided whether on the Netherl. territory the scars of the skin serve to distinguish different families, as is the case on British territory (THOMSON [1892, 126, 129]).

The PAINTING OF THE SKIN belongs no doubt to the oldest form of ornament and JOEST [1887, 21] is certainly right when he says that man has painted himself before he began washing, although a proper washing with soap can have the same effect on a Papuan. Purposely, I washed one half of the face of a young man of the Manikion; compared with the original colour of the other half of the face, it appeared as if the washing had brought on a light colouring, with which the said person was walking about not a little proud; the demand for soap, which followed, may therefore not be suspected to have originated from a real principle of cleanliness. Next to the information by FINSCH [1888—93, 226] that everywhere in K. W.

Land and in the whole of Melanesia [l. c. 14], black appeared to be the sign of sorrow, I mention the report of ERDWEG [1902, 289] that in Tumleo (Berlin Harbour) the yellow white clay (probably the yellow clay also mentioned by FINSCH [1888, 318]) is decidedly the only mourning colour. HAGEN [1899, 263] found on his territory the same as FINSCH and adds that red stands for more joyful emotions and that, when there is any cause for it, both colours are applied at the same time on face and body. Those pigments are mixed with oil from the seeds of *Calophyllum inophyllum* and of *Aleurites Moluccana*, or according to NACHRICHTEN [1884, 24], boiled out of the pith of the cocoa-nut. From British New Guinea, black is also reported as a mourning colour, sometimes clay is used (ANNUAL REPORT [1899—1900, 63]), whilst CHALMERS [1885, 37] saw besides, how mourners smeared themselves with ashes. The Tugeri also like to paint themselves; the Leyden Museum possesses a spatula out of cassowary bone (Ser. 941, N°. 42) which was carried with a string round the neck, specially intended for smearing the colours (here red, black and white) on the face.

Besides red, black and white, yellow and grey are applied to the skin; when other colours become available, as the washing blue imported in German N. G., these are also gladly used. On Lake Sentáni small pieces of red and blue dermatographical pencil were at a premium in the bartering trade, whilst the men of Tobádi eagerly demanded the favour of being painted with blue oilpaint. In Humboldt Bay and surroundings the red consists of powdered clay. The colour is brownish red and there is some exaggeration in the representation which VAN DER GOES [1858, 82] gives of the hairdress coloured with this clay, which is said to stand out against the green of the forests, like the red feathers of a bird shine through the green leaves. Where the clay is obtained by the inhabitants of Humboldt Bay, I have not been able to find out, but certainly not from the adjacent steep mountain Mèr on the inner bay, which was already appreciated by FINSCH [1888, 348] as an excellent landmark. It demands some explanation, why he adds „and it received the distinguishing name *mera* = red, because in the thick forest a tile-red stripe is already noticed from afar, which is caused by the red clay". As a matter of fact, the mountain Mèr consists of limestone and the debris have by dissection obtained a reddish colour. But it was impossible to make out, what the name „Mèr" means, which also occurs here as a surname of persons; with the Malay „*merah*" = red, it has however no connection and red is in the language of the people of the country according to BINK [1902, 19] „*metsje*", according to myself „*misji*" or „*mĭsi*". That the clay of Mèr is not used for the making of pots (FINSCH [l. c. 353]), I have already stated above.

The village of Năcheibe prepares red clay for the bartering trade, possibly therefore also for the people of Humboldt Bay and Lake Sentáni, with which latter it is said to be connected by a mountain path over the Cyclope Mountains. The sample of the collection (N°. 208, Pl. VI, fig. 6) originates from the above village, where two women were occupied, one powdering the rough pieces of clay by hammering them with a stone, whilst the other made small puddings out of it (either or not provided on the top with a small button) and round balls, about the size of a fist, wetted the surface with water and then with the wet fingertop made two circular, horizontal stripes, connected by about four vertical ones. After this the produce was put out to dry. The lines impressed, hastily, with divided attention, I should feel inclined to consider as a trade mark, not as an ornament, in which latter respect Năcheibe, as can

be seen on some objects of the collection, produces much that is beautiful. The idea trade-mark, however, arouses the suspicion, that also from elsewhere, inside the same trading radius, red clay might be placed on the market as a toilet article. But judging by the eagerness, with which our rowers from Tobádi wanted to seize upon a shell with clay, mixed ready for use (N°. 209, Pl. VII, fig. 9), which I left lying about for a moment, the produce of Năcheibe appears to be of first rate quality. It has really a very strong colouring power. That this red clay should be obtained by the heating of earth containing iron, as FINSCH [1888—93, 14] supposes, has never been noticed by me; strange enough VAN DER GOES [1858, 169] also reports that the red clay for powdering the hair of the men in H. B. is first heated. The contents of N°. 209 smells of old cocoa-nut oil which they know how to prepare in H. B., to the great pride of my interpreter, who remarked in a desparaging manner, that the people of Lake Sentáni only mixed their pigments with water. In K. W. Land, where, at the time of FINSCH [1888—93, 89], the art of preparing oil was not understood, the scraped pith of the cocoa-nut was used. I do not know whether in H. B. another liquid is used, identical with the liquid rosin- or gumlike juice from a wild kanari tree, obtained by incisions in the trunk, which according to DE CLERCQ and SCHMELTZ [1893, 12], serves elsewhere for doing up the hair.

The black pigment is the same soot, *chăn, cháne*, which is used for tattooing, obtained by incomplete burning of the damarlike kind of rosin, *jĕchĕjú*, (N°. 224). Evidently, it is very well known that with a limited admission of air more soot is formed, than with open burning, at all events, when I was shown the preparation of this soot, by placing a potsherd upside down over a smoking piece of burning rosin, the earth round the sherd, was pressed down to limit the admission of air, and to increase the gathering against the inner side. This mode of preparation makes it more valuable than the other pigments. The preparation out of cocoa-nut shells or the use of black minerals I have never noticed. As N°. 226 and N°. 227 of the collection show, the blacking is kept in small bamboo cylinders, *ide, ide fonze*, generally closed with a plug of vegetable fibres or of prepared bark, *máre, mară*.

The white pigment is nothing else than the siri-lime, mixed with water or according to BINK [1897, 163] with cocoa-nut oil; the yellow is the clay as used at Kajó Jenbí for the manufacture of the pots (see N°. 713), the grey pigment (N°. 228) finally is the sort of clay mentioned on pag. 1. — ROBIDÉ VAN DER AA [1879, 269] states that this clay was brought on board by the inhabitants as eatable earth and as an object for barter. I presume that the manual to indicate that face and chest are smeared over with this material, has been mistaken for the movement of the hand in indicating eating, in which case the hand also moves about between the mouth and the region of the stomach. FINSCH [1888, 346] has at first also been misled in this respect; pieces in the shape of flat, round, perforated cakes, fit to be suspended on a string, were offered to him, and strange to say, small pieces of it were even consumed in his presence [1888—93, 226]. DE CLERCQ and SCHMELTZ [1893, 16, N°. 30] report from H. B. a piece of similar shape, only used for gluing on the hair; I have not seen such use made of it now. In the language of Jótĕfa it is called *áme*, whilst the place where it is found was still further indicated as „*Kăjowă*", meaning presumably „belonging to the territory of Kajó". Barkfibres, out of which the rope for the bags (Chapter V) is prepared are also coloured with this clay. Mixed with oil the colour would become much darker. The grey clay of Humboldt Bay consists, according to the analysis of VLAANDEREN [1874, 179],

principally of silica, 38.08°/₀, magnesia 34.42°/₀, protoxide and sesquioxide of iron 8.19°/₀ and water 16.32°/₀. (CRÉTIER [1877, 71] did not find any magnesia in eatable earth of Admiralty Island, but on the other hand much alumina, 35.44°/₀). The grey, the red and the yellow clay have, according to Prof. Dr. A. WICHMANN, notwithstanding the difference in colour, a great similarity in the composition. In Humboldt Bay black and red, and especially the first, were the favorite colours with which to paint one self. When any thing special was taking place, the number of black painted men noticeably increased. Thus with the religious feast at Waba (fig. 179 and 180); but never did black come so much to the fore as on the occasion of a competition in shooting with bow and arrow, organised by the expedition. At the appointed hour the competitors approached our dwelling in double quick time, not in a straight line but with great curves, they threw their bodies forward and backward, lifting high their legs, and moving wildly their arms with bow and arrows, shouting loudly all the time. All this created the impression of warriors rushing to the fight. From this quite unexpected and purposely arranged representation, during which, most of the Papuans had a wild expression in the face, it might be concluded that they wished to interpret the shooting competitions as actual war, and the general use of black, would then stamp this as the colour of war. Tugeri youngsters who are being initiated into manhood in seclusion, are also often blackened (SCHMELTZ [1905, 197, fig. 3]).



Fig. 25. Face painting; Humboldt Bay.

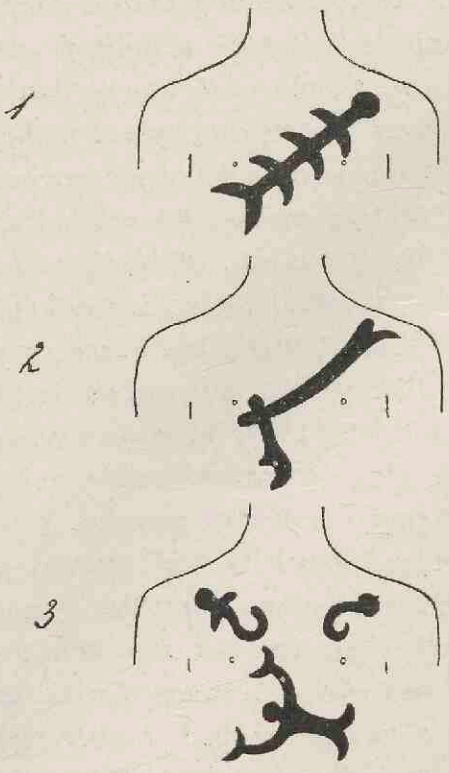


Fig. 26. Breast painting; Humboldt Bay.

But after this experience, I consider it unimaginable that black could be here a colour of mourning; — during our stay nobody died and I attribute it to this that we neither saw the yellow colour used, which on the adjacent Tumleo is the mourning colour. The white, I have only seen applied to the skin on some few occasions. The designs of fig. 25, in black are all taken on the occasion of the shooting competitions, the three figures to the left in the upper row, of people from Ingrås, the others from Tobádi. Evidently, the opening of the mouth

is most often entirely surrounded by the colouring, next to this the eyes, less the nose; the ears always remain free. Presumably, all these local ornaments, also mentioned by BINK [1897, 163], have a definite meaning. The ornaments on the chest of fig. 26, *1* (black) 26, *2* and 26, *3* (both red) with more strongly accentuated forms, suggest that in the first case a fish with several pairs of fins is represented, with fig. 26, *3* on the left breast the leech, on the right a snake and below a bird, provided with wings, struck forward and split. Fig. 26, *2* reminds me of an axe or a sago club. Fig. 2 of Pl. XLV also shows breast painting.

LOOSE ORNAMENTS; CLOTHING. — Descending from the top to the bottom, the hair at once demands every attention. Leaving it to others to decide whether or not the hair gave to its wearers the name of Papuan and acknowledging that straight-haired or wavy haired and red haired people occur, it is indeed allowed to talk about a typical growth of the hair, which, in short, amounts to this, that the hairs which appear at regular intervals out of the skin, join each other, when they become longer, to the number of 60—120, and form joint spirals (see Chapter XIII). During their further growth the regular, joint winding is interrupted by outward influences, the more or less stubborn hair spirals demand more room at the top than required at the root and, supporting each other sideways, stand out of the head like a mop. MEYER [1873, 307] justly wrote to VIRCHOW: „about the hairdress of the Papuans a book might be written". In what follows here it will be necessary to limit myself to personal observations and what is connected with these. Beforehand it should be remembered that the abundance of hair is accompanied with a proportionate quantity of lice. Probably the frequent shaving is sometimes connected with this, in other cases the itching demands the frequent scratching with the scratching sticks and combs, and again one often sees how one person cleans the other. As reported of the Arfak by VON ROSENBERG [1875, 89], of British New Guinea by D' ALBERTIS [1880, I, 261], THOMSON [1892, 68] and MACGREGOR [1897, 30] and seen by myself at Tobádi, it is sometimes customary on these occasions to eat the prey. The rubbing in of the hair of the head with ashes and water (MACLAY [1873 a, 234]) or the smearing with lime, as sometimes happening outside the Netherlands territory, is not efficacious against this evil. When our carriers from Tobádi had to remain some time on board the „Zeemeeuw", they were so much troubled with this complaint, that they gave up their colossal hairdresses.

Thus the first care the Papuan can bestow on his hair, is to enlarge artificially the circumference of the mop given him by mother nature, by disentangling and stretching with his fingers, with scratching sticks (scratchers) or with the points of the comb, the united, spiral windings. The expression of BIRO [1899, 2]: „Before anything else the hair is frizzled" must therefore not be misunderstood. For the hair originally is already so frizzly, that notwithstanding constant combing, as sometimes prescribed by missionaries to their followers, it still remains more or less spiral. If, on the contrary, it is compressed, as is done by many inhabitants of the Berlin Harbour section, an entirely tangled hairdress is created, as already compared by FINSCH [1888, 325] and also by PARKINSON [1900, 25] with an old fashioned allonge-wig, (MEYER and PARKINSON [1894, Pl. 45 and 48]).

The dressing of the mop is done by preference by a second person, generally a boy, when, in Humboldt Bay, red clay pomatum is at the same time applied. As a preparation for festivities, which are numerous, I often witnessed, how those who were operated upon, sit down on the staging before their houses, armed with an enviable patience, and having each

a boy behind them. In Asé, see fig. 29, the boys just admitted into the men's watch-houses, *öbè*, are charged with this work; in Tobadi, those that are apprenticed in the temple, *kărĕwări*. The young hairdresser rubs a little of the prepared red clay between the palms of his hands and pulling out one tuft of hair above the others, rolls it between both his hands. Thus most hairs remain black at the roots, only the hairs of the margin are coloured over their total length. After the colouring, the fingers of both hands are actively introduced into the hair, which is thus pulled up to the utmost extent; curls which are sticking out too far are again pressed back, whilst the busy young man is constantly bending forward to survey the hair from different points, trying hard to discover irregularities in the red, curly surface. This scrupulous care is constantly controled by the man sitting with a small piece of looking glass, who, by holding this sloping in front and above the forehead, judges the course of events. The fear of mirrors, stated at the time of VAN DER GOES [1858, 182] in Humboldt Bay, has disappeared and small pocket mirrors are here of great assistance to the ethnographer. In accordance with this custom, the manual used when a mirror was desired, consisted in holding the left hand at a certain distance in front of and with the hollow turned towards the forehead, and looking into this as in a mirror, with upturned eyes, quasi at the reflected hairdress. The men of Tobádi, the swells of these coasts, sometimes only apply the colouring to certain parts, whilst the remainder is left in its natural, black colour, the partitions generally running in a curved line from the front to the back (see Pl. XIX, fig. 1, 1[a] and 7).

A figure of one spiral twist and a half in red, as also described on the handle of a spatula (N°. 91) is considered as an artistical achievement of a very high order. To retain a sharply defined border of red and black, the tufts of hair which are to be coloured red, must be pulled up far above the level of the surroundings; the natural, spiral winding of the hair easily allows such stretching.

The use of red clay, previously baked, as a powder for the head, has never been mentioned again by explorers of Humboldt Bay after VAN DER GOES [1858, 169]; — FINSCH [1888—93, 227] however talks concerning K. W. Land also of „powdering" and D' ALBERTIS [1880, I, 239] describes minutely how on Darnley Island red clay is roasted beforehand with the flowers of Hibiscus.

It appears that the use of red clay in the hair, is a privilege obtained in Humboldt Bay after admission into the *kărĕwări*; once obtained, it is used as long as the years of vanity last, in most cases for life; the grey haired old man here finds back his youth. But some of the older people, give up the care for their appearance, which particularly characterises the people of Tobádi. Whilst the impurity of the skin increases and the red siri saliva is only insufficiently removed from the corners of the mouth, the hair is left to itself and then often shows quite plainly the arrangement of the tufts. On Lake Sentáni these types are more numerous. MACLAY [1873[a], 235] stated that old Papuans did not use red, but black in the hair, which use of soot according to FINSCH [1888—93, 227] and others, just as the use of lime (BIRO [1899, 2]) however also occurs in K. W. Land at other times of life. But from Netherlands New Guinea neither the use of soot nor that of lime for the hair, has ever been mentioned and I have never come across it either. To the constant use of the red clay, VAN DER GOES [1858, 169] has ascribed the early appearance of baldness, which indeed occurs more than elsewhere in Humboldt Bay and even still more on Lake Sentáni; in the case of the

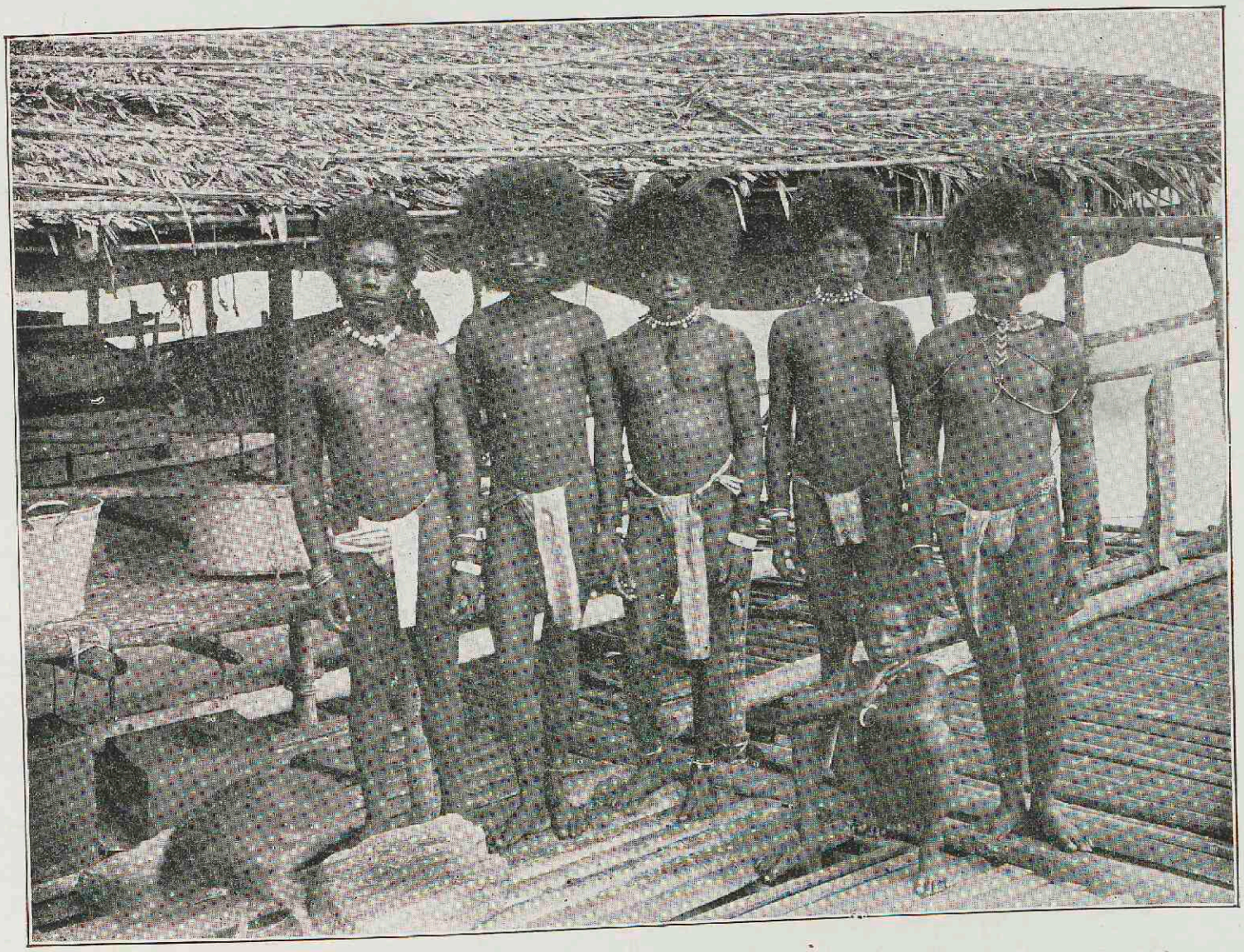


Fig. 27. Papuans of Siarí.

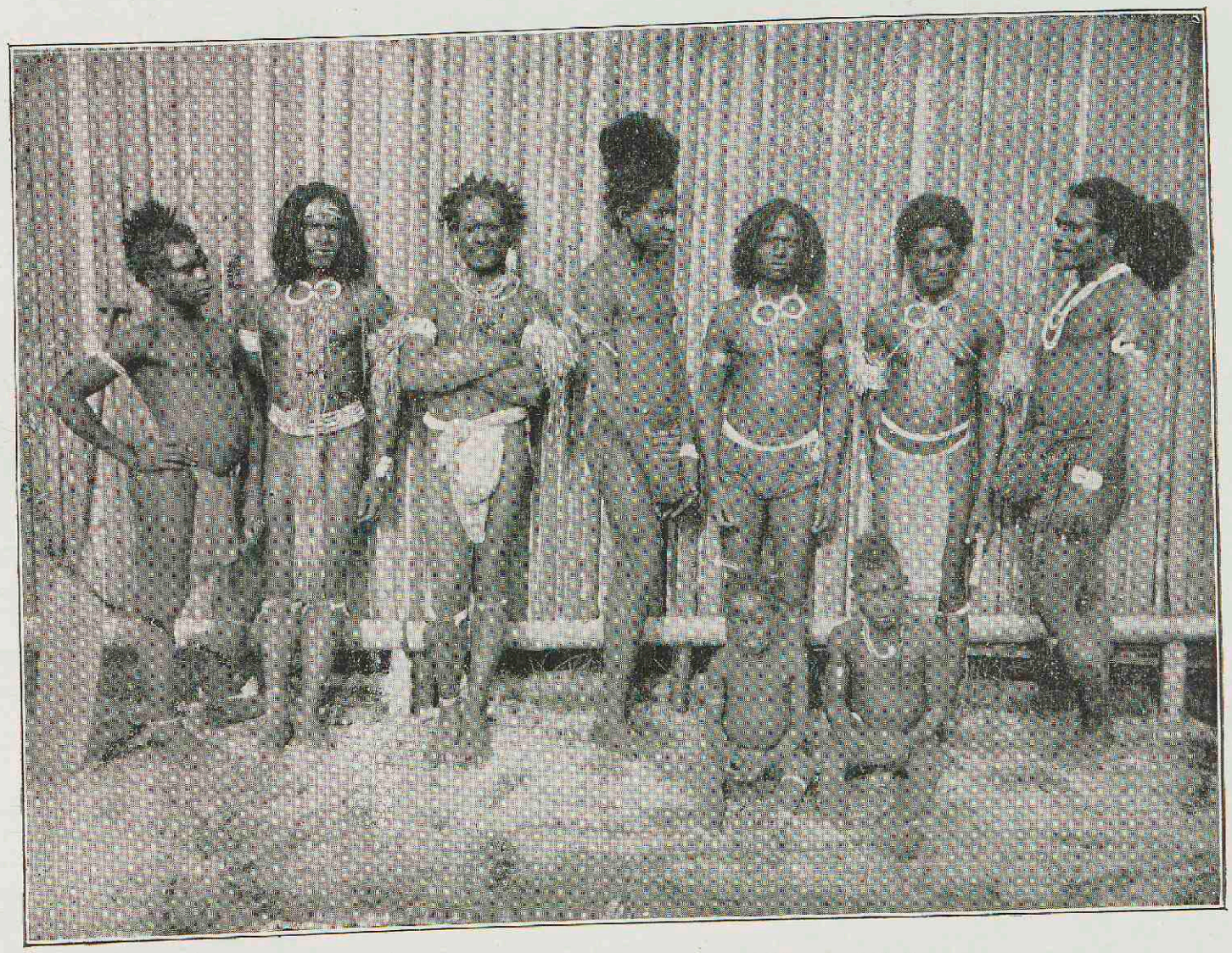


Fig. 28. Papuans of the coast, to the west of Humboldt Bay.

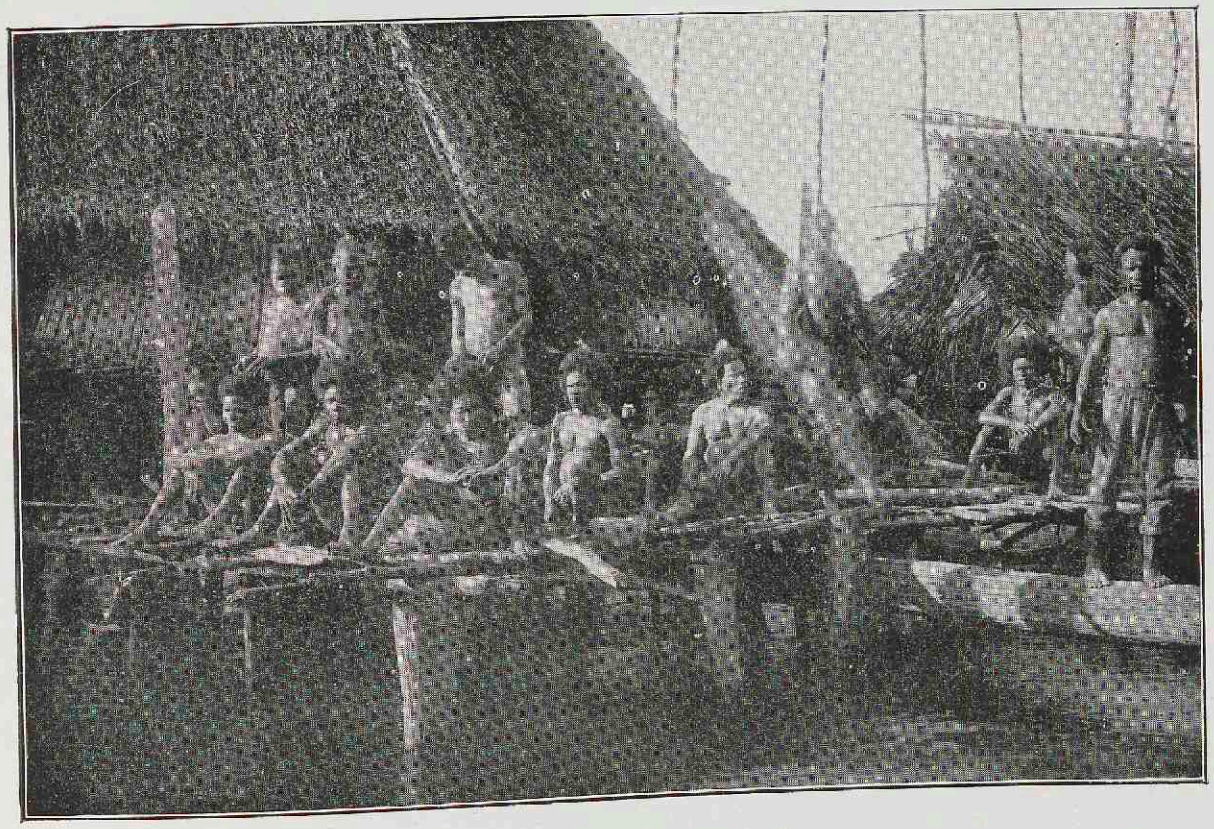


Fig. 29. Hairdressing at Asé.

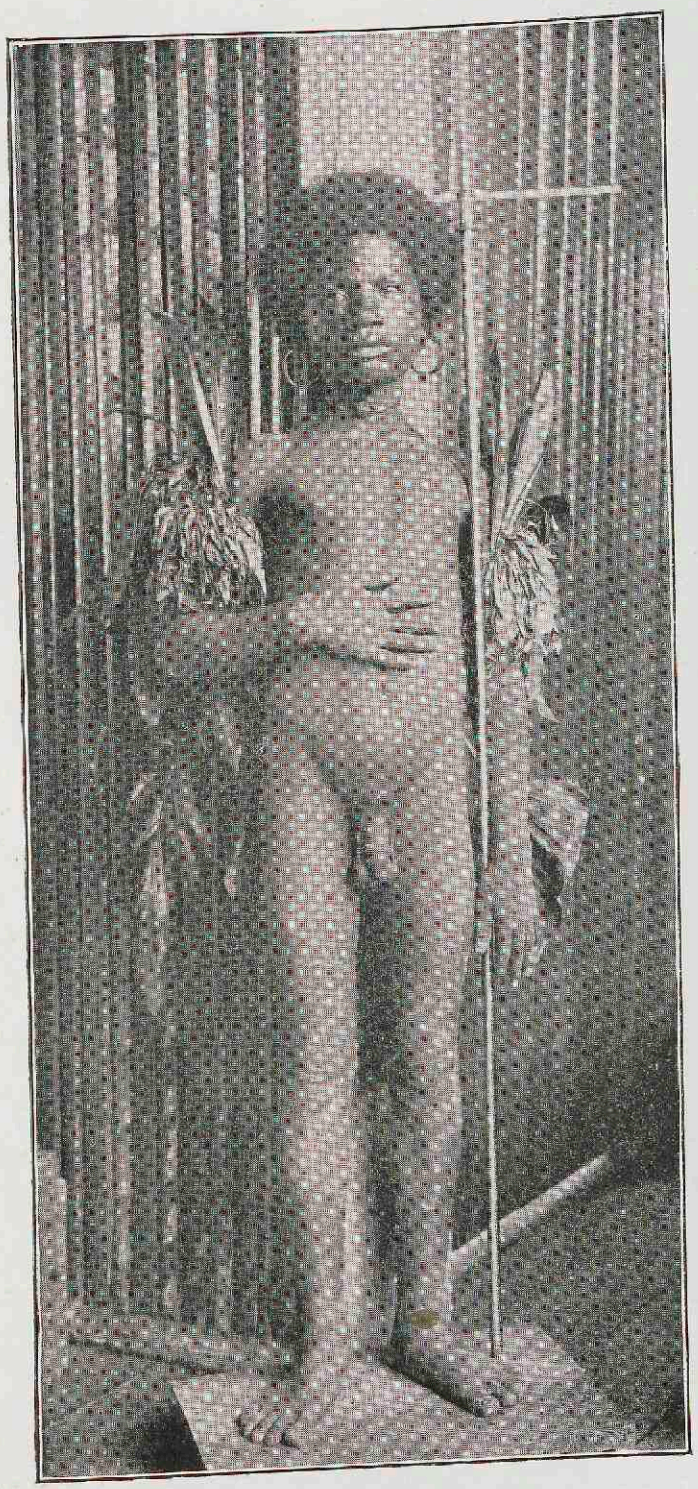


Fig. 30. Young man from the *kărĕwări* of Tobádi.

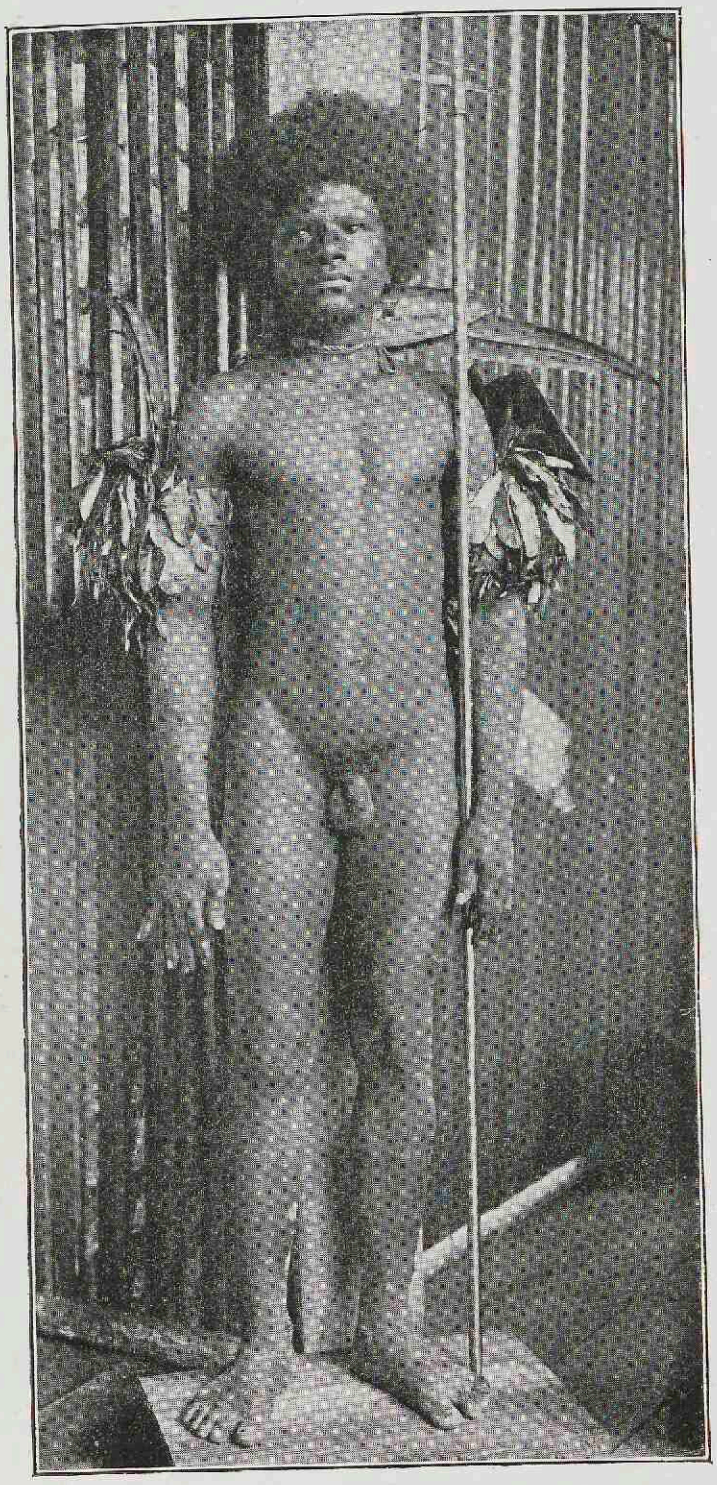


Fig. 31. Young man from the *kărĕwări* of Tobádi.

women however who, as will appear hereafter often used red clay, although in a different way, I have not discovered any baldness. This much is certain that red clay sticks to all the head and neck ornaments which I collected from Lake Sentáni, Humboldt Bay and adjoining coasts, including Oinåke; of Attack Harbour FINSCH [1888, 340] already mentioned the red clay.

It is well known that here in the case of the children of both sexes, the hair is shaved, with the exception of a strip of the breadth of two to five fingers, which runs in the middle from the front to the back (fig. 1, 28, 101, 124) and is often compared with a cock's comb. With the girls this is no longer found to be the case after the 5th or 6th year of their life, whilst the boys in H. B. are once more entirely shaved on entering the temple, after which they are allowed to wear all the hair at an equal length. Fig. 30 and 31 show how after this the true mop gradually develops itself. I cannot conceive what is hidden behind this custom, but for the sake of a connection possibly to be discovered later on, I refer to HADDON'S communication [1894, 109] that the boys of 14—15 years of the Papuan Gulf District are clean shaved in September and are then locked up in the *Elamas* for 8—9 months, until the hair has again reached a certain length.

On Lake Sentáni these matters are arranged differently; here boys of small age are met with in the men's watch-houses (these are not proper temples) still provided with the cock's comb. Besides in the districts mentioned, I saw the cock's comb worn by boys in the district of Seká, which lies to the east and in the villages of Năcheibe and Săgeisårå, which are situated to the west of H. B. In the adjacent German territory it has been noticed as far as Lektre, the Massilia of FINSCH [1888, 333], whilst in New Mecklenburg (New Ireland) it is even worn by adults (FINSCH [1888—93, 46]). The male inhabitants of Humboldt Bay therefore wear during life no other hairdress than that of the cock's comb and the full mop.

Entirely clean shaven heads, as sometimes seen more to the west, are therefore never noticed here and all other hairdresses mentioned by scientific travellers from here must have necessarily belonged to occasional visitors, who, according to my experience, are hardly ever wanting in this bay (see Chapter VI).

The decoration of the hindmost hairs of the cock's comb, mentioned by DE CLERCQ and SCHMELTZ [1893, 11] of H. B., the wearing of a plait made of these hairs and rolled round the head (VAN DER GOES [1858, 169], CHALLENGER [1876, 323]), all this can only have been observed in the case of strangers. The remark by the last writer that the hair is generally whitened with lime or coloured red with a mixture of lime and ochre is entirely wrong. Fig. 28 shows an assortment of hairdresses (men standing) taken of casual visitors of H. B.

The women wear the hair fairly short (DE CLERCQ and SCHMELTZ [1893, 11]) (in this case they don't shave it as often as in Tarfia and Tanah Merah), but very often also in thin red coloured tresses, as FINSCH [1888, 362] also saw more to the east. VAN DER GOES [1858, 172] and BINK [1897, 162] thought that these tresses were twisted; according to the latter they were characteristic of married women.

Neither is correct, as each tress simply consists of a natural tuft or ringlet, entirely saturated with red clay, and I myself saw how even in the case of girls about 5 years old, who still wore the cock's comb, all the hair of this comb was formed into similar tresses. Fig. 10, Pl. VII, shows such a tress separately, heavy with clay. On account of this weight they also hang

down on all sides of the head, as can be noticed on Pl. IL, fig. 1. When in motion they dangle along the forehead and the neck, and often stain the skin a good deal. HORST [1889, 248] could not disguise his dislike, VAN DER GOES, l. c. however did not think it ungraceful and I can share this opinion, but may not conceal that FINSCH [1888—93, 227] who, much taken with it, illustrates this hairdress (1888, 108, 362), grants the palm of beauty amongst her Papuan sisterhood, to the woman of Humboldt Bay. The choice between the two hairdresses appeared to me to be entirely left to the taste of the women.

Again it is characteristic that on Lake Sentáni, as well as along the coast to the westward, the wearing of the clay tresses never occurs and is considered here as a prerogative of Humboldt Bay, which one does not dare to attack. When nevertheless I noticed this hairdress at Asć, it appeared that the wearer was a lady from the Sentáni district married in Humboldt Bay and now entitled to and not a little proud of the much envied dress. The hairdress of the boys and men does not differ here from H. B. — A hairdress not noticed until now in Netherl. N. G. was met with at Sawćh as well as amongst the Sĕkánto. The adult men here wear the hair short, with the exception of a round spot on the top of the head, where it has its full or at all events a greater length, which gives the impression of a wig which is too small for the wearer. A similar dress is mentioned a. o. by HAGEN [1899, 168] from Finsch Harbour and Huon Gulf, where round the plume of hair a ring of rattan is worn like the brim of a hat. Such rattan rims are also in the present collection, but are not original from Sáwé or Sĕkánto. One single man of the Sĕkánto wore a small beard; the women had short hair.

Men with very short hair were met by the expedition at Kaptiau, where in this case almost always an ornament (N°. 259, Pl. VII, fig. 15) or a wig was carried on the top of the head, and also on the island of Mios Kórwār, where, owing to raids, people from Sówek near Supióri had fled with women and children and constructed some primitive dwellings. Still people wearing all their hair also occurred here; I cannot, however, decide whether this was an indication of social position, the latter being the masters, the former the slaves, as mentioned of Doré by VAN DER GOES [1858, 149] and of Tábi (to the east of the mouths of the Amberno River) by ROBIDÉ VAN DER AA [1879, 109] the same as for Wári, where yet another kind of hairdress is observed amongst the men. This consists in all the pretty long hair being gathered into a bundle, round which, close behind the crown of the head a string is laid, by which the shape of the head becomes more apparent, the bundle sticking out in the shape of a large plume. It is questionable whether this dress, which as is well known, is prescribed by the Missionaries to the frizzly haired Christian ladies, originates with the Papuans themselves. It is a fact that DE CLERCQ [1]) saw on the men in the Maccluer Gulf the same kind of hairdress, also at Wéwć [l. c. 17, Pl. I, fig. 1] where a handsome ring was used, and I myself on the women at Siarí, who used a string of beads for the purpose.

It may be mentioned in passing that KRUYT [1898, 10] saw the same hairdress on people from the interior of Celebes, who had come down to Paloppo; here the string was made of rattan.

A corresponding effect is obtained when instead of the string a short bamboo tube,

1) DE CLERCQ and SCHMELTZ [1893, 10, Pl. XL, fig. 3 a].

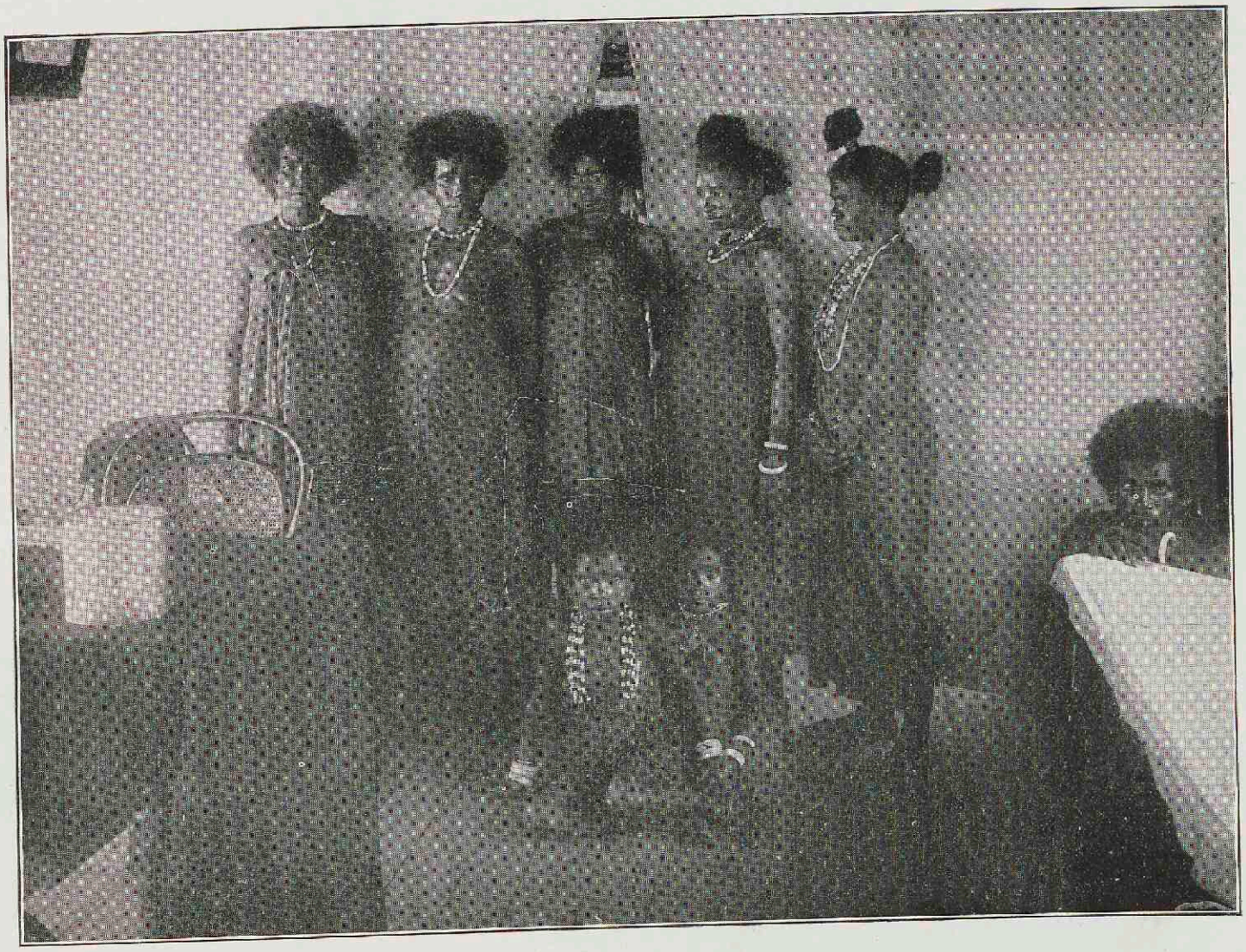


Fig. 32. Group of Kwatisoré.

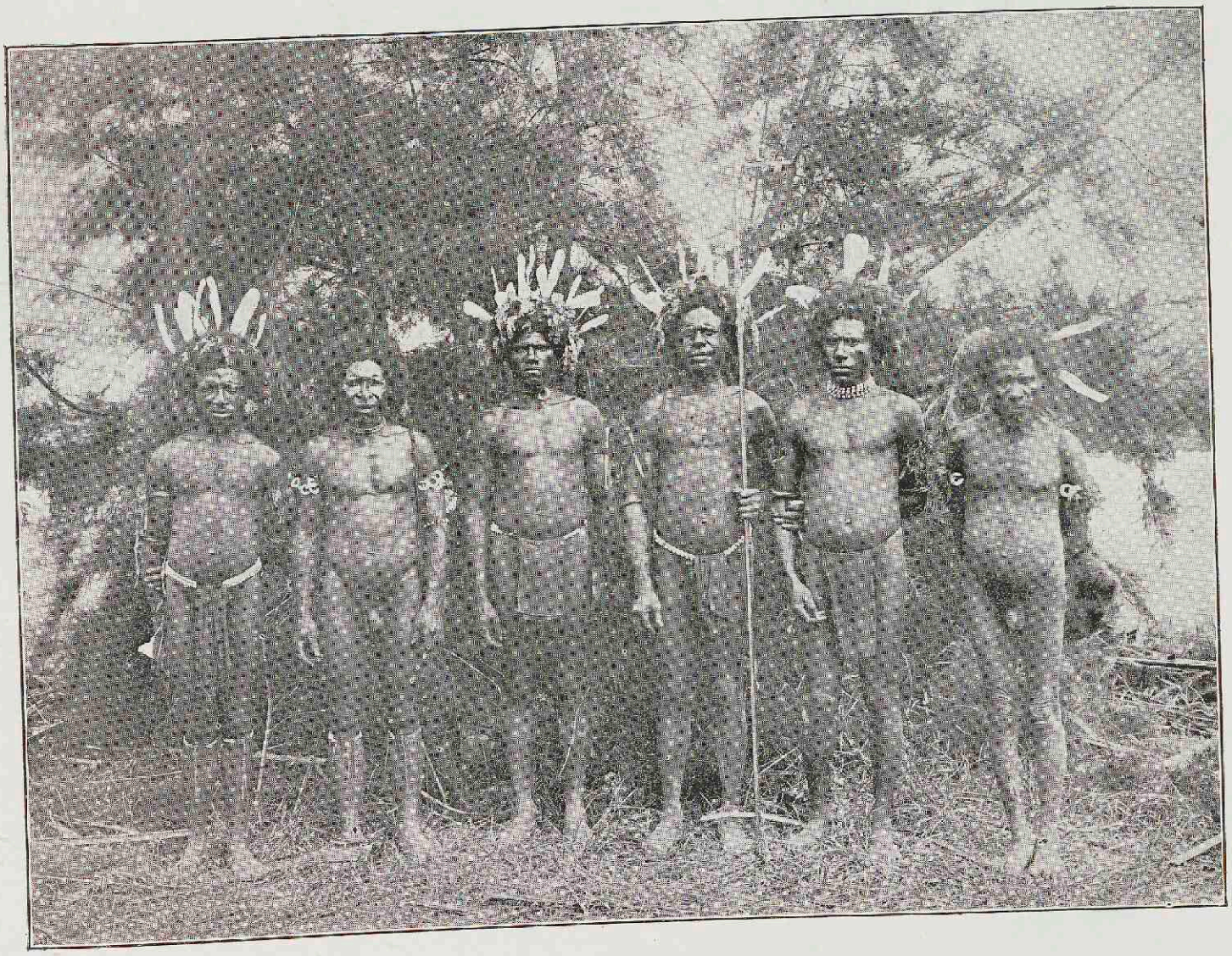


Fig 33. Group at Metu Débi.

äru döbrè, is substituted, like the five nicely carved specimens (N°. 213—217, Pl. VI, fig. 7 and 7a) from Kwatisoré. Often two are used; from each a hair plume, like a tassel with a handle, then projects (fig. 32). This female dress also noticed at Nápan (fig. 11), already known of several places in Geelvink Bay through DE CLERCQ and SCHMELTZ [1893, 17], is also, according to the same, adopted at Ansus by the men, sometimes to the extent of four small tubes, of which on Jăpen one is then worn in front, one on each side, and one (the widest) behind, but only on festive occasions (HORST [1889, 236]). D'ALBERTIS [1880, I, 48] saw on the men of Hátam, no fewer than five or six of these tubes in use.

The boys and men of Kwatisoré, wearing the mop, do not use these tubes, but made them for the women and in order the better to show off the carved ornament against the yellow colour of the bamboo, the intaglio portion is filled up with a black substance. N°. 217 is a piece of bamboo, 28 c.m. long, on which a set of three tubes is marked off, but of which one is still unfinished, which possibly proves that here in Kwatisoré three tubes are sometimes worn together. The Maníkion often wear the hair short, sometimes the mop, but more often the division in different small tassels, mentioned and illustrated by DE CLERCQ and SCHMELTZ [1893, 10, Pl. XL, fig. 5]; the tassels however have, according to fig. 34, a somewhat longer handle, wound round with vegetable fibres and are standing to the number of 15—25 spread over the entire surface of the head. No instructions exist in this respect, every one, I was told, is free in choosing his hairdress. The men of the neighbouring Ménam tribe have, according to the report of VAN OOSTERZEE [1904, 1005], a similar hairdress, but the Arfak, again living somewhat more to the north, dress the hair in 4—5 round balls (VAN HASSELT [1886, 577]); illustrations of this are given by VON ROSENBERG [1875, Pl. X] and also by D'ALBERTIS [1880, I, 92] but only with 1—3 bundles, which are also, according to the description of VAN DER GOES [1858, 164] simply created by stringing them together at the base. The men of Tarfia obtain through the abundance of the tresses of hair, which hang down regularly over the back and shoulders like manes, a well cared for appearance, to which the illustration of DE CLERCQ and SCHMELTZ [1893, Pl. XLI, fig. 1] does not altogether give due credit. I was unable to find out whether these tresses were formed by plaiting. No doubt the most curious hairdress was the one of a man from Tarfia (fig. 28, man in the middle; Pl. L, fig. 1 and 2) who had joined all his hair in a sagittal row of plaits (one of these, N°. 211, shown in Pl. VII, fig. 11), which stood up straight, tied together. ROBIDÉ VAN DER AA [1879, 109] refers of Tábi, HORST [1889, 241] of Anus, to similar pyramidical dressing of the hair; also remarkable is the hairdress of a Mawes man, shown in fig. 28 and in Pl. L, fig. 3 and 4. The beard, generally speaking, is not desired by the men of H. B.; the growth is not luxurious by nature and besides they pull out the hairs. A striking but practical method for this, is to catch hold of the stubbles between

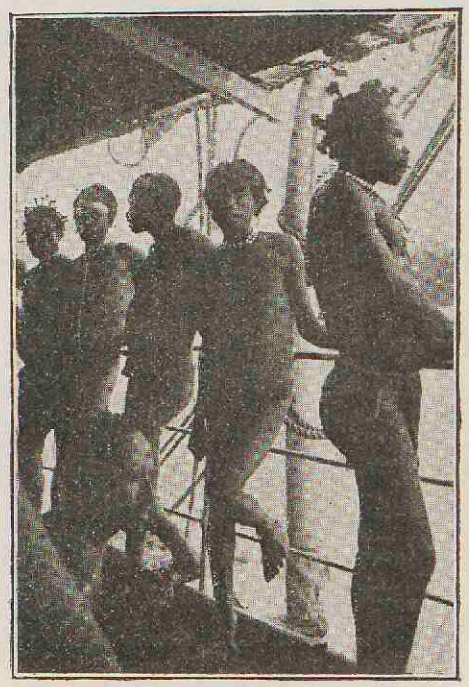


Fig. 34. Papuans of the Maníkion tribe.

the top of the index and a small piece of pumice stone, pressed by the thumb against the index, the rough surface of the pumice stone preventing the slipping away of the hair. Small pieces of pumice stone, *táär*, like N°. 118 of the collection, were found by me for said purpose in the bags of the men. MACGREGOR [1897, 51] and KRIEGER [1899, 273] report this method from British N. G. where the hair is caught between the nail of the thumb and a pumice stone. MACLAY [1876, 296] of his territory and MACGREGOR, l. c. of British N. G. describe a method by which the hairs are caught between two thin fibres of twine, twisted together and which must be very painful; this method as well as the small bamboo tongs used on the South Eastern Islands, have nowhere been met by me. Older men finally often give up the trouble to pull out the hairs of the beard and then show, partly owing to the previous treatment, a patchy beard. On Lake Sentáni the beard is seen more often (see fig. 163); the older men of Sägeisårå wear, without exception, a beard, although part of the face may be shaved. Thus I noticed at Kwatisoré how the cheeks were kept free and the beard was allowed to grow almost exclusively under the margins of the lower jaw. The full beard is indeed not at all liked in Geelvink Bay; besides, in some parts it must be shaved off on the occasion of the death of a relation (DE CLERCQ and SCHMELTZ [1893, 45]). The moustache is seldom seen; only at Kwatisoré it was allowed to grow over the whole of the upper lip, together with a small imperial exactly under the lower lip. The chief of Tobádi often allowed nothing else to grow on his face but the final ends of the moustache above the corners of the mouth (see fig. 187), which curious habit I afterwards also saw at Wári.

In British N. G. (MACGREGOR [1897, 52]) and in K. W. Land the beard is not liked very much either. In the neighbourhood of Astrolabe Bay the older men often allow the beard to grow as a matter of convenience (HAGEN [1899, 169]); in the Berlin Harbour section, according to PARKINSON [1900, 25] it is never met with, but the island of Tumleo must then form an exception, where every young man must have a beard before he is allowed to think of marriage (ERDWEG [1902, 279]). The decoration of the beard with small pieces of clay, shells, beads, pig's tusks, with vegetable fibres or other hair plaited in, as FINSCH describes and illustrates [1888, 292, 299, 302, 317; 1888—93, 231, Pl. 6, fig. 17; Pl. 9, fig. 3], was never reported of Netherlands N. G. nor ever noticed by me.

The pulling out or shaving of the hairs of the eye brows is reported by HADDON [1894, 246] of British N. G., by MACLAY [1873 a, 237] of his territory, by SCHELLONG [1891, 160] of the people of Jabim and by FINSCH [1888—93, 231] of other coast districts of K. W. Land and it may therefore cause surprise that this custom has never been noticed in Netherl. N. G.

The removal of the hair can be done in three ways, namely by pulling out, by cutting and by shaving. The first named method was already described above, the second, under which therefore must be understood the cutting of the hair at an arbitrary length, FINSCH [1888—93, 228] has seen in K. W. Land, where a stone hatchet was used.

For the shaving proper the following articles are here used: obsidian (SCHELLONG [1891, 160]), sharp-edged grass (MACLAY [1873 a, 234]), bamboo (MACLAY, l. c., NACHRICHTEN [1888, 225] and FINSCH [1888—93, 227]), pieces of glass (HAGEN [1899, Pl. 21]) and knives.

The most interesting method, that with the bamboo, still applied at Asé but condemned

to disappear, I did not find more fully described in the literature at my command. It requires a green bamboo 2—4 c.m. thick, of which small, superficial, lengthwise strips, about 1 c.m. broad, are torn off, f. i. with the teeth, as I saw myself. The transverse section of such a strip has the shape of a segment with very sharp corners, of which further advantage is now taken. The ends of the strip are, with the green surface outside, bent towards each other and whilst the left hand of the barber supports the skin, or at all events prevents the folding, the right hand scrapes with the bight of the strip in an oblique position over the skin. The result appeared to me to be unimpeachable and if my own razor, occasionally used in shaving round wounds, often roused the desire of the spectators squated round, this was only because the work advanced more quickly in this way; — for the scraping movements with the bamboo are only short and often another part of the bight, now and then also a new strip, must be used. As the green round side slides over the skin, which may be compared to the so-called basil, the bevel or slope of a common chisel, the cutting of the skin does not occur; neither does this natural razor „scrape", — the mimics of the boy who was operated upon (fig. 35) would have betrayed it. A submersion in Lake Sentáni was substituted for the soaping, which operation was repeated a couple of times during the treatment.

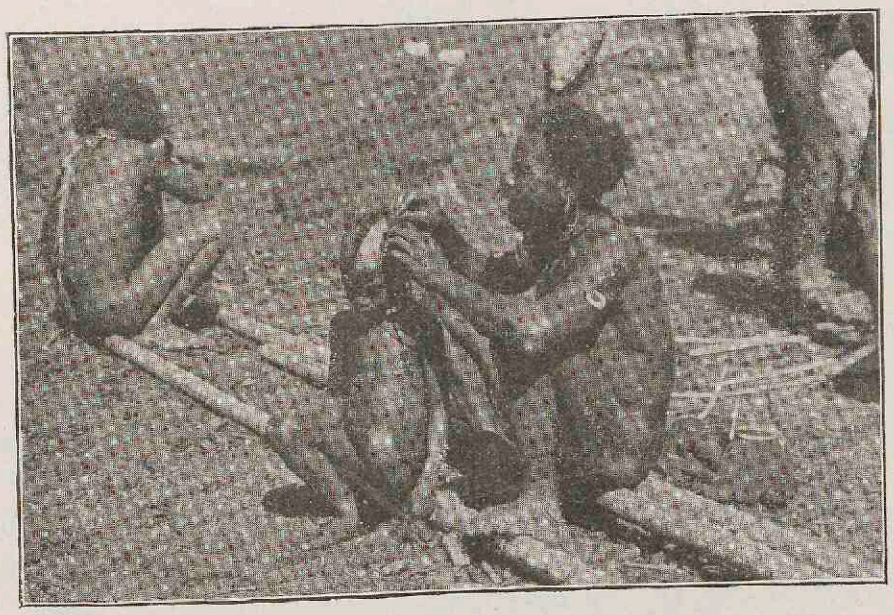


Fig. 35. Shaving with bamboo; Asé.

The extraordinary cutting power of the bamboo strips is caused by the silica, which is contained in the walls of the cells of the bamboo tissue, particularly with those of the outer layer, the collenchym, to such an extent that when burnt the shape of the cellular skeleton remains intact (SPÖRRY [1903, 4, 126]). The usefulness of sharp-edged grasses for the same purpose will astonish nobody, who has walked in the tropics through long grass, and has sometimes been cut by it; here also the presence of silica is the cause.

Common steel kitchen knives are so thoroughly well sharpened by the Papuans on their stones, that they can use them for shaving. The face is in this case, as far as I could see at Waba, shaved dry and the expert, but above all practical barber wipes his knife now and then on his footsole.

As objects of hair ornament, shells have never been illustrated of Netherl. N. G., whilst this has been reported several times of K. W. Land, where beads also are used for this purpose and the beard often participates (FINSCH [1888—93, 231, Pl. 17, fig. 3; 1888, 299, 317]). Beads, large white ones, I saw at Wári hanging on to the hairs of both men and women (fig. 169 and 170). I bought such a tress of hair (N°. 212, Pl. VII, fig. 12) which was

hanging down in front of the ear over the left temple of a young man, who would at first give me only the beads, and some commotion was caused amongst the bystanders when the whole lock was cut off. The custom, which f. i. exists amongst the Arfak people (VON ROSENBERG [1875, 92]) to cut off at the death of a near relative, all their hair except one lock above the forehead, to which beads are then attached and of which the lower end is passed over the left ear, may possibly be connected with this. VAN BALEN [1886, 562] reports this custom also of other tribes in Geelvink Bay and it is not improbable therefore that to the bead ornament noticed by HORST [1889, 238] at Serui and to the one which ROBIDÉ VAN DER AA [1879, 196] mentions of Kŏrido, a village on the south coast of Supiori, a similar meaning may be ascribed. In the latter case the end of the tress of hair was fastened to the opening of the septum of the nose!

The custom of wearing feathers in the hair is very general; in the adjacent German territory it is however only limited to festive occasions (PARKINSON [1900, 25]). On the islands of Geelvink Bay and on its shores the number of those feathers in the hair or attached to the handle of the combs is, it is said, to be considered as a numerical statistic of the heads cut off by the wearer (VAN DER GOES, [1858, 160], DE CLERCQ and SCHMELTZ [1893, 11, 12]). In Humboldt Bay and on Lake Sentáni the feathers own no such bloody reputation, at the utmost they form the trophies of the chase of the hunter.

What I want to point out, however, is that all feathers worn in the hair collected at Tobádi and at Kajó Entsáu (N°. 219—220, Pl. VIII, fig. 6 and 3) consist of two parts. The lower part, the carrying-feather, intended to be pushed deeply into the bushy hair, is formed by a black tail feather of a hornbill, of which the stubborn, on both sides somewhat narrow-cut webs prevent, like barbs, the dropping out, — so effectively, that the removal of these feathers, necessary when measuring the heads, proved to be very difficult. At the top, the carrying-feather, over a length of 6—10 c.m., only consists of a narrow strip of the convex side of the quill, which is very pliable and elastic and over the pointed end of which the show-feather proper is stuck, often consisting of the top end of the yellow white feathers of *Cacatua triton* Temm. or of the black and white-striped flight feathers from the tail of *Zoöenas Westermanni* Schleg.

The webs of the show-feather, sometimes pared into a bird figure, differ $\pm 90°$ in their position from the webs of the carrying-feather. In this way the desired elastic waving of the show-feather on the thin strip of quill of the carrying-feather is as little as possible hindered by the resistance of the air, because the plane of movement corresponds with the plane of the vanes themselves. This peculiar combination of carrying-feather and show-feather is certainly not devoid of cleverness. With the slightest movements of the head and with the least wind the show-feather now quivers easily. In K. W. Land such feathers are more rare, here several feathers tied together into a bunch are generally worn (PARKINSON [1900, 25]). Still they are reported by ERDWEG [1902, 318] of Tumleo, and he also observes that the object is the „hin- und herschwingen", but he does not mention the peculiar mutual position of the component parts. Fig. 33 shows some men of Kajó, partly decorated with cockatoo feathers in the manner described; the 2nd person from the left wears a cock's feather, for which purpose cocks are here as well as elsewhere specially kept. Several have also bunches of ferns in the hair, with which the man of fig. 38 has covered his whole head (see also Pl. XLIII, fig. 1).



Fig. 37. People of Sáweh.



Fig. 36. Young woman of Tarfia.

HORST who after his visit in 1886 to Humboldt Bay wrote that men and women had few ornaments, nor adorned themselves with leaves or flowers, has certainly met with an exceptional state of affairs.

The flowers of *Hibiscus rosa sinensis* are no less sought after in H. B. and on Lake Sentáni than in eastern parts and seldom anybody will pass a flowering shrub without ornamenting himself with some of the flowers which, with the pointed leaves of the calice, are easily caught in the hair (see Pl. XXXIII and XXXVII, fig. 1 and 2). Only once I noticed women with flowers in the hair; this occurred at Asé with two grown-up girls, who in a boat brought fruit from the gardens; the motive for this ornament however remained unknown to me.

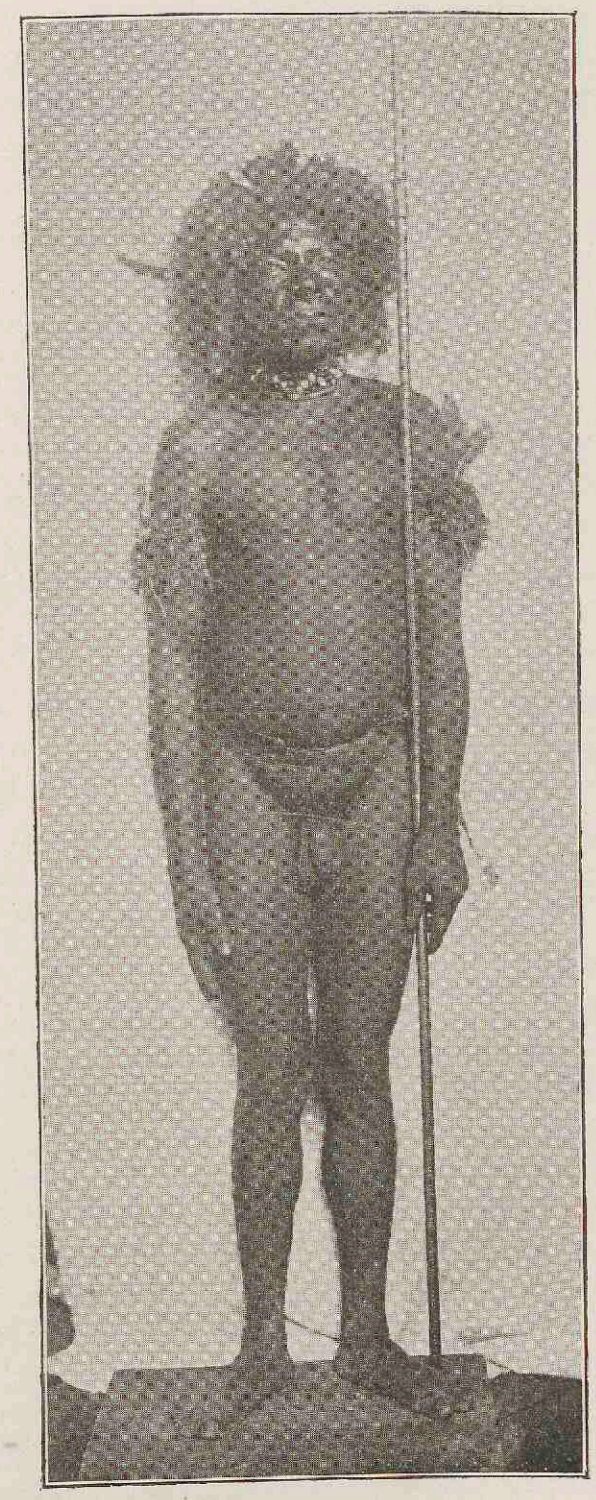


Fig. 38. Hairdress of ferns; Humboldt Bay.

The strips of reed (according to SCHMELTZ [1904, 203] strips of leaf of the Nipa palm) which are twisted into the hair in large quantities by men and women of the south west coast (Leyden Museum, Ser. 941, N°. 81), whereby the whole hangs down like manes on the shoulders and back (SCHMELTZ [1895, 158]) and according to the opinion of Netherl. naval officers probably intended as a protection against the head hunting, is met with nowhere on the north coast.

It is interesting to notice the use of wigs made of human hair, especially because this custom is in vogue in coast districts situated at such distances from each other, that mutual intercourse is excluded. Thus DE CLERCQ and SCHMELTZ [1893, 11] report wigs of Tarfia and Liki, which places together with Kaptiau, where the present expedition noticed the frequent and daily use of wigs by men as well as by women, may be counted to belong to the same culture territory. On the other hand wigs were seen at Finsch Harbour (FINSCH [1888, 179]) which showed a striking resemblance to the cap-shape, which is, besides others, in use at Kaptiau. But caution should be exerted, in judging the wigs of the Papuans according to our modern, western notions. In this way the assertion was arrived at, that wigs were in Humboldt Bay a dress for old men to hide their baldness (VAN DER CHYS [1885, 190, N°. 3203]). DE CLERCQ and SCHMELTZ illustrate four wigs, of which one, tresses

of hair threaded as a fringe on a string [1903, N°. 58, 19, Pl. II, fig. 2] originating from Tarfia, was taken as an ornament, so much liked by the women, that, indifferent to the abundance of their own hair, they allowed themselves to be shaved in order to wear the wig along the forehead like a fringe. The wig (browband) of Liki (see pag. 36) fell under the category of „head coverings". The third wig, shaped like a cap, of tresses of hair fastened to a rattan hoop and large enough to be drawn over the whole of the head, originating from one of the temples of Humboldt Bay [l. c. 16, N°. 38, Pl. II, fig. 15] was said to belong to a war-dress. Of the fourth wig of Wandisiau [l. c. 16, N°. 37, Pl. II, fig. 1], DE CLERCQ heard that the hair was always shaved from another person and never from the male or female wearer of the wig, and on Liki he was told that the hair was from people who had died a natural death [l. c. 12].

However much these reports differed, they showed that here the hair of slain enemies was not worn and they already contained an indication of what has now been proved to be the case, namely that the use of wigs occurs in commemoration and adoration of blood or close relations. Thus a dark haired young man may be seen with a wig of grey hair, obtained from the dead body of his father, an elderly widow with a wig of dark hair, obtained from the early deceased husband. But it appears however that the married woman also sometimes wears hair of the still living partner and even generally, as a further mark of esteem of her master, must have her own hair shaved. It does not appear that mothers are thus remembered by their children, nor wives by their widowers, neither do the fathers appear to wear the hair of their deceased children and there is never any reason for an aged man to wear a wig. For, this must be noticed in the first place that here originally mixed feelings as well of attachment, as of respect and submission are brought to a visible expression.

Almost the same was reported by FINSCH [1888, 283] of the hair worn by a woman of Teste Island on the left breast and he praises her for not wishing to part at any price with the mourning ornament, which consisted of the hair of a deceased sister. Very probably the small rings of human hair on the exceptionally fine comb of Cape de la Torre, which FINSCH [1888a, Pl. XVII, fig. 2b] illustrates and his handsome browband with interwoven human hair [1888—93, 235], must also be considered as mourning ornaments. BIRO [1899, 15] however, thinks that the fastening of human hair to browbands originates out of poverty, because he generally saw dog's teeth, the jewellery of these people, used instead. I also point to the cap-shaped wigs of Finsch Harbour and to the „Schnüre", twisted out of human hair which are worn over the forehead and the generally clean shaven front part of the head (FINSCH [1888—93, 236]). Doubtful however is the meaning of the human hair which in the shape of large plaits with shells hanging on is attached like a porte-épée to the pubic girdle of a man of Chads Bay [1888a, Pl. XVI, fig. 6], of the wig of Brumer Island (EDGE PARTINGTON [1890, Pl. 292, fig. 3]) and of the hair-tresses on a Tugeri basket in the Leyden Museum (Ser. 941, N°. 71), (SCHMELTZ [1895, 161]).

To wear a wig of human hair in our sense, either from vanity, or to hide baldness, never seems to enter the head of the Papuan; in these cases old men use, possibly as a hygienic measure, pieces of hairy cuscus skin (MACLAY [1873a, 233]), to which sometimes the tail and claws are retained (FINSCH [1888, 369]). Smaller pieces are occasionally used as an ornament by those people who still possess the whole of their hair (BIRO [1899, 7]).

Both the fringe-shaped wigs belonging to the collection, N°. 221 (Pl. VII, fig. 13) and N°. 222 of Kaptiau and the corresponding wigs N°. 35 and N°. 58 of DE CLERCQ's collection, therefore all have the meaning described before and are worn along the forehead (fig. 39, first

boy from the left) close to the limit of the hair and again at other times tied transversely over the top of the head (fig. 36, 40, 5th woman from the left, and fig. 213). That the wearing of wigs, with the accompanying frequent shaving, destroys the vermin, is proved to be an illusion; the wigs of the collection are literally covered with nits. N°. 38 of DE CLERCQ, the so-called war-dress of Humboldt Bay, closely resembles the caplike wig of Nimbúran, N°. 223, (Pl. VII, fig. 14) which was worn by a woman of middle age over her own fairly short hair, and was indicated by the name *běně únděfră*, which word reminds me of *bini* (Malay = wife) and *ondŏfrå*, which on adjacent Lake Sentáni is the term for village chief. Evidently people intended to intimate that the wearer was the wife of the village chief. If afterwards this suggestion should prove to be correct, namely that this peculiar shape of wig is connected with certain dignity, the analogy of the Finsch Harbour wigs (FINSCH [1888, 179]) would then come very much to the fore, of which FINSCH [1888—93, 230] writes: „such coverings of the head appear to be a distinction of the chiefs, for generally they are rare".

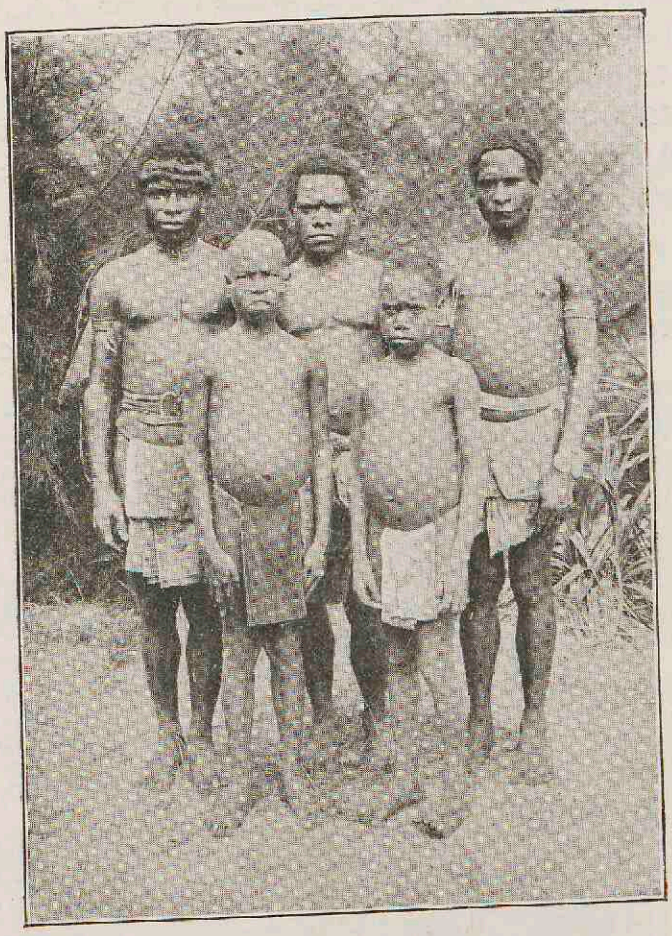


Fig. 39. Boys of Tarfia.

In the hair of the Papuan we often find objects which might becalled c o m b s, but of which the use is not covered by our idea of a comb, as they are never used for combing. With its usually long teeth the object is very well adapted to pull up the mass of hair to its greatest extent (DE CLERCQ and SCHMELTZ [1893, 11]). For this reason and in connection with the interpretation mentioned pag. 55, BIRO [1901, 32] calls the combs „Haarkräusler", simply stuck in the hair and thus carried about, in order always to have them at hand. The long points also make it possible, if necessary, to use the combs as scratchers. The frequent decoration of the handle would certainly justify the name of „ornamental comb", also known to western civilisation, here for women, whilst there the comb is almost exclusively worn by the men. The comb, however, remains principally a s c r a t c h i n g i n s t r u m e n t, which in its simplest form consists of a plain piece of hard wood, pared off at one of the ends, practically like a single, very long tooth of a comb. The collection contains of these pins two specimens (N°. 232, Pl. VII, fig. 8) of Tobádi, as here on Lake Sentáni and elsewhere, worn generally in the hair, over the forehead, straight from the front towards the back (see a. o. fig. 102), also used (see pag. 3) as an instrument for eating and as a tooth pick. It is said that on Masi-Masi these small sticks (DE CLERCQ and SCHMELTZ [1893, 12]) are made of the nerve of a sago leaf and serve to kill(?) vermin. Another small instrument however, which DE CLERCQ [l. c. 16 and 17] found at Wéwé, consists of two small sticks, between which the pediculi capitis

are killed by squeezing and which reminds one of the small single stick of the South Eastern Islands in the Amsterdam collection (Ser. 2, N°. 231), intended to divide the hair, when looking for vermin, and to kill what is found by pressing it on the head. I have never come across anything similar. A young man of Tobádi had a scratcher of which the blunt end was carved into a figure of a cassowary.

The collection of the Utrecht Missionary Society contains some (N°. 545—547) with differently carved handles, collected by BINK, who, alas, with regard to ethnographica, has made no distinction between Humboldt Bay and Lake Sentáni. On the other side of the Netherl. German frontier the scratching stick is also much used, especially where the hair of the head has been turned into a collected, almost impenetrable mass (PARKINSON [1900, 25]) and it is here so regularly ornamented with feathers that HAGEN [1899, 171] calls it simply „Zierstab" (ornamental staff); remarking besides, as well as BIRO [1899, 13] and ERDWEG [1902, 347] that it is also used as a fork. Sometimes it is manufactured out of the tibia of a cassowary and in single instances out of tortoise shell (BIRO [l. c., 10—13]). In the western parts of New Guinea I did not see the object.

The multi-pointed comb is in so far an object of importance, that the wearing of the same f. i. according to the customs of H. B., is not allowed to the young men during their prescribed stay in the temple. The collection contains a great number of combs, amongst them three specimens (N°. 229—231), of Jap-coolies on the Mapia Islands, where we called on the way, made of small sticks joined by cross pins or lashings, described by KUBARY [1895, 194] as „*teleol*", of the people of Pelau. The combs collected in New Guinea itself are all made of wood; tortoise shell combs, as met with by FINSCH [1888—93, 159] on Teste Island, or combs out of kangaroo bones, as reported by him [l. c. 93] and others from Br. N. G., were not found. Wooden combs in use in New Guinea may be distinguished in two kinds, according to whether they are made of one single piece of wood or of several pieces tied together. The last kind must again be subdivided into two categories, namely those of which the material is bamboo (S. East N. G., see FINSCH [1888—93, 159]) and those of palm wood (North N. G.). Of the first kind, those of one piece of wood, commonly bamboo, also two categories are to be distinguished. In the case of the one, fairly common in German as well as in British N. G., the comb is made of a longitudinal strip of bamboo of proportionate breadth and bent transversely, according to the circumference of the original bamboo, whilst the points are obtained

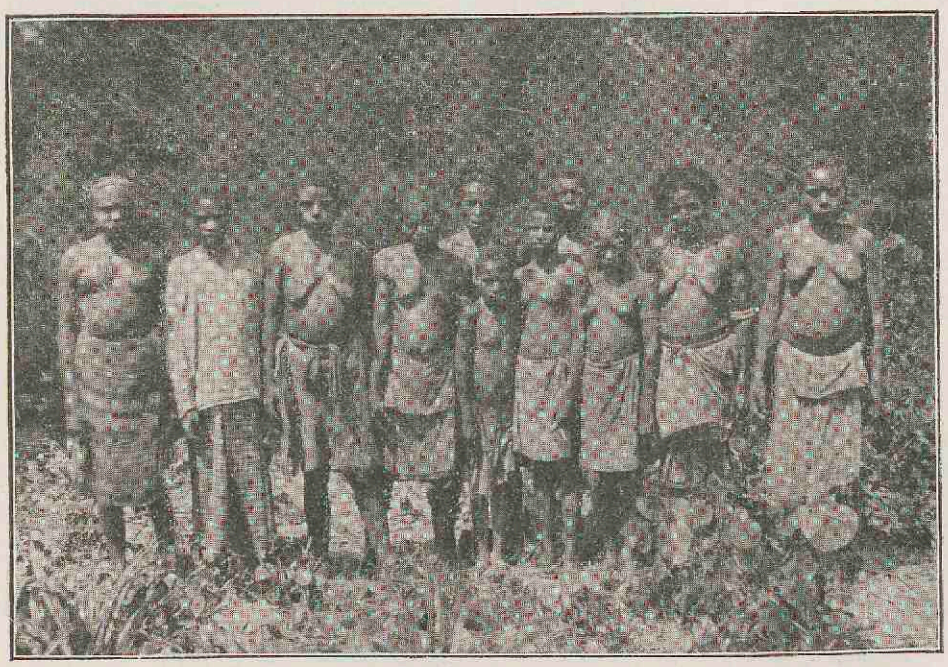


Fig. 40. Group of Mawes.

by making longitudinal furrows at one end, viz. to remove as much material as the distance between the parallel points of the comb must amount to. The often nicely carved handle of this comb (see f. i. FINSCH [1888 a, Pl. XVIII, fig. 1] and BIRO [1901, 32, Pl. III]) is therefore just as broad as the row of the points and has at the base of the points a nodium. The other category, with the area of its distribution limited to Netherl. N. G., is manufactured from a narrower piece of bamboo, by splitting it over a part of its length in as many strips as the number of points required. Here too the handle contains a nodium, but just below it a strong lashing of string or metal wire is applied, to prevent the splitting extending too far, whilst the lashing is retained in its place by notches cut out on the sides and back; finally small wooden wedges are introduced into the splits, in which way a fairly large divergence of the points of the comb is obtained. In consequence of the natural roundness of the original piece of bamboo, the points after the spreading are not lying in a flat plane. Above the nodium the handle of the comb often becomes considerably narrower. It is remarkable that both categories of combs manufactured out of a piece of bamboo, the one with the parallel and the other with the diverging points, as far as their area of distribution is concerned, are on the north coast, on the Netherlands German frontier, entirely separated by the sphere of the comb made out of loose palmwood sticks; a separation so complete and absolute that in the vicinity of Humboldt Bay by no manner of means a single bamboo comb could be traced. The west of New Guinea, Geelvink Bay and the adjacent islands form the sphere of the bamboo comb with diverging points. The Berlin Museum contains (N°. 2444) an object, sent in as a comb from Has, Geelvink Bay (probably As, north coast), with four flat, parallel points, without any space between them, a form entirely different from the Geelvink Bay type and appearing really unfit for use; — but then what object can it be? Of the three combs of Andai (N°. 233—235), the last one (Pl. VII, fig. 6) shows the characteristic curl ornament of Geelvink Bay, not recognisable on the photo. I must still observe that, besides the small wooden wedges, small plugs of calico are often pushed up into the openings between the points of these combs, probably to prevent single hairs being caught. N°. 236 (Pl. VII, fig. 7) of Inagói and N°. 237 (Pl. VII, fig. 5) of Mapār are the first combs which have become known with certainty from these more interior settlements, both belonging to the tribe of the Maníkion. They can only be used by those men, who, differing from the hairdress described before as typical of this tribe, carry the mop. Still, according to the bamboo chain of N°. 236, the manufacture is worth a good deal of trouble, whilst the human figure of N°. 237 shows that the ornamental art of the Maníkion deviates little or nothing from that of the coast district of Geelvink Bay. But the possibility meanwhile remains that the comb was bought of the coast people, with whom an uninterrupted, commercial intercourse exists. N°. 238 (Pl. VII, fig. 4) of Angádi on Lake Jamūr also opens a new territory, belonging linguistically to the south west coast, yet with regard to the combs in close relationship to Geelvink Bay. The handle of this comb occurs exactly on a bamboo ramification, a peculiarity which I also met with in the case of a comb of Finsch Harbour (Amsterdam Museum, Ser. 67, N°. 4).

The appearance of the human figure on this comb may possibly stamp it as an amulet, and I here call attention to an occurrence, which I witnessed on the 6th of August 1903, when the expedition had arrived on the marshy and well wooded shores of Lake Jamūr, and after attracting the inhabitants of the island of Angádi by the smoke of a fire, three of us were

being conveyed to the said island. When passing from the calm water, enclosed between reeds and clods of turf, towards the open surface of the deeper lake, a freshening south-east breeze caused a somewhat dangerous swell for the heavily laden boat, whereupon a foreward rower of Angádi pulled the comb out of his hair with his right hand, and holding it by the handle, in sober earnest struck with it about four times ahead, against the wind, a little above his shoulders. Almost certainly he thought that thereby he would allay the wind. But the influence on the beating of the waves was not immediately noticeable and wishing also to take precautions against this, the same rower stopped again and now struck with the flat of his paddle a few times in front on the approaching waves. I had already loosened my shoes and gaiters in case the passage had to be continued by swimming, but this now appeared unnecessary and baling all the time, we arrived savely under the lee of Angádi.

The use of the comb, here described, finds an analogy in a communication of JENS [1904, 57] that the Papuans of the west coast of Geelvink Bay, when at sea with bad weather, endangering the boat, beat the air with their korwars and amulets to pacify the elements.

The case is also curious because the want of proper amulets was generally noticed amongst the inhabitants of the interior. At Angádi I did find them and evidently the comb may belong to them. Under this category of combs, those of Kwatisoré, N°. 239—243, should also be placed, of which N°. 241 (Pl. IX, fig. 5) is distinguished by special carving and ornament of the handle, in this respect showing a great resemblance to a comb (N°. 6683) of the Rotterdam Museum; — N°. 242 (Pl. VIII, fig. 4 and 4[a]) is striking on account of the link connection on the handle and the special length and ornament of one of the 7 points. N°. 243 (Pl. VIII, fig. 1 and 1[a]) finally, is an example of excessive comb ornament, as not mentioned until now. DE CLERCQ and SCHMELTZ [1893, 12, Pl. III, fig. 5] mention combs ornamented with calico and beads, which are worn by bridegrooms and state besides, that in the territory of Waropen, young men and girls who like each other, sometimes exchange combs. From this it would appear that girls also wear combs, and the information given to me with regard to comb N°. 243 becomes admissable, viz. that the object had been intended for a bride.

The combs now following are made out of a number of pins tied together. DE CLERCQ and SCHMELTZ [1893, 12] already called attention to this deviating form, overlooked by VAN DER GOES [1858, 196]. As far as the pins, always diverging and forming the points of the comb, are standing free, they are round, straight and sharply pointed, — forming higher up the handle, flattened and tied one alongside the other, with lashings of thin fibre, but always separated by the interwinding turns of the fibre. The regular divergence is exclusively obtained, by the gradual increase of this double-sided flattening of each of the pins, inside the broad lashing at the base of the points. It is evident that this demands great skill on the part of the maker and if for no other reason, the technique of this kind of combs must be considered to be of a much higher order than that of the bamboo combs. In the case of those combs, of which the pins have also been arranged in a transverse curve instead of a flat plane, a new technical difficulty has been conquered; — for in the handle each pin has been carved in such a manner that the section forms an equicrural trapesium. I only found this on Lake Sentáni, with comb N°. 254 (Pl. VII, fig. 1) of Ajápo and N°. 255 of Ifár;

especially the first one is an example of pure vaulting. These combs have also a strikingly large number of points (resp. 20 and 29).

Most of these combs have however a narrow handle, in consequence of the strong flattening, made at that part of the pins. Some comb handles have a varying breadth, a result obtained by the varying breadth of the component parts (N°. 244, Pl. VII, fig. 3, but more marked in N°. 251 and 256), also sometimes obtained by adding extra pins to the handle (N°. 253 and 257), their number thus exceeding the number of the points of the comb. Very pretty also are the combs with two handles (N°. 246, Pl. VII, fig. 16 and N°. 257), each formed by the continuation of a group of the pins. The small lashings of these handles are often applied so regularly that they actually serve as an ornament. The material of the pins does not always appear to be of the same nature; with some combs (N°. 246, 249, 254, 258) they are, according to the researches of Mr. J. JESWIET, Conservator of the Colonial Museum at Harlem, nothing else but the woody pins, which occur in the broad leaf-sheaths of *Arenga saccharifera*; the peculiar distribution of the black vascular bundles entirely correspond with this. ERDWEG [1902, 318] (about Tumleo) speaks of: „Blattrippen der Fächerblätter hiesiger Palmenarten". The application of these pins for this purpose is indeed very practical, it saves an enormous amount of work and it must have been of great importance to these people in the recently ended stone period, that these pins are by nature, perfectly straight, round and pointed. The comb illustrated by FINSCH [1888a, Pl. XVII, fig. 3] with the points bent somewhat outwards, is in this respect badly drawn. With other combs in the collection, palmwood has been used with an ornamental purpose, as the pins have been cut lengthwise on the border of dark wood (rich in vascular bundless) and light wood (poor in vascular bundles) and are thus coloured dark on one side and light on the other. The Areca-nut, after removing the kernel, stuck on the end of the handle and fastened with a black sticking material, forms a very common ornament of these combs. A strip of hairy cuscus skin (N°. 246, 247, 249, 251, 256, 257) wound round the handle and fastened with a bark fibre tied round, also strips of red calico (N°. 245, 249), feathers, either or not cut into birds' figures (N°. 245, 246, 247, 253) and composed as indicated above (pag. 62), coloured beads (N°. 255) and Coix seeds (N°. 253), also sweet scented *Cardamomum* leaves (N°. 245, 248, 250) are fastened on to the combs and form the most common ornaments. Finally comb N°. 249 is ornamented with an object, much seen in these parts and which is described later on with N°. 517—519. The type of the ornamental comb, as opposed to the plain scratching stick, is certainly the comb of Tobádi, N°. 258 (Pl. VIII, fig. 7) where a bird of paradise (*Paradisea minor*. Shaw.) is stuck on the handle.

Hardly ever, more than one comb has been noticed to be worn on Lake Sentáni, as reported by DE CLERCQ and SCHMELTZ [1893, 12] of H. B. and by FINSCH [1888, 87] of K. W. Land, and this is entirely in accordance with the less abundant ornament of the body which distinguishes those people from the luxury loving inhabitants of the coast.

As a further ornament of the hair, I have already (pag. 58) noticed the bamboo tubes, to be placed in a line with the „Haarkörbchen" which FINSCH [1888—93, Pl. 6, fig. 15] has reported as a characteristic of the western part of K. W. Land and (ERDWEG [1902, 319, fig. 211]) being very common on Tumleo. It may therefore be called remarkable that these baskets as well as the beautiful ornamental rings of BIRO [1899, 5, Pl. I, fig. 6] are entirely

wanting on this side of the Netherlands German frontier, even already at Oinâke. Another ornament met with on the hair, originates from Kaptiau (N°. 259, Pl. VII, fig. 15) and consists of an oval piece of bark, covered with Nassa and black seed rings. A man with short hair (but not bald) wore it transversely over the head. No red clay can be traced on it. Similar objects are in the possession of Rotterdam (N°. 6700), Leyden (Ser. 435, N°. 17) and Berlin (N°. 3204, Geelvink Bay—Tanah Merah) but as forehead ornament, in which way D'ALBERTIS [1880, 86] also describes the „*lueza*", VON ROSENBERG [1875, 89, 103, Pl. XII] the „*burea*" and the „*usu*" of the Hátam, the „*seruap*" of the Arfak.

N°. 260 (Pl. X, fig. 1) and N°. 261, helmet-shaped, were found in a private house in Tarfia and it was not necessary, when they were removed, to hide them from women and children; therefore the festive occasions, on which they are carried by the men, the rattan ends sticking out in front, have probably nothing to do with religion. The two rows of stumps of feathers on N°. 260, suggest an intentional imitation of a bird; besides, such an object was already mentioned by FOY [1902, 380, fig. 1] of Humboldt Bay under the name of *mān* (= bird). N°. 261 covered with red calico and indicated by another name, is possibly an imitation of something else. Both the helmets of Oinâke (Attack Harbour) N°. 262 and N°. 263 (Pl. X, fig. 5 and 6) were found there in the darkness of the temple, hanging on the centre pole and evidently belonging to the fittings of this building and to be used on the occasion of religious festivals. The exchange against steel knives was not very difficult, still the bargain could not be closed before some young men who had been sent out, returned with a quantity of large leaves, in which the helmets, including the long plumes, were wrapped up beyond recognition. And to prevent the objects being seen by the women, they were brought by a couple of men along an inner road to the boat. By want of knowledge of the language I could not get to know anything more about them, which is to be regretted all the more, because these helmets are new for the whole of this territory. The collection of the Utrecht Missionary Society does indeed contain as N°. 644 a „dance hat", *ăburpè*, made out of the shell of a large fruit, according to the catalogue intended for young men in the *kărĕwări*, and according to BINK [1897, 171] „worn by some men at certain feasts", but it is not distinctly stated that it must remain hidden from women. No such „dance hats" are now used. FOY [1901, Pl. XVII) and MEYER and PARKINSON [1900, Pl. XLII] give such articles from the Bismarck Archipelago, which, like those of Oinâke, are placed over the head down to the shoulders, but these are lined and also arranged as masks, whilst the helmets of Oinâke are entirely open.

Worthy of notice also are the broad, painted wooden rings, N°. 264 of Ifâr, Pl. IX, fig. 8 and N°. 265 of Thaë Pl. IX, fig. 7 made out of disk-shaped flat pieces of light wood, with an opening too small to admit the whole of the head, but large enough to pull through the whole mop of the men, who wear these rings round the head at feasts. Till now they were known of South and East New Guinea (SCHMELTZ [1895, 164] FINSCH [1888—93, 159], Berlin Museum, N°. 12923 and 12924 of the Massim District).

The collection at Utrecht contains however already for a long time (N°. 642 and 643) two similar wooden rings painted with triangles and with two snakes, collected by BINK in 1893 in Humboldt Bay, on which, at two diametrically placed points of the outer edge the head and the tail of a bird occur and which, according to the catalogue serve at the dances

in the temples. They were not published until now. SCHERPBIER, captain of the steamer CAMPHUIS, with which BINK travelled to and from Humboldt Bay, offered to the Leyden Museum as original from this place, objects, ascribed by SCHMELTZ [1895, 164, Pl. XV, fig. 3 and 4], to whom the find by BINK could not be known, provisionally and under reserve to the Tugeri, but according to the preceeding information, originating from Humboldt Bay. Along the circumference of N°. 932/14 four dogs are shown, whilst the head and the tail of the bird entirely remind one of the Utrecht specimen. In the case of N°. 932/15 the head with the small, square-shaped addition must, according to my experience, be taken for the head of a crocodile.

Crescent-shaped wooden rims, worn along the forehead, were found in the temple at Thaë (N°. 266, Pl. XI, fig. 14, N°. 267, Pl. IX, fig. 9 and N°. 268, Pl. IX, fig. 2) and in that at Waba (N°. 269, Pl. XI, fig. 12). The people were not mysterious about them, they were allowed to be seen by women and children, only, in order to protect the colours, they were carefully wrapped up in strips of prepared bark. N°. 267 has in the middle of the outer circumference one more or less pointed and towards the ends two widening projections, which again have the „bird tail" shape, whilst N°. 268 has two projections in the shape of wings. I was shown how these objects, with the painted side turned towards the face and with the string tied behind the head, had to be worn, but they were never seen in use at the dances which the people from Thaë performed at Tobádi. I never came across anything like these wooden ornaments in the shape of a crescent. On the other hand such articles made out of rattan as well as the rattan brims are of wide distribution. The present collection contains of these, two entire rings of Asé on Lake Sentáni (N°. 270 and 271, Pl. IX, fig. 1) and five half ones of Tanah Merah (N°. 272, Pl. X, fig. 2), Tobádi (N°. 273, Pl. IX, fig. 3 and N°. 274) and Asé (N°. 275, Pl. X, fig. 4 and N°. 276, Pl. IX, fig. 6 and 6a). The entire rings, justly compared with a cut-off rim of a hat, consist of numerous spiral twists of a strip of rattan all lying in a plane, which are kept together with continuous spiral windings, producing a pleasing effect (Pl. IX, fig. 1 a). In the case of the half rings, the direction of these continuous spiral twists changes regularly, producing with N°. 272, 273 (Pl. IX, fig. 3 a) and 274 a pretty radiating design.

Entire rattan rings were not published of Netherl. New Guinea before now, unless VAN DER CHYS [1894, 161, N°. 6925], with „rattan head ornament", means these rings. The Utrecht collection, however, contains under N°. 232 a very fine specimen of Humboldt Bay, having a remarkable resemblance with a specimen of the Tami Islands (Berlin Museum, N°. 17196). Whilst similar rings do not appear to occur in British N. G., they are reported by HAGEN [1899, 168] of Finsch Harbour, Simbang and Huon Gulf, and the Berlin Museum possesses specimens of the coast villages (N°. 10594 and N°. 12944), also of Astrolabe Bay (N°. 9379), and even of the district between the upper Ramu and the coast (N°. 14910). It may still be mentioned that the same kind of ring, nicely ornamented, also occurs in the Bismarck Archipelago (FINSCH [1888—93, 16]), where they are passed over the head and worn like a collar, and in a certain sense distinguish the grown-up man fit to bear arms, from the rising youth. For the purpose of wearing these rings, in K. W. Land (HAGEN [1899, 168]) the hair is shaved along the margins, mostly at the back, the border consequently lying horizontally. At Asé this is not done and when all the hair is pulled through the ring, the

margin of course reaches at the back as far as the neck; — if only one side is painted, this is turned towards the face. Of the crescent-shaped rattan rims, which like the wooden ones are worn over the forehead, DE CLERCQ and SCHMELTZ [1893, 18, N°. 36, Pl. IV, fig. 16] mention a specimen, used „to keep off the rays of the sun".

It has in front a projection which reminds one of the head of a hammerhead and is not flat but curved like the specimen of the collection (N°. 272, Pl. X, fig. 2), of Tanah Merah, which worn with the convex side in front, was only intended for an ornament. The Utrecht collection (N°. 229) and the Berlin Museum (N°. 13142) however contain specimens mentioned by BINK of Humboldt Bay as a festive dress, flat and exactly like N°. 273, now collected by me in Tobádi. Here they are sometimes (WILLEMOES-SUHM [1877, 161]), ornamented with flowers. The two objects of Asé are besides ornamented with Coix and cassowary feathers, thus reminding me of similar ones found in Collingwood Bay (Berlin Museum, N°. 17497), and also on the Upper Fly. Here, according to THOMSON [1892, 138], they were mounted with cockatoo feathers.

Such objects are also reported as neck and breast ornaments of K. W. Land (Attack Harbour, Berlin Museum, N°. 9156 and 15183) for which purpose the same kind of rings, with dogs' or dolphins' teeth, are also used by the Tugeri (SCHMELTZ [1895, 159]).

The ornament composed of cassowary feathers, in the typical brushlike shape, as occurring on Lake Sentáni (N°. 277, Pl. X, fig. 7) and in H. B. (N°. 278—286), sometimes containing uncut feathers, appears to be only of limited distribution; further to the west than Jamna it assumes a finer shape and then consists, like N°. 287 of Wári, (Pl. X, fig. 3) out of a single string, as illustrated by DE CLERCQ and SCHMELTZ [1893, 20, Pl. III, fig. 17] of Wéwé, which is also occasionally worn as a bandolier over the breast. Towards the east it is still met with in its typical form up to Tumleo (ERDWEG [1902, 322, fig. 221]), curiously, as an ornament for the back. Further to the east it appears to be altogether wanting. In Humboldt Bay and on Lake Sentáni it is a war-dress, as DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 21, N°. 67] reports of Jamna; the name „wig" (MOSELEY [1879, 439]) is confusing. I only saw it worn once, when the men of Tobádi and Ingrås were to hold a contest in archery and fired by the martial character of the feast, several of them had ornamented themselves as for war. Besides, N°. 277 (Pl. X, fig. 7) of Asé was found with several others in one of the watch-houses, which here have the character of an armory, whilst of English N. G. FINSCH illustrates a headman in war-dress [1888—93, 93, 85, fig. 2] who wears the feather coronet standing on the top of his head, a way of wearing it which I have also noticed on photo's of the Merauke River, but the Tugeri living there, wear similar coronets also along the forehead (SCHMELTZ [1895, 158], Leyden Museum, Ser. 941, N°. 37). To the war-dress also belongs the tail of *Goura Beccari* Salv., as worn at Asé (N°. 290, Pl. X, fig. 8). With regard to forehead ornaments Oinâke offers the greatest variety. I was able to collect two good specimens of these. The first N°. 288 (Pl. VIII, fig. 2) out of bark, ornamented with Nassa and Abrus, closely resembles the object obtained by FINSCH in Attack Harbour; BIRO [1901, Pl. IV, fig. 11] with his specimen of Berlin Harbour means something else. The young man who presented the above specimen to me, taking it from his own person, had pomaded his hair excessively with red clay and the object is consequently greasy and red. On the Netherl. territory, at Jaur, DE CLERCQ has found something similar, but without

the Abrus beans (DE CLERCQ and SCHMELTZ [1893, 19, N°. 47, Pl. I, fig. 13]. The second, N°. 291, Pl. VIII, fig. 5 and 5a, consisting of rows of Coix seeds, joined into an oval, the way they are fastened deserving attention, was found in Sĕkâ just on this side of the Netherl. German boundary. It was met with by FINSCH [1888—93, 236] in Attack Harbour and by PARKINSON [1900, 26, Pl. XVIII, fig. 14] near Berlin Harbour, where it is fastened higher up on the forehead, about three inches above the eyebrows, thus preventing the hair from dropping over the forehead. On the island of Angail it is worn by the married men (MEYER and PARKINSON [1900, Pl. 20]) still higher up, pressing back the hair. The Berlin Museum also possesses some specimens from the territory Attack Harbour — Tanah Merah Bay.

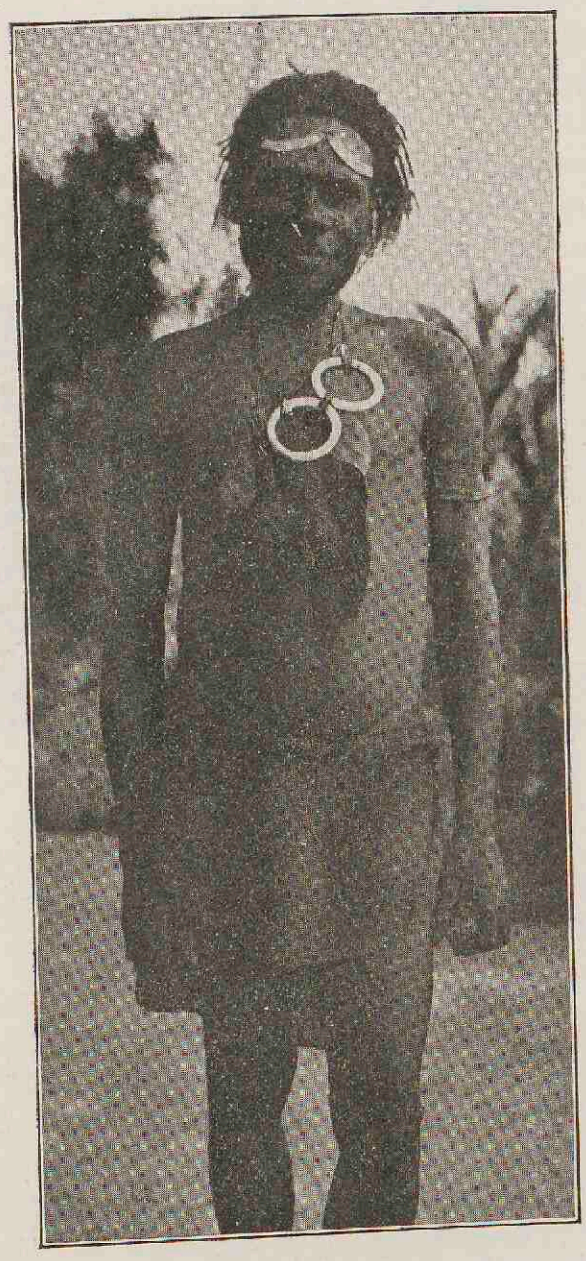


Fig. 41.
Forehead ornament with boar's tusks; Nimbúran.

Browbands of cuscus skin, like N°. 289 of Kaptiau, are also known of British N. G. (MACGREGOR [1897, 50]); in K. W. Land large pieces, with tail and legs still attached, are worn on the head (FINSCH [1888, 333, 369]), or caps are made from it (HAGEN [1899, Pl. 20]). N°. 292 and 293 (Pl. XI, fig. 2) of Ingrâs, are strings of Nassa and black seed rings, which look very well, altho' the boar's tusks hanging down the temples certainly do not soften the appearance of the wearer. EDGE PARTINGTON [1890, Pl. 290, N°. 3] illustrates this frontlet with the tusks pointing upwards. It is a dress for the men, which I did not meet with outside H. B., but the Berlin Museum contains two specimens (N°. 3201 and 3202) with the notice: north coast between Geelvink Bay and Tanah Merah. Ornaments as N°. 294 (Pl. XII, fig. 10) of Nimbúran, consisting of boar's tusks, ground down in such a way that only one side (the convex one) of the three remains, joined together in pairs and fastened round the head with small strings in the manner of fig. 41 are very rare; just the same as a similar dress described by ERDWEG [1902, 319, fig. 212] of Tumleo. Finally still N°. 295 of the Arfak Mountains, pieces of mother of pearl (*Turbo olearius*), a female dress which DE CLERCQ and SCHMELTZ [1893, 20, N°. 50, Pl. II, fig. 17] also mention of Masibabé, situated to the south of the Arfak Mountains and which I saw worn by women at Horna, still more to the south and further in the interior. It is remarkable that this ornament for the forehead, as well as that of shell disks of *Conus* (fig. 42) is so well liked by the mountaineers, also by the women, and it is not improbable

that they still serve now-a-days as an article of barter with the inhabitants of the coast, who themselves have already given up this dress. At Horna they would not part with the ornament at any reasonable price. These Conus disks perforated in the centre, VAN DER GOES [1858, 165], also saw worn by the women of the Arfak. The ornament for the forehead of the women of H. B. consisting of seed rings and Nassa, which DE CLERCQ and SCHMELTZ [l. c. 20, N°. 63, Pl. IV, fig. 9] describe, has not been seen any more now. Also at the marriage ceremonies witnessed in Sĕkâ, the forehead of the bride remained unornamented. That the men generally wear more head ornaments, is owing to their greater desire for show; one will very rarely find it stated, as in the case of a head band of Andai, ornamented with Nassa, in the Amsterdam Museum (Ser. 9, N°. 9) and of the forehead band, *burea*, (VON ROSENBERG [1875, 103]) of the Hátam, except in the case of the men with three, in that of the women with one shell piece, that the object is intended as a protection against arrows.



Fig. 42. Group at Horna.

NOSE ORNAMENTS. The use of nose ornaments is very general in New Guinea. The septum, the alae nasi and sometimes also the ridge of the nose are pierced for this purpose.

The custom is most limited in K. W. Land, where by no means all the men and still less the women wear a nose ornament, the length of the bolt-shaped ornaments (Tridacna, coral, cane, bones, cassowary primaries, etc.) being also unimportant, but the thickness up to 1.6 c.m.; in the eastern part many beautifully decorated pieces of mother of pearl (FINSCH [1888—93, Pl. 7, fig. 2; 1888a, Pl. XX, fig. 5 and 6]) in the west the sets of boar's tusks and parts of shells [1888a, Pl. XX, fig. 7] are numerous, as well as dogs' teeth, Conus- and tortoise shell rings and strings of beads, for which purpose the alae nasi are also pierced.

In British N. G., with both sexes, almost exclusively the septum is pierced, and the small bolts made of wood, bamboo, coral, quartzite, Tridacna, Hippopus, pig and kangaroo ribs, sometimes surrounded by small rings of human hair to a length of 20 c.m., are principally used by the men. On the south west coast, amongst the Tugeri, the septum is however seldom pierced, although sometimes a long piece of cassowary bone is worn in it; more common is the piercing of the alae nasi with slitlike openings, which converge towards the point of the nose and in which boar's tusks are worn (HADDON [1891, 181, Pl. XV]) with the points upwards, also small cylinders, bolts of cassowary bone to a thickness of 2 c. m. (SCHMELTZ [1895, 158; 1904, 203; 1905, 198, fig. 3, 207, fig. 12 and 13]). These hang down parallel past the opening of the mouth, sometimes below the level of the chin, and the question may be asked whether it is intended thereby to imitate the projecting incisors of the male dugong.

In the northern territories of Netherl. New Guinea the piercing of the septum only is customary. Sáwé, a village situated on the Borowai River, forms an exception to this.

Here our expedition found in the case of several men, a mutilation, which amounted to this, that commencing exactly below the nasal bone, the ridge of the nose was pierced three times horizontally, showing on both sides three openings. Through these openings small strings had been drawn which retained small beads and Nassa lengthwise on the ridge of the nose. In fig. 37 a part of these Nassa can be seen at the point of the nose of the man sitting in front. Not improbably the report about the Marèm-gi, living behind the Witriwai River, who were said (DE CLERCQ and SCHMELTZ [1893, 23]) to perforate the nasal bone (?), see also the report of KRIEGER [1899, 375], signifies this piercing of the ridge of the nose below the nasal bones.

FINSCH [1888—93, 237] once saw in the case of a boy at Wanna (K. W. Land), that a short piece of wood of the thickness of a match was sticking longitudinally in a hole at the point of the nose, whilst the girls and women of the villages near Cape Pomone (MEYER and PARKINSON [1894, Pl. 39]) all have in the point of the nose a small hole, which is not found with the men [l. c. Pl. 40]. The women of the Tugeri (SCHMELTZ [1904, 204; 1905, 197]) only have the point or the septum of the nose pierced to admit a small piece of cane or bone.

DE CLERCQ, in reply to his inquiry as to the meaning of the piercing of the septum, was told (DE CLERCQ and SCHMELTZ [1893, 22]) that it was a custom amongst the forefathers, of which, the meaning was actually unknown, but which one would not willingly abandon. Besides, missionaries in Geelvink Bay heard that Papuans whose nose and ears are not pierced, cannot enter into their heaven. Therefore, sometimes already in early youth, the septum of the children is pierced; at the same time the opening is then used for ornaments.

In H. B. a mother was seen with her baby (a little girl) which was being treated for tinea imbricata, and was wearing a lot of rings in the ears and already had a small string of beads like N°. 296 through the opening in the septum. On the other hand it has struck me in H. B. and on Lake Sentáni that old men, who had already given up all sorts of finery more or less and no longer took an active part in the festivities and dances, proved on examination to be still wearing a very narrow but fairly wide bamboo ring in the opening of the septum. It appeared to me to be something which they owed to themselves, this hidden wearing of a totally unornamented ring. In younger people such rings or totally unornamented small bolts (N°. 304 and 305 of Sěkâ) may serve to preserve the opening, in order to place in it, on festive occasions, the fitting preciosa (FINSCH [1888—93, 95]). Aware, from personal experience that from the absence of nose ornaments it may, by no means, be concluded that the septum has not been pierced, — on close examination this piercing may not only be found to exist but may contain an object in some hidden manner, — I am very sceptical with regard to communications on this score from passing visitors, who were often unable to make a close personal examination. Moreover, concerning the Netherl. west and north coast, one finds full information about this with DE CLERCQ, who was struck with the fact that in the eastern territory the women also wore nose ornaments. In this respect Lake Sentáni, Nagramádu and Lake Jamūr must also be mentioned, where, for instance, in Angádi a 10 years old girl wore a

nose peg ot shell material, *kuräpa;* at Nagramádu it was called *ägögnöbè*. Putting aside the personal tress of hair, which is sometimes fastened to the septum (ROBIDÉ VAN DER AA [1879, 196], it then appears that the following articles are used in Netherl. North New Guinea as nose ornaments: flowers, leaves, stalks, bolts of bamboo, bone and shell material, fragments of shells in pairs and boar's tusks, tortoise shell and shell rings, beads strung on small bits of string or on bolts as well as all such other things as call forth the admiration of the Papuans. Thus at Asé a great demand sprung up for the glass tubes of photographic tablets (see Pl. XXXVIII, fig. 1 and 2). The most highly treasured and the most widely distributed are probably the small bolts of Tridacna (N°. 297—302).

The heaviest I collected weighs 27 gram, but they occasionally run up to 70 gram; H. B., Sĕkâ and Oinâke are famous in this respect. The brass wire of N°. 302 (Pl. XI, fig. 5) of Kwatisoré indicates foreign influence, probably of traders on this ancient custom; also the small bolt with beads of Mapar (N°. 303, Pl. XI, fig. 4), probably obtained by barter from the inhabitants of the coast, who use such nose ornaments (DE CLERCQ and SCHMELTZ [1893, 22]) and obtain the beads through foreign traders. Besides the unornamented bamboo rings and the small bolts referred to above, the collection also contains a specimen (N°. 307, Pl. XII, fig. 3) ornamented with very faint scratches of Wári and a set (N°. 306, Pl. XII, fig. 1) with burnt-in ornament of Sĕkâ, 2 c.m. thick, and showing much similarity with an object illustrated by FINSCH [1888[a], Pl. XX, fig. 4] who also mentions the great thickness [1888, 338].

The name „*lömö*" reminded me of an ornament of the ear; for ear I made the note: *lö*; MOOLENBURGH [1904, 187] however gives for ear: *ré*.

The bone bodkins of Lake Sentáni (N°. 308 and 309, Pl. XII, fig. 2) were used at meals as implements for eating and also in the plaiting of arm bands in order to make room at the desired spots for the fibre to be interwoven. Possibly also they serve for the first piercing of the septum.

N°. 310 and 311 (Pl. XII, fig. 14) are compound objects made out of sea shell, already known of H. B. through VAN DER GOES [1858, Pl. A A] and since found in the districts of Sĕkâ (FINSCH [1888[a], Pl. XX, fig. 7]) and Tarfia (DE CLERCQ and SCHMELTZ [1893, 24, N°. 81, Pl. V, fig. 4] and which, according to the use now stated to be made of them at Nimbúran and Lake Sentáni, also find their way to the interior. Here they are treasured particularly; the specimen from Dójo I could only buy from the proud wearer, for much steel. The way in which it is worn, described by DE CLERCQ, with the points forward, is certainly the most customary and can be seen on the second man from the right in fig. 171; but on Lake Sentáni the points are turned more upwards, thus lying against the bridge of the nose. The presence of this nose ornament eastwards does not seem to extend beyond the Netherl. German frontier. FINSCH [1888—93, 237] thinks that this ornament might be an imitation of the one, composed of two boar's tusks. On Lake Sentáni the so-called imitation is however very much more costly and rare than the original, of which I was able to obtain a great many (N°. 312—321). This object (Pl. XII, fig. 20) is originally a hunting trophy, and therefore never found on women or children, as HAGEN [1899, 173] also positively states of the breast ornament made out of circularly grown boar's tusks of the Bogadjim, in contrast

with the chains made of dogs' teeth, which, not being the produce of the hunt, may be worn by women. The nose ornament here meant consists on both sides of the flat lateral surface of an incisivus, and therefore does not represent a single tusk, but a complete set of two tusks, each with its own curvature.

On purpose asked about it, it was said in H. B. that these pieces were obtained by grinding the tusks on stone; whether the medial side of the original tusk is then sacrificed, this did not become quite clear to me. DE CLERCQ and SCHMELTZ [1893, 23, N°. 79, Pl. V, fig. 5] write of the object collected in H. B. that it consists of two ground down boar's tusks. FINSCH [1888a, Pl. XX, fig. 8] who illustrates a set of Lektre in K. W. Land, speaks in the text page 36 of „cut lengthways and smoothly ground", elsewhere [1888, 333] of boar's tusks split lengthwise and ground thin, BIRO [1899, 21] of boar's tusks cut into two halves, PARKINSON [1900, 26] of split boar's tusks for the breast war-shield, which he saw being manufactured, altho' he does not mention the technic followed in the splitting, any more than SCHELLONG, who in his interesting technical description [1888, 220] does not mention an instrument or method.

According to BIRO [l. c., 22], the lateral as well as the medial side are indeed obtained undamaged from one tusk and both halves of one tusk, it is said, are always placed regularly opposite each other in the breast fighting ornament. By the way, it may be remarked that the latter view of BIRO is not correct, as for this ornament the medial, transversely convex surfaces are exclusively used. It appears from the foregoing that the interesting question as to how the material was worked during the stone period, still remains insufficiently solved.

The small holes at the lower end of each piece are obtained by boring both surfaces, thus making them conical on both sides. Both halves are connected by vegetable fibres or rope made from the same, sometimes covered with gum to reduce the roughness and to make the thickness at this spot agree with the width of the opening of the septum. Sometimes each of the parts is ornamented in the middle of its length with a small lashing of the black mycelium. DE CLERCQ and SCHMELTZ [1893, 23, N°. 79, Pl. V, fig. 5] give an example of this, and in the Utrecht collection such a specimen also occurs under N°. 284; both are from H. B. and the object is not mentioned from anywhere else. Characteristic of Lake Sentáni appears to be the use of small rings of snake or lizard skin, joined on to the tusks; N°. 321 (Pl. XII, fig. 20) of Abar has four such small rings. The most common way of wearing the object is probably with the points turned up near the eyes (fig. 157); it is however left entirely to the wearer, now and then somebody is seen wearing them pointing downward. Both ways, side by side, are given in fig. 198. The ornament is very often temporarily suspended on the bags; on Lake Sentáni it was very much worn on a necklace plaited in different ways, by preference after the pattern of fig. 4, and from which it was then hanging down on the breast. The same thing occurs in K. W. Land (BIRO [1899, 21]), where also it is sometimes fastened to the beard. The eastern limit is Dampier Island (FINSCH [1888—93, 650]) and DE CLERCQ has collected a set of unground boar's tusks as far west as Wéwé (DE CLERCQ and SCHMELTZ [1893, 23, N°. 72, Pl. V, fig. 6]), now in Leyden (Ser. 929, N°. 72), which on closer examination appears to be a frontlet of cassowary feathers at either end with a large unground tusk, which however never serves here as a nose

ornament and besides, being connected by the slack string, it would not retain in the nose the position, which is represented in the illustration. The same thing holds good for the set of H. B. [l. c. Pl. V, fig. 8], indicated by the name *fia* or *fiai*. For this in Tobádi is the name of ground tusks, immaterially, whether these are found in the nose, on a bag or as a part of the breast fighting ornament. The pig itself is called: *por* (in the village of Waba (= Nafri) *púrŏ*). Single tusks, like those used as scrapers or as an ornament were always called: *por cheāb*, two such tusks with the bases and the points fastened to each other as a necklace: *thŏde*, as an armlet (DE CLERCQ and SCHMELTZ [1893, 38, N°. 195, Pl. VI, fig. 4]): *baja*. The abundance of these names proves no doubt that this article is important in the life of the Papuans. Nose ornaments for women in H. B. and on Lake Sentáni are exclusively small tortoise shell rings, and the small strings of beads already mentioned above, in a single instance, also real *simbóni* (see Chapter VII).

In Chapter XIII I will refer to the alteration caused in the shape of the nose by the wearing of ornaments.

EAR ORNAMENTS are largely used in New Guinea.

They occur least of all in British N. G., where in many parts even the piercing of the lobes of the ear is omitted and where therefore also (FINSCH [1888—93, 96—97]) less variety exists in the nature of the ornamental objects. On the other hand the use here of bamboo ear pendants, which serve at the same time as tobacco boxes, is very remarkable, as well as the custom, also seen with the Tugeri (PRATT [1906, 49]), of widening the opening of the lobe by an elastic strip of cane bent round. In K. W. Land the variety of the ornaments is already larger. Everywhere however the lobes of both ears are not pierced and sometimes only the outer rim of the ears, and one finds different herbs (FINSCH [1888, 299]) the cassowary primaries, mostly of local distribution, shell rings, balls of cuscus skin (ERDWEG [1902, 319, fig. 213]), Nassa, dogs' teeth, Coix seeds with rope fringe and tortoise shell ornaments in four shapes: 1° small flat disks (FINSCH [1888a, Pl. XVII, fig. 5 and 6]), 2° rings obtained by boring (SCHELLONG [1888, 222, Pl. XIX, fig. 10 and 14]) or 3° bent from very narrow strips (BIRO [1899, Pl. XV, fig. 4]) and 4° from broad beautifully carved strips (FINSCH [1888, 87; 1888a, Pl. XVII, fig. 4; 1888—93, Pl. 9, fig. 7, Pl. 13, fig. 4]; HAGEN [1899, Pl. 18, 24, 39]), sometimes also used as armlets.

The still larger variety in Netherl. territory is, in the first place, due to the almost universal custom of piercing both lobes of the ear in the case of both sexes. The men of Tarfia form an exception (DE CLERCQ and SCHMELTZ [1893, 25]) and pierce only one lobe; while no holes in the outer rim are noticed in Netherl. territory. The meaning of the piercing is not yet known; I only point to the peculiarity (HORST [1889, 243]) that in Walckenaers Bay on the occasion of a burial feast, one of the lobes of a young man, who was dressed up most beautifully, was pierced. In other parts the piercing takes place at the age of 3—5 (DE CLERCQ and SCHMELTZ [1893, 25]) but in H. B. where, in contrast with most other places, the women wear more ear ornaments than the men (see also KONING [1903, 256]), I often saw female babies with numerous and large ear rings. Probably this is largely due to the mother's vanity. Towards the marriageable age the ear ornaments are also often very abundant here. That the oldest women wear most ornaments, as remarked by VAN DER GOES [1858, 172], may occur in the case of widows, who may be rich having many daughters married or by the sale of knitted bags.

The collection contains two new objects obtained from Lake Sentáni and other known orna-

ments from new sources. New is a comparatively long, small cane bolt (N°. 322, Pl. XII, fig. 6) of Asé, nicely carved, in a manner as occurs on the arrow N°. 994 (fig. 150) and in accordance with the ornament of some bamboo cylinders. The reel-shaped object of Seisårå (N°. 323, Pl. XII, fig. 11) much resembles the specimen which DE CLERCQ and SCHMELTZ [1893, 28, N°. 121, Pl. V, fig. 32] mention of Mōki, situated still more to the west. Bamboo ornaments which are never worn in H. B. and on Lake Sentáni are still in use more to the west (N°. 324—329, Pl. XII, fig. 4, 5, 7, 8 and 9) provided with scratched lines and bird or fish ornaments. They served here as ornaments and not only in order to lengthen the lobe of the ear, as DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 28]) was told of Wandisiau. Even more than these objects of a vegetable nature, animal products are turned into use; amongst them sometimes balls of hairy cuscus skin, also worn by women in H. B.; more often only loose pieces which are squeezed with one end into the hole of the lobe (N°. 330—332).

Very abundant however is the use made in the whole of Papua Talandjang of tortoise shell; but here one never finds the ring obtained by boring, known in K. W. Land (SCHELLONG [1888, 222]), but always the kind which consists of a small, narrow strip bent round (N°. 333—335) and which is even traded away to the interior, also to Lake Sentáni.

A small ring hanging on to a bigger one was called in Tobádi: *entsji natu*, literally „tortoise child", probably on account of its small size, but I must allow the possibility that such small rings, through their number, refer to the number of children of the wearer. The collection contains all sorts of ear ornaments which are suspended by these simple tortoise shell rings. I have always endeavoured to keep the whole ear ornament of one individual separate, and it is thus possible to control what and how many one person wore. In the interior, according to N°. 338, ornamental pieces made from sea shells are suspended by the tortoise shell rings, sometimes traded away in a finished state, but the rough sea shells are also obtained from the inhabitants of the coast and the people of the interior themselves make their ornaments from them. Thus I saw in Asé a boy of 13—14 years old employed in knocking and crumbling a Conus shell against a hard stone, to such an extent, that practically only the round bottom was left (N°. 360), of which, afterwards, he would grind off with water on a flat stone the central projecting point, in order to obtain at this spot an opening. These operations took place on the stage of a men's watch-house, but I fear, not for the benefit of the young workman himself. By rubbing with small stones transversely over the circumference of such a flat shell ring, a star is obtained, as on N°. 364 from the newly visited village of Mawes, the same as appears on the object of Tanah Merah (N°. 365), an ornament very much in demand; the number of points on it has no meaning.

Small glass rings as occur in N°. 339, are imported and are in fair demand in order to be suspended from the earrings, also the mother of pearl shining rings from *Trochus niloticus* (N°. 340—342, 349, Pl. XII, fig. 13a, 13b). Small bamboo nose rings (see pag. 75) (N°. 340, 345, 359, Pl. XI, fig. 1) are sometimes only suspended for the time being. Once I saw Nassa tied on to the tortoise shell ring itself, namely in N°. 344 (Pl. XI, fig. 3), obtained from the medicine man at Tobádi. In Sĕkå (N°. 345—349, Pl. XII, fig. 13b) small hollow bone rings, according to the inhabitants, of cassowary bone, frequently occur on the tortoise

shell ear rings. FINSCH [1888—93, 250, N°. 567] here obtained an ornament with bone rings of pig's bone and small hornbill bones. In Nacheibe, not visited before, mother of pearl (N°. 350, Pl. XI, fig. 11) was also seen in use and in Sägeisårå, more inland, many women had large chains of tortoise shell rings hanging from ear to ear with the bight reaching halfway down the chest. This ornament, which according to PARKINSON [1900, 27] is characteristic of Berlin Harbour and surroundings, does not appear to have been met with anywhere else in New Guinea and now all at once reappears in this mountain village.

Here I also found, exclusively with women, the upper mandible (N°. 351) with the point turned down, suspended by tortoise shell rings. At Jachonto the men wear the point turned up, as shown in N°. 352 (Pl. XII, fig. 16), with a set of phalanges of Pteropus serving as suspenders. At Ifār (N°. 353) glass rings were suspended, whilst a man of Tobádi had stuck a number of loose phalanges, two and two together, in the shape of rings and wore several of these (N°. 354, Pl. XII, fig. 12) in one of his ears. The fine small, plaited rings, mentioned by FINSCH of Lektre [1888—93, 283, N°. 332] and found on combs [l. c. Pl. 7, fig. 4c; 1888a, Pl. X, fig. 1 and Pl. XVII, fig. 2e], are also attached to the ear rings at Tobádi (N°. 355) and at Asé (N°. 359). The ornaments with beads, Coix and long rope fringe suspended by a plaited rope band, as mentioned by FINSCH [1888—93, 239, N°. 329] of Attack Harbour, which DE CLERCQ does not appear to have found in H. B., are however very common, here as well as at Sĕkå (N°. 356—358), both for men's and women's wear. With all these specimens the said small band is plaited according to the pattern of fig. 43, which is also often used for other purposes here and elsewhere. A similar ear ornament of Asé (N°. 359) has a small band, according to the pattern of fig. 44, which is quite unique in the collection. Ear rings made from the primaries of the cassowary (BIRO [1901, 36, fig. 7, 2]) were also met with (N°. 361—363, Pl. XII, fig. 17).

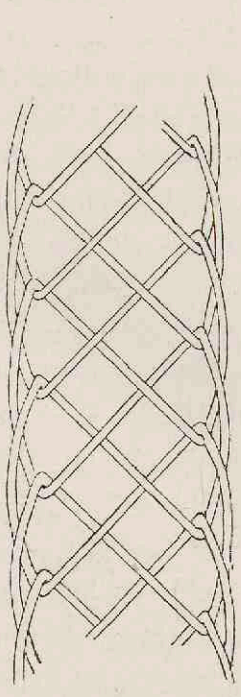


Fig. 43.
Pattern of rope band.

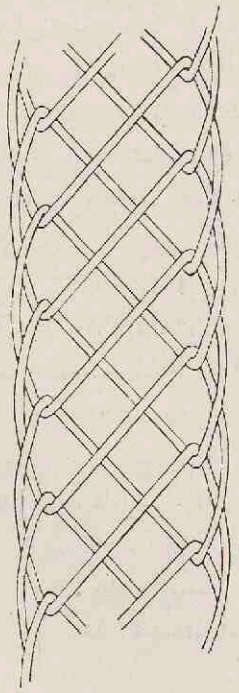


Fig. 44.
Pattern of rope band.

As is well known, the inhabitants of the northern coasts of Geelvink Bay and adjacent islands are very skilful in the working of tortoise shell (DE CLERCQ and SCHMELTZ [1893, 26, N°. 90, 27, N°. 104, Pl. V, fig. 29 and fig. 28]), a reputation which was now found confirmed at Mios Korwār (N°. 369, Pl. XII, fig. 15) and at Kwatisoré; here fine tortoise shell chains (N°. 366, Pl. XI, fig. 9, N°. 367) occurred, which, however, are worn by young men, instead of by women. Glass bugles (EDGE PARTINGTON [1890, Pl. 290, N°. 10]), which often occur on them (N°. 367, 368) are not always manufactured by the wearers themselves from molten beads, but form an article of trade. The people of Lake Jamūr said that these bugles, *brīmbe*, were thus imported from Ternate, in which they were probably deceived by traders or other persons from Geelvink Bay, who cast these articles (DE

CLERCQ and SCHMELTZ [1893, 24]). On Lake Jamūr I also saw men wearing silver ear pendants from Ceram, as only met with by DE CLERCQ (DE CLERCQ and SCHMELTZ [l. c. fig. 5]) on the Papuan Islands and on the coast of Amberbaken. The people here declared that they obtained these „*hirăwánè*" from Kaimĭra (probably Kaju Merah) on the south west coast, situated to the west of the delta formed by the rivers which are fed by Lake Jamūr, whose inhabitants carried on a direct trade with Ceram. The women wore silver ear pendants (fig. 45), called *mámumămè*.

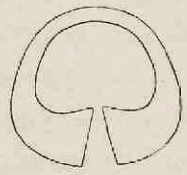


Fig. 45.
Silver ear pendant for women; Lake Jamūr.

In Nagramádu, situated half way between Lake Jamūr and Geelvink Bay, the men called their ear pendants, small silver bolts bent into loop-shapes, „*nanibè*" and declared that these, as well as the silver ear pendants, *kumètabè*, (fig. 46) of the women, came originally from Ternate.

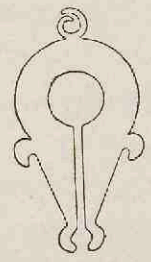


Fig. 46.
Silver ear pendant for women; Nagramádu.

NECK ORNAMENTS, which do not also serve to suspend breast or back ornaments, are not very numerous in New Guinea, unless one wishes to classify amongst ornaments, the simple string which the boys, often when quite young, wear round their necks as well as round their wrists. Amongst the men of Lake Jamūr such a neck string was fairly common.

Where a strip of calico, by preference of a red colour, can be got, it is twisted spirally into a cord and gladly tied round the neck; amongst the Maníkion these red strings, *mĭsi*, indicate mourning. Once tied round, such a cord is never again laid aside; it often serves to suspend, on occasion, nice looking or sweet scented weeds. At Tobádi, such grasses hanging down at the back, were called *nānsŏsĕrå* (fig. 199 and anthropological plates). By tying Nassa to a simple string, a necklace is obtained, which is found over a wide area. FINSCH [1888—93, 97, Pl. 6, fig. 6 and 7] mentions them at Port Moresby, as „shell money"; those in the collection (N°. 372 and 373) are from Thaë and are long enough to be twisted close round the neck several times. On Lake Sentáni I met with two real necklaces, N°. 370 (Pl. XII, fig. 18) two strips of rattan cleverly braided round a centre of bark fibres, N°. 371 (Pl. XII, fig. 19) broader, consisting of two rows of erect Coix seeds between plaits of white Pandanus fibres, on which a plaited work of black mycelium makes a pleasant effect. I also saw at other places in the interior, necklaces manufactured entirely from indigenous materials; thus at Nagramádu, one of short yellow pieces of cane, strung together lengthwise.

On Lake Sentáni neck rings made from two boar's tusks (N°. 378, Pl. XIII, fig. 9) tied together, are also used by the men, like those found in Humboldt Bay (N°. 377) and of which the name *thåde* or *tsåde* is probably connected with the name for neck, according to BINK [1897, 2] „*tohte wau*". Formerly they were more common and sometimes fastened on to the top of the breast shields, to be mentioned hereafter (VAN DER GOES [1858, Pl. ZZ, fig. 8].

Otherwise this ornament appears to be only locally distributed. FINSCH did not meet with it to the east of the Tami River (Sechstroh-Fluss), and neither PARKINSON nor ERDWEG mentions it in connection with Berlin Harbour.

Another difference from the adjoining German territory is the great scarcity of the necklaces made from dogs' teeth, which are so commonly worn in the latter territory, even by women. Their rarity makes them very valuable; a man of Tobádi would not part with his necklace for a reasonable price.

Necklaces made from human ribs, according to PARKINSON [1900, Pl. XVI, fig. 2] often used in the Berlin Harbour district, have nowhere been seen on the Netherl. territory. When I say that the neck collars of plaited string, so characteristic of the south east and of which the Leyden Museum (Ser. 764, N°. 17) possesses a specimen, manufactured according to a pattern similar to fig. 67 (see UHLE [1888, 175, fig. 3]), are not reported from the Netherl. territory, some characteristic differences in kind and distribution of the neck ornaments are enumerated. The increased navigation and foreign trade, which now-a-days reach nearly all the coast districts, occasion the very common use of coloured beads as neck ornaments. Hence the industry of Tarfia, which formerly (DE CLERCQ and SCHMELTZ [1893, 29, Pl. VII]) produced so many ornaments, amongst them necklaces, made from Coix, Adenanthera and black seed rings, has been modified by the use of beads, with which really pretty effects are obtained. DE CLERCQ fortunately saved specimens of the lost culture.

Our modern beads are however by no means valued as highly as the old currency-beads (see Chapter VII). By rubbing them with corals and an endeavour is sometimes made, as with the necklaces of Ingrås (N°. 374), to give the modern beads the dull appearance of the valuable old beads. From Sáwé (N°. 376) and from Sägeisårå (N°. 375, Pl. XIII, fig. 3), places at which steamers do not call, I collected necklaces on which there were beads as well as shells or black seed rings, those of Sägeisårå however of a peculiar make, also date from an old industry, for which reason I further refer to them with the currency-beads. With most of the other neck ornaments in the collection, the decoration of the chest with suspended articles, is the main object. Thus with N°. 379 (Pl. XIII, fig. 8) from Seisårå, where seven ground-off boars' tusks form a poor sort of breast shield; it is to be noticed that the conically bored holes all start from the back, for which reason the opening in the hard enamel of the front surface is very small.

It is improbable that this ornament is of any worth as a breast protector. True, the bearing of the inhabitants of this village on occasion of our visit on the 16th of April 1903, was very suspicious, somewhat unfriendly, and some of the men drove the women inside the houses, but of a direct preparation for war there did not appear to me to be any question. Nor were there any active hostilities at the meeting on the 18th of April either. That on Lake Sentáni on ordinary occasions the set of tusks, which is used as an ornament for the nose, is generally worn on a neck string, either plaited or not, on the breast, has already been mentioned. N°. 385 (Pl. XIII, fig. 5) of Lake Sentáni consists of a neck band plaited from rope according to the pattern of fig. 47, otherwise seldom used and further it is ornamented with Coix and with rope fringe.

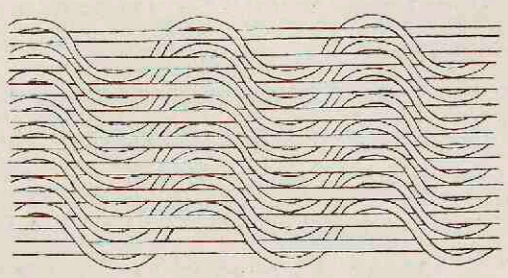


Fig. 47. Pattern of rope bands.

As all personal ornaments on this lake are inferior and cannot stand comparison with those of the coast districts, this object is also poor when compared with that of Kajó Entsáu (N°. 386, Pl. XIV, fig. 2), not occurring in the otherwise so complete collection of DE CLERCQ. It is generally worn at dances. KONING [1903, 264, Pl. 3] gives illustrations of some people of Tobádi, decorated with the ornament in question. I myself saw it on the visitors from

the district of Sĕkå, who executed dances on the large stage near the *kărĕwări* of Tobádi for their hosts, fig. 198—200, where the rich contrasting colours of the ornament and the rhytmic movement of the suspended objects created a pleasant impression; the neck collar is plaited according to fig. 48. At Tarfia a similar ornament also occurs, under the name of „*bau*", but it does not appear to be met with to the east of the 141st degree of longitude. Still more beautiful is N°. 387 (Pl. XV, fig. 3 and 3a) from Sägeisårå, where the contrasts of colour between the yellow pieces of cane, the black mycelium, plaited according to fig. 43, and the white Nassa are very pleasing. The manufacture of an ornamental piece like this demands a great deal of labour and explains why VAN DER GOES [1858, 171] sounded the praises of the inhabitants of this coast on account of the taste and skill with which they applied themselves to fancy-work and art. As a protection against arrows the object is of no value.

The neck ornaments of more western districts are represented by four specimens. That from Liki (N°. 380, Pl. XIII, fig. 1) decorates the breast with Conus-shell rings, whilst on the back a shoot of Zingiberaceae is suspended by it; N°. 381 from Kwatisoré is admirable on account of the irreproachable manner in which the small coloured beads are strung together, as already met with in comb N°. 243 (Pl. VIII, fig. 1a) and according to DE CLERCQ and SCHMELTZ customary throughout the southern part of Geelvink Bay,

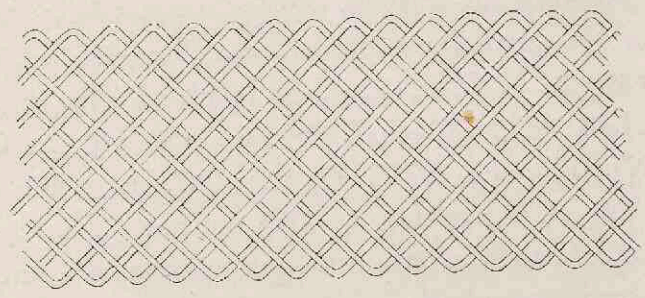


Fig. 48. Plaiting pattern.

both on ornaments for the back [1893, 44, N°. 232, Pl. XIII, fig. 1] and on girdles [l. c. 46, N°. 226, Pl. XI, fig. 8 and 42, N°. 224, Pl. X, fig. 6], armlets [l. c. 37, N°. 182, Pl. VIII, fig. 2] and belts [l. c. 42, N°. 228, Pl. X, fig. 12]. N°. 384 (Pl. XI, fig. 6) from the same settlement, shows a pair of hunting trophies, strung on a brass wire, probably imported by way of Doré, like the crest of a gaura and a boar's tail, whilst N°. 382 and N°. 383 (Pl. XIII, fig. 4) both consist of strips of Pandanus leaf on which small shells of *Cypraea annulus* are strung, as occur on the ankle ornament mentioned by DE CLERCQ and SCHMELTZ [1893, 50, N°. 268, Pl. VII, fig. 11], the whole hanging down from a neck string, in front of the chest, as shown in fig. 206.

Of BREAST ORNAMENTS the collection contains four specimens, all from Tobádi (N°. 388—391), called breast shields in accordance with the purpose for which they are intended: protection against arrows, as is consecutively ascertained by MIKLUCHO MACLAY, FINSCH, BIRO, PARKINSON and others. The strongest proof in this respect is the fact that PARKINSON [1900, 26] saw each of the warriors in Arrop, who acted as outposts against the adjacent hostile village of Warrpú, provided with this object. The experience of the expedition is in this respect only of a negative kind: When on the 10th of July 1903 some members of the expedition landed in the bay of Jonsu (between Humboldt Bay and Tanah Merah Bay, therefore within the distribution zone of this object: Hatzfeldthafen (BIRO [1899, 22]) to Tanah Merah Bay (DE CLERCQ and SCHMELTZ [1893, 39]), they were stopped by half a dozen heavily armed and excited Papuans, who were expecting people from Orúm, with whom they were at war. In the excitement of this state of war they treated the expedition in a very unfriendly

manner, but not one of them carried the said breast ornament or any other special ornament of the breast. When on the other hand on the 7th of May 1903 our rowing boats entered the bay of Oinåke, I was unpleasantly surprised at the sight of some men provided with the breast war-shield, who came running towards the beach. But before the boats had yet arrived within an arrow's shot, the men had placed their bows and arrows against the trees on the margin of the forest and endeavoured to point out to us the proper passage between the reefs, close to the fresh water creek here entering the bay. Therefore here the breast shield and yet no hostility. Tortoise shell as a layer, as for instance characteristic of breast shields of the south east part, between Redscar Bay and Hood Bay, does not occur on the present breast shields; the construction, described under the numbers referred to, which can be recognised on Pl. XIII, fig. 6a in front and 6b on the back, is the one commonly used. With the specimens in the collection, the ground-off halfs, which are placed to the right and left, do not belong together to one and the same tusk, as is indicated by BIRO [1899, 22]. Most pieces, if not all, consist of the medial tooth surfaces. The glue with which the Abrus beans are fastened on the frame FINSCH calls [1888a, 37, Pl. XXII, fig. 2] „black putty", elsewhere [1888—93, 236] „Kitt oder Wachs", by de CLERCQ and SCHMELTZ [1893, 39, N°. 187, Pl. VI, fig. 11; N°. 196, Pl. VIII, fig. 10; N°. 197, Pl. IX, fig. 8; 236] „rosin", by BIRO [1899, 22, 23] „pitch", according to this author [l. c. 23], consisting of a mixture of rosin of Canarium trees and Cocoa-nut soot. In fact it is not as brittle as pure rosin and when heated it becomes kneadable.

The shape of the rattan plaited work is, according to PREUSS [1899, 170], derived from the flying fox, according to BIRO [1899, 21] it represents a human face. The question can only be decided in K. W. Land, the home of the object, (PARKINSON [1900, 26]) whose wide distribution towards the west is due to barter. This might also explain how the imitations met here deviate from the original.

VAN DER GOES [1858, Pl. ZZ, fig. 8] found such an object in Humboldt Bay with small crocodiles' teeth instead of boar's tusks, whilst instead of the neck string there were two un-ground boar's tusks; FINSCH [1888—93, 245] found in Sĕkå two deviating forms, one with crocodiles' teeth, the other with a number of small boar's tusks, along the margins and the middle space simply made from bark, and it could therefore have only little value as a breast protector.

On the breast shields of the collection, some small articles, tied on to the rope fringe, are also to be found, as e. g: the leg of a bird, a small piece of engraved wood, a hook-shaped piece of shell, etc. which according to FINSCH probably form mementoes [1888—93, 245]. I have been unable to find on Netherl. territory, as pendants, parts of the human skeleton, met with by FINSCH in Sĕkå, or small, wooden figures as amulets or talismans. The breast shields with small cross sticks, held by the teeth, to challenge the enemy and to appear more formidable to him, (FINSCH [1888a, 18]) were also wanting here. N°. 392 (Pl. XIV, fig. 1 and 1a) from Tobádi, a rough imitation of a bird of paradise, and having a striking resemblance to the object described and illustrated by FINSCH [1888—93, 242, Pl. 8, fig. 3], can no longer be of any importance as a practical breast protection. It was said that it served for festivities; it might offer some support to the opinion of PREUSS, who

wishes to see the breast shield interpreted as a bird. The piece of feathered cassowary skin of Ingrâs (N°. 393) also served as a breast ornament at festivities. Finally it may still be mentioned that South New Guinea possesses no breast shields as referred to; but in its stead crescent-shaped objects composed of rattan strips, with dolphins' or dogs' teeth on the convex side (SCHMELTZ [1895, 159]), which strongly remind one of the rattan breast ornaments in the Berlin Museum collected from Attack Harbour (N°. 9156) and from the territory between Cape Croisilles and Hatzfeldt Harbour (N°. 15183), both of which objects again closely resemble the half rattan rings mentioned above (N°. 272—276) as forehead ornaments.

The Tugeri wear on the breast many bundles made from the skin of pigs' tails, possibly hunting trophies, but at the same time a not unsuitable protection against arrows (HADDON [1891, Pl. 15], SCHMELTZ [1904, Pl. XII, fig. 2]). It appears however that women also wear this ornament. Further I wish to point out the great similarity in the names of the variously shaped breast ornaments amongst themselves in the different localities and different dialects on the northerly coasts of the Netherlands territory; thus N°. 386 of Kajó Entsáu is called *chandŏri*, N°. 387 of Săgeisârâ *chainâri*, N°. 388—391 of Tobádi *chendŏri* N°. 196 and 197 of Wandisiau *kaindori* (DE CLERCQ and SCHMELTZ [1893, 39]). Perhaps with a fuller knowledge of the language more light may be thrown on the meaning of these objects.

BANDOLIERS are very commonly worn, especially in Netherlands New Guinea, sometimes singly, sometimes as a set, forming a crossing in the middle of the breast and in the middle of the back. The Tugeri men (SCHMELTZ [1895, 160; 1905, 199] often wear more than one set, the one broader than the other and generally decorated with Coix seeds; I have also found double sets on the Netherl. north coast. In only very few places they are entirely wanting, at all events they are much more often seen in daily wear than was formerly supposed (DE CLERCQ and SCHMELTZ [1893, 207]). In German and British New Guinea they are much less used. The woman of Angel, occupied in boring, illustrated by PARKINSON [1900, 37], however wears a set of bandoliers. Sometimes they are intended as a mourning dress (FINSCH [1888—93, 158]), a peculiarity which has not been ascertained of the bandoliers of the collection. Amongst these, none appear with dogs' teeth strung on, such as met by DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 39, N°. 186, Pl. VII, fig. 12 and N°. 201]) on Jamna and on Liki; these are very rare, at least I never saw them. In many coast districts, for instance in Humboldt Bay, bandoliers are worn by men as well as women, by the men close under the armpits, often fitting somewhat tight and in the case of the women (Pl. XLVII, fig. 3) passing sometimes below (fig. 6), more often above the mammae. On Lake Sentáni, as far as I can remember, I never saw them worn by women.

The three sets of Tobádi (N°. 394—396) apart from the different width, are entirely like the set which DE CLERCQ and SCHMELTZ [1893, 39, N°. 200a, Pl. VI, fig. 5] mention, plaited according to fig. 48 and with halved Coix seeds strung on lengthwise. On the other hand I found the set from Asé (N°. 397, Pl. XIII, fig. 2) with an wavy line of entire Coix seeds, the stringing twine running zigzag between two-stranded, parallel strings, as may be seen in fig. 49. In the case of a set of Thaë (N°. 398), soiled by much red clay, a wavy line is formed in the same manner with Nassa seeds, also noted of Berlin

Harbour (PARKINSON [1900, 27, Pl. XIX, fig. 8), whilst the Berlin Museum possesses the same article from the upper Ramu. N°. 399 of Ajápo (Pl. XIII, fig. 7) also is peculiar, small rolls of sweet scented leaves tied by thin bits of string; I got it from a young man: — young, marriageable men are the vainest individuals in Papuan society.

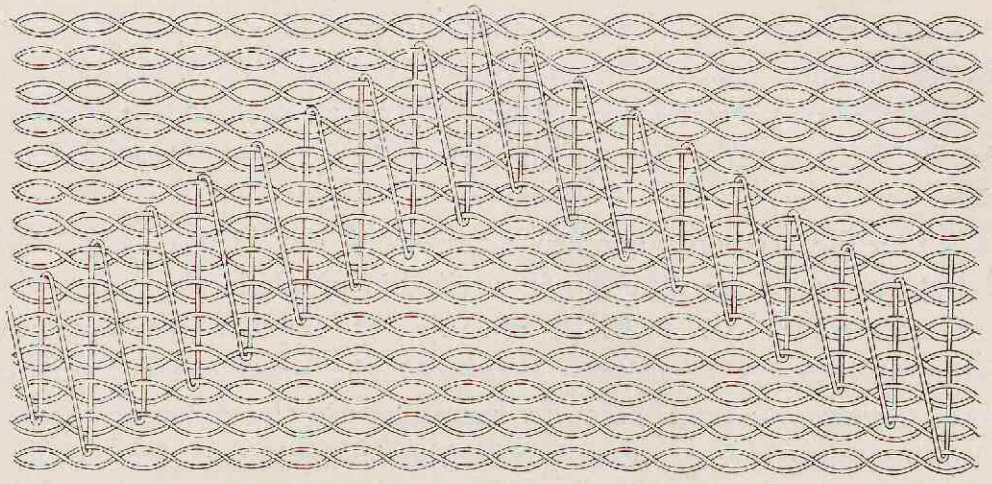


Fig. 49. Pattern of bandolier N°. 397, Pl. XIII, fig. 2.

Finally at Kwatisoré I collected two sets of bandoliers (N°. 400, Pl. IX, fig. 4 and N°. 401), according to the inhabitants, obtained from the industrious Serui and corresponding entirely with those which DE CLERCQ and SCHMELTZ [1893, 38] mention about Goras and Saūkorèm. The Rotterdam Museum also possesses such a set (N°. 4703). The black fibres in these bandoliers taken by DE CLERCQ for leaf nerves, consist of mycelium (see pag. 16), which is not used for bandoliers further to the east; (see also fig. 206).

Sometimes used as a bandolier, sometimes as a belt, bands plaited from cord, see pattern fig. 43, but fully twenty times broader (in fig. 50 it is represented three times the breadth) are characteristic of Papua Talandjang. DE CLERCQ and SCHMELTZ [1893, 39, N°. 192, Pl. VIII, fig. 16] give a specimen of Wandisiau under the name of *sjiŏsŏ;* the specimen of the Berlin Museum (N°. 21172) is also originally from DE CLERCQ. Of these the collection contains only one specimen N°. 404 (Pl. XVI, fig. 3) from Kaptiau and fig. 114 (the man to the right), shows how it is worn.

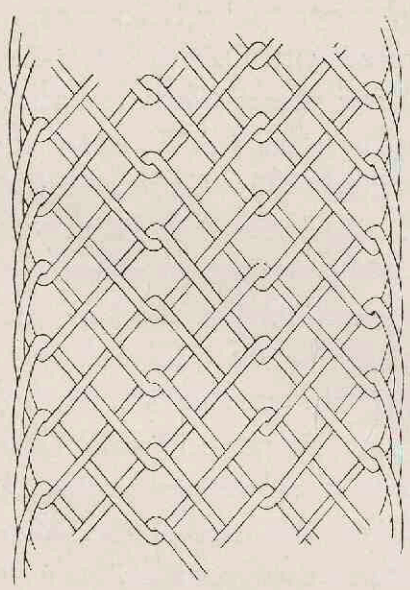


Fig. 50. Pattern of rope band; like that of fig. 43 in threefold breadth.

Although the technic according to which this bandolier is made and which creates longitudinal ribs, is used in K. W. Land for the manufacturing of the wings on a kind of armlet, *tsaue* (BIRO [1901, 43, fig. 40, *3*]) and also for these armlets themselves (Berlin Museum, N°. 11396 and N°. 17163), the use of bandoliers made in this way is apparently only limited to a small district.

The same thing may be said of the peculiar „harness", as N°. 402 (Pl. XVI, fig. 2) of Oinåke and N°. 403 (Pl. XVI, fig. 1) of Kajó Entsáu, each consisting of a band which fits horizontally round the body and is held in its place by two shoulder bands.

DE CLERCQ has described a similar object as „bandolier" (DE CLERCQ and SCHMELTZ [1893, 39, N°. 202, Pl. XI, fig. 1]) collected at Masi-Masi, which was said to be worn only at festivals in the temple.

This was not the case with the two objects in the collection, they were worn at least in public by young men apart from any festivity or mystery, and of the four Papuans from

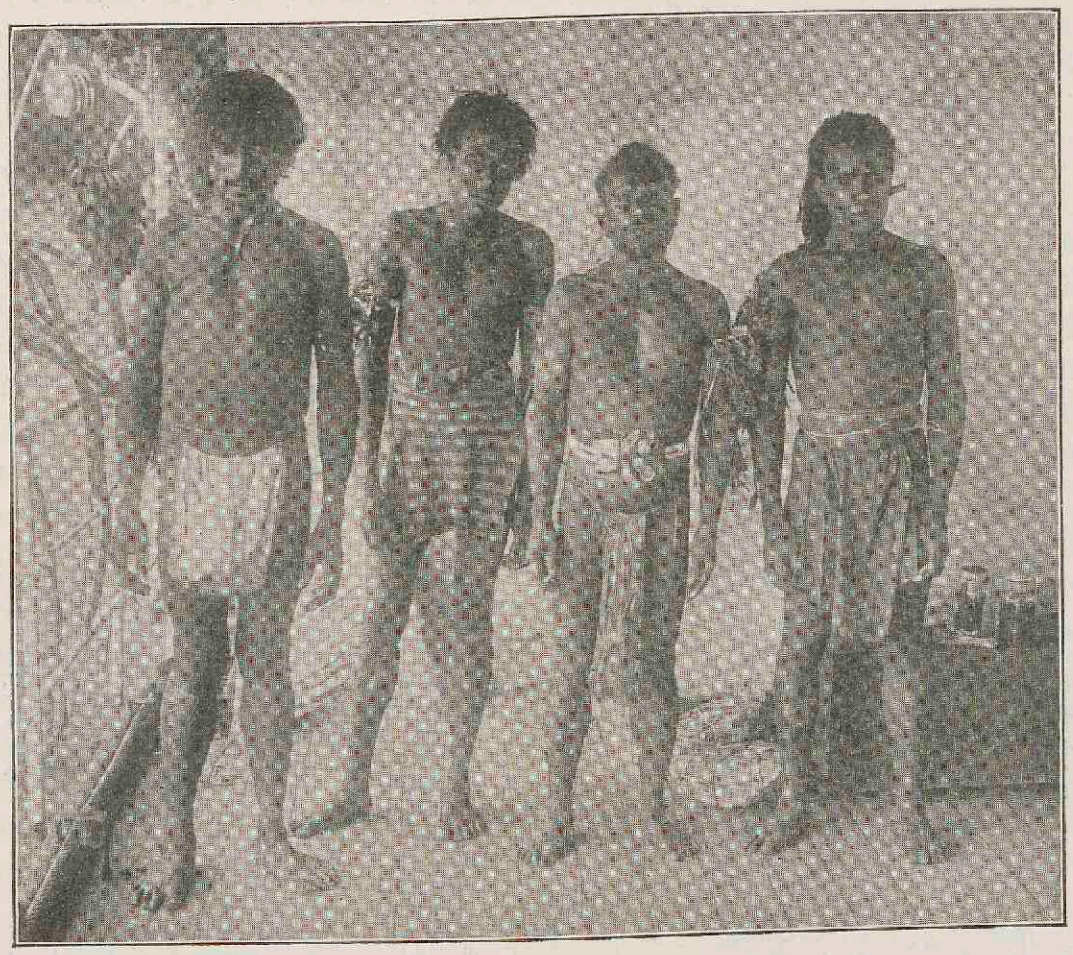


Fig. 51. Men of Liki and Lansutu.

Liki and Lansutu who came to visit our ship, one wore this dress (fig. 51; just visible on the breast of the person on the left hand). The object of DE CLERCQ, now in the Leyden Museum (Ser. 929, N°. 202), is worked according to the pattern of fig. 52; in the case of N°. 402 and 403 the patterns of figs. 43, 4 and 9 are used.

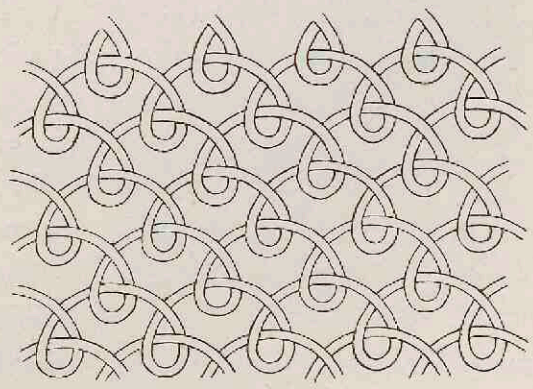


Fig. 52. 2/1. Stitch of bands, aprons and bags.

Similar objects were met with Sĕkánto people, but as far as has been discovered, they only appear in a limited territory (ERDWEG does not mention them from the adjacent Tumleo), worn simply as an ornament by the vainest of the young men, never by women.

WAIST BELTS, which are worn much lower down, are very often used by the men to fasten the apron and by the women to attach the bark petticoat. Such belts are pushed down, slipping over the iliac crests on to the great trochanters and in front below the navel. Proper ornamental belts are worn round the smallest part of the body, on the soft part between the curvature of the lower ribs and the iliac crests.

Mourning belts made of cord with cross rows of the simple „figure eight" stitch (fig. 9), as reported from Collingwood Bay (Berlin Museum, N°. 21589) I have never seen worn. However it is not surprising that everywhere in the territory of the Netherl. north coast, and wherever else the small bark petticoat is used, more belts are worn than in the eastern part of K. W. Land and in British N. G. where the leaf petticoat, with strings attached to it, is customary. The collection contains two women's belts (N°. 405, Pl. XVI, fig. 4 and N°. 406) from Humboldt Bay made of hard unbeaten bark, never yet collected in Netherl. N. G. and of the occurrence of which on our territory, BIRO [1899, 89] was also unaware. An illustration by KONING [1903, 268, Pl. 4] shows, how they are worn over the upper margin of the bark petticoat; owing to the limited length of the belt, the ends, as a rule, do not meet in front, but are tied together with a string.

I suppose that these belts are manufactured by the women themselves, at all events they were offered for sale by women, and one of them, who was accompanied by her husband, who had also something to sell, wanted to be paid separately. A similar male belt of thicker material (N°. 407), decorated outside with white (lime) figures, was obtained at Tobádi, where however I have never seen it used. It may be of but little value as a protection against arrows, being much thinner and narrower than the stiff bark belts, which in K. W. Land, 25—30 c.m. broad and 2—2.5 M. long (PARKINSON [1899, 30, Pl. XV, fig. 2; Pl. XIX, fig. 16], MEYER and PARKINSON [1900, Pl. 9]), are long enough to be wound several times round the body (ERDWEG [1902, 308, fig. 206]) and are classed by BIRO [1899, 89] under armour, although they also appear in daily use. I have not found any engraved figures on these belts, as reported by ERDWEG [l. c. 309, fig. 207, 208] both of the in- as well as of the outside, and I have seen no evidence of certain ceremonies, such as reported by ERDWEG l. c. of Tumleo, when these belts are put on for the first time. N°. 408—413, belts of Kaptiau, are manufactured from strips of bamboo or reed and serve to fasten the petticoat on the hips. The pattern of N°. 408—411 is shown in fig. 53, every strip passing in turns over and under three cross strips.

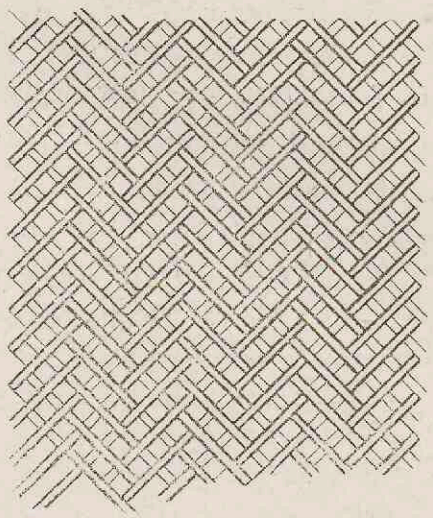


Fig 53. Pattern of plaiting: „under three over three"; herring-bone pattern.

Very long strips are required for their manufacture, long enough to go round the belt three times whilst plaiting; the plaiting of the first turn produces the pattern of fig. 4, the second moreover forms throughout a second intervening strip and then produces, as in the case of N°. 412 (Pl. XVI, fig. 7) and N°. 413, the pattern of fig. 48; the third turn produces the pattern of fig. 53, the herring-bone pattern (see KUBARY [1895, 210, Pl. XXVII, fig. 15 and 16]; SCHMELTZ [1905, Pl. IV, fig. 2a]). Besides, systems of superficial, longer stitches, as in the Tugeri belts [l. c. Pl. IV, fig. 1 and 1a], are added for ornament; with the same object, in the case of the belts from Abār (N°. 414 and 415) and from Pujo (N°. 416, Pl. XVI, fig. 8) the black mycelium has been used, which is fastened between the superficial stitches. These objects, collected from the women wearing them, were then quickly superseded by a small piece of rope and carried over the shoulders and the head, a

sure sign that these ladies did not lace themselves in. As a matter of fact these belts are made of a fixed width in proportion to the measurement of the wearer, but so roomy that, passing over the bony pelvis, they do not transgress hygienical principles. The same cannot be said of the stiff bark belts of the men of K. W. Land (FINSCH [1888a, 333]) nor of those of the S. E. coast (FINSCH [1888—93, 101, fig. 24 and 25].

Tight lacing, (sometimes stomach and liver project and hang over the belt, MACGREGOR [1897, 46]), is shown in illustrations by HADDON [1901, Pl. XXI] and PRATT [1906, Pl. 1]. For our own territory the Sĕkánto men are an example of tight lacing (fig. 54).

N°. 417 and 418 are beautiful ornamental belts for men; they are worn round the middle, are not intended for suspending the wrapper, and decorated with Nassa and black seed rings only. The manufacturing of these objects is a monopoly of Tarfia, and the specimens which DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 42, 43, Pl. XII, fig. 22 and fig. 1])



Fig. 54. Group of the Sĕkánto.

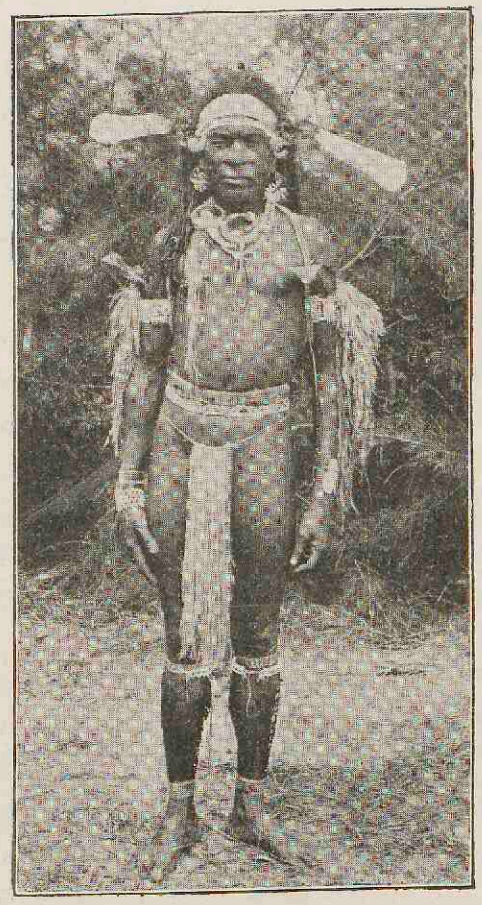


Fig. 55. Man of Tarfia.

found on Jamna and Liki, with the place of origin given as Tanah Merah, must therefore have originally come from Tarfia. The people of Tarfia also very often ornament themselves with belts, arm-, wrist- and brow bands of this make, (fig. 55), but derive great benefit from this monopoly, the maintenance of which is of vital importance to them. Other villages acknowledge Tarfia's existing rights in this respect and war with these quarrelous people would irrevocably be the result, if another village, even if it were only for its own use, dared to manufacture the same. On the other hand every war in the neighbour-

hood, which interfered with the free intercourse, would be disadvantageous to Tarfia.

The strained relations between Tarfia and Muris made it difficult in June 1903 to persuade men from Tarfia to accompany the expedition into the interior, but they willingly availed themselves of the opportunity to penetrate the country, provided with a great quantity of these objects, under the protection of the armed expedition and its peace promoting efforts, as far as the village of Nimbúran, in order to re-open the long interrupted trade in their ornamental produce. And indeed, such a demand existed in the market, that the expedition itself could only get hold of a few things with difficulty.

It was for instance impossible to obtain the brow bands which DE CLERCQ and SCHMELTZ [1893, Pl. I, fig. 8] illustrate. All these articles produced at Tarfia, consist of a piece of tissue of previously prepared cord and are woven with the weaving frame N°. 716 (Pl. XXV, fig. 1; see Chapter VIII); on this tissue the ornament is tied with separate strings. In vain I tried to discover a similar product in other parts of New Guinea; — the belts, ornamented with Nassa, Coix and Abrus, which PARKINSON [1900, 28, Pl. XX, fig. 6—12] found in K. W. Land, are not woven from cord, but plaited from thin barkfibres.

Another ornamental belt is N°. 419, made from Coix seeds strung together, from Sěkå, where, as is well known, no aprons but calabashes are worn. N°. 420 of Tobádi, a girl's belt, is also only intended as an ornament, used at festivals. Made from mycelium, they are, when somewhat broader, like those of the Leyden Museum, rather valuable. Formerly they also appear to have been worn by the men, at all events VAN DER GOES [1858, 171] mentions as such „a band of black coloured cord, cleverly covered with regular figures in small white shells", — evidently the mycelium was then mistaken for black coloured cord. How widely they are distributed I don't know; outside Jótěfa Bay they have not been noticed by the expedition. FINSCH mentions a belt made of „black vegetable fibres, probably liana's" from Attack Harbour [1888—93, 249, N°. 561], without doubt, judging by the further description, this also means a mycelium belt. The belt of Sáwé is also peculiar (N°. 421, Pl. XVI, fig. 19), to which, besides sago palm kernels and small pieces of pig's bone (see also FINSCH [1888—93, 112, N°. 567]), a small bag is fastened, manufactured with the „figure eight" stitch (fig. 9) and filled with some Adenanthera seeds and dried leaves, probably with some talismanic meaning; similar bags are often seen in these parts worn on a neck string. Neither to the west in Geelvink Bay, nor to the east in Humboldt Bay, has the wearing of anything similar ever been seen; on the other hand such bags, containing talismans, often occur in K. W. Land (FINSCH [1888—93, 258]). N°. 422 and 423 from Kajó Entsáu are men's belts which, although ornamented with beads, are intended for suspending an apron; they are quite exotic, the rope is a tanned cotton-cord, such as the Malays use for their fishing lines and is, like the beads, obtained from the traders on Meto Débi. A certain number of the blue and yellow beads show a dull surface, as mentioned on pag. 82. N°. 424—428 are thin, plaited, belt ropes of small red coloured strips of sago palm leaves, *sĭre* (DE CLERCQ and SCHMELTZ [1893, 42, N°. 235, Pl. XII, fig. 19]), and the same material as that from which small petticoats in K. W. Land are manufactured. In Humboldt Bay, also in Attack Harbour (FINSCH [1888—93, 250, N°. 563—566]), very fine strings are plaited from it, which, often ornamented with Coix seeds and fringe, are tied round the middle to fix the bark petticoat. The longest one in the collection measures 35 M.; the way they are used, is shown on Pl. XLVII, XLVIII and IL.

The women of the adjacent Lake Sentáni use, as shown above, the closed bamboo belts. When however a girl of Lake Sentáni is married in H. B., she at once adopts the *sĭre*-fashion and when on a visit to her native village, she will wear the *sĭre*-belt with undisguised pride. The women themselves collect the material and do the plaiting.

PUBIC COVERING OF THE MEN, it must be remarked, offers more variety in the Netherlands territory than elsewhere. Leaving unnoticed for the present the cotton dress, consisting in its most simple form, as with the Manĭkion (fig. 42), of a blue strip of calico and extending to the east in the shape of the loose, red calico apron, it appears that, with the married Tugeri men, the plaited waist belts (SCHMELTZ [1895, 160]) to the number of two: namely a broader one made of rattan strips (Leyden Museum, Ser. 941, N°. 70ª) and over it in the middle a narrower one made of reeds (N°. 70ᵇ), serve as pubic belts; — when meeting women (SCHMELTZ [1904, 201]) the praeputium of the vertically pulled-up penis is caught between the broader girdle and the belly, whilst a shell, *Semifusus proboscideus*, tied on in front sometimes covers the glans penis. MODERA [1830, 29] saw the same custom in the Marianne Strait. According to BIK (SCHMELTZ [1903, 204] the praeputium is here pierced and held up by a string; — this however is not the case (SCHMELTZ [1904, 200]). HADDON's statement [1891, 180, Pl. XV], that a shell (*Melo diadema*, SCHMELTZ [1904, 200, Pl. II, fig. 4]) suspended by strings from the girdle hangs over the genitals, only holds good for marriageable young men; the apprentice, *oklivide*, of the club-house wears nothing at all. Somewhat more to the west, bamboo cylinders are used as penis holders (VAN DER GOES [1858, 45, Pl. TT, fig. 11]). A piece of bark, passed between the legs and kept in its place by another one twisted round the hips, according to PARKINSON is the only proper covering in the eastern part of the Berlin Harbour district, the part hanging down being ornamented on festive occasions with painted figures (ERDWEG [1902, 307, fig. 204]); more to the east it is covered by both sexes with a plain apron of bark. From Siébu DE CLERCQ and SCHMELTZ [1893, 48, N°. 252] mention also a coronet of cassowary feathers, worn round the neck on man hunting expeditions, and after the successful termination fixed round the waist and used as a pubic covering. When home-made pubic coverings are used in Papua Talandjang, they are usually as in N°. 430—444. — N°. 430 from Liki is a girdle rope, doubly festooned, as illustrated in fig. 56 and to which bunches of bark fibre are fastened (fig. 51, second man from the right), entirely corresponding with the object mentioned by DE CLERCQ and SCHMELTZ [1893, 49, N°. 257, Pl. XIII, fig. 2] of Tarfia (see also fig. 55) and of which the distribution certainly does not extend far beyond the coast territory limited by both places. In Geelvink Bay, the men use the long narrow strip which can be obtained from the stalk of the banana leaf and of which N°. 431 contains seven, tied together, and in this way kept in stock at Mios Kórwār. Such a light yellow strip is extremely thin, sufficiently pliable when in a dry condition and long enough (1.25 M.) to reach round the body; it descends over the left buttock, passes between the legs and with the broadened part (corresponding with the leaf sheath), is drawn up in front of the pubic region and fastened to the circular

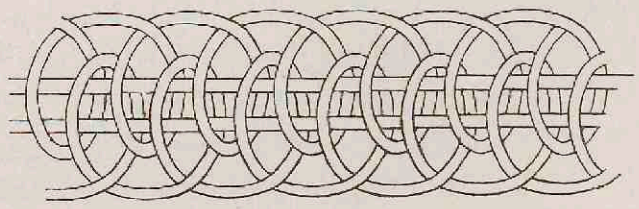


Fig. 56. Pattern of festooning ropes.

(girdle) part. N°. 432 (Pl. XIV, fig. 3) is a similar perineal band from Kwatisoré, ornamented with coloured calico and used on festive occasions.

The most remarkable wear of the men on the north coast is however that of the calabash, the distribution of which is again rather limited; the western limit being Cape Bonpland. Humboldt Bay therefore falls outside of it. That most travellers nevertheless ascribe the use of the calabash to the inhabitants of Humboldt Bay (see VAN DER GOES [1858, Pl. B B]), can be explained from the fact, that the people of Sĕkå, who all wear the calabash, whenever trading or other vessels call, often come to visit the bay. The amicable relations existing between Sĕkå and Humboldt Bay lead to large groups of people exchanging visits on the occasion of marriages or other festivities, and often for several days dances are held (fig. 198—200) on the platform of the temple or even inside. In this way it was possible for DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 47]), who bought a calabash in a temple at Humboldt Bay, on which occasion a certain mysterious behaviour was noticed, to report that the wearing of calabashes was connected with the participation in certain festivities in the temple. Meanwhile HORST [1893, 177] based on this report far reaching conclusions with reference to circumcision and the necessary protection of the wound by a calabash, which conclusions are by no means verified. And where he states further on, that the calabashes are no real pubic covering and can only serve to protect the glans penis, his observation is incorrect, as in fact the whole of the penis is inserted and even the scrotum is hidden behind it for the greater part. In Humboldt Bay the calabash is considered an ethnographical curio, as such kept in stock, and also sold to the European collector (see for instance SCHMELTZ [1903, 242, Pl. XI, fig. 2]). I remember a case of one of the notabilities of Tobádi, who had a calabash for sale and in order to induce me to buy, he took it out of his bag, put it on and began to dance with it, putting it away again when I refused to buy. According J. M. DUMAS' report, the inhabitants of the upper reaches of the Tami River do not wear calabashes; but on the Augusta River, where otherwise most men wear no pubic covering, the calabash is also worn by some people.

Along the coast the use thereof is universal for adult men in Sĕkå and Oinåke, more to the east it occurs as far as Lektre, but here only sporadically.

The usual calabashes can be distinguished in egg-shaped ones (PREUSS [1899, Pl. VI, fig. 34—36]), larger and heavier (15—31 gram), with the opening very close to the blunt pole, and pear-shaped ones, lighter (4.6—8.3 gram), with the opening more in the middle of the length. The three men to the left in fig. 12 and the man of fig. 200, all wear pear-shaped calabashes. The opening is often somewhat larger in transverse direction than lengthwise and so narrow that the Papuan, when about to dress himself with this article, pushes the penis in through the opening with a thin stick (for instance a scratching stick as N°. 232) until the member has entirely disappeared in the calabash. The weight of the egg-shaped calabash then causes it to drop with the sharp pole somewhat forward until the blunt pole finds a support behind and below the root of the penis against the scrotum. The principal ornament of the calabash, adjusted between the opening and the sharp pole, is not therefore hidden against the belly but is turned upwards and can be plainly seen by the wearer. In the case of the pear-shaped calabashes, where the opening is placed half way, the male organ finds room in the lower broadened part and the

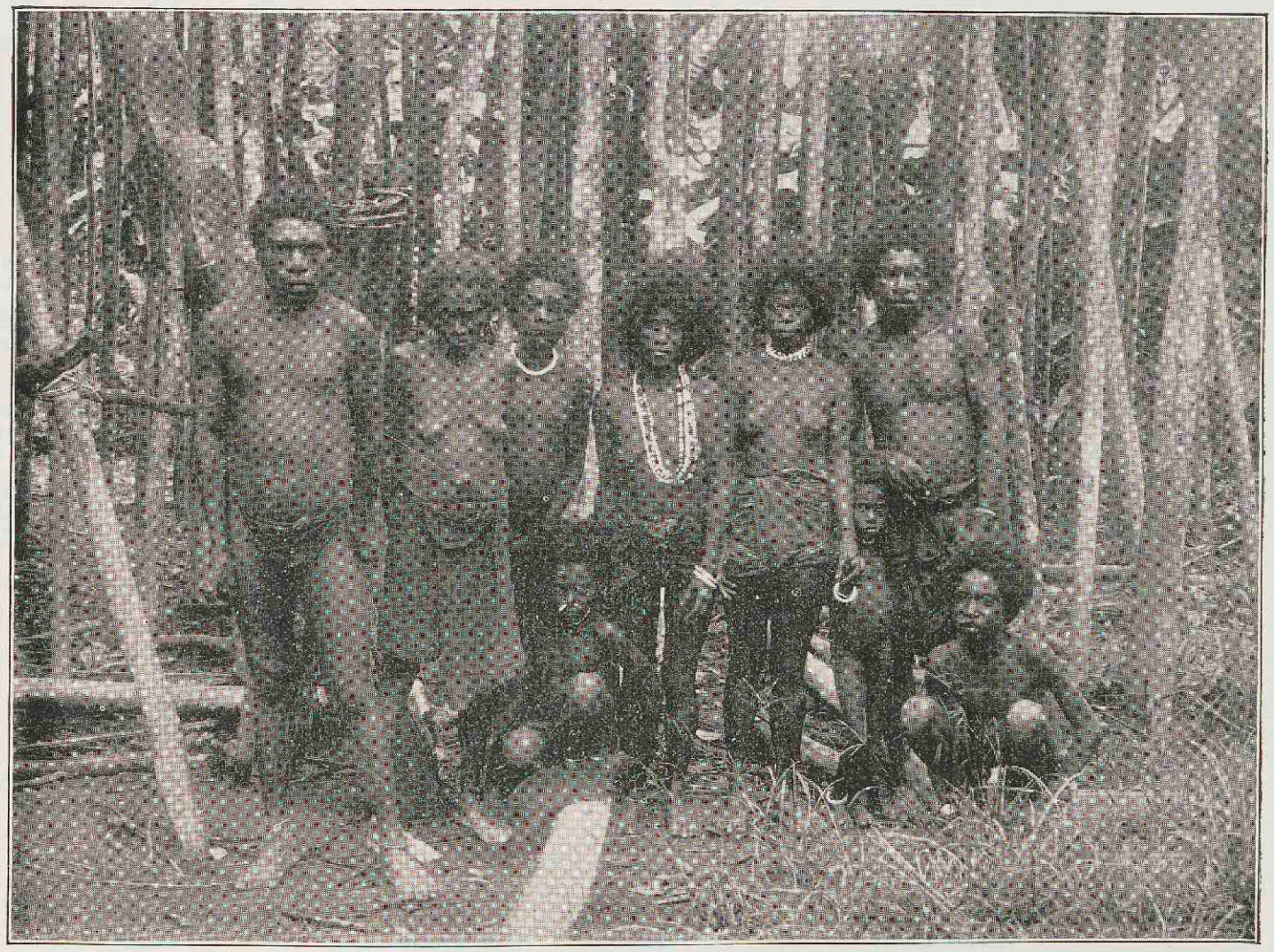


Fig. 57. Group at Nagramáda.

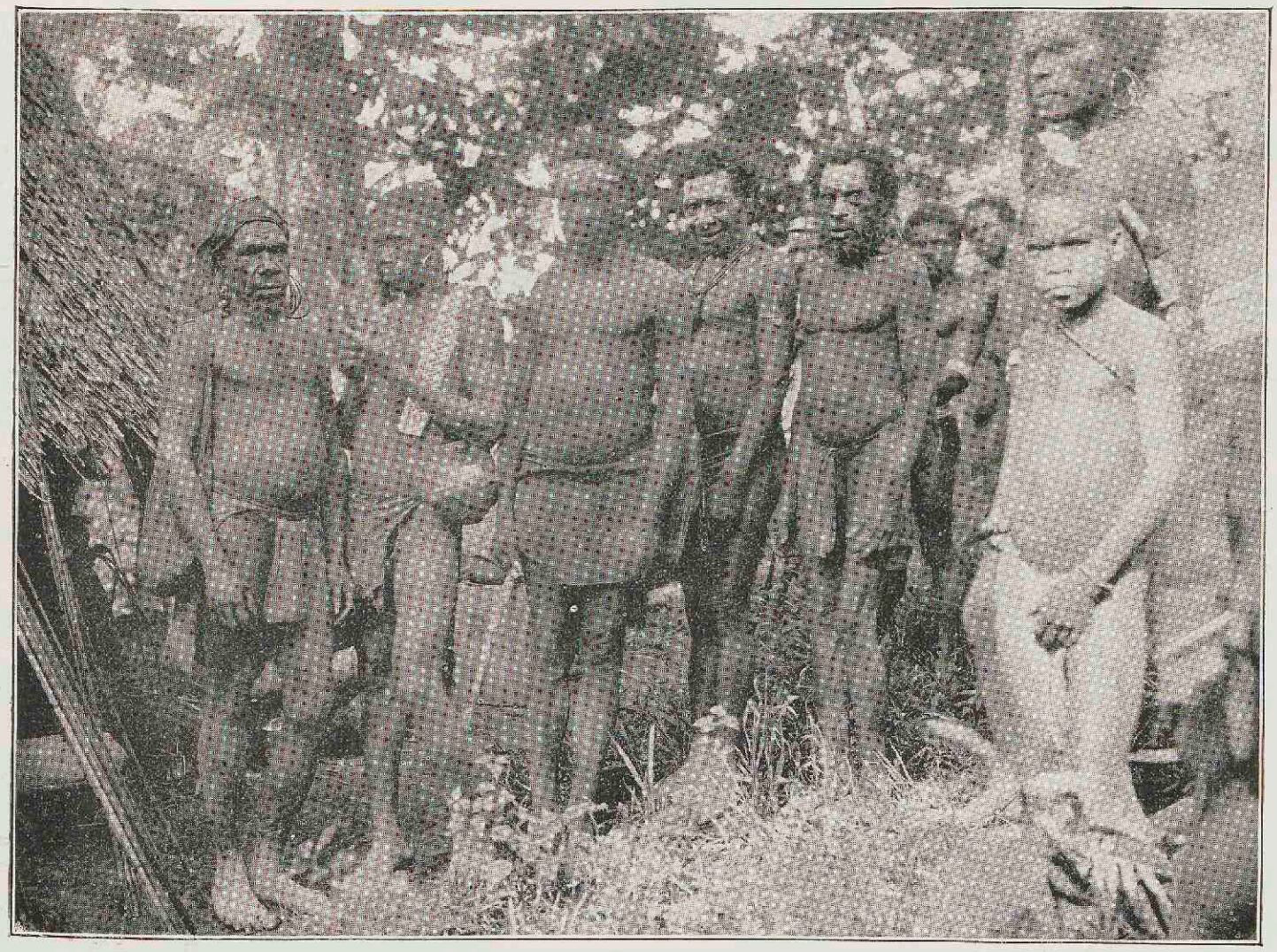


Fig. 58. Group at Nimbúran.

calabash is therefore not pushed down in front, but remains in the vertical position, as illustrated by FINSCH [1888a, Pl. XVI, fig. 7]; hence, their principal ornament is applied on the side opposite to that of the opening. FINSCH states [1888—93, 225] that the calabashes also contain leaves, intended for the protection or enlargement of the penis, in order to prevent the calabash falling off when the wearer moves about. I have not met with these leaves.

The old gentleman spoken of above, without using leaves or anything else, was able to jump about, without dropping the calabash and that immediately after putting it on. At another time, when I bought a calabash, directly from the wearer, which took my particular fancy on account of the ornament, I did not see any leaves used either. On this occasion the wearer turned aside for a moment, pretending to replace his calabash by another; when however I looked at the object handed to me I noticed that it was a different one and that he still wore the desired calabash. The deception having been found out, he finally gave up the desired object to the hilarity of the company squating round. The laughing on occasions like this is never derisively levelled at the deceiver, on the contrary it applauds his commercial spirit, even though it failed; at the same time it is intended for the person who is clever enough to see through the deception.

It appeared to me that the egg-shaped calabashes were worn by older, the pear-shaped ones by younger people; but I dare not surmise whether social position, difference of tribe or anything else decides in this matter. The ornament however, is probably connected with such differences. With both kinds of calabashes, there is always considerable variety, although that of the egg-shaped ones offers, according to the place of origin, mutual differences which however apparently do not effect the meaning of the representation. It represents flying or hovering animals, either birds, as supposed by PREUSS [1899, 172, Pl. VI, fig. 34—36], or *Pteropus* or *Petaurus*, as, I fancy, the figures of the egg-shaped calabashes of the collection (N°. 433, Pl. XV, fig. 4; N°. 434, 435, Pl. XVI, fig. 11; N°. 436, Pl. XVI, fig. 12) indicate. The head generally corresponds with the opening, the contours surrounding the same. That the three plain animal figures of N°. 436 represent Petaurus, seems to follow from the intentional broadening of the burnt-in contour on both sides between the front- and the hind leg, by which the flying membrane is represented, whilst one of the figures has a curled tail. I must however remark that FINSCH [1888—93, Pl. 10, fig. 5b] illustrates of another calabash from Sĕkå, an ornament, taken by him (after PREUSS [1899, 174, fig. 1] perhaps with good reason) for a lizard, where the thickening of the contour as an indication of the flying membrane does not appear either. The small circle with radiating lines on N°. 434 (see also PREUSS [1899, Pl. VI, fig. 35 and 35a]) may probably be taken for a crab (see pag. 44, fig. 17). The ornament of the pear-shaped calabashes (N°. 437—443), differs considerably from the previous one and is distinguished by the delicacy of the design, which can only have been done with hard, sharp, heated instruments. PREUSS [1899, 170, 173, Pl. VI, fig. 1—8] has ingeniously analysed these ornaments and described them as birds and snakes. According to this idea, the three centipedes represented on N°. 437 (Pl. XV, fig. 5 and 5a) should be considered as birds with several pairs of wings.

The pubic covering of the women offers a fairly large variety. In British N. G. (MACGREGOR [1897, 49]) and the greater part of K. W. Land a front and back apron of vegetable

fibres, is most generally distributed. When in K. W. Land a small petticoat is worn over the common narrow strip of bark fibre, it consists (FINSCH [1888a, 15, Pl. XVI, fig. 8]) of the split leaves of the cocoa- or sago palm. Using a set of aprons [l. c. fig. 9], a shorter one in front, a longer one behind, according to HAGEN [1899, 173, Pl. 25, 39, 40], they are made of Pandanus fibres, worn up to three and more sets in layers one over the other, in the case of widows uncoloured, by other women with horizontal, red stripes; — sometimes also with black and yellow ones (BIRO [1901, 51, fig. 20]). A short survey of the female dresses in Netherl. New Guinea teaches us that such double aprons, which leave the hips free, have been also met with on the south coast of the Mac Cluer Gulf (DE CLERCQ and SCHMELTZ [1893, 46]) and on the south west coast with women from the mountainous country near Lakahia, and here also, as quite an independent observation, aprons of cassowary feathers have been noticed, strung together in a similar manner (VAN DER GOES [1858, 45, Pl. T T, fig. 12]). Curious ethnographical islands, in the middle of the perineal band of the epidermis of banana leaf or of coloured calico, commonly used here! This calico, imported in the west by Ceram traders, is generally dark blue; amongst the Maníkion great parcels of it form a kind of currency (see Chapter VII). The Mohammedan and Christian influences, cause a constantly increasing use of the more complicated dress in the western parts (see fig. 11, fig. 32 and DE CLERCQ and SCHMELTZ [1893, 46]). VAN DER GOES [1858, 29] found on the S. W. coast near Arguni Bay, as well as in the district of Kaimanni the „sarong" fastened by the girls above, and by the women below the bosom. The cotton sarong was also met with at Nagramádu (where it is passed between the legs, fig. 57) and at Angádi, fig. 201, territories, opened up by the expedition; as far as the last named place is concerned, it is imported along the southern waterway with the sea; as for Nagramádu, it was obtained from Geelvink Bay and during the work in the gardens, just as elsewhere, replaced by the strip of bark. In Geelvink Bay, where several missionaries are established, the sarong is gaining ground, also with the men (fig. 59); this has even become the case to the east of Cape d'Urville and in the heart of Papua Talandjang, since the opening of regular steamship intercourse. At festivities in Humboldt Bay, in which women and girls participate, the imitated Malay dress was sometimes seen, the more coloured the better. On Lake Sentáni however they had not got as far as this in 1903; — at a wedding feast at Asé (fig. 128) not a shred of cotton was to be seen and the bride wore her bark petticoat with much grace. These petticoats, of

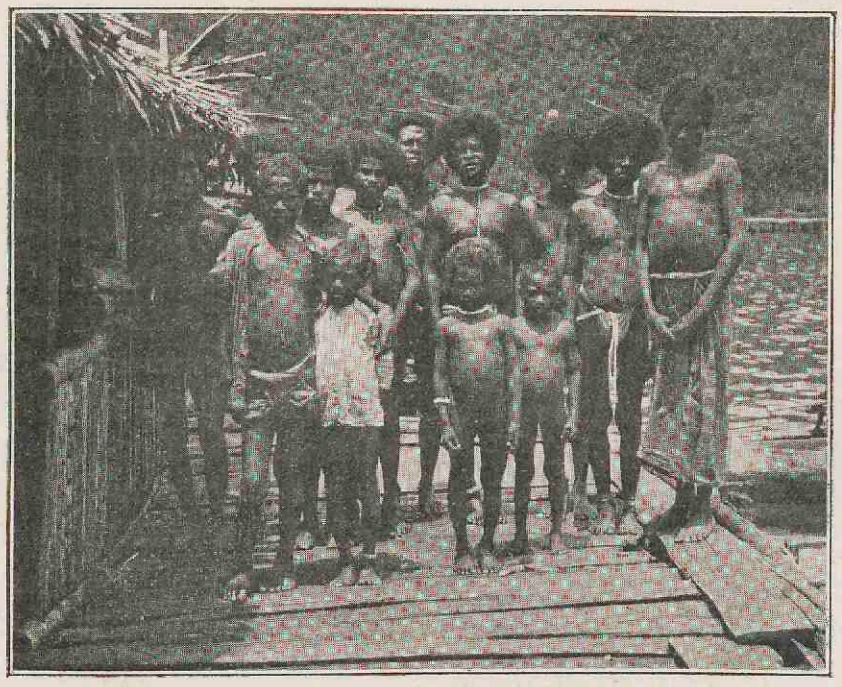


Fig. 59. Group at Jendé.

which the collection contains half a dozen (N°. 444—449), have almost become the common covering of women between Cape d'Urville and a point on the north coast to the east of Oinåke. Where this eastern limit really lies, cannot be exactly ascertained from German literature, as the small fibre petticoats and aprons met with there are often considered to be generally distributed over the whole of K. W. Land; FINSCH [1888—93, 225] states that he has seen these aprons in H. B. The natives here, however, wear, without exeption, the bark petticoat, the same in Sĕkå and, in German territory, at Oinåke, Tumleo (ERDWEG [1902, 307]), Seleo and Angail (MEYER and PARKINSON [1900, Pl. 14 and 19]). Loose bark aprons, as mentioned by ERDWEG of Tumleo and, according to figs. 60 and 65, worn by the women of the Sĕkánto, occur in isolated instances (DE CLERCQ and SCHMELTZ [1893, 48 N°. 256]) also in H. B., either ornamented or not with Nassa in rows or circles [l. c. Pl. XI, fig. 5].



Fig. 60. Group of the Sĕkánto.

The bark cloth of Humboldt Bay is heavy and thick and with few or no „knot" holes; it is prepared on the spot, or only the best qualities are bought from elsewhere, and the people of Lake Sentáni and the remainder of the interior, who use thinner, more beaten bark, even if with many „knot" holes, are scoffed at. Cloth with many holes must necessarily be taken in greater lengths, to wind it several times round the body, in order that a second turn may cover the holes of the first winding. A comparison of the *marå* of Asé (N°. 447) with that of Tobádi shows immediately, that the first is longer, broader and more beaten out, therefore, looser and thinner than that of Tobádi. *Marå* from Asé weighs 2.7 gram per d.M.^{2}, that of Tobádi on an average 3.3 gram, therefore about 25 % heavier. With reference to the preparation, see Chapter VIII. The bark cloth is worn in such a way that the fibre runs horizontally, the breadth of the cloth determines how far the petticoat reaches down the legs. This breadth is limited by the circumference of the trees and the degree of beating and as in H. B. only moderately beaten cloth is in demand, the best petticoats here are only short, reaching about to the knees (see figs. 6 and 207); on Lake Sentáni they always reach lower down; with the bride at Asé (fig. 128, the woman next to the flagstaff), it reached down below the calves.

The collection still contains three knitted aprons (N°. 450—452) worn in front and at the back by women (fig. 40) as well as by men (figs. 41, 58 and 214; Pl. L, fig. 3 and 4), which are purposely manufactured from previously prepared cord, indicating a degree of civilisation which is particularly surprising at this place. True, FINSCH mentions [1888—93, 225] large, sacklike coverings of „Filetarbeit", worn by women (according to HAGEN [1899, 263, Pl. 39, 40] as mourning), and netted bags, which women of Finsch Harbour wore in front and at the back, fastened to the belt, instead of the fibre apron. If however these were ordinary bags, knitted as loosely as the coverings, of

which on the photo's of HAGEN, the ordinary „figure eight" stitch (fig. 9) can be easily recognised, this dress cannot be placed on a line with that of the more closely worked aprons (not bags), to which reference is made here and which are not used for any other purpose than as a pubic covering. THOMSON [1892, 95] also mentions a small net bag, from nine to twelve inches in length, worn in front as an apron by the native mountaineers near Mount Victoria. VAN DER GOES [1858, 172], however, deliberately states that he saw in Humboldt Bay aprons for women of very fine knitted or plaited network, which were presumably worn by visitors from elsewhere; at all events the expedition has not seen anything like it in II. B. Neither DE CLERCQ nor HORST [1889, 217], who both visited many places on the north coast of Netherl. N. G. and also Papua Talandjang, mentions these aprons. The only thing known to me, which resembles it, is a girdle ornament in the Berlin Museum (N°. 2440) obtained from Jamna, 30 c.m. long and 6 c.m. broad, entirely of cord and made with the stitch of fig. 52. The strings and straps occurring on the three aprons, are according to the pattern of fig. 43. N°. 450 is manufactured according to the pattern of fig. 9, which is found distributed throughout New Guinea from west to east and in this case, for this special purpose, is made as close as the men's bags, therefore much closer than the well known women's bags (see Chapter V). N°. 451 (Pl. XVI, fig. 13) and N°. 452 consist however principally of a kind of stitch which is much less common and illustrated in fig. 52.

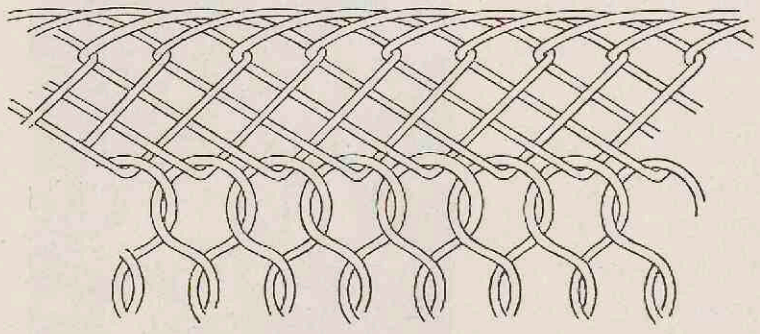


Fig. 61. 2/1. Cord binding on pubic apron, bag, etc.

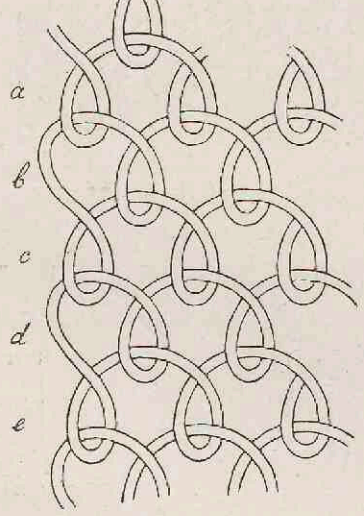


Fig. 62. Run of threads on the margin of pubic apron.

The peculiarity here occurs, that the turns run to the right and to the left and at the margin the thread passes from a higher turn without interruption to a lower one. How this is done in the case of the apron of Kaptiau (N°. 452), fig. 62 shows, where the passage of turn *b* on to turn *c*, and from turn *d* on to turn *e* can be traced; — it goes without saying that at the other margin of the apron, the passages are from *a* on to *b*, and from *c* on to *d*. The loop at one of the top corners is festooned according to fig. 64.

The back apron of Sáwé (N°. 451) which, as far as the top part is concerned consists of twelve turns of the „figure eight" stitch (fig. 9) and besides of turns of the stitch in fig. 52, provided at the upper and lower margin with a binding according to fig. 43, is peculiar. For on a closer inspection it appears that in manufacturing this cloth, two threads are always used at the same time and that the passages at the margins are formed according to two different methods, which can be each executed in two ways, thus forming according to the run of the thread four different patterns, illustrated in figs. 63, *1*, *2*, *3*, *4*. Such passages naturally occur alternately at the left and at the right margin. Why

the work should be done with more than one thread at a time, remains an open question.

The territory from which these aprons come, has still other peculiarities respecting textile industry, for instance a kind of woven cloth, to which I refer under Industry (Chapter

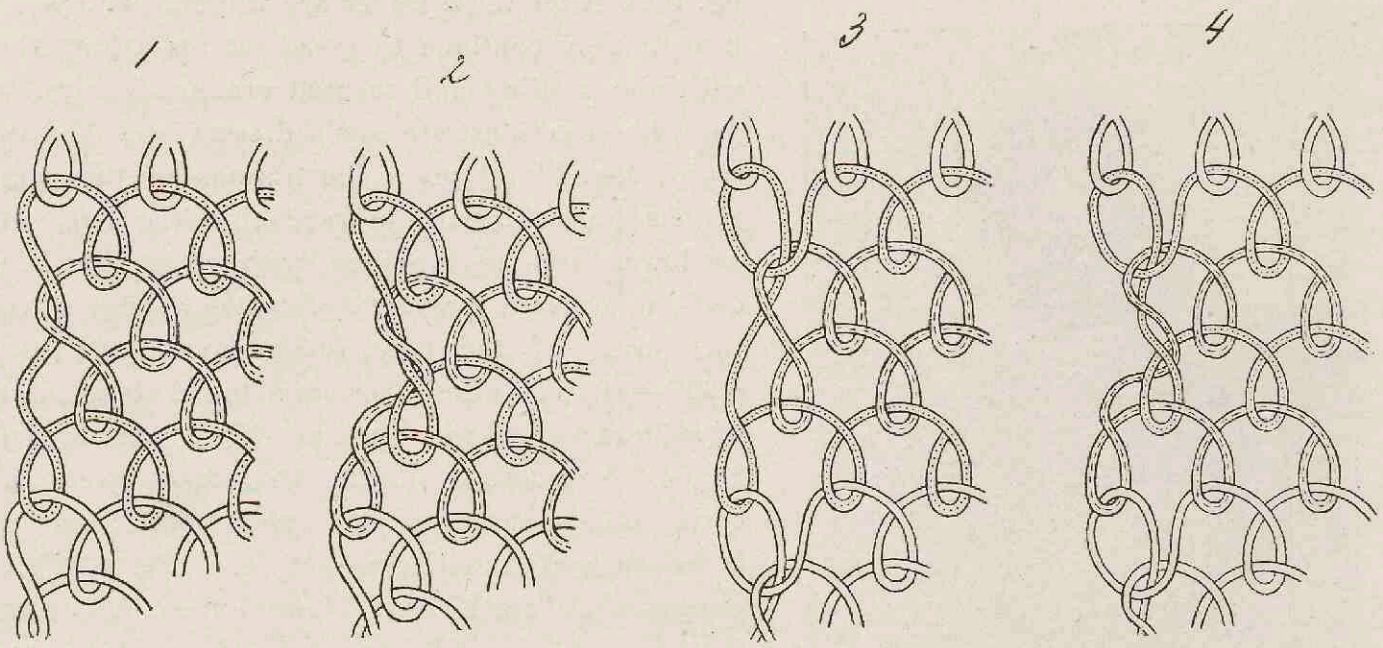


Fig. 63. Run of two threads on pubic apron.

VIII). The front apron of the woman on the left in fig. 40 appears to me to be such a woven cloth; it is worn in that manner.

The custom of ORNAMENTING THE LIMBS is very common in New Guinea. From what I could learn amongst the most primitive inland tribes, the arms especially, even more with the men than with the women, are decorated and three spots are indicated for this purpose, 1° on or just above the thickest part of the upper arm 2° the upper arm just above the elbow joint, 3° the wrist.

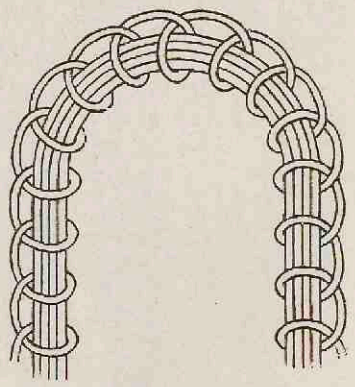


Fig. 64. Festooned loop.

Often according to its nature or to the period in which it is put on, the ornament has a special meaning, the discovery of which forms the most attractive part of this kind of study. The temporary wearing of an armlet of Pandanus leaf on the upper arm, to carry small articles, is customary in different districts of Geelvink Bay (DE CLERCQ and SCHMELTZ [1893, 30]). The fixed armlet, which is generally worn on one of the upper arms, is also commonly used for this practical purpose. All sorts of objects which must be kept handy, as the dagger (fig. 124; Pl. XXXVII and XXXVIII, fig. 2), the bone spoon of pig's femur, the head of the joint preventing it from slipping through (Pl. XXXVII, fig. 1, Pl. XXXVIII, fig. 3, Pl. XLVI, fig. 2); the spoon of the lower part of the tibia, on which a small hook at the end of the joint is purposely retained, hooked on to the upper edge of the armlet; the trident fork (Pl. XLV, fig. 3); the tongs (Pl. XLIII, fig. 4, Pl. L, fig. 2), which are often astride the upper edge (Pl. XLVI, fig. 3 and 4). Right handedness prevailing, it is not surprising that the armlet of the left upper arm is chosen for wearing in all these articles. Young men

from the temple of Tobádi, who wore an armlet on both sides of the upper arm, have ornamental or sweet scented leaves jammed in them. In this manner, and moreover with bundles suspended from a small necklace down the back, they were covered with green foliage (see fig. 199). After these leaves are withered and yellow brown, they continue to go about for a long time with the rustling and scented ornament. Figs. 30, 31, 188—190 illustrate such dresses and KONING [1903, 264, Pl. 3] gives illustrations of the same. It has been further observed that the left wrist or lower arm is provided with rings, bands or cuffs, in order to prevent accidental wounding with the string of the bow when shooting. FINSCH [1888—93, 117] describes the broad bow-guards of split rattan (Berlin Museum, N°. 21031) used in British N. G. (ANNUAL REPORT [1899—1900, 99]), corresponding entirely with the specimen, fully 20 c.m. in length, which the Leyden Museum (Ser. 1, N°. 49) possesses of north west New Guinea (VAN DER GOES [1858, 160]). The wooden armlets which occur here, are according to SCHMELTZ (DE CLERCQ and SCHMELTZ [1893, 234]) intended for the same purpose. On the south west coast, amongst the Tugeri, long cuffs made out of cane fibres (ANNUAL REPORT [1897—98, Pl. 26]) and ornamented with feather plumes (HADDON [1891, Pl. XV]) occur, like those in the possession of the Leyden Museum (Ser. 941, N°. 2), but long, stiff cuffs, consisting of bark (SCHMELTZ [1895, 160]), both on the right and the left arm, are also used here (Leyden Muscum, Scr. 941, N°. 74). It is however curious (SCHMELTZ [1904, 201, figs. 5, 6], SELIGMANN [1906a, 66, fig. 2]) that the Tugeri women also wear such cuffs.

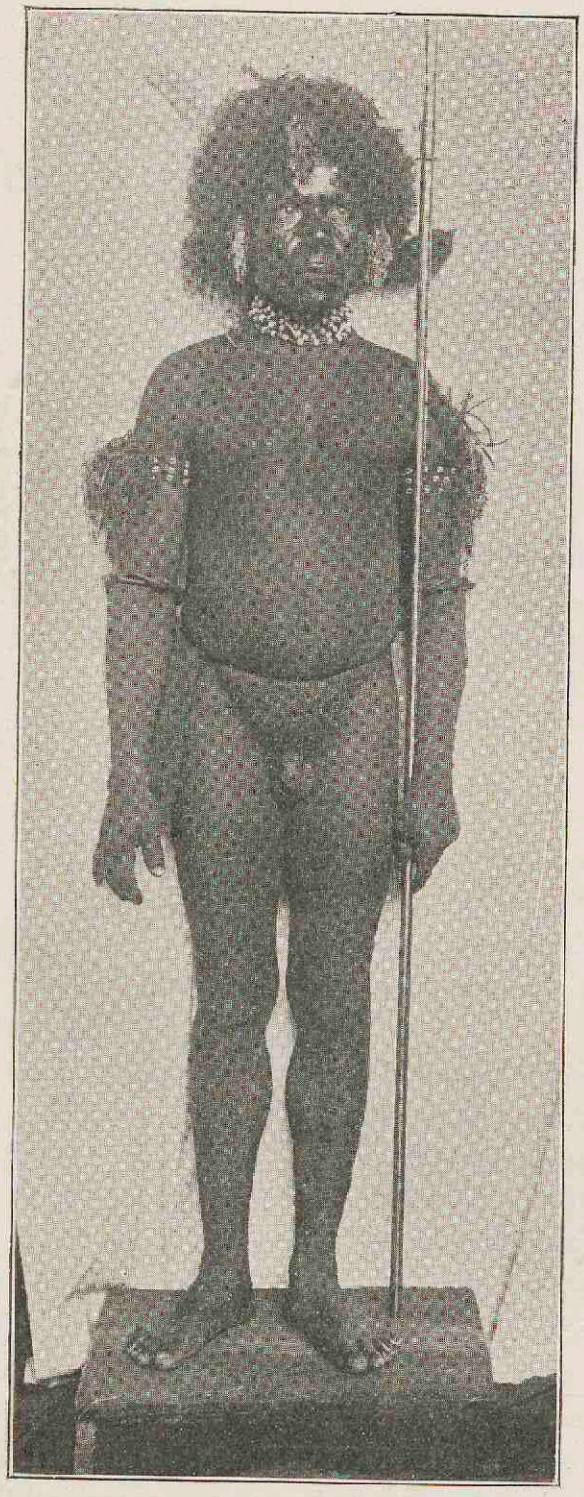


Fig. 65. Wearing rattan armlets above the elbow; Humboldt Bay.

As regards K. W. Land, FINSCH [1888—93, 248] has not been able definitively to fix the actual purpose for which the wrist band is intended, whilst BIRO, PARKINSON and HAGEN do not mention it at all. ERDWEG [1902, 321] mentions the cuffs made out of plaited work of Tumleo, but without the desired information. The Berlin Museum however possesses broad and heavy cuffs from the upper reaches of the Ramu (N°. 22131), very fine objects, probably unique in their kind, made of cord, according to the pattern of fig. 52, which most likely serve for the said purpose. Whether the „gehäckelte" armlets, which ERDWEG [1902, 322]

and the „geknüpfte", which PARKINSON [1900, 27, Pl. XVIII, fig. 5 and 6] mentions, are the same objects cannot be positively stated without further details.

On Lake Sentáni I was struck with the use of round rings of unsplit rattan, such as DE CLERCQ and SCHMELTZ [1893, 37, N°. 188, Pl. IX, fig. 10] mention from Tarfia, sometimes to the number of eight on the left wrist and lower arm, to which custom, I fancy, I must ascribe the same purpose. Such rings (N°. 453), used on both arms, in several adjacent districts (N°. 454 and N°. 455), are wide enough to be pushed over the elbow (see figs. 65 and 66; Pl. XXXIX, fig. 1; Pl. XLV, fig. 2). Thus a young man from Asé wore the set N°. 456 (Pl. XVI, fig. 6), regularly entwined with strips of rattan, and N°. 457 (Pl. XVI, fig. 9) not composed of rattan, but of liana's, was worn in the same manner.

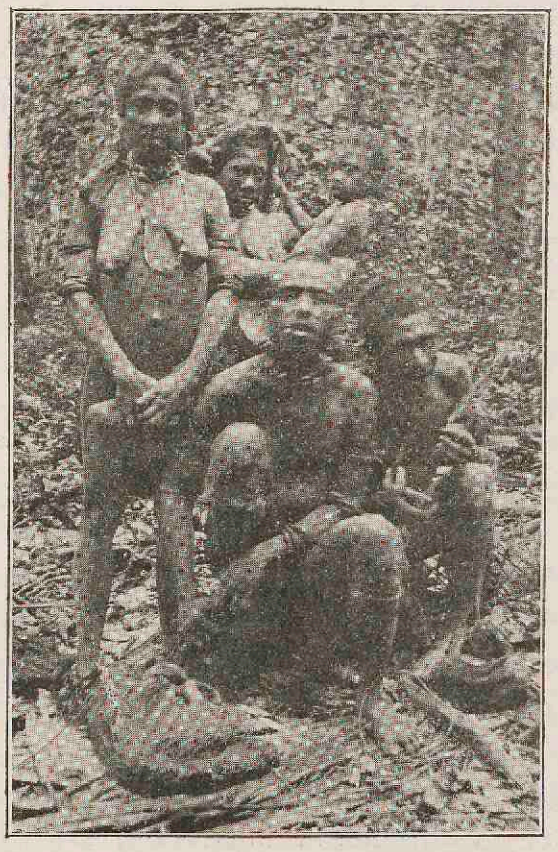


Fig. 66. Wearing of armrings with Sěkánto.

Another specimen of armlets with a special meaning, is the *tsaue* (FINSCH [1888a, Pl. XVII, fig. 4]), which HAGEN [1899, 170, Pl. 18 and 19] describes of the Bogadjim people, and which is placed by the father on his boys after circumcision, stamping the boy as a man, instantly giving him the right to retain any valuables he may procure. It is reported of Adi on the south west coast (VAN DER GOES [1858, 112]), that in the case of young men, an armlet of fine rattan is placed round the upper arm, which remains there as long as arm or band can bear it; at Kaimani on the same coast [l. c. 118], shell rings, which are placed on the boys at an early age, cannot be afterwards removed over the hand. At Mapār amongst the tribe of the Manikion, I saw how all boys without exception wore a strong, tight fitting, plaited armlet, 3 c.m. broad, made of yellow and black material (mycelium?) which they called *ira*, but of which the more definite meaning I could not ascertain. The armlets also of the so-called black coral (*Plexaura*), the akar bahar of the Malay, which are worn by the inhabitants of Geelvink Bay should still be mentioned, (DE CLERCQ and SCHMELTZ [1893, 38, N°. 198, Pl. IX, fig. 9]), because they are a protection against accidents at sea and particularly against drowning. At Waba in Jótěfa Bay the armlet with two boar's tusks could not be bought, because, as we were told, these armlets are put on by the men on their wedding day and may never be removed. Nothwithstanding this DE CLERCQ [1]) managed to secure such an armlet in H. B., which was known by the name of *baja*. Such rings, several even tied together (the Leyden Museum contains, as Ser. 941, N°. 3, a specimen composed of eleven rings), are well known in connection with the Tugeri (HADDON [1895, Pl. XV]; SCHMELTZ [1903, 213]), who also fasten on the upper arm the scrotum of shot boars (SCHMELTZ [1903, Pl. XII, fig. 13]). This probably represents a trophy of the hunt, as on Lake Sentáni, where the lucky hunter had fastened the tail of the booty on to the upper arm by means of two small strips of the skin. Of another kind

1) DE CLERCQ and SCHMELTZ [1893, 38, N°. 195, Pl. VI, fig. 4].

again the custom in Geelvink Bay is (DE CLERCQ and SCHMELTZ [1893, 30]) to fasten a rattan band round the wrist of the male relations on the death of a father, wife or child, for which afterwards, when it is removed, a certain amount has still to be paid to the relatives. VAN DER GOES [1858, 101] states that at Tobádi a sweet scented leaf was fastened round the right wrist of all visitors before their departure, as a mark of friendship and brotherhood, whilst the Papuan of Anus, out of gratitude for presents received, tied round the arm of HORST [1889, 241] a leaf torn in two, in order, it is said, to recognise him thereby This suffices to show that much is still to be learned about the meaning of armlets.

As far as the material is concerned, it must be observed that the beautifully worked, often very broad tortoise shell armlets, which are often worn in K. W. Land and as far west as Tumleo (ERDWEG [1902, 321, figs. 217 and 218]), do not occur in the adjoining Netherlands territory. DE CLERCQ, however, mentioned one specimen of Ansus, as an ornament for women (DE CLERCQ and SCHMELTZ [1893, 38, N°. 199, Pl. IX, fig. 3]) and some of Jamna, probably obtained by barter from the German territory; at all events this ornament does not occur in Humboldt Bay and its surroundings. The narrow tortoise shell earrings, often large enough to be passed over the hand, are never used as armlets, as is supposed by EDGE PARTINGTON [1890, Pl. 290, N°. 6]. Armlets of rattan strips which, made of reeds (N°. 458—463, Pl. XVI, fig. 5), are so plentiful in Kaptiau and Sáwé, are principally remarkable on account of the different methods of plaiting, adopted in the manufacture and of which the technique may be seen from N°. 464 (Pl. XVI, fig. 15) of Nimbúran; (the scale of the illustration turned out to be too small).

Another material, very much in demand in the territories visited by the expedition, both by men and women, is the black mycelium. Some armlets (N°. 465 and 466) are plaited entirely from this material; to which Nassa is often attached and forms (N°. 467, Pl. XVI, fig. 10) a pretty contrast to the background; white shell rings (N°. 468—470) are also often attached (Pl. XXIII, fig. 2; Pl. XVI, fig. 1 and 2). On Lake Sentáni these armlets are very frequently met with. In conjunction with the yellow white aërial root fibre of Pandanus, typical armlets (N°. 472 and 473) are made out of it in Asé, such as are also collected from Muris (N°. 474) and from Ingrâs (N°. 475, Pl. XVI, fig. 17), often with the ends of the material hanging in bundles. In K. W. Land the mycelium is used very much less, still I saw in the Berlin Museum e. a. a *tsaue* (see pag. 86 and 99) of which the ring-shaped part (not the wing) was made of mycelium. At Kwatisoré this material does not appear to exist, at least the armlets there collected (N°. 477—479), plated of small strips of Pandanus leaf (?), according to fig. 4, with borders of mycelium plaited on, and other beautiful drawings also formed of mycelium, are here imported from the industrious Serué. Possibly we have here also a trade monopoly, for exactly the same kind of armlets seem to be worn at other places in Geelvink Bay (see fig. 206).

Pandanus fibre together with red calico, see N°. 476 (Pl. XI, fig. 13) of Ingrâs, is indicative of the influence of foreign traders.

As specimens of the widely distributed ornamental armlet made of *Trochus niloticus*, the collection contains two rough examples of Thaë (N°. 480 and 481) and one better polished specimen of Wári (N°. 482). Especially as an ornamental armlet for women, I sometimes saw it worn in places on the eastern coast of North New Guinea in great quantities (see fig. 207), 10—15 pieces on each arm; in the case of a bride in the district of Sëkâ the arms

were almost covered with it. Here it was explained, how the weather-beaten, sandy coast made it difficult to collect the shells and the Trochus rings were therefore obtained from the west. Specimens with engraved figures along the outer surface, such as are known of K. W. Land and elsewhere, were not noticed here; as a rule this surface is not even stripped of the lime; the specimen from Wári on the other hand, which was worn by a man, is almost entirely stripped of the outer layer and provided with radiating carvings.

I did not discover that in H. B. the number of Trochus rings to be worn must always be odd, as DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 30]) says, nor does the photo of a girl of Tobádi by KONING [1903, Pl. 4] confirm this rule. Their number is here an indication of the prosperity of the wearer. The collection contains a number of Tarfia armlets, products of Tarfia's monopoly, all manufactured after the manner of the instrument N°. 716 (Pl. XXV, fig. 1) and ornamented with Nassa and black seed rings, the same as in the above ornamental belts. They are heavy, solid, and highly intricate pieces of workmanship, exclusively intended for the upper arm, which I not only found at Tobádi (N°. 483), but which, perhaps through the intermediary of Tobádi or Engrâs, also find their way to Waba, which is not situated on the sea coast. Similar armlets, which DE CLERCQ obtained in Tanah Merah (DE CLERCQ and SCHMELTZ [1893, 43, Pl. X, fig. 1, 3, 4 and 5]) must also originally have come from Tarfia.

The collection contains only one specimen of the abnormally bent boar's tusk used as an armlet, thus far only found in K. W. Land (BIRO [1899, 25, N°. 119 and 120, Pl. I, fig. 14]). Such tusks are amongst the most precious breast ornaments for men, so precious, that imitations are often made from Tridacna. The curvature is said to be obtained by pulling out the upper tusks of boars, and thus enabling the lower tusks to grow freely in a circular form. This may also occur in the natural state, if the mutual position of the upper and lower tusks allows it. In the case of the specimen from Ajápo (N°. 491, Pl. XVI, fig. 21) it is evident that contact with the upper tusk has worn down the lower one, the former having been there some time already. These armlets however are certainly very rare here; FINSCH [1888, 346, 1888a, Pl. XXI, fig. 2] even thought, that they did not exist in Netherl. territory. N°. 492 is a wooden armlet rounded off on the inside and with a more or less sharp ridge on the outside. This peculiar shape, also found by DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 36, N°. 174, Pl. VI, fig. 17]) on Waigéu, reminds one greatly of the shape of the glass armlets, described by RUMPHIUS [1740, 241, Pl. LII, fig. A] and also met with now in Humboldt Bay as a very precious object, and therefore referred to under Chapter VII. Meanwhile other shapes of wooden armlets also occur in North West New Guinea (see DE CLERCQ and SCHMELTZ [1893, Pl. VI and IX]; N°. 176, p. 36, Pl. IX, fig. 19 of Usba, taken for akar bahar (Plexaura), has since been proved also to consist of wood).

Finally the collection contains some four armlets which I have never read of before, as for instance the open armlets from Asé N°. 493, (Pl. XVI, fig. 20) of Pandanus fibres with rows of Coix seeds between them. Further a 5 c.m. broad armlet of cocoa-nut shell (N°. 494, Pl. XVI, fig. 20) also from Asé. Only once before did I meet with an ornamental object made of this material: in the Berlin Museum I came across an oval forehead ornament of the upper Ramu.

The outside of the armlet is shining black, such as may be caused, according to some, by metallurgised colouring matters, according to others, by long wear, the grease of the skin

and the smoke of the dwellings. The engraved ornament, which may be interpreted by more capable ethnographers, is filled up with lime, whilst along the margins small holes occur, which possibly serve for the purpose of fastening this very wide armlet, which is worn by women as well as by men.

The bone armlet from Mios Kórwar (N°. 495, Pl. XVI, fig. 14), apparently made out of the breast bone of a sea turtle, may also for the present be called an „unicum". Whale bone armlets, (see N°. 496, Pl. XVI, fig. 18 from Kwatisoré) have also never been mentioned hitherto. The Leyden Museum contains two specimens, Serie 53, N°. 21, from the north coast near Doré and Ser. 929, N°. 165 (DE CLERCQ and SCHMELTZ [1893, 36, N°. 165, Pl. IX, fig. 13]) from Salawăti and taken for akar bahar (Plexaura). The Utrecht collection contains under N°. 204 an armlet from Geelvink Bay, also described in the catalogue as akar bahar, but really made out of whalebone.

When his attention was called to it, Mr. W. L. JENS, conservator of the collection, remembered having heard from the Papuans, during his long residence in Geelvink Bay, that whalebone armlets were imported from Salawăti, where the material was sold by foreign whalers, who called there.

As far as is known, only the toothed whale (*Odontoceti*) and especially the sperm whale or Cachelot (*Physeter macrocephalus*) was hunted in those waters. The Papuans themselves do not hunt Cetaceae, nor do the Malays. Only the inhabitants of the village of Lamakera on Solor and those of Lamararop on the neighbouring island of Lomblen, people of Indo-Malay origin, go whale hunting, as has only recently become known (MAX WEBER [1902, 89]). Therefore, unless foreign (English but especially American) whalers have hunted Cetaceae, which may very well have been the case during the last period of this occupation, now ended because of the scarcity of the Cachelot, it must be assumed that the whalebone of the armlets is obtained from Balaenoptera, which has stranded now and then on the coast, especially in the bays. It appears from FINSCH [1888—93, 190 and 219], that this occurs on the north coast of New Guinea also; and besides, Kwatisoré Bay is in this respect very favourably situated and has a low sandy beach. Neither was it stated that specimen N°. 496 was obtained from elsewhere, but only that the name given, *härŏ bĕrè*, was the name of „an animal, which lives in the sea and furnishes the material". As the other whalebone armlets are without ornament, I can make no further comparisons; the reversed coil ornament of N°. 496 is entirely in the style of Geelvink Bay and need not originate from Salawăti. The Leyden Museum contains another armlet (Ser. 602, N°. 21), obtained from the German Netherlands frontier territory, represented as being made of tortoise shell, which proved to be of whalebone. If the statement as to its origin is correct, the object is unique; for it is in these parts that our expedition has done much work and never has anything similar been met with. The stranding of Balaenoptera on the low sandy beach of a great part of Humboldt Bay must however be regarded as highly probable.

The wrist is often ornamented, perhaps, lest it should interfere too much with the freedom and usefulness of the hand, in a much smaller degree than the upper parts of the arm. Wrist bands are (see pag. 100) sometimes used in Geelvink Bay as signs of mourning, also (N°. 453—457) as bow-guards. In the eastern coast parts of North New Guinea the signification thereof as mourning wear was not clear to me. N°. 497 (Pl. XVII, fig. 8) of Kwatisoré

is plaited from mycelium; at Nagramádu I also saw wrist bands of this material and I remember to have seen them at many other places. SCHMELTZ supposes that wooden wrist rings, some carved in the shape of a neck vertebra of the Dugong, (DE CLERCQ and SCHMELTZ [1893, 34, N°. 149, Pl. IX, fig. 17]), sometimes serve as a protection against the string of the bow, (l. c. [1893, 234]). This purpose is also ascribed to the wrist ornaments, which only consist of fragments of shells, attached to wrist strings festooned as per fig. 56 or not; — in contradiction to which I would however point out that in ordinary circumstances the ornamental fragments of shells are arranged on the back of the wrist (figs. 28, 37, 39, 51, 55; Pl. XXXIII, XXXVII, XL and XLVI). Generally speaking, wrist ornaments are not much used in Papua Talandjang (see Pl. XXXI—L), towards Geelvink Bay however women and children often wear fairly heavy shell rings round both wrists (see figs. 11, 27, 32, 42, 57, 174). The broad rings of Conus as met with at Wári (N°. 501, Pl. XVII, fig. 5) are here rather rare, and appear to be the product of a special industry established on the western islands. DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 35, N°. 163, Pl. VIII, fig. 14; 36, N°. 175, Pl. VI, fig. 7] found both his specimens on Salawäti and Waigéu, whilst specimen N°. 501, called *samfáre*, was also declared to have been obtained from Salawäti, where the name is *samfar*. Generally it is worn, just as MARTIN [1894, 123] observed of the mountaineers of Ceram, round the left wrist, as it would be too troublesome on the right. In the west wrist bands of silver are hammered out of pieces of $2^1/_2$ guilders, but on Rōn, according to what missionary W. L. JENS told me, the art of moulding silver articles is also understood, the material being heated in potsherds. Fingerrings, some made of bone (shark), others of tortoise shell, very common in the west, (DE CLERCQ and SCHMELTZ [1893, 40 and 41, Pl. XII]), do not occur in the eastern parts of the north coast. Regarding Br. N. G. see MACGREGOR [1897, 46].

The lower limbs obtain only a small share of the decorations of the body, with which the Papuan especially is very lavish.

DE CLERCQ and SCHMELTZ [1893, 50] mention bands with shells attached, as a thigh ornament of Humboldt Bay, which have not been met with before or since and from British New Guinea the Berlin Museum contains e. a. from the Central District a fine band (N°. 4307), made after the pattern of fig. 67 (rare for the Netherl. territory), out of fine cord, described as „Schenkelschmuck"; it is a closed band and therefore would have to be passed over foot and calf.

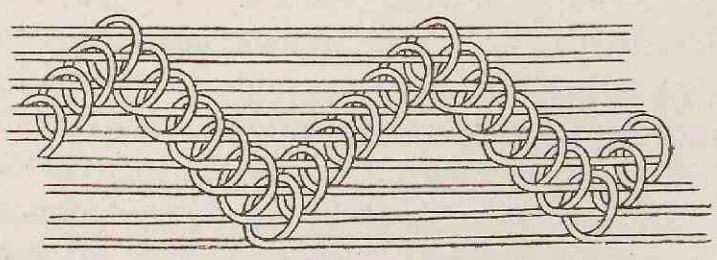


Fig. 67. Pattern of a rope band.

A band worked after the same pattern, 3.5 c.m. broad, 21 c.m. in length, open, provided with strings for tying, from the Papuan Gulf District (N°. 20852) has extra intercalated, straight running cords. PARKINSON [1900, 27] referring to the Berlin Harbour section, mentions „geknüpfte" leg ornaments, which are worn under the knee, but the closed shape makes it difficult for me to understand how these bands can be passed over the foot. Possibly they are plaited on the body of the male or female wearer. FINSCH [1888—93, 250], at all events, mentions from there bands of grass, threads or split rattan, which tightly fit round the leg below the knee; but the very few fine specimens met with by him [1888a, Pl. XVIII, fig. 2] are open, like those of the present collection and provided at the ends with strings, with which they are to be tied. ERDWEG [1902, 323] describing the Papuan in festive dress, ornamented from head to foot, does not mention any ornament of the lower limbs.

Perhaps, calf bands have been taken for neck ornaments and described as such; but it remains curious that for instance calf bands were never mentioned in connection with H. B.

The most simple form of calf band is a plain bit of string under the knee and this is frequently met with. Probably on account of its simplicity, it was generally overlooked, the albums of MEYER and PARKINSON prove however the frequent occurrence hereof in German New Guinea, sometimes also in the case of women. I do not know whether it serves any purpose. By plaiting together several small pieces of cord and stringing on Coix seeds, beads, etc. the calf bands sometimes become so beautiful, that, as in Humboldt Bay, they are only worn at the highest festivals, and when not used, are suspended, together with valuable *simbóni*, as an ornament, on the outer side of the men's bags (N°. 637—640).

A special set is that of Tobádi (N°. 502, Pl. XVII, fig. 1) where, on bands plaited after the pattern of fig. 43, a large quantity of shells (*Arca pilula* Reeve) are suspended, which, at dances, create a not unpleasant high sound; they can be placed on a line with the rattling anklets of the Tugeri (PRATT [1906, 50]) and the dancing rattles of Konstantin Harbour (FINSCH [1888—93, 253]; SCHMELTZ [1895, 243, Pl. XVI, fig. 1]), which, held in the hand, must also be in time with the dance. The small shells are pierced near the hinge and are, very practically, strung on large loops in such a way, that they hang in pairs with the concave side turned towards each other, which prevents their lying soundless inside each other like spoons. Probably the name *chnè-chnè* or *chneng-chneng* is onomatopoetic. The Berlin Museum contains a similar set from the German-Netherl. frontier. HAGEN [1899, 188] reports such rattles from the Le Maire Islands for knee and arm, as well as for the neck and the hips; BIRO [1899, 58, Pl. I, fig. 7] for arm, waist and foot (ankle?). Here the shells are of Cypraea, the arrangement is more in the way of bundles, but the sound is also mentioned as not unmelodious. The model of the bands merits the attention; I am sorry that I am unable to say whether these ornaments, exclusively intended for men, are also manufactured by them, or whether they are made by women. The manner in which the bands of N°. 503 of Tobádi are plaited, can be seen from fig. 68, *1*, in which for the sake of clearness, the threads have been drawn somewhat wide. On the oblique, upper twists of the zigzag running cord a Coix seed is each time strung; the oblique position of these seeds is therefore not accidental, but is the necessary consequence of the technique followed. N°. 505 is on the same principle, also N°. 513 and 514, both from Ingrâs. On N°. 504 (Pl. XVII, fig. 3) of double breadth, two rows of Coix seeds have been fastened; fig. 69, a variation and extension of fig. 68, *1*, shows how the different incline of both rows of seeds has been obtained. N°. 506 combines the patterns of fig. 68, *1* and fig. 68, *2*. All these bands have at one end a loop or eye (festooned or not according to fig. 56), which appears to be formed from the bights of the longitudinal cords, from which it may be concluded that at the outset these were calculated to be twice the length of the whole. It is evident that the cord on which the ornamental Coix seeds have been strung, forms an integrate part of the band, and that the seeds must be strung on during the construction of the band.

N°. 507 from Tobádi shows the simple plaiting of fig. 4; the small Coix rings of these bands must have been strung on during the plaiting.

In N°. 508—512, all from villages in Jótĕfa Bay, again quite a different pattern has been followed; which is very characteristic on account of the whole band having been made

with one long cord. The run of the thread (see fig. 47) is explained under the said No's. These calf bands have a number of loops at each end, which are often festooned into one

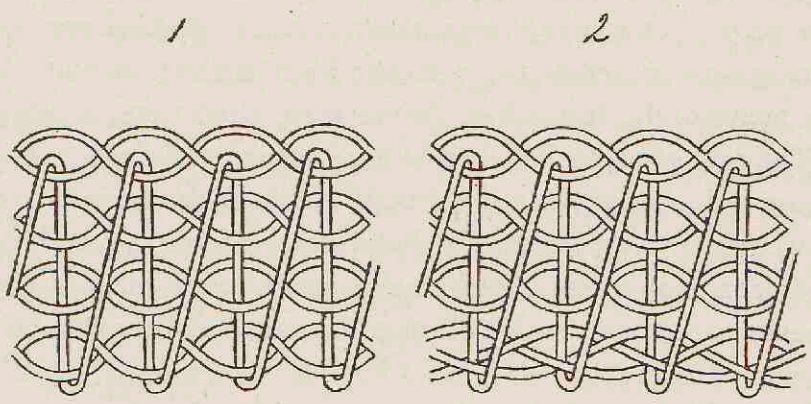


Fig. 68. Patterns of fibre bands.

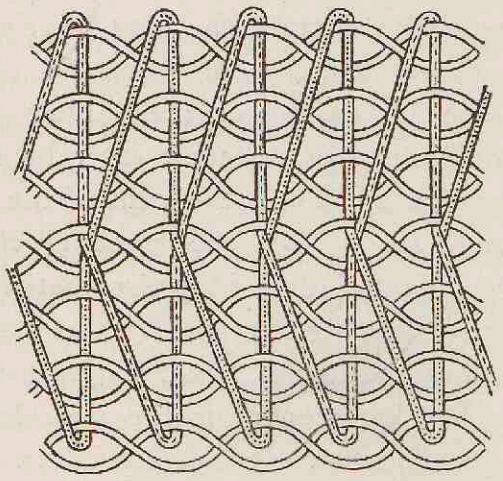


Fig. 69. Pattern of fibre bands.

loop by the beginning (resp. the end) of the thread, besides being long enough to enable the calf band to be fastened with it. The calf bands here referred to, are, by means of the bead ornament, Nassa, cuscus skin and cord fringe, the most beautiful of the collection and it may be concluded from this that the people of Jótĕfa regard pattern fig. 47, as their most beautiful product of rope plaiting; hence the cord of these bands is always made of very fine white fibre. The same pattern was already mentioned above of the breast ornament N°. 385 (Pl. XIII, fig. 5) and can also be found on the man's bag N°. 639, *srorsror*, of Tobádi; elsewhere however I did not find it and as far as the inquiry has now advanced, the pattern appears to be localised here.

The set of calf bands of Kajó Entsáu (N°. 515, Pl. XVII, fig. 4) is again manufactured in another manner. From the pattern, enlarged for the sake of clearness in fig. 70, it is easy to recognise the weft thread, which passes between the warp threads, of the latter each two being twisted together. In reality this pattern forms a good close tissue.

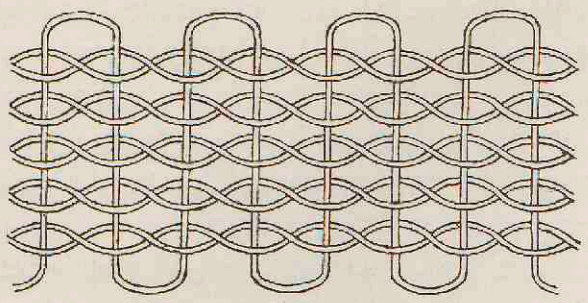


Fig. 70. Pattern of calf bands.

The collection finally contains another leglet of Tarfia (N°. 516, Pl. XVII, fig. 2) manufactured just like the waist girdles (N°. 417—418) and the arm bands (N°. 483—490) of this place after the style of the weaving frame N°. 716 (Pl. XXV, fig. 1), to which Nassa and black seed rings are attached. A similar set with place of origin „north coast", in the Berlin Museum (N°. 3225) can also only originally have come from Tarfia; — they are all men's wear. DE CLERCQ does not mention this calf band, but collected fine specimens from Napan in Geelvink Bay (DE CLERCQ and SCHMELTZ [1893, 44, N°. 234 and 234[a], Pl. X, figs. 7 and 10; N°. 234[d]]) of threaded beads, in the same manner as on comb N°. 243 (Pl. VIII, figs. 1 and 1[a]) from Kwatisoré.

Decoration of the ankles is often seen with the Papuan. In British N. G. ruffles of

fibre (MACGREGOR [1897, 46]) and strings of cassowary feathers [FINSCH [1888—93, 101]] are worn, in K. W. Land, in Finsch Harbour, coarsely twisted rings, which at Gragat (Rakèta) Island and Hatzfeldt Harbour reached from the ankles to halfway down the calf [l. c. 250]. The collection contains nothing in regard to these objects, as generally only unimportant pieces of rope or string were seen. Yet in some of the photo's ankle bands and ankle rings may be noticed, specially on men; adult women very seldom wear these things. In the eastern part of the Netherl. north coast several small strings are sometimes joined into a small band; as may be seen in fig. 28 in the case of the three men to the left. More to the west, shell rings are not rare, see fig. 57, the standing child. They are passed over the foot at an early age. VAN DER GOES [1858, 165] also met with these amongst the inhabitants of Arfak. For the rest one sees men (fig. 27 and 57) as well as women (fig. 57) wearing metal rings of brass or silver round the ankles. I am unaware whether some of these objects have any special meaning.

Ornaments for the toes have never been noticed with the Papuans, neither has the use of any protecting foot covering been mentioned.

The collection further contains some objects from Papua Talandjang, which serve as ornaments for different parts of the body. N°. 517—519 (Pl. XI, fig. 7), already noticed on comb N°. 249 from Oinâke, sometimes worn in the ears, but above all on the bags, are curious ornaments, which in this form: a couple of dogs' teeth, fastened in a *Sapotaceae*-seed and hanging by a plaited string, are very popular on the Netherl.-German frontier territory. The Leyden Museum already possessed the object in 1865 (Ser. 53, N°. 98). FINSCH, who took the seed for a fruit shell or peel, cut lengthways, found it in Attack Harbour [1888, 338; 1888a, 34, Pl. XVII, fig. 3]. What the ornament means in its peculiar combination, I do not know, but that nevertheless, some special meaning is connected with it, I feel inclined to conclude from the inclination to manufacture such an ornament, even when the necessary materials are not available. Thus a specimen was found on a comb in Humboldt Bay (DE CLERCQ and SCHMELTZ [1893, 16, N°. 22, Pl. III, fig. 11] where, as with comb N°. 249, the *Sapotaceae*-seed was imitated in tortoise shell; I also found such a tortoise shell imitation (N°. 520, Pl. XI, fig. 10) in the basket N°. 108 of Oinâke, and with N°. 517—519 it is imitated in brown wood. The seed in question is certainly very rare in these parts. It has occurred, that on the tours of the expedition in the forest such a seed has accidentally been found and the disputing among the Papuan carriers from Tobádi for the possession thereof was remarkable and the happy finder was envied for his luck. The dogs' teeth form a no less important part of the ornament; on Lake Sentáni the whole object was named after these teeth *„jöchútje"*, at Tobádi for the same reason *„chonjo"* and where they are not found the shape is imitated in pieces of shell (N°. 519) or pieces of boar's tusks (N°. 518). The typical form of the string of beads is such that three small strings each carry a number of small multicoloured beads, but at certain distances jointly run through a large bead. Finally it is worthy of note that BIRO [1901, 40, fig. 12, 2; 41, N°. 106] has found in Astrolabe Bay a breast ornament, which also consists of the seed and a bundle of dogs' teeth.

N°. 521 (Pl. XVII, fig. 15) consists of five seeds with an ornament scratched in them, as already illustrated by VAN DER GOES [1858, Pl. ZZ, fig. 7] also of H. B., as a neck ornament. I have not found this mentioned from anywhere else. According to Mr. J. M. DUMAS these

seeds, which have a somewhat thin shell and in which a hardened kernel rattles, are obtained from a not unpalatable fruit, like an apple. It was said that these ornaments were worn on the throat, on leglets, but also on the bags.

Another ornament, sometimes worn on the comb, at other times in the ear, in this manner also by women, and also worn on the bags, is the ball formed from a stuffed strip of hairy skin of Phalanger (N°. 522—523, Pl. XVII, fig. 16), suspended by a piece of cord, over which sometimes by way of a handle a hollow piece of cane, or a hollow quill is passed close to the ball. In this form it also occurs in Berlin Harbour (ERDWEG [1902, 319, fig. 213]), but strips of the same skin, shriveled by drying, with one end stuck in the lobe of the ear, forming a ball-shaped impression (N°. 330 and 331), are seen here and more to the east (FINSCH [1888, 333]).

The shell of *Ovula ovum* (N°. 524), ornamented the bag of a man of Seisårå on Lake Sentáni and must therefore have been obtained by barter from the coast, possibly from Tanah Merah; in K. W. Land this shell is a favourite for breast shields (FINSCH 1888—93, Pl. 9, figs. 1 and 2).

A shell like a bell with a pig's tooth as a clapper, the whole suspended on the bag, I only met with (N°. 525—527, Pl. XVII, fig. 7) near the Netherl.-German frontier. The shell, generally Conus, hangs below the bag, and in all cases suspended by a string, which is longer than the one from which the clapper hangs; both clapper and shell swinging not isochronic in walking, the small bell, as also described by ERDWEG [1902, 323], keeps on ringing constantly. What FINSCH observed in Blanche Bay of the Oliva shells, there used as bells, namely that the small hole for the suspending cord in the top of the shell was not bored but filed out in the shape of a slit, can also be noticed in N°. 526 and 527; with N°. 525 however a superficial slit has first been filed and in the middle of this a conical opening has been bored, the opening on the inside being therefore round. The most probable explanation of this method of working is this, that a pointed bore would slip on the slippery, curved surface of the shell. In the slit however a place of support for the bore is easily found. The apex of the pig's tooth serving as a clapper is sometimes broken off in order to fasten the string in the root canal, or small conical holes are bored in it.

As a common ornamental material, the white seeds of *Coix lacryma* are met with everywhere in Papua Talandjang; most common is the oblong kind, but not seldom more bulky ones are seen, almost round ones even. It is not surprising that this plant is cultivated in the gardens and the seeds are kept in stock; for this purpose sometimes a bamboo cylinder is used (N°. 528), at another time (N°. 529 and 530) they are wrapped up in a leaf, and again twigs with the fruit attached (N°. 531) are met with hanging in the houses, in order to dry.

Finally the collection contains (N°. 532) two bunches of seeds as used in making the black seed rings; they were found in a dried state inside a dwelling. The nature of these small, hard, black rings does not appear to have been understood at first, when the seed itself was unknown. Finsch only came across these seed rings in the western part of K. W. Land and took them sometimes for seed kernels [1888—93, 240], supposing that they were perhaps artificial and then made of Cocoa-nut shell [l. c. 249]. ERDWEG [1902, 320] reports that the people of Tumleo obtain „the small, black fruits" from Sissanó, which is situated 30

nautical miles more to the north. Perhaps a monopoly of the said Sissanó is the cause of this, and perhaps ERDWEG was never shown the rough seeds in their yellow brown rind, nor the manufacture of the seed rings on Tumleo. For the openings are not caused by boring, as ERDWEG supposes; the small and very hard seed would hardly lend itself to this; but on two opposite spots a part of the seed is simply ground off, as stated by PARKINSON [1900, 27] and the inner soft kernel is removed through the openings thus created. I saw it done in this way at Sägeisårâ, where an old man on a sort of grinding stone rubbed the small seed, caught between the thumb and the index. The man said, that generally the seed is held in wooden tongs. If the seed is not ground down exactly at two opposite poles, a ring of unequal thickness is obtained. The ornaments provided with large quantities of these small rings, represent, as may well be imagined, many an hour passed in grinding down the seeds.

N°. 208. Pl. VI, fig. 6. $^1/_2$. *Mĭre.* Năcheibe; hard, dry piece of red clay, cone-shaped, with rounded point and margins; near the top, impressed with fingertop and nail, an encircling, superficial line, 6—7 m.m. broad, from which at 4 places similar lines descend to lower encircling line. Manufactured by women, intended for export. Mixed with water or oil, used as a pigment. Weight 648 gram.

N°. 209. Pl. VII, fig. 9. $^1/_3$. *Jóbjŏbè.* Năcheibe; *Turbo marmoratus* L. containing red clay, *mĭre*, prepared with cocoa-nut oil; the opening of the shell closed by a plug of vegetable fibres. The contents used as a hair paint, had at first the consistency of soft butter.

N°. 210. Pl. VII, fig. 10. $^1/_2$. Tobádi; tress of hair of a woman, consisting of spirally twisted hair, stuck together with red clay and forming a heavy, hard tress.

N°. 211. Pl. VII, fig. 11. $^1/_2$. Tarfia; plait of hair, plaited from 10 spirally twisted tresses, from a Papuan, called *Mĕrăsimă*, wearing 14 of these plaits, tied up together. Fig. 28, man in the middle and Pl. L, figs. 1 and 2.

N°. 212. Pl. VII, fig. 12. $^1/_2$. *Pīk.* Wári; tress of hair, lower end split and each part together with a small strip of bark fibres spirally twisted and passed through 4 large, white beads, prevented from slipping off by a piece of red calico. Above the split another 2 white beads. Bought and cut from a young man, from whose head it was hanging down in front of and near the left ear.

N°. 213. *Adu dŏbrè.* Kwatisoré; bamboo cylinder, carved with 6 encircling bands of curls and reversed coils, which in the broadest band are placed partly in triangular spaces. Manufactured by the men, worn in the hairdress by the women; 6.5 × 3.5 c.m.

N°. 214. Pl. VI, figs. 7. $^1/_2$ and 7a. $^1/_4$. *Adu dŏbrè.* Kwatisoré; as before, a narrow, carved band, with perpendicular and horizontal reversed coils, a broad band with obliquely placed ones. Use of this and the next numbers as with N°. 213.

N°. 215. *Adu dŏbrè.* Kwatisoré; as before, 4 bands of hooks and curls; very greasy; 5.3 × 3.4 c.m.

N°. 216. *Adu dŏbrè.* Kwatisoré; as before, along each of the margins a narrow band and between both 7 erect spaces, the whole carved with curl-shaped ornaments; 7.1 × 3.4 c.m.

N°. 217. *Adu dŏbrè.* Kwatisoré; set of three, each 8 c.m. long, and together in a bamboo, 28 c.m. long and of 2.9 c.m. diameter. Two finished and carved with two encircling bands, between which 4 inclined spaces, the whole with curls and reversed coils; the deeper portions black.

N°. 218. *Tăăr.* Ingrâs; two irregular, small pieces of pumice stone, from man's bag N°. 634; used in pulling out the hairs.

N°. 219. Pl. VIII, fig. 6. $^1/_2$. Tobádi; four sets of combined feathers, the lower part formed out of a tail

feather of *Rhyticeros plicatus* Forst., *täbär*, soiled with red clay, on both sides only with a narrow strip of the vanes and ending in a narrow pliable strip of the convex part of the quill, on which another feather: a yellow white tail feather of *Cacatua triton* Temm., *jäb*, or a tail feather of *Zoöenas Westermanni* Schleg., *wáfè*, cut into the shape of a bird, is stuck, whilst also a cock's feather is jammed in a small slit. Formed the hair ornament of one man.

N°. 220. Pl. VIII, fig. 3. 1/2. Kajó Jenbí; as before, nineteen sets: with two, the lower parts of *Cacatua*, with the others, of *Rhyticeros*, *maidje*, the ornamental top parts of *Cacatua*, *tjábŏ*, *Zoöenas*, *ontå*, or other birds.

N°. 221. Pl. VII, fig. 13. 1/8. *Pededŏ* or *pïdïdau*. Kaptiau; two principal ropes about 1 m. long, each in the middle with 58 bundles of 2—4 plaited, dark red hairtresses and 10—16 c.m. long, forming a fringe, 8—9 c.m. in length. All the bundles fastened by a cord just below the place of suspension; the two mainropes tied up for a head band of 52 c.m. and in the middle united by a small cross cord. Enormous quantity of nits of *Pediculus capitis*. Worn round the head by a woman, the fringe reaching down to the eyebrows.

N°. 222. *Pededŏ*. Kaptiau; like N°. 221, out of two strings, 30 c.m. long, of respectively 59 and 68 bundles, hanging down on an average 9 c.m. Both ropes joined at the ends by plaiting and locally strung tight by a small lashing for a circumference of the head of 50 c.m. Worn as N°. 221.

N°. 223. Pl. VII, fig. 14. 1/7. *Bĕnĕ úndĕfrå*. Nimbúran; cap-shaped wig for head circumference of 58 c.m., of plaits as N°. 211, and tresses as of N°. 221, twisted together parallel to the edge; some loose hair tresses at the top; the inside with grease and clay. Worn by woman of middle age.

N°. 224. *Jĕchĕjú*. Tobádi; rosin (like dammar), found on trees; used as a sticking material and by burning producing the soot, *chän*, which serves as a colouring material and for tattooing.

N°. 225. *Kanä*. Asé; as N°. 224.

N°. 226. *Ide, ide fonze*. Tobádi; bamboo cylinder with soot, *chän* or *cháne*; closed with plug of fibres, *sĕnois*; 21 × 1.6 c.m.

N°. 227. *Ide*. Tobádi; as N°. 226, closed with rolled-up piece of prepared bark, *máre*; 16 × 2.5 cm.

N°. 228. *Ame*. Tobádi; grey clay, obtained from adjacent hill Dei Mâge. Exclusively used for colouring.

N°. 229. *Rówai*. Mápia; comb worn by people from Jap. Length 36 c.m., consisting of 17 pieces of bamboo tied one against the other, nowhere broader than 1.5 or thicker than 3 m.m.; the points 13 c.m. long with a spread of 7 c.m. Between the handle and the free points two lashings of yellow and black fibres (*Hibiscus tiliaceus?*).

N°. 230. *Rówai*. Mápia; comb as N°. 229, length 28 c.m., 14 points 11 c.m. long, spread 6 c.m.

N°. 231. *Rówai*. Mápia; as before, length 25.5 c.m.; 15 small pegs joined together by piercing across 5 small, wooden pins into a handle 4 c.m. broad, 8 c.m. long; no lashings; spread of 6.2 c.m.

N°. 232. Pl. VII, fig. 8. 1/7. *Umsjèri*. Tobádi; two small, round sticks of palm wood, one of the ends pointed; red clay, *märe*, sticking on. Used by the men to scratch themselves; also used as implement for eating.

Bamboo combs.

N°. 233. Andai; length 43 c.m., with 7 teeth 23 c.m. long, together at the base 2 c.m. broad, here caught by a cord lashing, supported at the back by a notch; spread 7.6 c.m., obtained by introducing small, wooden wedges and red calico into the cuttings. Handle with nodium, white beads stuck on end.

N°. 234. Andai; length 35 c.m., 10 c.m. of which used for the six sided handle; at the top and below a nodium, broadened to 2 c.m.; lashing of 7 turns of brass wire supported on the sides and at the back by notches; 7 points with a spread of 10.5 c.m. Red calico and wedges in the cuttings.

N°. 235. Pl. VII, fig. 6. 1/7. Andai; handle with white bead stuck on, upper part round; below nodium nicely carved, broadening towards joint bases of points and here with lashing of brass wire.

N°. 236. Pl. VII, fig. 7. 1/7. Inagói; 4 points between which wooden wedges; cord lashing supported at the sides and back by notches, handle above this, ornamented with zigzag lines; above nodium carved, five or six sided, concave or band-shaped; the end with square opening, to which, with bark fibre, a chain of 4 links, carved out of a single piece of bamboo, the last link with a ball of the skin of *Phalanger maculatus* and feathers of *Cacatua triton* Temm. Of a young man.

N°. 237. Pl. VII, fig. 5. 1/7. Mapār; 5 points, lashing of fine string supported by side notches, the handle below the nodium triangular, with carved curl ornament; above this partly six sided and with human figure, front turned aside; eyes, ears, nose and limbs raised; six sided head covering; the arms, resting on the knees, reach with the hands under the chin; feet double curl-shaped.

N°. 238. Pl. VII, fig. 4. 1/7. *Táhè.* Angádi; 5 points, *táhè natu*, lashing of brass wire, *nai ini*; side notches; triangular space below the nodium with curl ornament; the handle formed by a bamboo ramification, pointing backwards 60°, carved with human figure, *tihä*; limbs represented by 4 reversed coils, between which in front an oblong shield up to the chin. Head covering seven sided, with 3 encircling carvings.

N°. 239. *Mähè ĕrĭ.* Kwatisoré; 35.5 c.m. long with 5 points, *ingrĭ*, *ingrè*, 22 c.m. long and a spread of 6 c.m.; handle without ornament, lashing out of Gossypium twine.

N°. 240. *Mähĕ èrĭ.* Kwatisoré; as N°. 239, 32 c.m. long and with 6 points 25 c.m. long; spread of 8.4 c.m.; handle at the end with blue bead stuck on.

N°. 241. Pl. IX, fig. 5. 1/2. *Mähè ĕrĭ.* Kwatisoré; 5 points, lashing of twine made from bark fibres; handle along the back with small round and large crescent-shaped openings, *brärá gĕrĭ*; back border scalloped accordingly and with garlands of differently coloured beads, *úru brè*, and small tassels of calico, *hibiè*. Worn at festivities by the men.

N°. 242. Pl. VIII, fig. 4, 1/8; 4a, 4b, 1/2. *Mähè ĕrĭ.* Kwatisoré; 7 points, an outside one (much longer than the others), with 7 sharp oval openings and 2 eight sided buttons; lashing of bark fibre, *wariè* or *wu ariè*; handle at the end with a carved ornament, *möhun dö hĕrè*, connected linklike; both with oval openings and calico tassels. Used on festive occasions.

N°. 243. Pl. VIII, fig. 1, 1/7; 1a, 1/1. *Měhái tongĕre.* Kwatisoré; with 5 points, the lashing out of roughly made rope; handle with a window of 4 horizontal and 2 vertical bolts of bamboo, the whole entwined by small beads, regularly strung on a twine net of vegetable fibres (fig. 1a); at the crossing points of the window tassels of red and brown calico, with a large, white bead, *nátu äbĕgrè*. From the tops three red and brown calico strips, *hibiè*, 1.15—1.40 m. long, hanging down. Said to be worn by women (?) at dances. Weight 145 gram.

Composed combs.

N°. 244. Pl. VII, fig. 3. 1/7. *Chrar.* Kajó Entsáu; made of 8 small, pointed bolts of *Areca Nibung* (?) on one side black, on the other side yellow white and placed alternatively; lashing 2.5 c.m. broad, of monocotyle fibres, unites the sideways flattened bases of the small sticks; handle with 19 lashings and slightly bent in the plane; the end with Areca-husk stuck on.

N°. 245. *Chrar.* Kajó Entsáu; like N°. 244, 31 c.m. in length, 6 c.m. spread; 8 bolts all turned with the same colour towards one side. Sweet scented leaves (*Amomum Cardamomum*) jammed between the points and fixed with strips of red calico; handle decorated with calico and two tail feathers of *Lorius Lory* (L) on strips of quill. Areca-husk on the end.

N°. 246. Pl. VII, fig. 16. 2/9. *Chrar.* Kajó Entsáu; 10 bolts, pins from the bract of *Arenga saccharifera*, joined by numerous fine lashings into 2 handles, bent in different directions, partly wound round with hairy skin of cuscus, *èm*; Areca-husk as end ornament. On the longest handle a feather of *Cacatua triton* Temm., *tjábŏ*, cut into the shape of a bird, on an elastic strip of quill of *Rhyticeros, maidje.*

N°. 247. *Chrar.* Kajó Entsáu; 30 c.m. in length, spread 7 c.m.; 10 bolts; handle slightly bent, wound round with cuscus skin and with 2 Cacatua feathers cut as above, stuck on strips of quill.

N°. 248. Pl. VII, fig. 2. 1/7. *Lafi.* Thaë; 8 bolts of palmwood, greatly flattened, bent in the handle to 2/5 of the circumference of a circle; stuck on the points, *bi*, 10 dry, sweet scented leaves of *Amomum Cardamomum*; Areca-husk, *fa*, at the end.

N°. 249. Oinâke; 7 pins of the bract of *Arenga saccharifera*; length 30 cm., spread 5.5 c.m.; the handle wound round with cuscus skin and red calico. Out of the opening of the Areca-husk 4 cords hanging down, with an ornament like N°. 517—519 (Pl. XI, fig. 7).

N°. 250. Tanah Merah; length 25, spread 7 c.m.; 11 palmwood bolts, arranged according to colour; handle, by adding an additional bolt on each side, consists of 13, the middle one the longest and gradually decreasing in length towards the margins; 12 transverse fine rattan (?) lashings. Jammed between the points sweet scented leaves (Zingiberaceae).

N°. 251. Dójo; length 28, spread 6 c.m., 8 bolts; foot lashing partly of string, partly of rattan; handle broadened in the middle by larger width of the component bolts; at the beginning and at the end surrounded by strip of cuscus skin; Areca-husk at the end.

N°. 252. Dójo; length 30, spread 6 c.m., 7 palm wood bolts; handle, slightly curved towards the end (Areca-husk), by excessive flattening of the bolts only 7 m.m. broad; 7 lashings.

N°. 253. Dójo; length 27, spread 5.2 c.m. with 7 points, in the handle 5 loose bolts are added; here smeared with a layer of a black material, which when heated becomes soft and sticky; entwined by a string to which at each turn, on both flat sides of the handle, a Coix seed has been strung; feather of *Cacatua triton* Temm. stuck on small strip of quill and 4 feathers of *Trichoglossus cyanogrammus* Wagl., cut open on both sides along the quill.

N°. 254. Pl. VII, fig. 1. 1/7. *Mähiroi.* Ajápo; 20 pins of *Arenga saccharifera*, arranged in a transversely curved plane; foot lashing, *kèmè*, 5 c.m. broad, of yellow grass stems (?) and black fern roots (?), bordered towards the points, *jömö*, and towards the handle, *kobă*, by a transverse rattan lashing; higher up a zigzag one. Middle pins longest, provided with Areca-husk, *prau*.

N°. 255. *Mähiroi.* Ifar; as N°. 254, 29 palm wood bolts, only the middle 4 of full length: 28 c.m.; spread ± 13 c.m. On handle, convex side, 4 transverse strings of differently coloured beads.

N°. 256. *Mähiroi.* Ifār; as N°. 247, length 29, spread 6 c.m.; 10 bolts; handle broadest on the middle of its length by the greater thickness of each of the bolts at this spot; higher up entwined with cuscus skin, the end with Areca-husk.

N°. 257. *Mähiroi.* Ifār; length 34, spread 7 c.m.; 10 bolts, entwined near the foot lashing with cuscus skin; two diverging handles, (Areca-husk at each end), of different lengths, each formed by the prolongation of 5 prongs, but broadened by intercallation of resp. 6 and 3 other bolts.

N°. 258. Pl. VIII, fig. 7. 1/2. *Angur.* Tobádi; ornamented with bird of paradise, *teār*; comb, *chrar*, itself out of 8 pins of Arenga; passed over handle up to bases of prongs a rattan shield, *nintè*, along the margin with 2 rows of Nassa, *dèr*, in between with red seeds of *Abrus praecatorius*, *umisi*, glued on with a sort of black putty, *chère*,; at the back a piece of the soft pith of *Alstonia scholaris*, *sui*, in which the long, yellow tail feathers, *ónje*, have been stuck fast, but also, fan-shaped, some wooden strips, to which, with Pandanus fibres, *ime*, Amomum leaves and the smaller, red feathers, *mamisi*, are fastened; head, *teār chăbúre*, and neck also filled up with *sui* and passed over handle, up to shield. Worn by the men at festivities, stuck in the hair right above forehead.

N°. 259. Pl. VII, fig. 15. 1/7. *Nimĕris.* Kaptiau; oval piece of prepared bark, on one side Nassa, sewn on imbricatedly, in 8 continuous, spiral turns, leaving open spaces, occupied by transverse

strings of black seed rings. A rope of 75 c.m. uniting both oval ends, fitted for head circumference of 57 c.m. Worn by a man with short hair on the top of the head.

N°. 260. Pl. X, fig. 1. 1/8. *Mārpuikai.* Tarfia; sausage-shaped piece of bark entwined with bark strips and cotton cord; convex side mounted with 2 longitudinal rows, each of ± 30 black *Rhyticeros* feathers, cut down to 6 c.m.; provided with rattan strips for transversal and horizontal head circumference, strips sticking out abt. 40 c.m. in front. Festive dress for men.

N°. 261. *Sjikai.* Tarfia; as N°. 260, but on the top with longitudinal strip of red calico and in the middle, erect, a 50 c.m. long, whiplike strip of rattan and 3 Cacatua feathers, cut in herring-bone pattern. Festive dress for men.

N°. 262. Pl. X, fig. 5. 1/10. *Tai*(?) Oinåke; head ornament consisting of a long rattan, surrounded by 9 bunches of cassowary feathers fastened with thin reeds, placed on the top and with the lower split end participating in the formation of a helmet of three horizontal, oval, rattan rings and eight vertical ribs of split rattan; red clay sticking on inside. Found in the temple and only to be used there; was to be kept out of sight of women and children.

N°. 263. Pl. X, fig. 6. 1/10. *Tai*(?) Oinåke; as N°. 262, but with 4 erect feathered rattans, with their lower extremities participating in the formation of the helmet; rattan string for suspending.

N°. 264. Pl. IX, fig. 8. 1/6. *Chŏre.* Ifār; flat, oval, wooden rim, 1.2 c.m. thick; on both sides by a carved line a peripheric strip demarcated, in which deepened, white spaces alternate with red and black raised spaces; remainder divided by zigzag carving into triangles; inner ones white, outer ones red. Weight 350 gram. Worn at festivities; the whole of the hair to be pulled through opening.

N°. 265. Pl. IX, fig. 7. 1/6. *Tjari.* Thaë; as N°. 264, 1.2 c.m. thick, nearly round and with a kind of handle, in the shape of a reversed equicrural trapezium (bird's tail?); one side with deepened, white triangles with concave bases; these and the standing sides alternatively: 1 red, 2 black, 3 red, 2 black. Festive dress as above; coloured side turned towards the face.

FOREHEAD ORNAMENTS.

N°. 266. Pl. XI, fig. 14. 1/6. *Tjari.* Thaë; crescent-shaped, of 0.8 c.m. thick wood, at both points a small hole, in which a string of bark; one side carved with 4 toothed, parallel ribs, alternatively coloured red and black, on white ground. Obtained in the temple, *pla*, wrapped up in bark. Worn on festive occasions by men, on forehead along limit of hair, coloured side in front.

N°. 267. Pl. IX, fig. 9. 1/5. *Tjari.* Thaë; as N°. 266, but with 3 projections on the outer circumference, the middle one pointed (bird's head?), both side ones broadest towards the end (bird's wings?); one side with 2 sets of 8 deepened, white coloured triangles, separated by 2 parallel, zigzag, relief lists, the inside one red, the outside one black. Found as N°. 266.

N°. 268. Pl. IX, fig. 2. 1/5. *Tjari.* Thaë; as N°. 266, near the ends with 2 wing-shaped projections, small, narrow, elevated, red rim along the convexity; both wings also with black and red raised rims on white ground. Found and used as before.

N°. 269. Pl. XI, fig. 12. 1/4. Waba; as N°. 266, thickness diminishing towards the convexity (fig. 12a); one side with 14 deepened, white coloured △△, with bases along the outer circumference, varied with 13 relief △△, alternatively red and black, with bases along the inner circumference; at each of the corners a small string of *Gnetum* bark fibre. Obtained in the temple. Use as above.

N°. 270. *Eraí.* Asé; flat ring 6 c.m. wide (diameter outside circumference 30, inside circumference 18 c.m.) of 15 spiral turns of rattan, kept together by spiral entwining with rattan strips; inner margin, *inè*, strengthened with 3 extra rings; coloured with radiating stripes of lime, *au*, red clay, *mire*, and soot, *èbè* (?). From a men's watch-house; used on special occasions.

N°. 271 Pl. IX, fig. 1. 1/7. *Erai.* Asé; as N°. 270, inner margin only with 2 extra rings; the spiral entwining very regularly (fig. 1a); at the back red clay sticking on. Found and used as before.

N°. 272. Pl. X, fig. 2. $^1/_8$. *Sawè.* Tanah Merah; as a part of the rim of a hat, gutter-shaped; zigzag turns of a single rattan strip, laid parallel to the curved margins and each fastened to the other with continuous spiral turns of rattan. The ends of the inside margin joined by a vegetable fibre of 42 c.m. Worn as N°. 262, convex side in front.

N°. 273. Pl. IX, fig. 3. $^1/_5$. *Chöre.* Tobádi; as N°. 272 but flat; 16 curved strips joined according to fig. 3a; inner bend strengthened with extra rattan strips, which at both corners form an eye, in which barkfibres closed with flat knot for a head circumference of 53 c.m. One side with 13 white triangles, separated by red and black stripes; red clay sticking on back part and string. Worn by men at festivities.

N°. 274. *Chöre.* Tobádi; as N°. 273 with the number 14; tied string with circumference of 58 c.m.

N°. 275. Pl. X, fig. 4. $^1/_5$. *Fĕrsúm* or *fĕrsjúm.* Asé; crescent-shaped rattan plaited work, *ĕrai*, along the outer circumference 32 bunches of short feathers, *aimai*, of the cassowary, *abwache*, tied in fine *Artocarpus* or *Antiaris* fibres, fastened with continuous rattan lashing; front plane with 10 groups of seeds of *Coix lacryma*, *kèmbĕri*, fastened with white, fine cord, made of the same fibre. From a private house. Ornamental wear for men on special occasions.

N°. 276. Pl. IX, fig. 6. $^1/_5$. *Fĕrsúm.* Asé; as N°. 275, with 19 unsplit rattans, of ± 3 m.m. thickness, entwined as per fig. 47. Along the outer circumference with 48 bunches of long feathers, *tĕbèm*, of cassowary, *abwache*; on front part, with twisted Pandanus fibres 3 strips of prepared bark are fastened, on each of which a row of Coix (fig. 6a) with spiral turns of thin liana; strips of red and blue calico, *ambèri marå*, are stuck on with a resinous matter, *kanä*. Loops of bark in the eyes at both corners.

N°. 277. Pl. X, fig. 7. $^1/_7$. *Aimai.* Asé; 8 strings of rope made of *Gnetum* bark fibres, *tsa* or *sa*, on which 60 bunches of cassowary feathers, fastened with twine out of *Artocarpus* bark fibre, *pömö*; the 8 strings kept together by spiral entwining with a white string, *tsum*, made of *Antiaris* fibres. The ends of the strings plaited, *tsajŏbè*, serve as binding strings.

N°. 278—286. *Chätuār arú.* Tobádi and Ingrâs; as N°. 277; 25—37 c.m. (average 32) in length, the number of strings from 3 to 12 (average 7); the feathers cut at a length of 4—8 c.m. like brushes; in some specimens, parts left uncut on purpose. From N°. 284 of Ingrâs a set of ground-down boar's tusks, *fiá*, as worn through the septum, is hanging down. Found in houses as well as in the temple. Are manufactured by the men and used by them with the war dress.

N°. 287. Pl. X, fig. 3. $^1/_6$. *Manswār.* Wári; 61 equally long bunches of cassowary feathers fastened as above to a double, longitudinal string made out of fine *Antiaris* fibre, which returning at one extremity, entwines consecutively all the bunches with a circular twist. Used in war dances.

N°. 288. Pl. VIII, fig. 2. $^1/_3$. *Nèting.* Oinâke; strip of bark, towards both ends passing into a plaited string and finally in 3 resp. 4 twisted cords; row of Nassa tied on imbricatedly along circumference; besides by a double row divided into △ spaces, partly with Abrus and Erythrina beans glued on. Worn horizontally over the forehead by a man of abt 25 years; much red clay sticking on.

N°. 289. *Nĕbum.* Kaptiau; a 1—2 c.m. broad, 31 c.m. long, hairy strip of the skin of *Phalanger*; the ends united by brown, two-stranded cord, for head circumference of 53 c.m. Worn as N°. 288.

N°. 290, Pl. X, fig. 8. $^1/_8$. *Ajåm.* Asé; tail feathers of *Goura Beccari*, all still on urostyle; provided with a 60 c.m. long loop, *ugoi*, of rattan. From a men's watch-house, *ŏbè*. Worn vertically in front of forehead, *fĕri*, on special occasions.

N°. 291. Pl. VIII, fig. 5. $^1/_{10}$; 5a. $^1/_2$. *Hitong.* Sĕkâ; 7 rows of stringed Coix seeds fastened between 8 horizontal, double cords; the transversely continuous thread makes at times a turn round each set of cords and, arrived at the edge, returns transversely along the back, passing between both cords of each set; in the middle a string of blue between two strings of red beads, *ălătŏ*. The 16 cords

form at one end an eye, at the other end two plaits. Worn by Sĕkâ men, who performed dances at Tobádi (fig. 198—200).

N°. 292. *Kantjŏ.* Ingrâs; two 22 c.m. long strings of Nassa and black seed rings, *kantjŏ*, united in the middle; depending from both ends a small boar's tusk, *por cheāb*, pierced at the base. Each string made from two threads, to which Nassa disks, each with one natural and one artificial opening, are strung in zigzag position between the seed rings (and a few coloured beads). The strings for tying, *wār*, plaited. To be worn by men along edge of hair over forehead.

N°. 293. Pl. XI, fig. 2. $^1/_2$. *Kantjŏ.* Ingrâs; as N°. 292; the middle connection obtained by a larger Nassa disk, which allows the upper string to pass through upper opening, the lower one through lower opening. Close to the tusks also glass beads. Found in bag N°. 634.

N°. 294. Pl. XII, fig. 10. $^2/_5$. *Aibâ.* Nimbúran; 4 sets of 2 ground-down boar's tusks; only the convex side retained, perforated at both ends; in one set the base-ends connected by a short string, at the other ends a cord for head circumference of 51 c.m. Worn by men (fig. 41).

N°. 295. *Sintai* or *sintain.* Pokèmbo (Arfak Mountains); two pieces of *Turbo olearius*, shining like mother of pearl; connected lengthwise by 3 vegetable fibres, passing through 3 sets of holes; total length 17 c.m., the ends joined by calico strip for head circumference of 54 c.m. Dirty, but not with clay. Worn by women.

NOSE ORNAMENTS.

N°. 296. *Chaimándi.* Ingrâs; nine (one red, eight blue) globe-shaped, non-transparent glass beads of abt. 7 m.m. diameter; on strip of brown fibre, tied into a knot. For women or girls; hanging down before the mouth (fig. 207).

N°. 297. *Narí.* Thaë; irregular cylindrical bolt of *Tridacna*; length 7.2, thickness in the middle 1.5 at the ends 0.9 c.m.; weight 27 gram. Worn by men through the septum.

N°. 298. Oinâke; as N°. 297, more purely cylindrical, length 4, thickness 1.4 c.m.; weight 15 gr.

N°. 299. *Éme* or *íme.* Tobádi; as N°. 297, length 7.9, thickness in the middle 1.3, at the ends 0.5 c.m.; weight 16 gr.

N°. 300. *Éme* or *íme.* Tobádi; as before more purely cylindrical, length 4, thickness 1.3, c.m.; weight 14 gr. DE CLERCQ and SCHMELTZ [1893, 23, N°. 77] call it *sia* or *tsia*, the name of the shell.

N°. 301. *Orómbob.* Wári; pure cylindrical, slightly transparent shell, *ain*, length 7.1, thickness 0.6 c.m.

N°. 302. Pl. XI, fig. 5. $^1/_1$. *Nŏrè mŏgrè.* Kwatisoré; milkwhite shell material, with a few brown spots, not quite round and at each of the curved ends 6 lashings of brass wire, *jondŏ wáre.*

N°. 303. Pl. XI, fig. 4. $^1/_1$. Mapār; 49 small, differently coloured beads, strung on a rattan strip. Worn by a man of abt. 24 years.

N°. 304, 305. *Ŏ* or *lŏmŏ.* Thaë; bamboo, length 2—5.7, diameter 1.4 c.m.

N°. 306. Pl. XII, fig. 1. $^1/_2$. *Lŏmŏ.* Jámbuë; set from bamboo, each with 3 pairs of burnt-in, circular lines, each pair with opposite small rectangular lines; on one of the pieces an encircling line of dots is also burnt in. Use as nose ornaments doubtful.

N°. 307. Pl. XII, fig. 3. $^1/_2$. *Dŏkĭr.* Wári; piece of bamboo, delineated at regular intervals by 10 paired, circular scratchings, between which, by cross scratches a design of squares; middle part blank.

N°. 308. *Chamba* or *kamba.* Asé; pointed piece of fibula of *Dendrolagus*, 7 c.m. long, one end 1.2 c.m. broad, shows part of the lower joint.

N°. 309. Pl. XII, fig. 2. $^1/_2$. *Chamba.* Asé; as N°. 308, was said to be derived from a pig.

N°. 310. *Wäke.* Nimbúran; two flat, claw-shaped pieces of Conus, the broad, 3 m.m. thick, perforated ends united with vegetable fibre, smeared with gumlike material. Worn by men, points upwards. Size as with N°. 311.

N°. 311. Pl. XII, fig. 14. $^2/_5$. Dójo; as N°. 310; at the broad ends abt. 2 m.m. thick. Worn by a man of abt. 30 years, points upwards, on the right and left against the ridge of the nose.

N°. 312. *Fiá* or *piá*. Ingrâs; pair of two lateral planes of circularly bent (abt. $^2/_5$ of circumference of circle, radius of abt. 6 c.m.), boar's tusks ± 2 m.m. thick, the ends bluntly pointed; at the middle of length 1.5, at the base 1.3 c.m. broad, here perforated and united by strips of fibre, distance between the points abt. 3.5 c.m.; round each tusk a leather ringlet, cut transversely out of the skin of a snake or of a lizard tail. Weight 17 gr. Worn by men, the points downwards or upwards.

N°. 313—321. Pl. XII, fig. 20. $^2/_5$. *Ŏbŏ tĕnă*. Ajápo, Asé, Simbărâ, Seisărâ, Abār; as N°. 312, some provided with leather ringlets (1—4) which, in N°. 321, still show plainly the scales; not in daily use, but hanging down on chest suspended by neck strings plaited after fig. 4, pag. 17.

Ear ornaments.

N°. 322. Pl. XII, fig. 6. $^2/_5$. *Painka*. Asé; piece of cane, one end pared off; carved as arrow N°. 994, fig. 150. Worn with pointed end jammed in hole, *puru*, *buru*, of lobe left ear, *ankai*, and hanging down before shoulder.

N°. 323. Pl. XII, fig. 11, a and b. $^2/_5$. Seisărâ; cylindrical piece of soft, white, monocotyl wood, reel-shaped; at one end the ring-shaped thickening can be passed off or on.

N°. 324. Pl. XII, fig. 5. $^1/_2$. *Suru*. Maré; bamboo cylinder at one end transversely cut off, the other with 2 diametrically placed, pointed projections. Worn with cylindrical part in lobe of ear.

N°. 325. Pl. XII, fig. 7. $^1/_2$. *Nokwâ*. Sáwé; like N°. 324. Scratched-in circles and triangles.

N°. 326. *Tainĕbân*. Kaptiau; as before, diameter 2.4 c.m. cut off transversely at one end, at the other oblique; here at the long (6 c.m.) side continued by a narrow tongue, 7 c.m. long, with incisions at the margins. Scratched-in line, along oblique opening, up to tongue.

N°. 327. Pl. XII, fig. 4. $^1/_2$. *Tainĕbân*. Kaptiau; as before; the projection as beak of a bird figure, scratched in on the cylinder.

N°. 328. Pl. XII, fig. 9. $^1/_2$. *Tainĕbân*. Kaptiau; before, at one end with 2 tongues.

N°. 329. Pl. XII, fig. 8. $^1/_4$. *Tainĕbân*. Kaptiau; as before, but at one end cut off obliquely and here with narrow, tooth-edged tongue on both long and short sides.

N°. 330—331. *Eme*. Kajó Entsáu; 2 sets of two, 1 c.m. broad, 7 and 15 c.m. long respectively, strips of cuscus skin; curved, hair outside; worn by men.

N°. 332. *Eme*. Sčkâ; piece of hairy cuscus skin, 30 × 10 c.m., at the narrowest end a fibre, by which it was probably suspended in the smoke of the fire. Intended to be made into ornaments.

N°. 333. *Entsjí*. Tobádi; ring of a strip of tortoise shell 6 m.m. broad, diameter 5.2 c.m., the ends reaching 3 c.m. over each other. Of a man.

N°. 334. Dójo; as before, diameter 4 c.m.; imported from Tanah Merah. Of a man.

N°. 335. *Entsjí*. Tobádi; set of 4 rings, of ± 4 c.m. diameter. Of a man, 2 rings in each ear.

N°. 336. *Entsjí*. Tobádi; set of 2 rings; the large one (± 8 c.m. diameter) for the right, the smaller one (± 6 c.m. diameter), from which dangles a small (2 c.m.) ringlet, *entsji natu* (*natu* = child), for the left ear; of the village chief, *kărĕsŏri*, of Tobádi.

N°. 337. *Entsjí*. Tobádi; as N°. 336, thickness of the material up to 5 m.m.

N°. 338. *Purä*. Asé; tortoise shell ring (diameter 1.7 c.m.) depending from it a Conus ring, *foto*, with central opening of 1 c.m. diameter, outer circumference with 12 points, *kara*.

N°. 339. *Entsjí*. Ingrâs; set: 1° tortoise shell ring, to which shell ring with 8 points, *chĭmĕrère chărim*; 2° tortoise shell ring to which a small one and to this a blue glass ringlet, *chaimándi*. For a man.

N°. 340. *Entsjí*. Tobádi; set of three large tortoise shell rings, one with a small one, *entsjí natu*, depending, one with shell ring of *Trochus niloticus*, *pīchke*, *pīdje*, the third one with bamboo ring, *ide*, 1 c.m. broad, 2.4 c.m. diameter, intended for opening in septum of nose. For a man.

N°. 341. *Entsjí.* Tobádi; tortoise shell ring with Trochus ring as above. Only ear ornament of a man.

N°. 342. Asé; set of two tortoise shell rings, *purä*, each with Trochus ring, *ku*, hanging on.

N°. 343. Ingrâs; four tortoise shell rings, one with blue glass ring, *chaimándi*, and fine shell ring of *Fissurella* (?), *säréntje wöri*. Worn by a woman; each ear 2 rings.

N°. 344. Pl. XI, fig. 3. 1/2. Tobádi; tortoise shell ring; tied on imbricately to outer circumference 2 groups of 4 Nassa disks, *dèr*, between which continuous strings, *wär*, fasten a blue bead, *kär uwí*. Only ear ornament of *Pörèw*, medicine man.

N°. 345. *Ti.* Thaë; tortoise shell ring with blue glass ring, beads, *tö*, and piece of bamboo, *lömö*, 1.5 c.m. long, 1 c.m. thick; red clay sticking on. Of a young man.

N°. 346. Sěkâ; set of two tortoise shell rings, one with 4 coloured glass ringlets, *tö kämádike*, the other with blue green ring and 2 rattan rings, *lömoch*, *lömok*, 1.2 c.m. diameter, 0.7 c.m. thick; red clay sticking on. Of a young man from the temple, *pla*.

N°. 347 and 348. Sěkâ; 2 sets as before, the second with ring from long bone of cassowary, *tärö*, with diameter of 2.5 c.m. Of young men.

N°. 349. Pl. XII, fig. 13, a and b. 2/5. *Ti.* Sěkâ; as before, one with Trochus rings, *kä*, depending, the other with one Trochus ring and 2 bone rings of cassowary, *tärö*.

N°. 350. Pl. XI, fig. 11. 1/1. *Pöra.* Nächeibe; tortoise shell ring with piece of mother of pearl, *jóbjöbè*, from *Turbo marmoratus*, in the shape of an animal head with opened mouth, and blue bead, *ärá duè*, on cord loop. Only ornament of a man; left ear.

N°. 351. Sägeisârâ; tortoise shell ring, *pöra*, (or chain of 2 rings) to which an upper mandible of hornbill, *läbári*, with 4—8 year-rings, the point down. Worn by women; 5 pieces.

N°. 352. Pl. XII, fig. 16. 2/5. Jachonto; mandible as before, suspended on 2 phalanges of Pteropus; end phalange bent round and stuck in hollow of proximal phalange. From right ear of a man.

N°. 353. Pl. XI, fig. 8. 3/4. Ifär; set of 2 phalange rings, as with N°. 352, each with 2 blue glass rings. Worn by men.

N°. 354. Pl. XII, fig. 12. 2/5. *Chibántjö.* Tobádi; four phalange rings as before; each carrying 3—4 terminal phalanges formed into a ring; to one a glass ringlet, *chaimándi*. The whole from one lobe of the ear, *tinji*, *sinji*, of man of middle age.

N°. 355. Tobádi; set: for right side, ring of bent iron wire, *sigěchäbai*, to which 2 blue beads, *chaimándi*, and chain of 9 rings, plaited from yellow and black vegetable stems, *käde*; for left side, Pteropus pendant as N°. 352 with blue and white beads, *chaimánsjo*, *chibántjo*. Of a man.

N°. 356. Tobádi; tortoise shell ring to which circular band, *sugwai-sugwai*, made from cord, according to fig. 43, of 8 c.m. circumference, pierced by 7 strings, which on both ends wear a tress of beads, *möti*, prevented from slipping off by a knot. From right ear of a married woman.

N°. 357. *Unánke.* Tobádi; two sets with bands, *wär sënösi*, as with N°. 356, tresses with Coix seeds, *úruär*, and small beads, *möti*, the strings depending as fringe, *wärfrä*, one of the rings with another three small, *Fissurella* or *Patella*, and one large *Cardium* shell ring. Worn by men and women.

N°. 358. *Ti.* Thaë; set as N°. 356, the band with 28 and 20 tresses of beads respectively, with a 15 c.m. long cord fringe; on the last ring also a piece of cuscus skin. Of a young man. *Ti* = turtle.

N°. 359. Pl. XI, fig. 1. 3/4. Asé; Set as 356, the band, *tsa*, plaited according to fig. 44, surrounded by a small blue glass ring, *pur kèwokèw*, each tress with only 5 small beads, *mainje* or *mènjä*, below which the strings, *saputai*, hanging down; one of the rings with small ring of hoop-iron, *táme*, and bamboo nose ring, *pöhè*, of 2.3 c.m. diameter and 1 c.m. broad; the other with glass ring, Conus ring, *indúm*, and tortoise shell ring, *purä*, again with Conus ring and ring from plaited grass, *kötä*.

N°. 360. *Entú.* Asé; Conus shell in the making for an ornamental ring, thus leaving only the bottom with erect, broken-off edges, 1 c.m. high. Also called *ĕntúm*, *intú*, *indúm*.

N°. 361. *Mambrâr.* Nimbúran; set of 2 cassowary primaries each bent into a ring, the thin end stuck into the thick one.

N°. 362. *Dukwa mérian.* Sáwé; as N°. 361, 3 pieces.

N°. 363. Pl. XII, fig. 17. $^1/_2$. *Căsípĕdè.* Kaptiau; as N°. 361, 7 pieces; 2 of them suspended from ring made of Pteropus phalange.

N°. 364. *Sĕkáwir.* Mawes; tortoise shell ring, *sĕkáwir*, of 4—5 c.m. diameter, on which stars ground from Conus, *warína*.

N°. 365. Tanah Merah; 5 tortoise shell rings each with Conus ring, *ondúm*, with 6—11 points.

N°. 366. Pl. XI, fig. 9. $^1/_1$. *Ingu ăgĕrĭ.* Kwatisoré; horseshoe-shaped tortoise shell object, with broadened ends, suspending from a tortoise shell ringlet.

N°. 367. *Na ĕrĭ.* Kwatisoré; small ring of iron wire, a small perforated mother of pearl, *himbèrŏ ribrè*, disk and a small chain of ± 30 tortoise shell links, as on N°. 366, *na ĕrĭ*, alternatively round or sideways compressed, at the end of which a loop-shaped ornament as N°. 368, *brègĕrĭ*, of light blue, non-transparent glass. Worn by a young man.

N°. 368. *Brègĕrĭ.* Kwatisoré; bugle of green blue glass. See Edge Partington [1890, Pl. 290, N°. 10].

N°. 369. Pl. XII, fig. 15. $^1/_2$. *Slăfrŏ kănani.* Mios Kórwār; three chains as of N°. 367, one with an hatchet-shaped ornament of thin tortoise shell. Worn by men.

Neck and Chest ornaments.

N°. 370. Pl. XII, fig. 18. $^1/_5$. *Sŏtŏhá.* Asé; collar from a strip of bark, *sa*, folded double, plaited round by the two ends of a single strip of rattan, *ĕrai*, the bark forming at one end a loop, *puru*, at the other end loose fibres, *sabŏrŭ*, to close the band. Of a man.

N°. 371. Pl. XII, fig. 19. $^1/_5$. *Sŏtŏte.* Asé; collar from two rows Coix seeds, *kèmbĕri*, placed sideways against each other, applied with a continuous ascending and descending string between 3 plaited cords of Pandanus fibres, *jană*, at the ends twisted together as binding strings; at the middle with a longitudinal plaiting of 3 black mycelium threads, *nau*.

N°. 372. *Tĕ.* Thaë; 94 c.m. long string of Nassa disks, *tĕ*, each provided with one natural and one artificial opening, fastened imbricatedly by the bights of an upper cord on a stretched lower cord. Of a young man, for 3 times the circumference of the throat.

N°. 373. *Tĕ.* Taë; like N°. 372, but with a double lower cord, length 130 c.m.; for four times the circumference of the throat.

N°. 374. *Kantjŏ* or *Chantsjŏ.* Ingrâs; pair of cords, 152 c.m. long, each with small strings of black seed rings, *kanjtŏ*, between which both cords pass together through a large blue bead; at the end a boar's tusk, *por cheāb*. Worn by men, several times joining round the neck.

N°. 375. Pl. XIII, fig. 3. $^1/_5$. *Atjínă.* Săgeisârâ; string of black seed rings, *kantjŏ*, between which 14 white beads, on the surface with rounded meridional ribs. Worn by grown-up man, three times round the neck. See also Chapter VII, Pl. XXIV, fig. 7.

N°. 376. *Saran* or *Sadan.* Sáwé; string of 27 blue beads, alternating with 26 small shells (*Cypraea annulus*), the string entering by the natural opening and passing out by a small hole at the corner of the round side; tied up for neck circumference of 39 c.m.

N°. 377. *Thŏde* or *Tsŏde.* Ingrâs; two boar's tusks, each end conically pierced, the bases connected in a movable manner by a rattan strip; neck ring for children.

N°. 378. Pl. XIII, fig. 9. $^1/_4$. Seisârâ; as N°. 377, tusks of unequal length, not unequal in the curve;

bases connected by a six fold cord in a movable manner, at the points by double cords, for neck circumference of 27.5 c.m. Of a man.

N°. 379. Pl. XIII, fig. 8. $^1/_5$. Seisârâ; breast ornament from 7 ground boars' tusks, (medial surfaces) arranged in two vertical rows, the tusks of each row placed along side each other, the concave edge turned upwards. A strip of rattan in the middle at the back; in front with 2 rows of Nassa. A neck string, 55 c.m. long, through the openings of the free ends of the tusks. Worn by a man.

N°. 380. Pl. XIII, fig. 1. $^1/_5$. Liki; two heavy Conus rings, *böblè*, joined by a lashing of reed, transversely caught by a narrow leather band; each ring provided with a band plaited from 3 cords, *ninlalu*, which, to be tied on the back, here enlaces a shoot of Zingiberaceae, *mömĕrö*. Of a man, the shells to be worn in front.

N°. 381. *Ambö ääribrè*. Kwatisoré; six longitudinal cords of Pandanus fibre, to which differently coloured beads, *urubrè*, are strung in pairs, see comb N°. 243. At each end 4 large beads and the cords plaited together into bands. Length 75 c.m. Neck string worn by men and women.

N°. 382. *Nadja ärè*. Kwatisoré; as N°. 383, strip of Pandanus leaf, *ambrarè*, 2 c.m. broad, 90 c.m. long, one extremity forming a loop of 5 c.m. diameter, the remainder folded and enclosing a rattan strip; 42 shells of Cypraea annulus, *nadja ärè*, strung on, all twice perforated on the back. Worn by a man in front of the chest, suspended by a neck string.

N°. 383. Pl. XIII, fig. 4. $^1/_5$. *Käromböe*. Sengé; like N°. 382, but the strip of Pandanus, *rèrái-jim*, without loop and not folded, with 25 shells, *käromböe*, and at the end with ball of cuscus skin, *kapa*. Of a man born at Mafōr, living at Sengé. For manner of wear see fig. 206.

N°. 384. Pl. XI, fig. 6. $^1/_2$. Kwatisoré; brass wire necklace on which 17 beads, *nägrè*, among which 2 larger multicoloured ones (fig. 6a and 6b), a black Nipa fruit, *adjè urè*, a tail, *hèbie grè*, of wild boar, *podjiè*, and an upper mandible of Goura, *orè mogrè*, with crest, *mabru grè*. Worn by a young man.

N°. 385. Pl. XIII, fig. 5. $^1/_5$. *Sötö wutai*. Asé; collar of light yellow brown cord, made according to fig. 47. Outer side with 2 rows of parallel Coix seeds, *kèmbĕri*, inclining in opposite sense, the rows separated by a narrow plaited work of black mycelium, *nau*; along lower margin a row of Coix seeds, suspended from loose strings, *putai*, *wutai*, carrying also ball-shaped Coix seeds (each supported by a small knot). Worn by men on festive occasions.

N°. 386. Pl. XIV, fig. 2. $^3/_4$. *Chandöri*. Kajó Entsáu; collar plaited from Pandanus fibre, *īm*, according to fig. 48, joined at the ends into 2 strings for tying, *pědĕbítĕ*. On front side, 3 rows of Coix seeds, *uruār*, inclining in different directions, interrupted in three places by transverse zigzag rows of beads. Along lower margin 23 strings, each fastened in the middle and the 46 projecting ends, *wánĕsösi*, forming a network with beads, *chaimándi*, pieces of cane, *piār*, Coix and Adenanthera, *pèrĕhí*; monocotyle leaves, *sĕnchor*, tied on to the fringe. Worn by men at dances.

N°. 387. Pl. XV, fig. 3, 3a. $^1/_3$. *Chainári*. Sägeisårâ; rattan, *irai*, plaited like N°. 370, to which a frame of 4 vertical mycelium, plaits, *nau*, ending below at 2 horizontal pieces of cane, along which another plait of mycelium; pieces of yellow cane, *pědinkö*, along the side margins; here and in middle space (with row of Nassa, *dèrí*), Coix, threaded on transverse strings, projecting along outer margins as a fringe, *kantjúrä*; similar fringe with Coix along lower margin. Worn by men on special occasions in front of the chest.

N°. 388—391. Pl. XIII, fig. 6, a and b. $^2/_{15}$. *Chendöri*. Tobádi; 4 breast shields of about equal size, consisting of a rattan, anchor-shaped basket work; space between shank and arms on both sides taken up by ground boar's tusks (medial surfaces), *piá*; shank formed by 4—6 wooden pins, diminishing towards lower end in number and thickness; arms of strips of rattan, ending parallel at the outside margin, the whole connected by transverse rattan lashings; tusks with conically bored holes, and tied to these with rattan strips, curving in front, convex bend upwards, joining each other.

Along circumference of basket work, at the back a rattan, spirally entwined and often rattan eye for neck string, *tare*, *tarí*; in front along the circumference double row of Nassa, *dèr*, the surface trimmed by several, partly symetrical rows of Nassa, between which Abrus, *umisfi*, and Erythrina glued on with rosin. Along circumference, cord fringe, *wārfrâ*, on which in N°. 388 a large blue bead, *simbóni*, and a hook-shaped piece of shell, *íme*, with a double conical opening; with N°. 391 a bird's claw and a small piece of wood with remnants of carvings.

N°. 392. Pl. XIV, fig. 1 and 1a. $^1/_2$. *Urä grĕgâbe*. Tobádi; imitation of a bird, from a piece of material like elder pith, *sui*, entwined with thin brown liana (?), *wār*; on the back and along both sides 3 double rows of Nassa, *dèr*, the strings of which continued in a plaited neck string, *tār*, in which dogs' teeth, *gonje njĕ*; and on fibres, *wè noche*, stuck-in, small cylinders of banana leaf, to which yellow Bird of Paradise feathers, *tiār*, and red ones, *mamïsi*, are stuck. On the back, red and blue beans, *umïsi*; at the tail-end rope fringe, *wārfrâ*; with Coix, *uruār*, strung on.

N°. 393. *Chätĕwari*. Ingrâs; piece of cassowary skin, 44 c.m. long, 19 cm. broad, with holes, in which remainder of neck strings; worn by men in front of the chest.

Bandoliers.

N°. 394—396. *Mè-mèjau*. Tobádi; three sets, the narrowest (1 c.m.) from 9, the broadest (1.5 c.m.) from 12 Pandanus fibre strings; plaited as per fig. 48; circumference 75—100 c.m., overlapping at the closure, where the ends of the fibre form a fringe. At regular intervals 2 transversely halved Coix seeds, tied on alongside of each other. Worn by men and youths.

N°. 397. Pl. XIII, fig. 2. $^2/_{11}$. *Sadi*. Asé; set of 14 parallel cords of Pandanus fibre, *janä*, on which an undulating row of transversely placed Coix, *kèmbĕri*, with continuous thread, which on the back runs between the strands of the cords (fig. 49). At the closure a fringe, *angë*, as above.

N°. 398. *Hitong*. Thaë; set of 5 parallel cords, on which in a wavy line, each time passing one cord, Nassa, *të*, is tied imbricately. Closed by a knot. Worn by men.

N°. 399. Pl. XIII, fig. 7. $^1/_4$. *Hauë*. Ajápo; set of thin two-stranded cord, in which at certain distances small rolls of sweet scented leaves are tied with a single knot. Of a man.

N°. 399a. Spread out leaf: Plectranthus spec., Labiatae, Ocimoideae.

N°. 399b. Spread out leaf: Amomum spec., Scitamineae.

N°. 400 and 401. Pl. IX, fig. 4. $^1/_1$. *Nai gijè*. Kwatisoré; two sets, plaited after fig. 47 of mycelium, *jè hirè*. By entwining superficial stitches with yellow and red leaf-strips, *ambrarè*, two parallel lines with intervening zigzag lines have been formed. Width 57 and 66 c.m. resp. Worn by men. Obtained from Serué.

N°. 402. Pl. XVI, fig. 2. $^2/_{11}$. *Tjörö fi*. Oinäke; chest ornament, consisting of a breast girdle, made with the „figure eight" stitch (fig. 9), supported by 2 shoulder bands plaited of 7 cords, according to fig. 4, running from the middle in front, to the middle at the back, ending in cord fringe. On shoulder bands and along margins of girdle, Coix seeds are tied; fore and aft, to the left and to the right on the girdle, spirals of threaded Coix seeds; those on the sides with cord fringe. Of a man.

N°. 403. Pl. XVI, fig. 1. $^2/_{11}$. *Wäruwār*. Kajó Entsáu; as N°. 402 but after pattern of fig. 43, pag. 80, from brown cord, *wār*; shoulder bands joined to girdle by „figure eight" stitches (fig. 9), row of Coix along upper margin of girdle and outer margin of shoulder bands. Along lower margin two rows of Coix, between which zigzag placed idem. Of a man.

N°. 404. Pl. XVI, fig. 3. $^2/_9$. *Tantĕge*. Kaptiau; of yellow brown cord after pattern of fig. 50, in seven fold breadth, whereby on both sides longitudinal ridges and furrows are created; at one place, closed by two transverse rows of „figure eight" stitch (fig. 9), at five places provided with two grey and

brown coloured, transverse stripes. Used as bandolier but also as waist band for women in order to hold up the bark petticoat.

WAIST GIRDLES.

N°. 405. Pl. XVI, fig. 4. $^{2}/_{11}$. *Chīntsjóike.* Ingrâs; longitudinal strip of bark, 0.5 m.m. thick; at both ends transversely a wooden pin, *chītjaifu*, in a hem, sewn in zigzag line with brown cord, *wār*; both in the middle with cord loop, *tīnja-chĕrchŏre*, one of which with a cord, 1 m. long. Circumference 61.5 c.m.; for women to hold up petticoat.

N°. 406. *Chīntsjoike.* Ingrâs; as N°. 405, somewhat broader; cord 1.40 m., circumference 64.5 c.m.

N°. 407. *Dèbŏri, dèbŏrike.* Tobádi; as before, but 1 m.m. thick, harder, tougher, no hems; close to each end an entwined rattan ring, at one of which a string, *wār*, 30 c.m. long. Outside surface decorated with figures, *âne*, in lime. Worn by men.

N°. 408. *Uaida.* Kaptiau; closed girdle, plaited from 2 m.m. broad bamboo strips in horizontal herring-bone design (see fig. 53); circumference 76, breadth 3 c.m. For women to hold up petticoat.

N°. 409—411. *Uaida.* Kaptiau; as N°. 408, but with a system of longer, superficial stitches; 76, 70 and 67 c.m. in circumference resp., 3.5, 3 and 4 c.m. broad.

N°. 412. Pl. XVI, fig. 7. $^{1}/_{4}$. *Uaida.* Kaptiau; of yellow rushes, 3—4 m.m. broad, plaited as per fig. 48. Of a woman.

N°. 413. *Uaida* (?). Kaptiau; as N°. 412, longer stitches on inner and outer surface.

N°. 414—415. Abār; from strips of bamboo, plaited to horizontal herring-bone design; at 4 places with standing herring-bone design, in which spirals of black mycelium are fastened; in the intervening spaces mycelium fastened lengthwise; circumference 81 and 83, breadth 4 and 6 c.m. Use as before.

N°. 416. Pl. XVI, fig. 8. $^{2}/_{11}$. Pujo; as N°. 414, circumference 68, breadth 4 c.m.

N°. 417. *Makĕr fau.* Tarfia; open girdle, from two double, longitudinal, red brown cords, entwined by „8"-shaped turns of similar cord, after the principle of weaving frame N°. 716, Pl. XXV, fig. 1; at both ends an eye formed by the entwined strings; outside ornamented with 2 longitudinal rows of Nassa and black seed rings; the strings of which are at the end twisted into string for closing; length 70, breadth 1.5 c.m. Worn by men.

N°. 418. *Make faige.* Tarfia; as N°. 417, but with 14 double cords, at both ends 3 eyes, one with binding string, 45 c.m. long; outer surface with 3 double rows of black seed rings between 4 double rows of Nassa, forming triangles and squares. At one end the strings pass into projecting tresses of Nassa and seed rings. Length 62, breadth 6.5 c.m.

N°. 419. *Mabŏ dŏdŏ.* Sĕkâ; open girdle, of 2 rows of transversely placed Coix-seeds, *hītjong*, tied on with continuous, transverse string between 3 parallel double cords, forming at one end an eye, at the other a binding string. Length 70, breadth 2 c.m. Of a full grown man.

N°. 420. *Nau mĕrmăre.* Tobádi; open girdle of mycelium, *nau*, in horizontal herring-bone design; at each end a transverse wooden pin, *chītjai fúge*, plaited in, entwined with rattan and provided with 3 rattan eyes, *dindè*; one with binding string, *wār*, 75 c.m. long; at 5 places 2 cross rows of Nassa, *dèr*, with projecting mycelium fringe, *nau prōw*; intervening spaces with spirals of Nassa. Length 44, breadth 4.5 c.m. Specially worn by young girls.

N°. 421. Pl. XVI, fig. 19. $^{1}/_{7}$. *Dobandan.* Sáwé; strip of red calico with perforated sago seeds (hard endosperm of the fruits of Sagus Rumphii), three pieces of a long bone of a pig, fastened with its ends to a small bag, *buéda*, worked with the „figure eight" stitch (fig. 9), containing dried leaves and ± 20 seeds of *Adenanthera pavonina.* Worn by a man.

N°. 422. *Chăruār.* Kajó Entsáu; tanned cotton string, *chèmbawār*, with beads, dark blue, *chaimándi*, light blue, *simbóni*, yellow, *chărīsje*, red, *naschŏri*, green and white, *pusaima*, partly with dull surface; length 163 c.m.; for men to wind round twice, c. q. to suspend apron.

N°. 423. *Chäruär.* Kajó Entsáu; as before, 75 c.m. in length, row of beads 25 c.m. long; 1 black, 33 white and dull blue, *äröchi.* Of adult man who wore on this his apron.

N°. 424. *Sïre.* Tobádi; girdle string, 1 m.m. thick, 2 m.m. broad, of 3 twisted bunches of shining, red brown strips of sago palm leaf; 31 m. long. Made by and for the use of women; was hanging in the smoke of a fire place.

N°. 425. *Sïre.* Ingrâs; as N°. 424, 35 m. long; string for suspending with a dark blue bead.

N°. 426 and 427. *Sïre.* Tobádi; as before; N°. 426, 30 m. long, over 7 m. of middle part Coix seeds, at distances of 2—3 c.m., threated on one of the plaiting strings; N°. 427, 35 m. long, over 10 m. of the length at distances of ± 5 c.m. with rows of 8—12 halved Coix seeds strung on.

N°. 428. *Sïre.* Ingrau; as before, 10.5 m. long, over 3 m. of the length with pairs of Coix seeds threated on as above; besides at 4 places a plait with Coix hanging down, split at lower end. Use as before, the plaits depending in pairs on the hips.

N°. 429. *Sïre.* Ingrau; strips for the manufacture of girdle strings N$^{os.}$ 424—428, mostly 1.50 m. long.

PUBIC GIRDLES.

N°. 430. Liki; apron, 22 c.m. broad, 55 c.m. long, from 22 bundles of double long, yellow white strips of bark, *söbor*, suspended by their middle over an 85 c.m. long string, (three-stranded cord, laid double); loop festooned (fig. 56), by thinner cord, at the same time entwining the bundles below the suspension cord. Alongside each side of apron projecting strings, *nimu*, 3 and 4 respectively, of black beads, *nèningè*. Man's wear (see figs. 28, 51 and 55).

N°. 431. *Mär.* Mios Kórwär; seven strips (epidermis with sclerenchym fibres and vascular bundles) of leaf stalks of *Musa* species, *mbièf*; 125 c.m. long, 14 c.m. broad in the middle, 45 c.m. at the foot; transversely and longitudinally folded and rolled up; tied to a bundle by vegetable fibre; kept in stock, suspended in the smoke of a fire. Perineal bands for men (see fig. 76).

N°. 432. Pl. XIV, fig. 3. $^1/_2$. *Nau urè.* Kwatisoré; strip as N°. 431, over 35 c.m. of the length at 9 places entwined with strips of red calico, *ähu babrè*, and black strips of Pandanus leaf, *ambrarè*, the ends hanging down like fringe; strips of *nau urè*, of red calico and black and yellow, *murugrè*, Pandanus leaf hanging on to it. Worn by men on special occasions.

CALABASHES.

N°. 433. Pl. XV, fig. 4. $^3/_5$. N°. 434, N°. 435, Pl. XVI, fig. 11. $^2/_{11}$. *U.* Kájo Entsáu; egg-shaped, long 16, 13 and 11.5 c.m. resp., broad 7.5, 6 and 6 c.m. resp., with opening of 2—3 c.m. diameter, near blunt pole, *örong*. Wall thickness 2—4 m.m., weight 31, 17.5 and 15.2 gram resp.. Scorched-in ornament, *sa*, principally situated between pointed pole and opening, representing a flying or hovering animal, the head surrounding the opening; pointed pole often surrounded by several ovals, in connection with design on the other side. Obtained from Sëkâ.

N°. 436. Pl. XVI, fig. 12. $^2/_{11}$. *U.* Sčkâ; as before; ornamented with 3 quadrupeds, one with thickened contours between the legs of each side, one with curled tail. Weight ± 16 gr.

N°. 437. Pl. XV, fig. 5 and 5^a. $^3/_4$. *U.* Thaë; pear-shaped, nearly circular opening of 2.5 c.m. diameter at the middle of the length; wall thickness ± 1 m.m.; opposite to opening ornamented with fig. 5^a. Worn vertically, thin end above. Weight 8.3 gr.

N°. 438. *U.* Kajó Entsáu; pear-shaped, 12 × 4.5 c.m., opening a standing oval, 3.5 × 2.6 c.m., thickness of wall abt. 1 m.m.; burst and repaired with fibre lashings; scorched-in ornament. Weight 6.4 gram. Obtained from Sëkâ.

N°. 439. Oinâke; pear-shaped, 11.5 × 4 c.m., opening as before, 3 × 2.5 c.m., scorched-in ornament. From bag N°. 632. Weight 7.4 gr.

N°. 440. *U.* Kajó Entsáu; pear-shaped, stem end somewhat bent; 13 × 4 c.m.; opening and wall as N°. 439, ornament as N°. 438. Weight 4.6 gram. Obtained from Sĕkâ.

N°. 441—443. Waba; of elongated egg-shape, long 13, 10 and 9.5, thick 4, 4 and 3.5 c.m. resp. Weight 8, 8 and 6 gr.; the first two with oval (long axis vertical) opening in middle of length, 3 × 2 c.m.; unornamented; smallest one only perforated at pointed pole, as toy, the others not in use.

Women's petticoats from prepared bark.

N°. 444. *Mār.* Tobádi; yellowish white, one knot hole; long 136, broad 55 c.m.; weight 252 gram.

N°. 445. *Mār.* Tobádi; yellowish brown, 3 holes of knots; long 142; broad 65 c.m.; weight 191 gram.

N°. 446. *Mār.* Tobádi; reddish brown, 5 holes of knots; long 125, broad 90 c.m.; heavy and close; weight 463 gr. Obtained from Aro (?), district of Sĕkâ.

N°. 447. *Marâ.* Asé; yellowish brown, looser, 8 holes of knots; long 225, broad 100 c.m.; weight 612 gram. Prepared on the spot.

N°. 448. *Jaurèn.* Kaptiau; reddish brown, fairly close, 4 pieces long 115—145, broad 40—70 c.m. Prepared on the spot.

N°. 449. *Pau urā.* Angádi; brown, very coarse, long 200, broad 95 c.m.; weight 839 gram. Also used as a cover when sleeping, *ètè kă imèri.* Prepared on the spot.

Aprons.

N°. 450. *Déba.* Sáwé; manufactured from yellow brown cord with „figure eight" stitch (fig. 9) breadth 44, length 24 c.m.; Along lower and upper margins a binding according to fig. 43, the latter towards one side continued in a 8 c.m. long loop, towards the other in a 30 c.m. long tying string also, as per fig. 43. Worn by both sexes hanging down in front of genitals.

N°. 451. Pl. XVI, fig. 13. $^1/_6$. *Déba.* Sáwé; upper 12 rows with „figure eight" stitch (fig. 9), below these 73 rows with stitch of fig. 52; loop, upper and lower binding as before; tying string made of transverse rows of „figure eight" stitch. Worked with 2 cords at a time (see figs. 63, *1, 2, 3, 4* for run of threads). Was worn by a woman, hanging down over nates.

N°. 452. *Tamtĕge.* Kaptiau; of yellow white cord, repairs with yellow brown and blue cord, worked with one continuous cord; alternating breadths (each of several rows) as per fig. 7 and fig. 52; passages at the margins as per fig. 62; half-way up a horizontal row of small beads; upper binding as per fig. 61, lower as per fig. 43; girdle string as per fig. 9, to be fastened to a loop, festooned as per fig. 64. Width 48, length 26 c.m. Worn in front of genitals.

Armlets.

N°. 453. Seisârâ; ring plaited like a grommet from un-split, 7 m.m. thick rattan, in 8 twists for arm circumference of 27 c.m.; worn by a man just above left elbow joint. Weight 44 gram.

N°. 454. Kaptiau; as before, only $3^1/_2$ twists; for arm circumference of 24.5 c.m.

N°. 455. *Subun.* Sáwé; set as before, 5 twists, for arm circumference of 24 c.m.

N°. 456. Pl. XVI, fig. 6. $^1/_5$. *Erai.* Asé; set as before, 4 twists, spirally entwined with strip of rattan. Worn as above by young man.

N°. 457. Pl. XVI, fig. 9. $^1/_5$. *Nŏchă.* Thaë; 16 twists of liana stems, which form at 3 places of the circumference 7—10 transverse spiral twists. Worn as above by village chief, on left arm.

N°. 458 and 459. Kaptiau; set plaited from 2 m.m. broad, rattan strips, after fig. 53; breadth 2 and 4 c.m. circumference 21 c.m.

N°. 460. *Mŏki.* Liki; from rushes 2 m.m. broad after fig. 48; circumference 21.5, width 1.6 c.m. Of a man, on thickest part of left upper arm.

N°. 461. Pl. XVI, fig. 5. $^1/_5$. *Tahari.* Sáwé; after fig. 53, from rattan and black rushes.

N°. 462 and 463. *Ta hari.* Sáwé; as before, circumference 24 and 26 c.m. width ± 3 c.m.

N°. 464. Pl. XVI, fig. 15. 1/5. Nimbúran; in the making; 34 strips of rattan all knotted on to, and issuing from a transverse double strip and long enough to go round the armlet twice in plaiting; first plaiting after fig. 4, the second plaiting (half finished) completing the pattern of fig. 48.

N°. 465 and 466. *Jakă.* Nimbúran; from mycelium, *nau*, after fig. 53; circumference 22, breadth 2 c.m.; at one place mycelium plaits, 10 c.m. long, hanging down.

N°. 467. Pl. XVI. fig. 10. 2/7. *Nau.* Săgeisărâ; as before, at 3 places of the circumference with 2 transverse rows of tied-on Nassa, *dèri.* Worn by a man, on thicknest part of left upper arm.

N°. 468. *Na.* Thaë; as before, circumference 22.5, breadth 3 c.m.; parallel with the edges 2 rows of longer stitches; between 2 transverse plaitings divided over 6 c.m. of the circumference in 3 narrow bands, each carrying a Conus ring of 3—3.6 c.m. diameter. Worn as above.

N°. 469. *Na.* Thaë; as before, circumference 20.5, breadth 1.5 c.m.; 3 Conus rings. Of a man, worn just above elbow.

N°. 470. *Nau.* Ingrâs; from mycelium, breadth 1.2, circumference 20.5 c.m. (originally larger but narrowed by transverse fold) along edges 2 strings of Nassa, *dèr*, black beads and seed rings, *kantjö*; 2 Conus rings, *chemdèr.* Worn by a married woman just above right elbow.

N°. 471. *Chămĕrèr.* Ingrâs; Conus ring (diameter 4.5 c.m.) intended for armlet ornament; found in man's bag N°. 634.

N°. 472 and 473. Asé; circumference 21.5, breadth 0.5 c.m., from yellow white fibre of aërial root of Pandanus, *janä*, and mycelium, *nau*; plaited after figs. 48 and 53 resp.

N°. 474. Muris; as N°. 473, circumference 24, breadth 1.7 c.m.; 2 bundles of fibres depending.

N°. 475. Pl. XVI, fig. 17, 2/7. *Ime nau kwi.* Ingrâs; as N°. 474, Pandanus fibres, *ime*, ending in a bunch, *ime-digi*; one Conus ring, *kösijá.*

N°. 476. Pl. XI, fig. 13. 1/2. Ingrâs; as N°. 464, from Pandanus fibres, *ime*; transverse ridges divide circumference in 4 parts, where below long superficial stitches, strips of red calico, *umïsi*, *wârige*, are fastened; bundle of fibres depending. Of a man, for right upper arm.

N°. 477 and N°. 478. *Hägö trè.* Kwatisoré; set, circumference 19, breadth 3 c.m. plaited after fig. 48 from the fibres of one strip of Pandanus leaf, *ambrarè*, (part of the un-split leaf still visible on inner side); borders plaited in same way from 6 mycelium threads; 3 tassels of red, *ähu babrè*, or blue calico, *hibride*; hook-shaped mycelium figures plaited along the middle. Manufactured at Serué. See fig. 206.

N°. 479. *Hägö trè.* Kwatisoré; set of open bands, material as above, plaited after fig. 4, 2 c.m. broad, 20 c.m. long, binding strings of red calico; plait of mycelium, *jè hïrè*, along lower margin; middle part as above; calico tassels. Manufactured at Serué. Worn by men and women.

N°. 480 and N°. 481. *Ka.* Thaë; two rings from *Trochus niloticus*, from outer edge the lime has hardly been removed; circumference 25 and 26 c.m. weight 61 and 84 gram resp. Of men, worn on upper arm. Said to be imported from Humboldt Bay or Tanah Merah Bay. See De Clercq and Schmeltz [1893, 37, N°. 180, Pl. IX, fig. 22].

N°. 482. *Aduór.* Wári; as N°. 480, more finished, shining like mother of pearl, provided with transverse, shallow carvings. Weight 48 gram. Of a man.

N°. 483. *Māk bĕrke.* Tobádi; from 10 double cords, woven with apparatus N°. 716 of Tarfia; breadth 4.5, circumference 27.6 c.m.; covered by 6 rows of Nassa, *dèr*, sewn on imbricatedly and rows of black seed rings, *uruār*, forming figures. Of a man at top or on thickest part of left upper arm. Obtained from Tarfia.

N°. 484—490. *Māk bĕrke.* Tarfia; as N°. 483, but from 4, 6, 8 or 18 double cords, breadth 1.9—6.5 c.m., circumference 21—24 c.m.; here and there green, blue, orange, red and yellow beads; short

pendants of threaded Nassa and beads. For upper arm. Produce of local industry and article of trade.

N°. 491. Pl. XVI, fig. 21. 1/5. Ajápo; ring formed by circularly bent tusk of a boar, *ŏbŏ*. Close to apex a hole, conical on both sides; base pierced at two opposite places, conical from outside to inside; apex and base connected by strips of rattan. Weight 75 gr. Worn by a man on upper arm.

N°. 492. *Ai daris*. Wári; ring of yellow brown wood (spec. grav. > 1), breadth (radiary) 1 c.m., thickness 7 m.m.; inner side rounded, outer edge sharp; circumference 23 c.m. Weight 21 gram. Worn by a young man.

N°. 493. Pl. XVI, fig. 16. 1/6. *Măsŏgi*. Asé; set of open armlets; 3 rows of Coix, *chèmbĕri*, threaded on liana fibre with transverse turns, placed between parallel strings of Pandanus fibres, *inè jană*; cone-shaped seeds placed alternatively erect and upside down, in order to fit better; Pandanus strings continued as binding strings, *jŏbè*, or loop, *puru*; a Cardium shell, *kară*, pendant. Worn by men.

N°. 494. Pl. XVI. fig. 20. 1/5. Asé; from shell of a cocoa-nut, *kŏ*, both poles having been removed; shining black, many carved figures filled up with lime; (eye-nose-mouth ornament?) along each edge 3 small holes bored. Weight 67 gram. Worn by men and women.

N°. 495. Pl. XVI, fig. 14. 1/5. *Wau kŏwèr, wau kormondă*. Mios Kórwār; from breastbone of sea turtle, nearly circular; ± 9 m.m. thick and broad. Of a man.

N°. 496. Pl. XVI, fig. 18. 2/3. *Härŏ bĕrè*. Kwatisoré; strip of black whalebone, bent round, the ends pared off; outer surface with carved-in reversed coils, grasping each other like links. For upper arm.

WRIST BANDS.

N°. 497. Pl. XVII, fig. 8. 2/7. *Jĕwră uwaidje*. Kwatisoré; plaited from mycelium, *jè hărè*, after fig. 53, borders with horizontal, middle part with standing herring-bone design. Obtained from Serué.

N°. 498. Thaë; red brown rope, *ā*, 1 m. long, with 2 Conus rings, *tai jibi*, 4.3 and 3.7 c.m. diameter resp. Of a young man; twisted several times close round left wrist; Conus rings on back of wrist.

N°. 499. Pl. XVII, fig. 6. 2/7. *Bongau*. Tobádi; cord, festooned after fig. 56, at one end a knot to be passed through eye at other end; carries 2 milkwhite shell disks. For left wrist of a man. Said to be obtained from Tanah Merah.

N°. 500. *Bŏblè*. Liki; fourfold string, *nènlălŏ*, 13 c.m. long, one end with eye, festooned after fig. 56, other end continued into 10 c.m. long, twisted binding string; carries 2 centrally pierced Conus disks, *bŏblè*, as with N°. 499. Of a man.

N°. 501. Pl. XVII, fig. 5. 2/7. *Samfáre*. Wári; from the base of *Conus millipunctatus*; opening of the shell winding filled up with black sticky material, *kărofè*, obtained from dead wood, *anjau*, in which beads are pressed; along margins 2 scratched lines, between which 7 scratched circles, each with one small hollow in centre and others around. From village chief of Supiori, temporarily on Wiak. Obtained from Salĕwăti.

LEGLETS.

N°. 502. Pl. XVII, fig. 1. 2/11. *Chnè-chnè, chneng-chneng*. Tobádi; set of open bands, *jènĕti, ènĕdi*, made from brown rope after fig. 43, each end with binding string, along lower side 18 and 21 rope loops respectively, each with 4—6 perforated, brown shells (*Arca pilula*, REEVE), in pairs with the concavity turned towards each other. On outer side 5 blue beads, *chaimándi*. Worn by men at dances.

N°. 503. *Uruār*. Tobádi; set of 4 bands, 21 c.m. long and ± 6 m.m. broad, made of longitudinal twines which twist round each other in pairs, between which, zigzag turns of another twine (after figs. 68, *1* and 68, *2*); oblique front twists each bearing one Coix seed, *uruār*; longitudinal twines form at the ends an eye and a plaited binding string. Worn by a man; 3 to the right, 1 to the left.

N°. 504. Pl. XVII, fig. 3. 2/11. *Enĕdi*. Tobádi; set, twice as broad as N°. 503, with 2 rows of Coix seeds, *uruār*, inclining in different directions, according to front turns of 2 zigzag twines, after fig. 69.

N°. 505. Pl. XVII, fig. 9. 1/4. *Enědi.* Tobádi; set of 2 as N°. 503, double, made of Pandanus fibre *ime*, both parts of a band only connected near the eye, at the joint binding string and at half-way; 3 bundles of fibre hanging down.

N°. 506. *Enědi.* Tobádi; one band made of 2 parts each after fig. 68, *1*; 3 fringe bundles as above; parts joined after fig. 69.

N°. 507. *Enědi.* Tobádi; set, 1 c m. broad, 27 c.m. long, from 11 bits of twine, plaited after fig. 4, mounted with 3 rows of rings (2 m.m. broad), cut transversely from Coix seeds and threaded on the stitches of the plaited work; 3 and 4 fringe bundles respectively.

N°. 508. Pl. XVII, fig. 4. 2/9. *Enědi.* Tobádi; set manufactured of cords of pretty light yellow fibre, after fig. 47; 9 and 13 parallel strings respectively, 70 and 62 spiral turns; broadest band with 4 transverse rows of blue beads, threaded on the longitudinal cords; 3 bundles of rope fringe with Coix seeds. Men's wear.

N°. 509 Pl. XIV, fig. 5 and 5a. 1/1. *Enědi.* Ingrâs; as N°. 508, after fig. 47; 16 longitudinal cords, 76 spiral turns; eye at both ends; zigzag strings of black beads, *möti-möti*; along lower margin network of strings of beads with row of pieces of cuscus skin, *èm*, suspended by rope fringe, *wārfrâ*.

N°. 510, a and b. Pl. XIV, fig. 4. 1/1; Pl. XV. fig. 6. 2/3. *Enědi.* Tobádi; set after fig. 47, 13 longitudinal cords passing into festooned eyes; network as above, suspending Nassa, lower down pieces of cuscus skin, *èm-arú*. Fastened as ornament to bag N°. 639, *srorsror*, from Tobádi.

N°. 511, a and b. *Enědi, jèněti.* Tobádi; set as N°. 510, 22 c.m. long, no dependent strings. Horizontally fastened to front of man's bag N°. 638, *srorsror*.

N°. 512, a and b. *Enědi.* Jótěfa Bay; set as N°. 511, blue beads tied on in zigzag line. One along upper, the other along lower margin of bag N°. 640, *srorsror*.

N°. 513. *Enědi.* Ingrâs; as per fig. 68, *1*; 1 c.m. broad, 18 c.m. long; halved Coix seeds (pole upwards) transversely strung on; along lower margin garlands of green and white beads, the strings hanging down, *wārfrâ*, with pieces of cuscus skin, *èm*. On man's bag N°. 637, *sögěri*.

N°. 514. *Enědi.* Ingrâs; as N°. 513, consisting of two 5 m.m. broad bands, made after fig. 68, *1*; entire Coix seeds strung on. Also from bag N°. 637, *sögěri*.

N°. 515. Pl. XVII, fig. 10. 2/9. *Ka.* Kajó Entsáu; set manufactured after fig. 70, 8 and 11 pairs of twisted twine respectively, also forming eye and 2 plaited binding strings; bands, *warâ*, with zigzag row of Coix seeds, *böriári*; fringe of twine, *wárâ sěrónge*, with Coix. One of the bands with 3 more such fringe bundles. Said also to be worn as neckornament.

N°. 516. Pl. XVII, fig. 2. 1/4. *Baba.* Tarfia; after system of apparatus N°. 716; 2 parts, connected in the middle and at both ends, provided with eyes; 4 rows of Nassa and coloured beads, forming at one end small strings. Along lower margin 4 double twines, with beads and Nassa in zigzag position; pieces of cuscus skin. Manufactured on the spot.

VARIOUS ORNAMENTS.

N°. 517. *Jöchútje.* Asé; string made out of 3 parallel strings of beads, bearing a horizontal piece of wood, *öhächa*, in the shape of a turned-up canoe, 5 c.m. long, 1.2 c.m. high (imitation of a *Sapotaceae* seed), 2 dogs' incisors, *jöchu tënä*, reaching with the roots into the perforated bottom; the piece of wood with transversely tied-on Coix, *kèmbëri*, and Nassa, *ikèri*, of which the strings hang down like fringe, *sa wutai*. Worn by men on bags, combs, etc.

N°. 518 and N°. 519. Pl. XI, fig. 7. 2/3. Ajápo; as N°. 517; N°. 518 with a piece of ground-down boar's tusk; N°. 519 with 2 crescent-shaped pieces of *Trochus niloticus*, shining like mother of pearl. Both from the middle of the binding on man's bag N°. 630.

N°. 520. Pl. XI, fig. 10. 1/1. Oinåke; imitation in tortoise shell of the *Sapotaceae* seed, pierced in the middle; found in basket N°. 108.

N°. 521. Pl. XVII, fig. 15. 2/3. *Dog.* Ingrås; five egg-shaped seeds, pointed end with indication of stem; inside with rattling kernel; on dark outer surface, by scratching away upper layer a fourfold spiral design, *dog âne*, ending, at the points in another ornament, (snakes?); strung on vegetable string. For ornamenting the body (calf?) or objects.

N°. 522. Pl. XVII, fig. 16. 1/4. Oinåke; dark brown, hairy ball of rolled-up piece of cuscus skin, suspended from three-stranded brown cord, on which a quill is strung up to the ball, kept in its place by a knot. Ornament for men and women on comb, ear, bag, etc. Found in bag N°. 632.

N°. 523. *Em.* Kajó Entsáu; as N°. 522, 3 pieces, 2 depending from plaited bark fibres.

N°. 524. Seisårå; shell of *Ovula ovum*, close to one of the poles provided with an opening. Found as ornament of a man's bag.

N°. 525. Pl. XVII, fig. 7. 2/3. *Chărindè.* Tobádi; shell of *Conus Striatus*, bottom broken out, small conical hole in filed slit at the top; here, suspended by a cord, a 5 c.m. long pig's incisor, *por cheāp*, apex broken off, the cord jammed by conical comb-point in tooth canal. Double suspending rope, *wār*, in the above conical hole. Of a man's bag.

N°. 526. Oinåke; as N°. 525, at the top only a horizontally filed slit; incisor close to apex transversely pierced, conically from both sides. Was hanging on to a corner of upper margin of bag N°. 632.

N°. 527. *Chărindè.* Ingrås; as before, incisor, suspended as in N°. 525; slit in shell as in N°. 526.

N°. 528. Sägeisårå; bamboo cylinder, *pŏtè*, 31 × 4.8 c.m., nodium as bottom, along which a circle of carved bird tail figures; containing seeds of *Coix lacryma*, *kankámè*, closed with leaf, *jadkúwă*.

N°. 529. *Kankámè.* Sägeisårå; seeds of *Coix lacryma*, *kankámè*, formed by means of a large leaf into a parcel of 16 × 6 × 6 c.m., tied up with strip of vegetable fibre, *jadúkwa*.

N°. 530. *Kèmbĕri.* Ifār; as N°. 529, smaller, with pointed wooden pin (to pierce the seeds lengthwise). From cylinder N°. 141.

N°. 531. *Kankámè.* Sägeisårå; twig with *Coix lacryma*, found in dried condition in dwelling.

N°. 532. *Kantjŏ.* Sägeisårå; bunch with seeds, of which black seed rings are made; found in dried condition in dwellings.

CHAPTER III.

HABITATIONS AND FURNITURE.

The manner in which the people are housed offers important differences in the various parts of N. G., and it is, indeed, a moot question, whether all are really in possession of fixed houses. The information of the people of the tribe of the Manikion may serve as an answer. A certain number of men and women of this tribe were acting as guides and carriers from the seashore to their settlement, Mapār. The head of the family, styled „Majōr", walking usually at the head of the long column, uttered on the march, at certain intervals, long, sounding shouts. This is also customary elsewhere, in order to give notice at the approach of villages and not to frighten the inhabitants at the sudden appearance of strangers (D'ALBERTIS [1880, I, 292], VAN OOSTERZEE [1904, 1004]). But our Major did this everywhere on the road, also on days, when we were apparently passing through quite uninhabited parts. Asked as to the intention of his shouting, the Major informed us that in the wooded parts of the country, through which we were passing, "bush-men" were living, without fixed abode, who did not practice agriculture, fed themselves with what the fauna and flora could produce and only in case of heavy rain sought shelter under joined leaves. These people, having no connection with the settled inhabitants, were exceedingly shy, went out of the way of everybody and therefore were quite harmless. If however such people were surprised, the fright might induce them to make use, as a premature defence, of their bows and arrows and therefore it was safer always to make noises, in order to enable them to get out of the way.

Consequently, there was no chance for the expedition ever to get a sight of these nomads. Where ashes and the remains of meals were found alongside the path, it always turned out to be places of call used by the settled inhabitants; the inhabitants of the forest shun the beaten (!!!) tracks. According to the above account, regular nomads would be meant here, who, in the shape of dwellings, had nothing more than what every one can compose at a moment's notice in primeval forests.

The informations of MEYER [1873, 36] concerning the nomadic way of living of some Negrito's, agree, to a large extent with the above mentioned. Many tribes of the S. W. coast (VAN DER GOES [1858, 63]) are also supposed to be nomads. The roaming Tarugaré, which DE CLERCQ and SCHMELTZ

[1893, 112] report from the south east coast of Geelvink Bay, are said to be not so shy, at all events not without danger to people walking alone. I still mention that the Tugeri, supposed to be nomads (THOMSON [1892, 157], KRIEGER [1899, 377]) have, on the contrary, permanent settlements, forming villages with beautiful gardens. As far as the nature of the different kinds of dwellings is concerned, cave-dwellings appear to be entirely unknown in N. G., tree-dwellings, on the other hand, appear to be very numerous, especially in British New Guinea; according to D'ALBERTIS [1880, I, 390] pleasure houses, but according to the unanimous opinion of others (CHALMERS [1885, 92], MAC FARLANE [1888, 119], THOMSON [1892, 52], MACGREGOR [1897, 62], WEBSTER [1898, 126], HADDON [1901, Pl. XX], PRATT [1906, 233]), as look-out houses and places of refuge in case of attack and also generally provided with a large quantity of stones. In German New Guinea they are very rare, but still met with on Gragat (Rakèta) Island (BIRO [1901, 19]), whilst KRIEGER [1899, 152] illustrates such a dwelling of Finsch Harbour.

On the S. W. coast of Netherl. N. G., MODERA [1830, 22] saw natives of both sexes in the trees, who, with their weapons on their backs, climbed from one branch to another; VAN OLDENBORGH also saw, on the Utanata River the people seeking refuge in the trees (HAGA [1884, II, 370]), but dwellings were not noticed in them; neither have they been seen elsewhere in Netherl. N. G. The other dwellings can be distinguished in two categories: those of which the floor is level with the ground, not supported by poles, as in the eastern part of K. W. Land, for fear of earthquake (HAGEN [1899, 201]), and those of which the floor is supported by poles, built on terra firma or in the water.

In Netherl. N. G. permanent dwellings of importance are built on poles; only the most primitive dwellings have the earth as a floor. Thus a dwelling at the Sĕkánto River (fig. 71), deserted for the time being, but still, judging by the fruit trees surrounding



Fig. 71. Dwelling on the Sĕkánto River.

it, a permanent establishment. It only had on one side part of a wall of sago leaves, a roof thatched by the same material, little more than a man's height above the ground, a fire place, a sleeping frame of branches, whilst some pieces of firewood were lying on the rafters. The

houses in a village of the same tribe on the Jafúri River, draining Lake Sentáni, are little better. They have a square-shaped roof with rounded-off corners, the eaves reaching down to within 1 meter above the ground. The walls made from sago leaf stalks and piled-up dead wood, had, at two opposite places, a low, narrow opening. In the darkness inside, where pigs and dogs were running about freely, a couple of raised sleeping places, some earthenware pots from Poë, a water bucket, like N°. 93 (Pl. III, fig. 18), but only held together by a thorn, bamboo cylinders like N°. 100, for drinking water, also mentioned by PRATT [1906, 189], and the ladle described above under N°. 98 (Pl. III, fig. 6) were seen.

These are the first permanent dwellings which have been met with in this part of North New Guinea, not belonging to the pile-dwellings.

Temporary dwellings, and this „temporary" can be very elastic, are, on the other hand, very often without the floor raised on poles. This was found by the expedition to be the case with the small houses in the gardens and also in a settlement on the island Mios Kórwār of people from Maudor on Supiori, who had abandoned their homes on account of continual attacks. Although a good „rum sĕram" (fig. 196) had already been built (see Chapter XII), the establishment of the men, as on the background of fig. 76, consisted of a small, long and narrow building, of less than a man's height, covered transversely with Pandanus leaves and simply built on the shore, in the shade of the margin of the forest. Here also the sleeping frames, made from young stems, were arranged somewhat above the ground. From the blackening caused by smoke, it could be made out that this temporary dwelling had been in use for a fairly long time. Similar simple dwellings, built on level ground, have also been noticed on the S. W. coast by MODERA [1830, 78], only 5 feet high and 6 feet broad, and also very long.

The reason why the Papuan takes the trouble to build a pile-dwelling, may be looked for in the greater cleanliness and the better hygiene obtained in this way, but also in the greater security against man and beast, which such a dwelling affords. Pile-dwellings in the water offer the same advantages in a still greater measure, also by the natural system of irrigation which removes all refuse. The newly-built dwelling of the expedition on Metu Débi, which was not standing on poles, was soon swarming with mice, especially in the corner, where the ethnographical basket with sago was standing; the same baskets appeared to be quite safe in the pile-dwellings of Tobádi, but nevertheless the fact remains, that the young men in the temple kept small sized bows and arrows on purpose for this rodent. At Waimara (Br. N. G.) houses were seen (ANNUAL REPORT [1898—99, 23]) with flat discs of wood below the heads of the piles, to prevent rats getting up. TEN KATE [1895, 8] saw the same on the poles of rice-stores on Timor.

The dwellings of the Manikion (figs. 72—74) have the longest poles I ever saw, being 6—8 meters long. These houses are placed on the top of a moderately high hill, cleared of trees; along the slopes the felled trees are left lying in all directions, perhaps on purpose, because they make a rapid ascent not a little difficult, and prevent a sudden attack, as also remarked by VAN DER GOES [1858, 224] of the dwellings in Amberbaken. The poles here have about the thickness of a man's wrist, and are in such large numbers that it is impossible to pass between them; besides many are standing crossways. The latter is also the case with Arfak houses (VON ROSENBERG [1875, Pl. XI]) and reported from the Insé delta,

in the MacCluer Gulf (MOOLENBURGH [1903, 9]). Also at Angádi (fig. 80) and Nagramádu (fig. 57), but here in a smaller measure, vertical as well as crosswise poles having been placed under the houses. All this certainly for the sake of more firmness and in connection with the nature of the soil; still I remember that the inhabitants of Mapār desired that their house should shake with festive dances, and must not by any means prove unmovable. The dwelling stands, in reality, just below the highest point, where the slope begins, and has, at the side turned towards the top of the hill, where the poles are shortest, a small bridge of some thin stems placed alongside each other, sometimes with cross pieces of wood, fastened on to them as steps, at other times of a single, oblique placed stem of a tree, provided with steps, *oii*, cut out of the wood (see fig. 73, also fig. 57). Here, therefore, the entrance to the dwelling is the same as indicated by VAN DER GOES [1858, 165, Pl. S S] of the Arfak dwellings. All Manikion dwellings have a square floor made from laths, *irgam hiri*, of small stems of palms resembling *Nibung*, and which is generally continued in front and at the back to form a verandah, which, at Mapār, was about 1 m. broad, and on which all the inhabitants had taken their places to be photographed (fig. 73). At Hiri the verandah was only present in the shape of a cross-beam (fig. 72). The statement of VAN DER GOES [1858, 165], relating to the Arfak people, that the other verandah always looked out on the paths

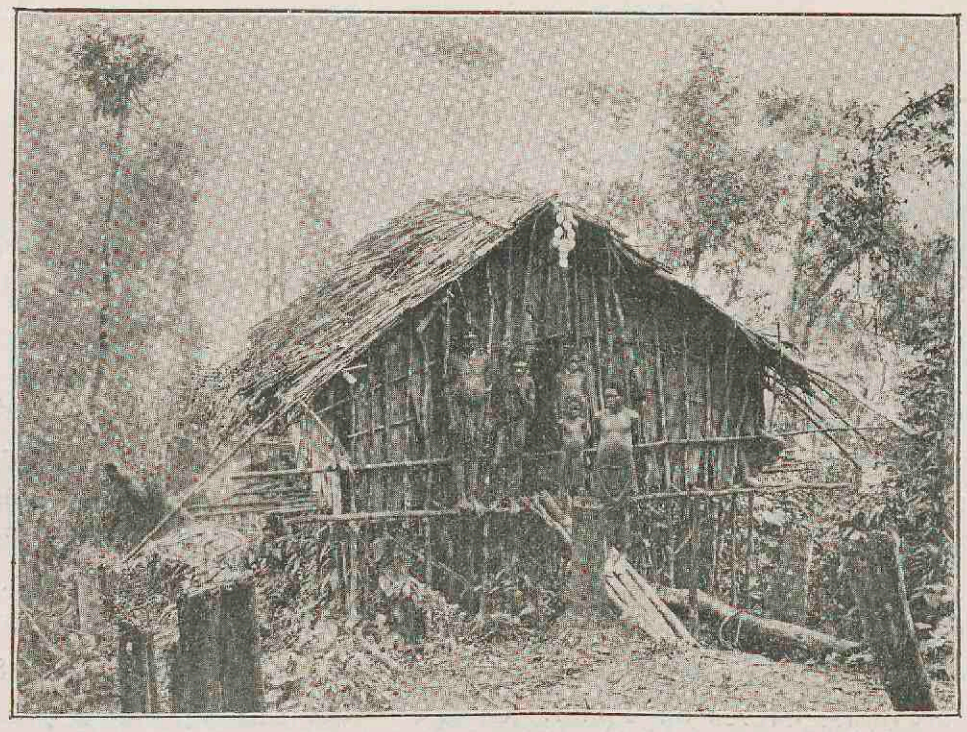


Fig. 72. Dwelling Hiri; tribe of the Manikion.

leading to the house, may, I fancy, be confirmed also as regards the Manikion. The roof of un-plaited palm-leaves, has a lineal ridge, from which it declines to the left and to the right, the sidewalls being very low, but the front and back wall, slightly overlapped by the roof, reaching to the ridge pole. The walls are made from bark, 3—5 m.m. thick, pealed off from young trees and flattened when fresh; this bark is supported by branches and laths. The use of this material in the building of houses is characteristic also of the people of Ajambori

(VAN DER GOES [1858, 157]), of the Arfak ([l. c. 165], VON ROSENBERG [1875, 95]), of the

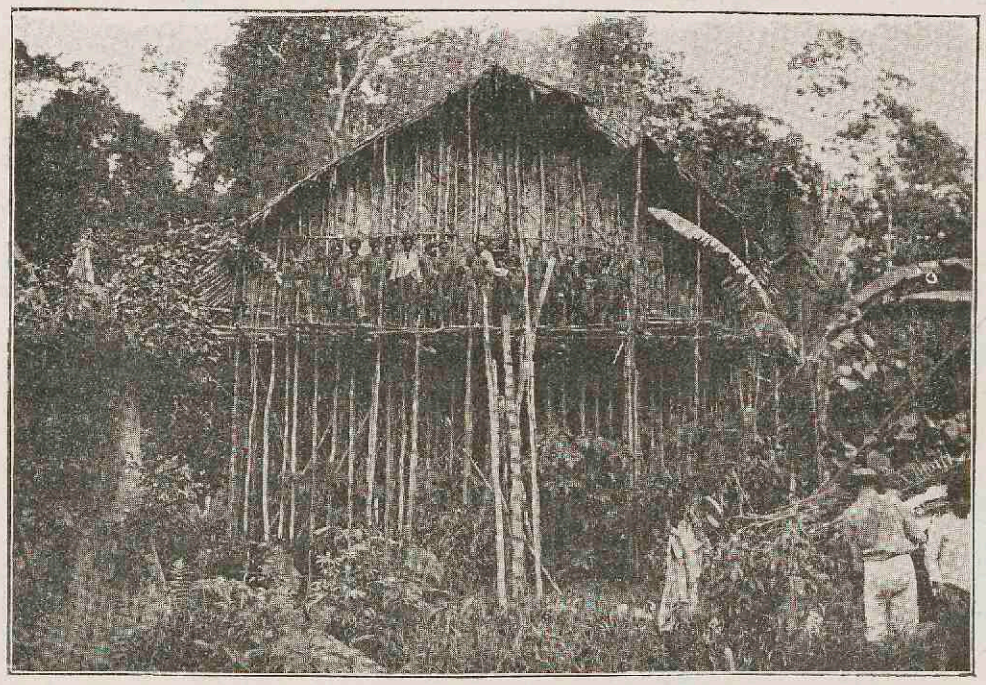


Fig. 73. Dwelling Mapār; tribe of the Maníkion.

Hătam (D'ALBERTIS [1880, I, 96]) and of the Ménam (VAN OOSTERZEE [1904, 1006]), all tribes living more or less in the interior of the north-western part of New Guinea, to the north

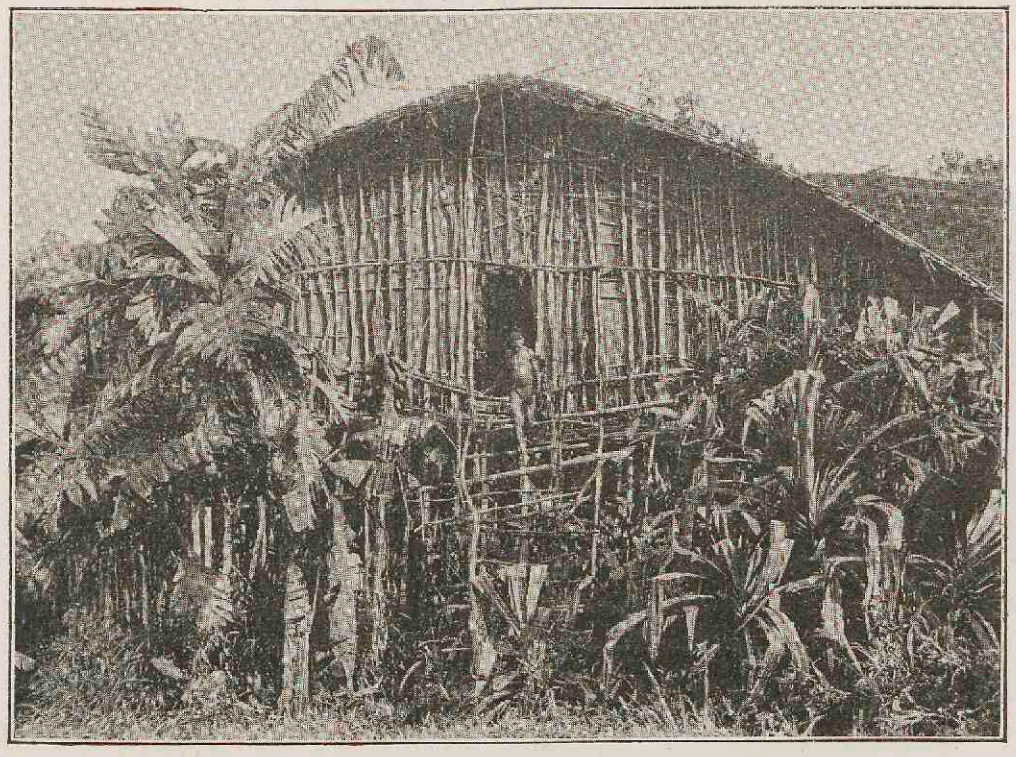


Fig. 74. Dwelling Horna; tribe of the Maníkion.

of the MacCluer Gulf. Both gables have in the middle an opening, 1.60 m. high, through both

of which one looks in fig. 74. Entering along the steps and across the front verandah, one finds along the right hand wall, divided by pieces of bark up to man's height, a few separate rooms for married people and young children and also the family fire places. Along the whole length of the left hand wall, raised sleeping places for men and boys are sometimes to be found, below which a fire is kept burning during the night for warmth and against the mosquitoes. The weapons are also suspended on this side, close to the opening of the doors the bodies of deceased relatives, dried over the fire and packed in a squatting position in matting, are hanging and in the roof the lower jaws of pigs are stuck. This division corresponds with the plan of a building given by VAN OOSTERZEE [1904, 1006] of the Ménam, living somewhat more to the north; only here the rooms are formed in the corners of the house, both to the right and to the left [l. c., 1007]. On the slopes of the Arfak Mountains, according to D'ALBERTIS, the women's quarters are to the left, the men's sleeping places to the right.

At Demta (fig. 77) the entrance of the hill dwellings is also situated at the upper side of the slope.

Another type of dwelling, common in Geelvink Bay, is the one with the so-called turtle-shaped roof, its shape corresponding with the dorsal shield of a turtle, or a boat bottom upwards (WALLACE [1869, II, 184]). Fig. 81 of Siarí may serve as a type, but it is in a somewhat delapidated condition. The dwelling stands with the direction of its length perpendicularly with the coast line, in sufficiently deep water, at all events I could not reach it wading. Therefore it is only necessary to remove a single stem from the long bridge, consisting of small stems placed on forked piles, which connects the dwelling with the shore, in order to make the approach of people on foot impossible. The figure also shows the windows of the apartments which have been made along both the longitudinal walls, leaving a middle passage, in which the long boats can be placed. The house has at both ends a covered platform without side walls; the women assemble on the one turned towards the shore (VAN HASSELT [1886, 580]), whilst the platform turned towards the sea is intended for the men. The latter platform is therefore often very large and provided with a long projecting roof, as struck me particularly at Jendé (fig. 75), showing some resemblance to the houses of Maiwa, CHALMERS [1885, 162] describes, "built to represent an alligator, with open mouth, the platform in front of the houses is the lower jaw and the long shade over the platform the upper." The platform for the women is small and little or not at all shaded, the roof often being transversely cut off, as appears in fig. 78 of Wendèsi.

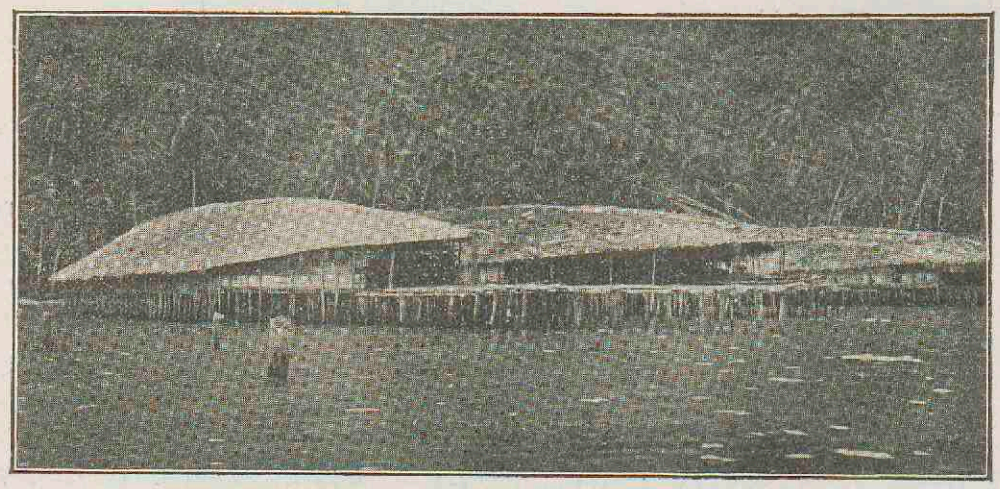


Fig. 75. Houses at Jendé; Geelvink Bay.

The transverse wall is, on this side, made of horizontal laths, and provided with a

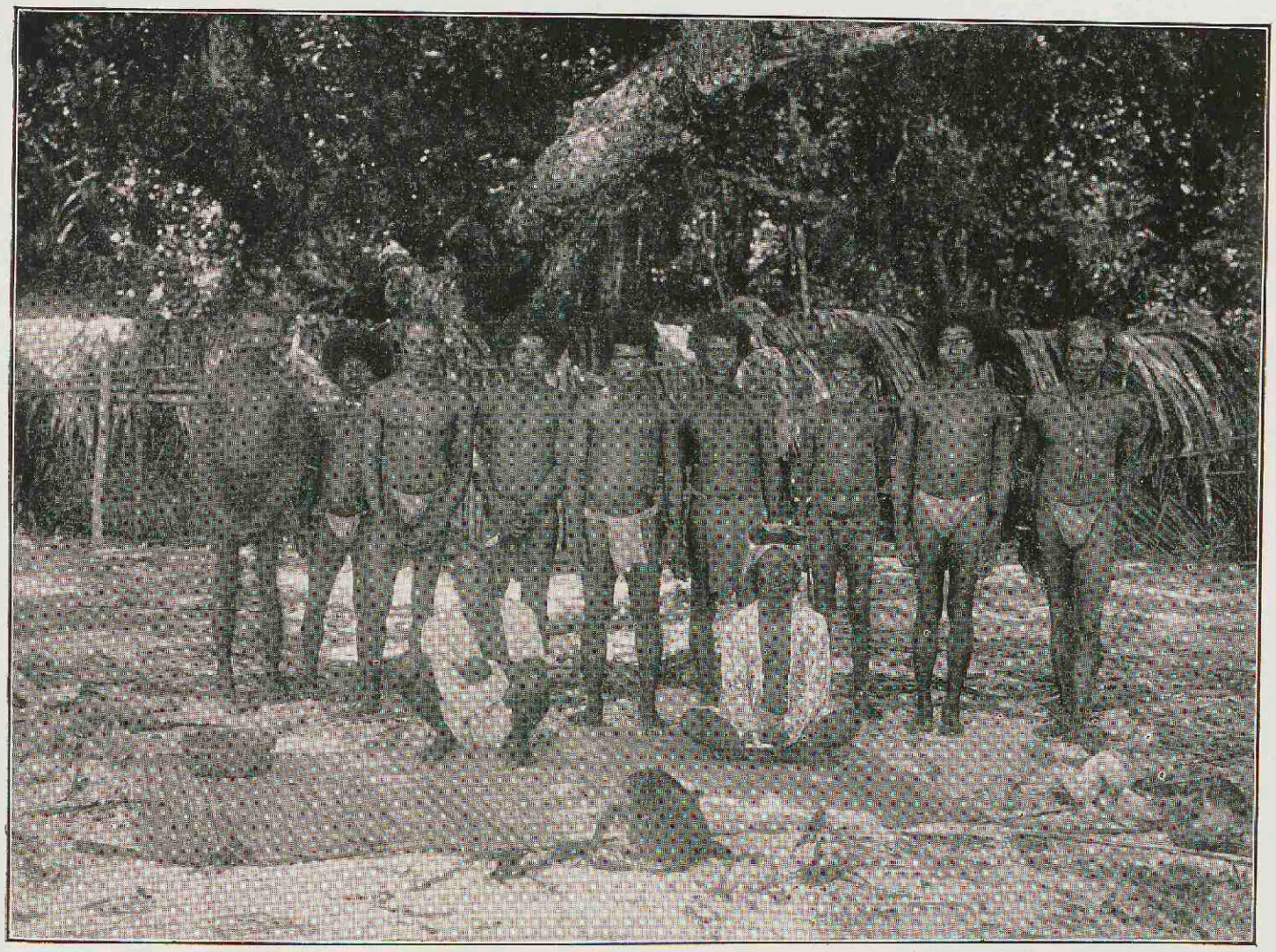


Fig. 76. People and habitation on Mios Kórwār.



Fig. 77. Hill house at Demta.

middle opening, as can be seen more plainly on fig. 79. In addition to serving as pile-dwellings in the water, houses with turtle-shaped roofs are also built on the shore, wherever the depth or the beating of the waves makes this necessary. Such houses at Wári, fig. 82, also had the large, shaded platforms turned towards the sea and could be reached along a notched tree stem. How the building of most of these houses is influenced by the tortoise shape may be understood on looking at fig. 93, a temporary, hastily constructed dwelling at Mios Kórwar, where however the platform is placed along a side wall. The "rum sĕram" constructed here (fig. 196), was, just like De Clercq (De Clercq and Schmeltz [1893, 177, Pl. XXXIX, fig. 12]) reports of Rōn, also provided with a turtle-shaped roof. I was not a little surprised to find that some of the houses on Lake Jamūr also appeared to have the turtle-shaped roof, and thereby, nothwithstanding the proved linguistic relation with the south west coast, show an unmistakable relationship with the culture of Geelvink Bay. Fig. 80 of the island of Angádi, situated in the lake, shows plainly the platform (turned towards the water) on which the coolies of the expedition were housed and which may be reached along small bamboo steps. This dwelling has however besides, in the style of the house at Mios Kórwar, a wide

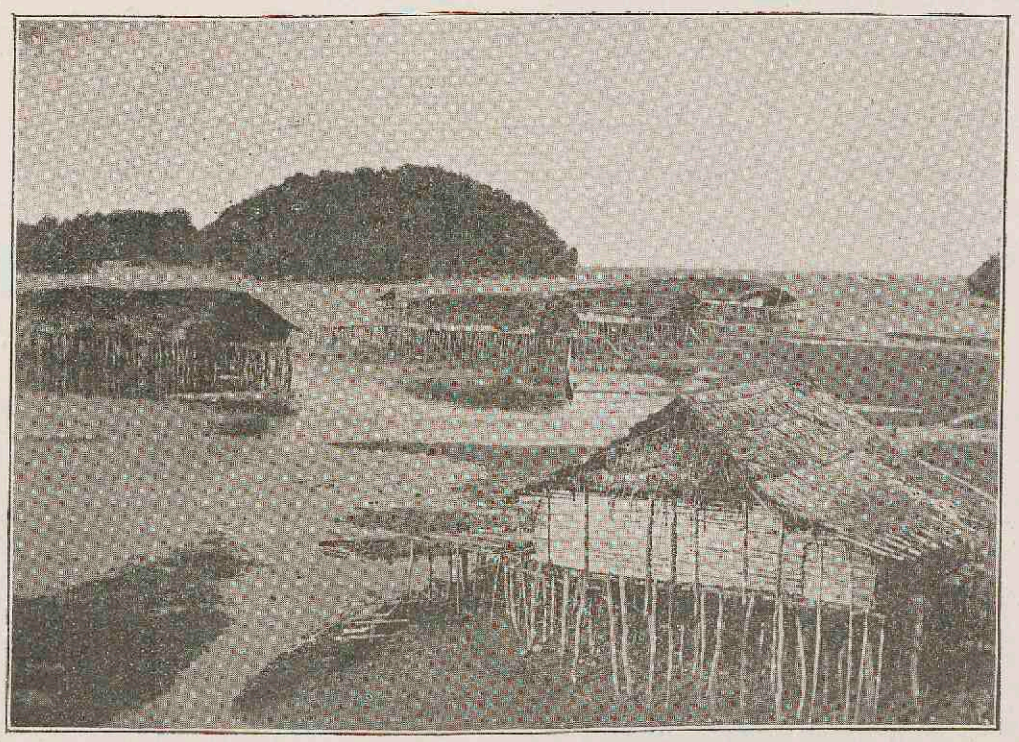


Fig. 78. Dwellings at Wendèsi; low tide.

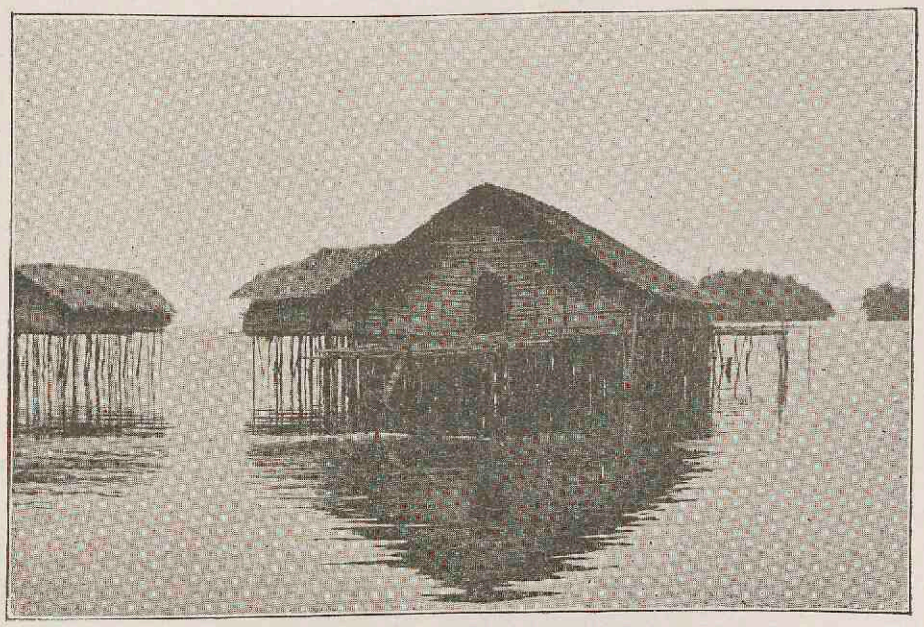


Fig. 79. Back side of a house at Wendèsi; Geelvink Bay.

open verandah, placed along one of the long sides, and under the same roof as the building proper. It is not divided into apartments, and leads out on to the verandah by two door openings, in this respect deviating from all the above mentioned dwellings, which always have two door openings opposite each other. The other long, side wall has a window opening, whilst close to each of the short sides a fire place occurs, similar to the two occurring in the verandah.

The question presents itself whether the turtle-shaped roofs have a special meaning, as it appears improbable that only technical reasons, like for instance the nature of the material used: bamboo, split or unsplit, and palm leaves, have made this shape obligatory. Besides, by the slight inclination of the roof, one is obliged to fasten numerous laths or thin stems on the outside of the roof, in order to prevent the lifting of the palmleaves.

In the eastern part of the north coast of Netherl. N. G. the pyramid shape of houses is the rule, not like beehives and with a small diameter (10 feet or 12 × 7 feet), as

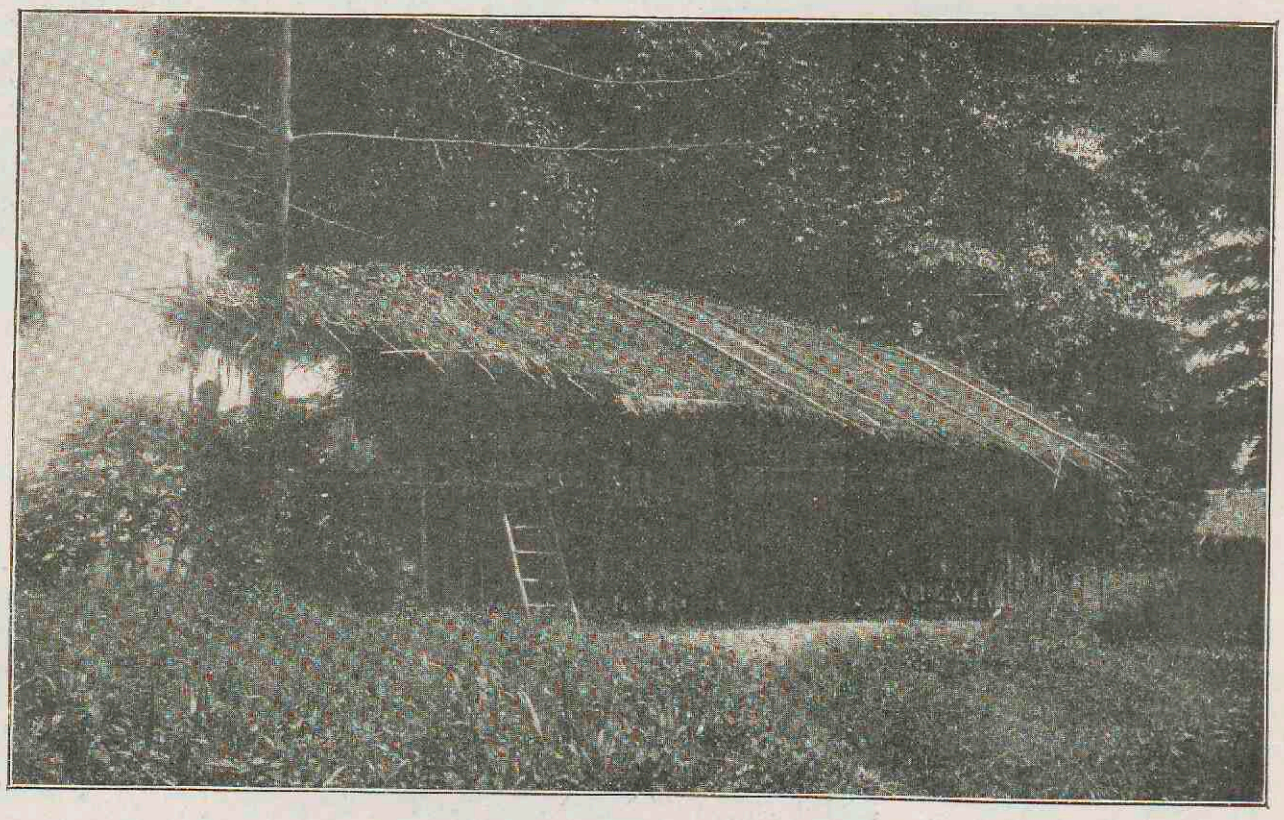


Fig. 80. Dwelling at Angádi; Lake Jamūr.

known from British N. G. (MACGREGOR [1897, 85], MORPHY [1904, 327], PRATT [1906, 121, 215, 245], SELIGMANN [1906, 235]), but four sided, and, owing to each of the sides bulging out, sometimes eight sided, fairly high, and even more distributed locally than the turtle-backed house. Unmixed with other forms, I only met with it at Oinåke, where the temple and all the houses were of the same shape (fig. 83). Proceeding from here towards the east, it appears that in the village of Sèrá (BIRO [1900, Pl. VII]) the pure pyramid shape is no longer to be found; in reference to Tumleo, ± 25 nautical miles more to the east, ERDWEG [1902, 356, fig. 245], describes a straight-roofed house.

Proceeding from Oinåke towards the west, the pyramid-shaped roof becomes constantly more mixed with another shape of roof, characterised by a horizontal main beam. Thus, in



Fig. 81. Dwelling with turtle-shaped roof; Siaŕi.



Fig. 82. Dwellings with turtle-shaped roofs; Wári.

open verandah, placed along one of the long sides, and under the same roof as the building proper. It is not divided into apartments, and leads out on to the verandah by two door openings, in this respect deviating from all the above mentioned dwellings, which always have two door openings opposite each other. The other long, side wall has a window opening, whilst close to each of the short sides a fire place occurs, similar to the two occurring in the verandah.

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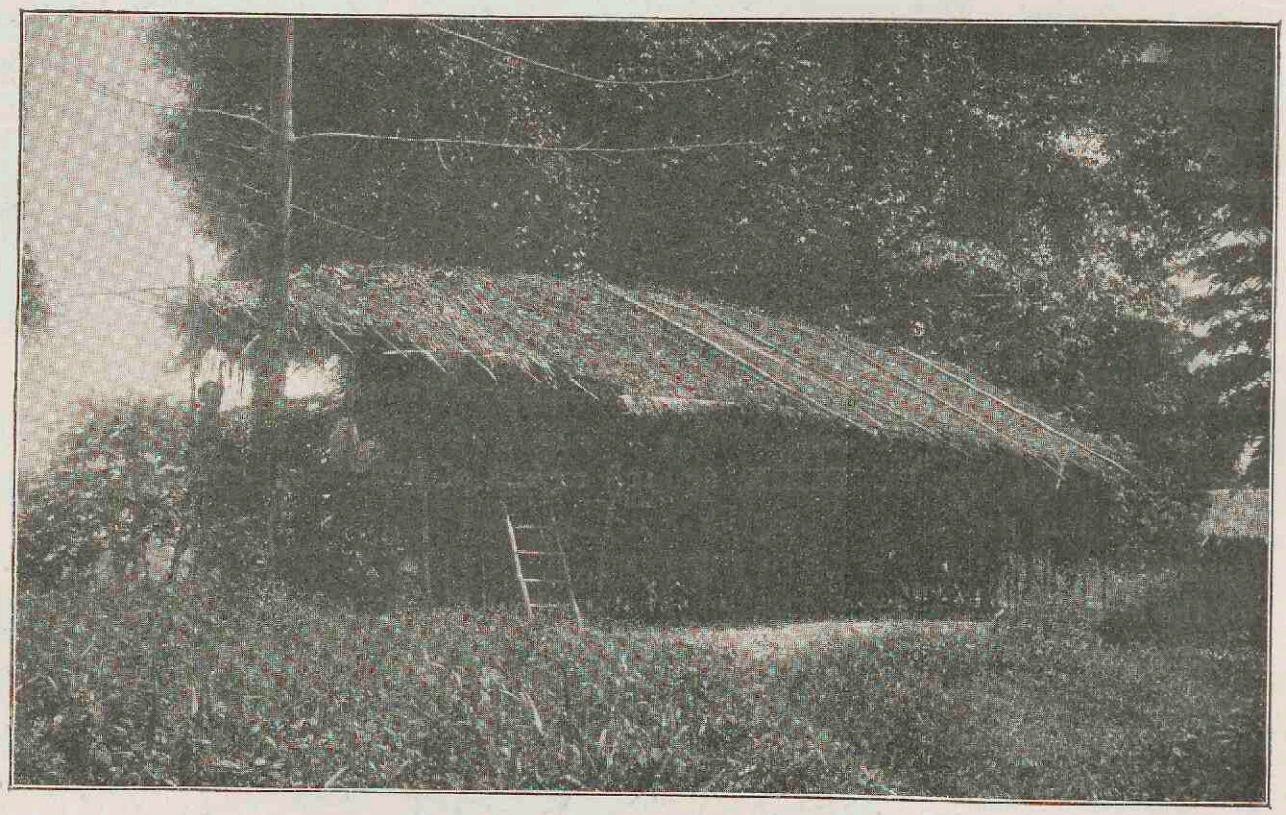


Fig. 80. Dwelling at Angádi; Lake Jamūr.

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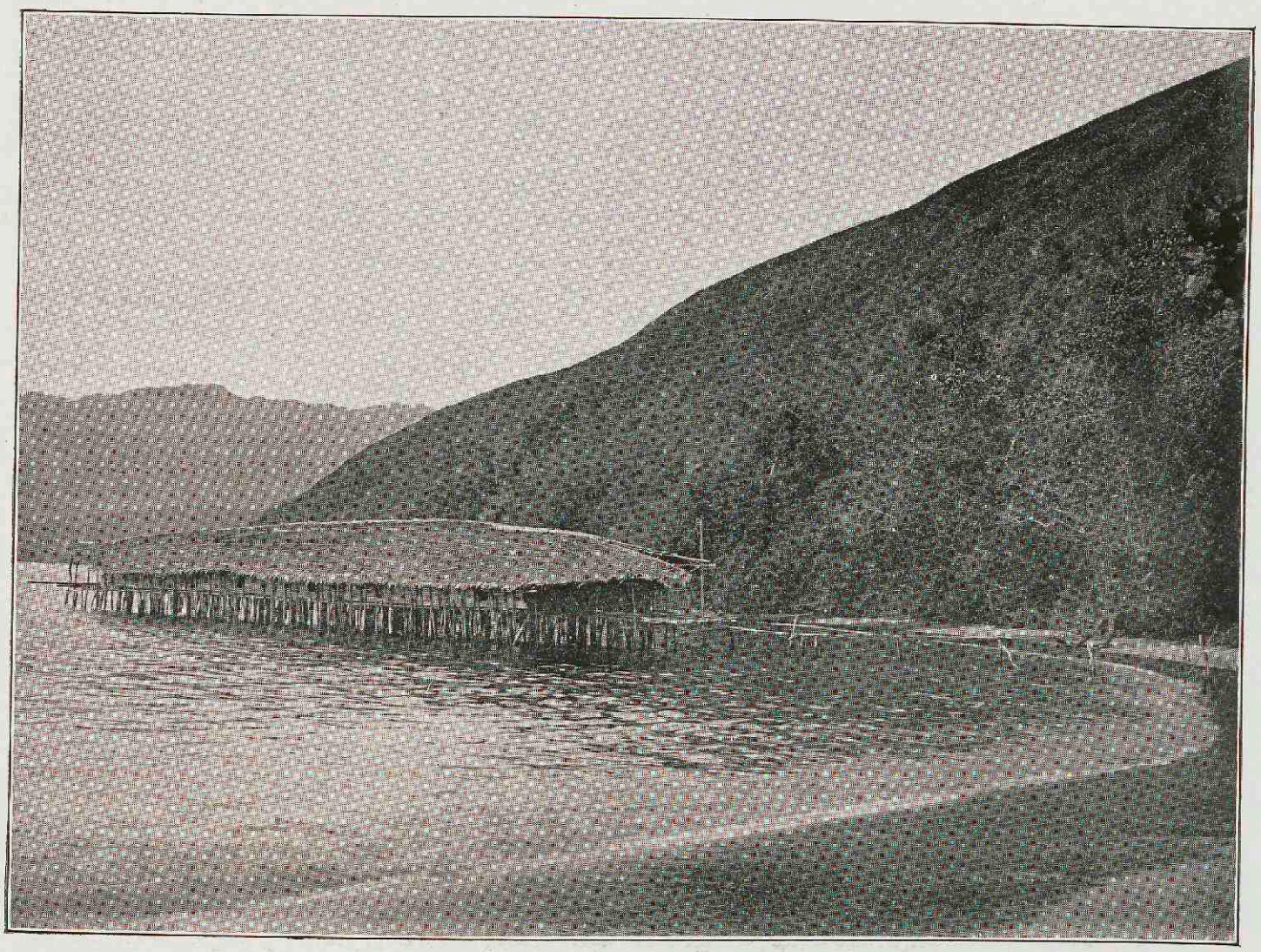


Fig. 81. Dwelling with turtle-shaped roof; Siarí.



Fig. 82. Dwellings with turtle-shaped roofs; Wári.

the village of Thaë, one sees, fig. 84, already two houses of this deviating shape. Kajó Entsáu, fig. 85, situated still more to the west has also two of these deviations, Tobádi, fig. 87, ten, whilst in Ingräs, fig. 88, the pyramid-shaped roofs are already quite in the minority.

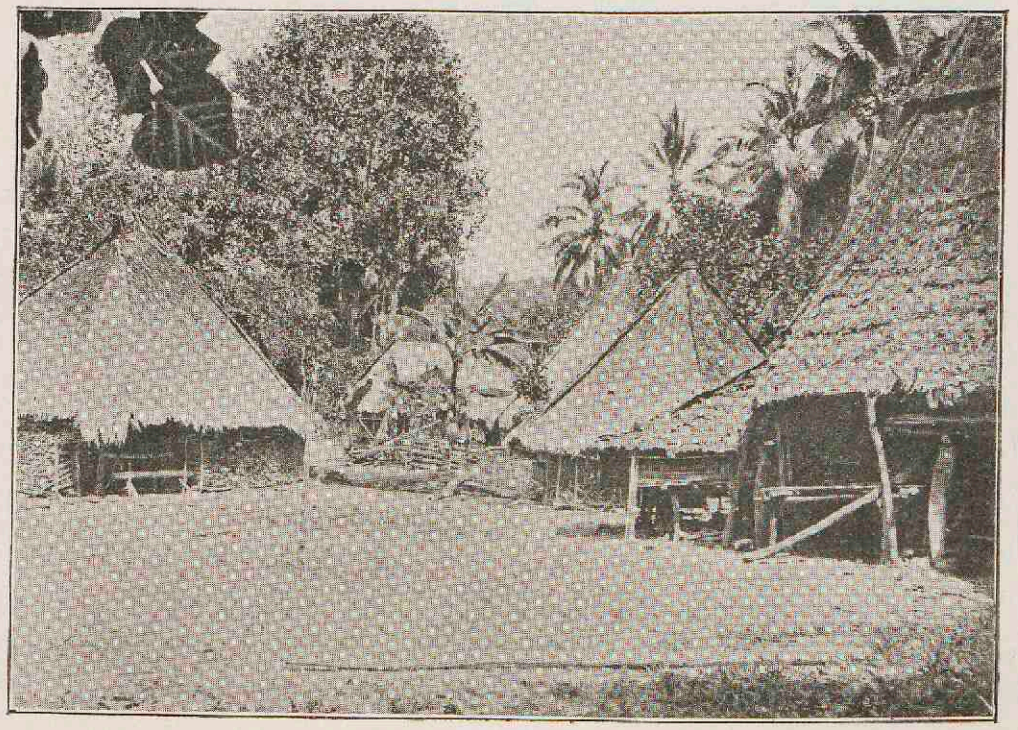


Fig. 83. Houses with pyramid-shaped roof; Oinåke.

Still more towards the west, at Sägeisårå and on Lake Sentáni, only a few special houses are provided with the pyramid roof, and if I remember rightly, this shape of roof is no longer met with in the whole of the western part of the lake; neither in Tanah Merah Bay.

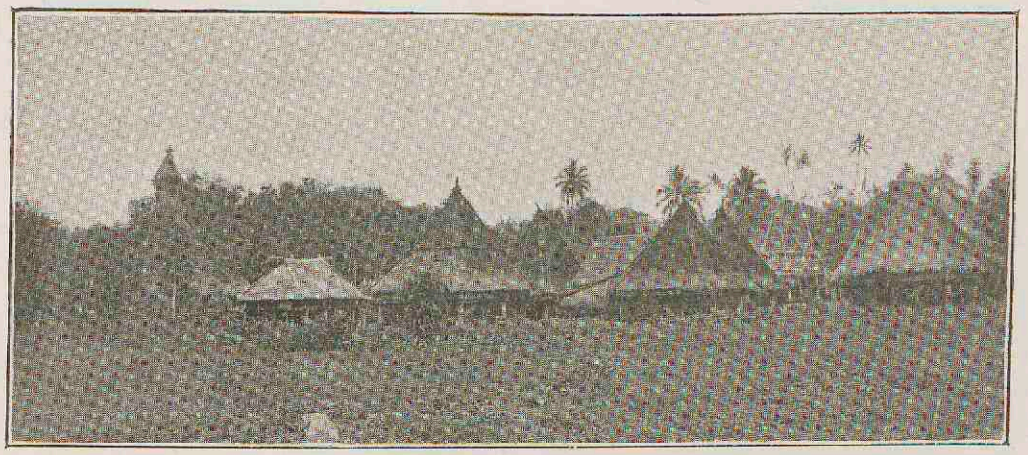


Fig. 84. Village of Thaë, district Sěkå.

The construction of these houses, without a central post and with a loft, placed at half the height of the roof, can, to some extent, be noticed in fig. 86 of the village of Mabo. VAN DER GOES [1858, 174] is wrong, when he expresses the opinion that the vertical

poles which support the roof, stand loosely on the raised floor and find no direct support in the ground. The poles never stand crossways. The very low side walls (2 to 3 feet) of upright stalks of sago leaf are generally quite hidden by the overlapping eaves which also



Fig. 85. Kajó Entsáu; Humboldt Bay.

hide the entrance opening in this side wall. As the houses built on land are entered by a small trap door through the floor, the house to the left in fig. 83 only shows the small steps, which lead towards this opening. I cannot state with certainty whether all these dwellings have two entrances opposite each other. Generally one or two small rooms are partitioned



Fig. 86. Village of Mabo, district Sĕkâ.

off by low walls; but the fire place is not always in the middle as supposed by BINK [1897, 165]; large houses have 2—3 fire places. Where a low outhouse is added to some dwellings (fig. 83, the house on the right, fig. 84 and 86), this is presumably intended for women in confinement. Below the houses built on land, firewood is often piled up, (see also BIRO

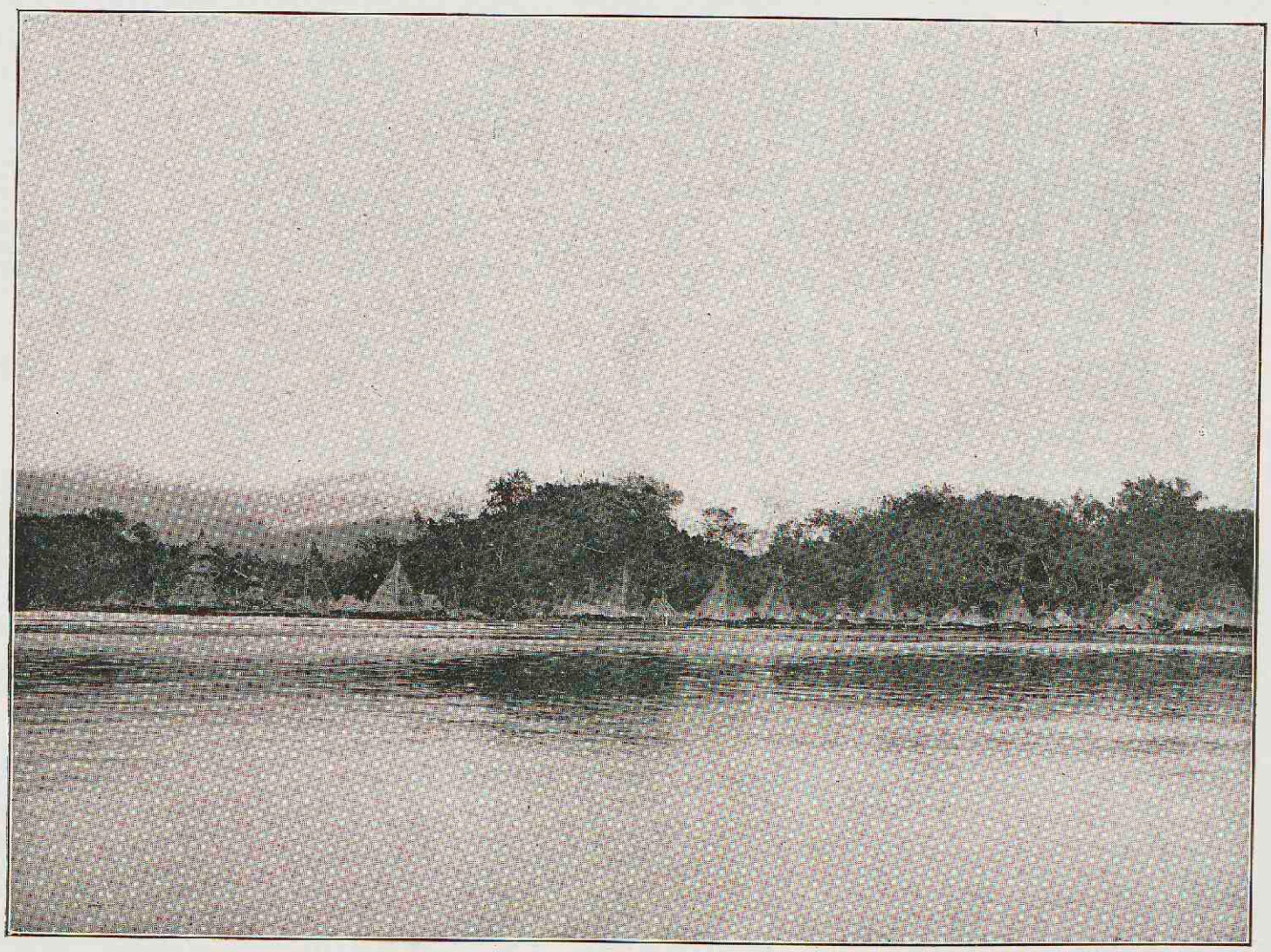


Fig. 87. Tobádi; Jótëfa Bay.

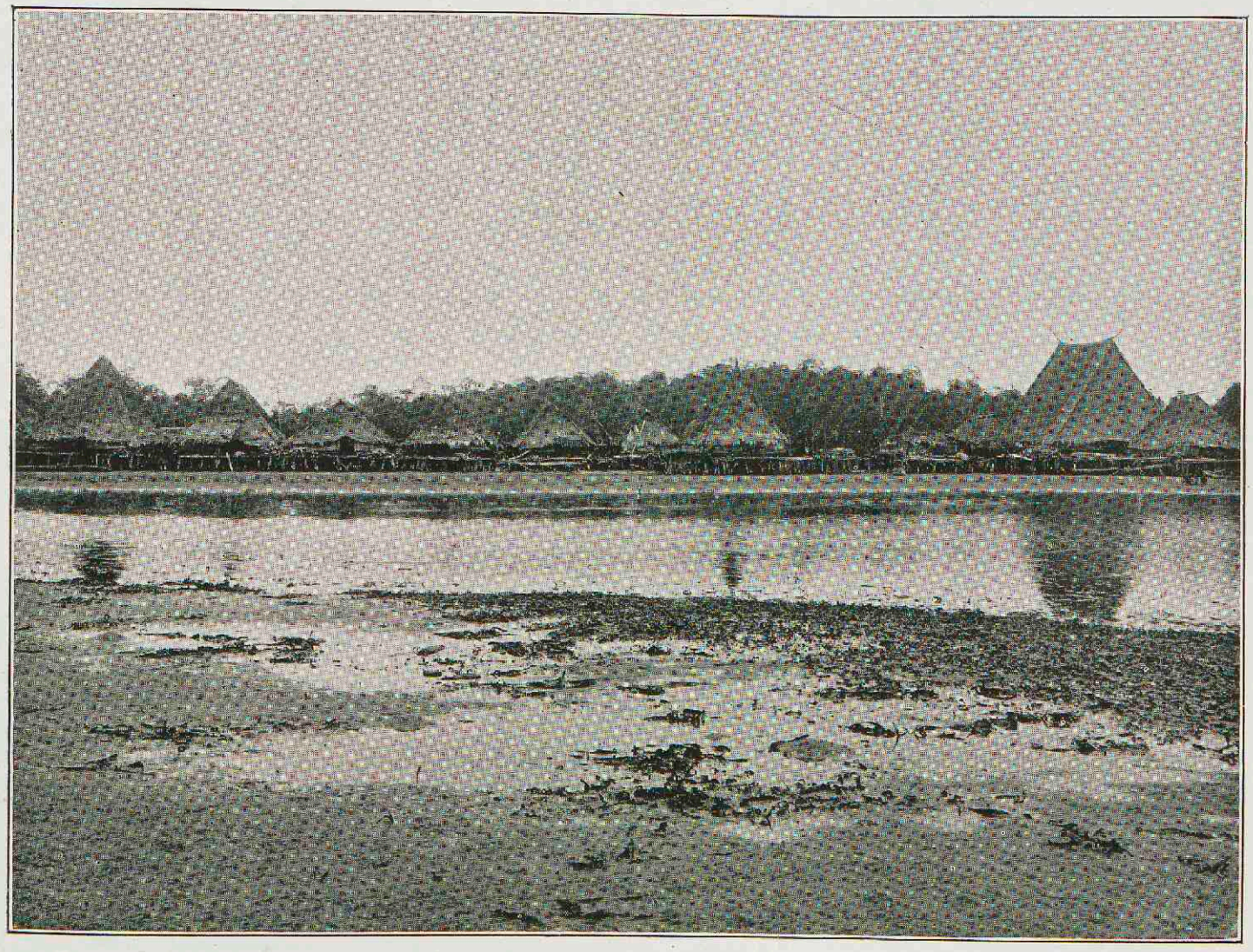


Fig. 88. Ingrås; low water spring.

[1900, Pl. VI]) leaving in the middle an open space, for preference occupied by the pigs.

The origin of this shape of house is presumably situated in the eastern part of its zone of distribution, from where it may have been taken over by western neighbours, using it only for special purposes. Thus, the people of Tobádi told that the right to live in a pyramid-shaped house, belongs by no means to everybody and that at Ingrâs it is exclusively allowed to those, who are connected by descent or relationship with Tobádi. To the west of Humboldt Bay, for instance on Lake Sentáni and at Săgeisârâ, not one private person, not even the village chief lives in a pyramid-shaped dwelling, which, being still more strongly specialised here, only occurs as watch-house or temple. No doubt, the gradual distribution from east to west is still going on at the present day and as a proof of this, I can quote the erection in 1903 of a second pyramid-shaped watch-house at Ifār (fig. 161), which previously only possessed one similar dwelling. Here at Ifār, the distribution towards the west has, as far as Lake Sentáni is concerned, found its present limit. As part of the type the pyramidical house must have a wooden image on the top of the roof. This image, manufactured out of the lower part of the stem of a palm, according to DE CLERCQ and SCHMELTZ [1893, 55, Pl. XXXVI, fig. 10], a kind of Areca or Ptychosperma, often shows towards the lower part the gradual thickening of the original stem, which made HORST [1893, 151] talk of a figure in priest's robes; not uncommonly however, the image is more slender and the lower part cut in the form of a horizontal disk. The fact that this image also occurs in H. B. and on Lake Sentáni on temples and watch-houses, is not necessarily connected with the destination of these buildings. The image on a men's watch-house at Asé, was, as people told me, of the female sex and called *sŏsŏ*; in Tobádi, according to KONING [1903, 258], these images are called *korwar* or *karwari* (see further Chapter X and XII).

The third type is characterised by a horizontal ridge pole, generally straight,

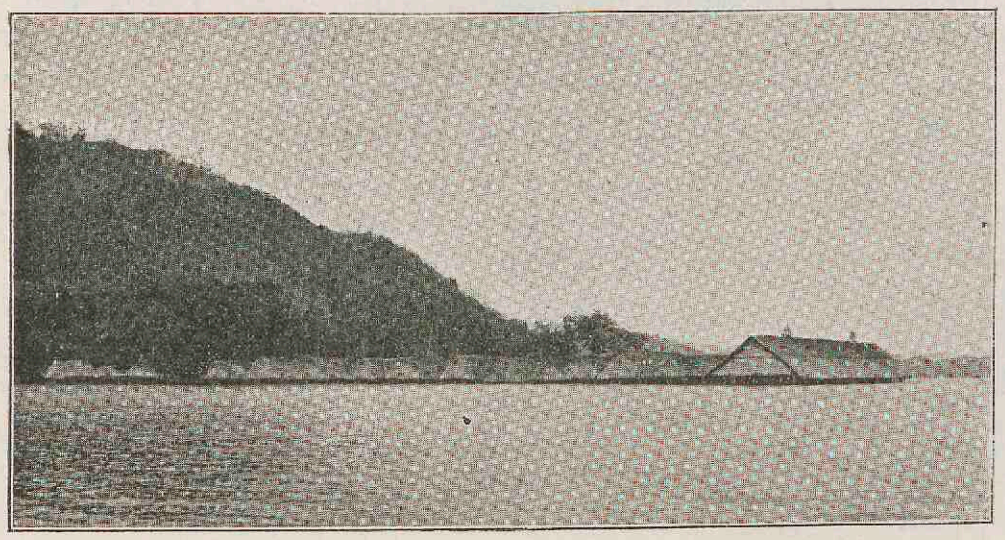


Fig. 89. Village of Ajápo; Lake Sentáni.

but sometimes curved upwards at both ends, therefore saddle-shaped (see fig. 88 and FINSCH [1888, 355]), and called on Lake Sentáni *koidé*.

Although, as remarked above, this shape of dwelling already occurs in H. B. and even in Sĕkă mixed with the pyramid form, it is only quite common on Lake Sentáni, as is shown

in fig. 89, the village of Ajápo, seen from the N. E., on which only one small, pyramid-shaped watch-house occurs. The large house of the village chief, situated transversely at the end of the peninsula, along both sides of which the remainder of the village is built, is characteristic on account of the two small, pyramidical cupola's placed on the long ridge. These buildings, *imè*, never stand here on dry land, as was already stated by BINK [1897], by VAN ASBECK [Buletin N°. 41] and by KONING [1903, 275], they are always pile-dwellings, which, where the space allows it, are built parallel with the shore, and otherwise, if possible on account of the depth of the lake, at right angles to the line of the shore.

The roof of unplaited sago fronds, *jām*, (nowhere did I see, as reported of K. W. Land, (HAGEN [1899, 201]) the walls and the roof made of plaited leaves; thatching with Pandanus leaves, common in K. W. Land ([l. c.], BIRO [1901, 20]), I saw only with small or temporary huts; roofs of bark are mentioned by SELIGMANN [1906, 227] of Tivi in British N. G.) descends on both sides from the main beam over the edges of the floor, thus the eaves hide the low, barely 1 m. high, side wall of sago stalks, *tabŏ*, *simbèri* (?). On the short sides the gables of palm leaves are almost vertical. In most cases, there is only one door opening, *mèmau*, *mimau*, in the middle of the short side turned towards the shore (fig. 90), where the floor is continued in a platform, *nanŏ*, from which the shore is reached along one or more small stems. Apart from this opening there are, here and there, in the long side walls hidden holes, through which I saw the women passing in and out of their boats, when these, as on fig. 94, are lying along those sides. The house of the village chief of Asé, in fig. 94 the one most to the right of the two large dwellings, was ± 80 m. long and + 10 m. broad. The light coloured, oblique margin, which is noticed on the roof, consists of planks of old, worn-out boats; only the most important buildings have such margins (see figs. 90, 92, 94). The house of the chief at Ajapó is also very long, but communal dwellings of British N. G. are 512 feet (MAC FARLANE [1888, 70]), 600—700 feet (ANNUAL REPORT [1899—1900, p. XII, 99]), up to 400 yards in length (HUNT [1905, 8]).

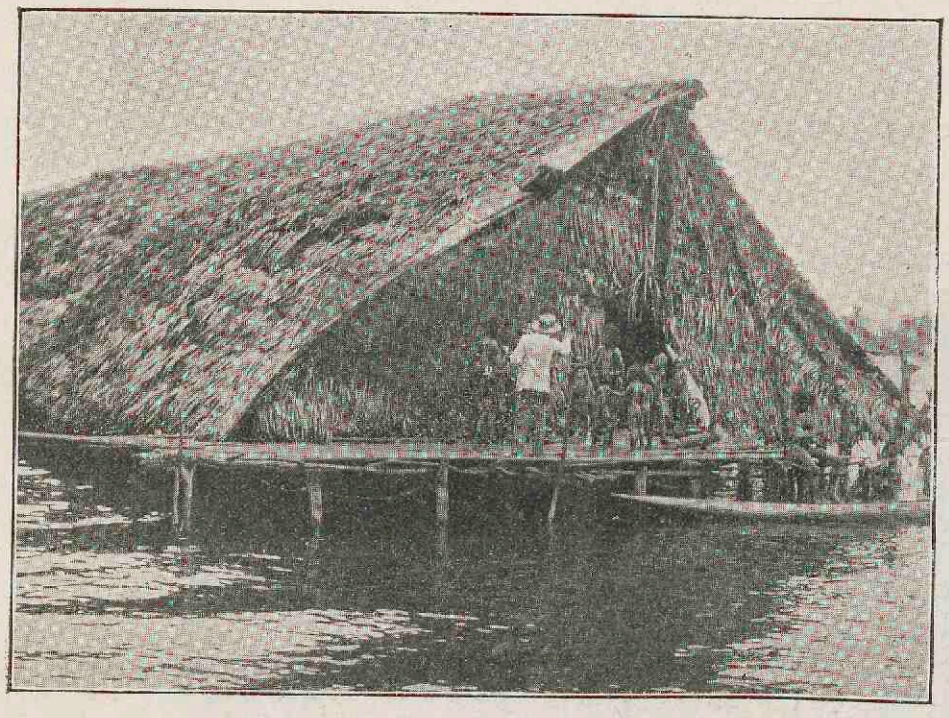


Fig. 90. Shore end of a dwelling; Asé.

At Asé I witnessed the construction of a new house for the recently married son of the old village chief, *ondŏfrå*, and I could not help being struck by the importance of this work with such primitive means. ERDWEG [1902, 355] gave a lively description of the great

trouble and the time required for collecting the materials and the building of houses on terra firma at Tumleo, the pile-dwellings in the water demand considerably more material and labour, because all the piles must be so much longer and their number so much larger. The diving work is done by the women; they appear to remove the stones from the bottom and with their hands make a hollow place, in order, afterwards, whilst the men pull up, *pumáte*, (fig. 91) the piles vertically with pieces of rattan tied round, to direct the lower part to its exact position. The wood of all these piles, must be of very good quality, as it must stand the influence of air, water and insects. Often a brown, heavy, hard kind of wood is used for this purpose, which, at Asć was called *tsoām* or *soáme* of which the there customary black pig's lances are also made. Participating in the work, I myself was able to experience how exceedingly heavy this kind of wood was. First of all a certain number of poles, *su*, are placed into position, which must all, at the height where the floor is to come, as far as they do not have here a natural bifurcation, be cut off and notched to carry a first layer of floor beams, *ŏ*. When these are laid down and a whole grating of thinner stems is tied on transversely, the erection of a row of heavy, very long centre poles, *kuchu*, *gugu*, all ending at the top in a fork (figs. 91 and 158) follows, which must support the ridge pole and two rows of shorter ones, *finau*, also forked, which will have to carry the sideways placed, longitudinal roof beams. All these vertical poles are erected without any connection with the flooring. Thus far the building of fig. 91 was advanced; all the persons assisting in this work

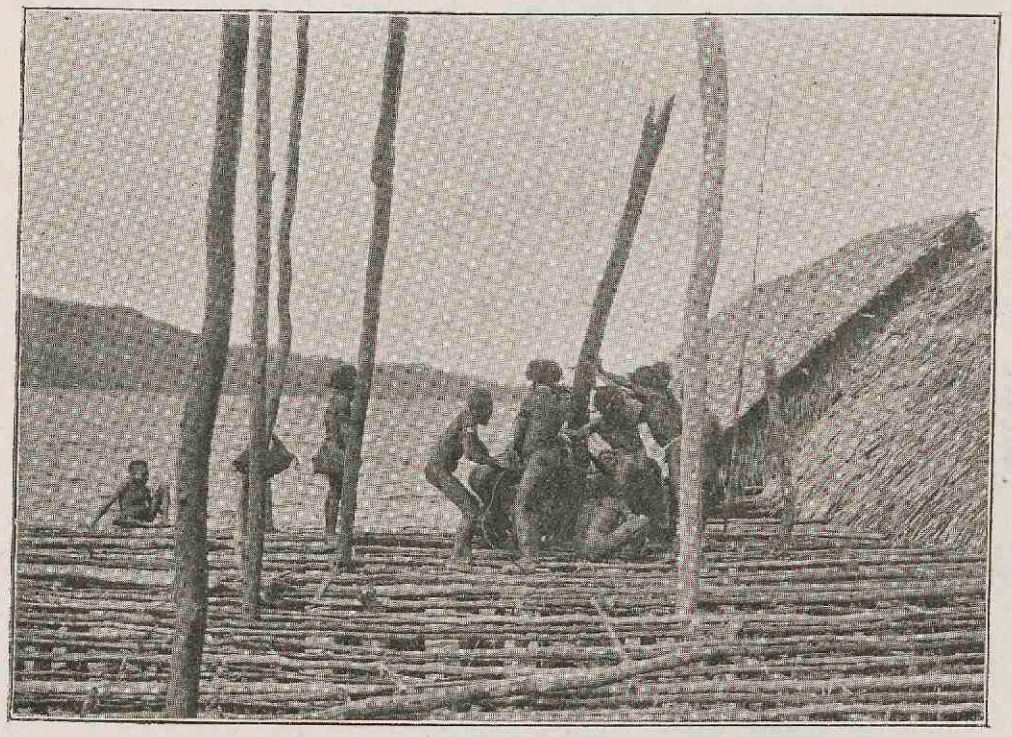


Fig. 91. The building of pile-dwellings in Lake Sentáni; Asé.

were for this day fed by the proprietor; no other payment existed for them. But the work connected with such a building is so extensive and lasts such a long time, that already years before the construction begins, the gardens must be enlarged in order to feed the assistants. Where a new building is intended to take the place of an old family residence,

all the inhabitants can assist in the construction of the new house. This, possibly gave rise to the erroneous opinion, which VON ROSENBERG [1875, 92] formed of the Arfak and which was afterwards accepted by KOHLER [1886, 7], viz. that generally all assistants, apart from a right to be fed, could also claim a place in the new building. At all events this is not the case on Lake Sentáni, the work is done for the sake of the food, just the same as in the case of the construction of the boats. After this the thatching is made from the fronds of the sago palm, sometimes in the way described by PRATT [1906, 191], differing from the Malay way. On the floor, the usual laths, *wa*, consisting of the outer layer of a palm, here called *kabâ*, are laid. Where these laths were lying transversely, I saw along the middle poles which support the main beam and which are sometimes ornamented with carvings, a narrow longitudinal layer of laths, by which a convenient passage was formed. Both to the left and to the right a number of small apartments is formed in these family residences, by partitioning them with vertically placed sago leaf stalks, *sembèri*, whilst between these apartments there are open spaces all with large fire places. Whilst the rooms are intended for married people and during confinement (for which no separate houses exist here), close to these fire places, all the household paraphernalia is found, which the woman requires for her daily work, viz. the preparation of the meals and also the manufacture and repair of bags, nets, etc. These houses



Fig. 92. Platform above the water; Seisârâ.

are never provided with windows, otherwise then in the shape of part of the thatching lifted up and supported by a small stick and from which the women watched the visiting strangers. This opening, the door and the often occurring defects of the roof serve as ventilators.

As regarding ventilation, SCHMELTZ [1904, 202, fig. 8] illustrates a Tugeri house of similar shape (but not on poles) in which both halves of the roof do not meet in the same horizontal main beam, but have each a separate ridge pole, the eastern half of the roof



Fig. 93. Dwelling on Mios Kórwār.

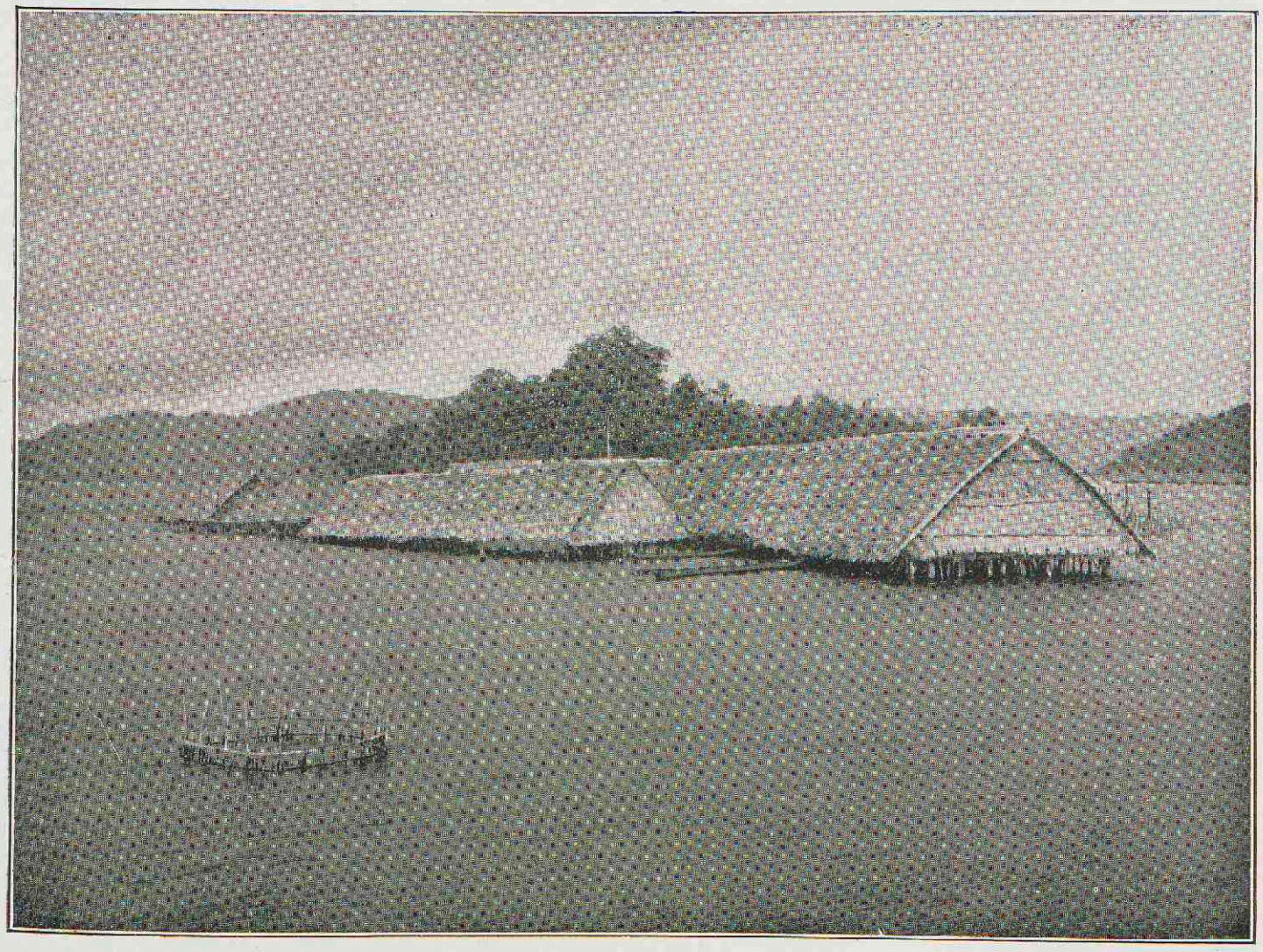


Fig. 94. Asé, Lake Sentáni; to the right Ajápo.

overlapping the other, thus leaving, as the east monsoon predominates, on the western side over the whole length, a more or less sheltered opening.

I do not remember having seen at Lake Sentáni any sheds or out-buildings, except in the shape of small, shaded platforms, quite open all round.

In the eastern villages of Lake Sentáni, one sometimes meets (fig. 159) with a four-sided roof with a short, horizontal ridge pole and only one door opening, which leads on to a platform (see Chapter IX). Further most villages to the east of the Amberno River have another kind of residence, which may be considered as town-halls, consisting simply of a platform above which an ordinary roof has been constructed, ending ± 1 m. above the platform and only provided with a very incomplete wall (see Chapter X).

The type of the Sentáni house, may be followed along the seashore to the west in an only slightly modified form. The village Tarfia (fig. 95), which is entirely built on a mud bank, has however houses, of which the length is less predominent, and besides the gables are often placed a little obliquely. — The second house from the left, of quite another type, probably belongs to a Malay trader. — It is, moreover, impossible not to notice that the inclination of the roof is steeper here, which, possibly, is owing to the strong winds, which, here along the sea, especially during the west monsoon, are much stronger than on the lake. For the same reason, the platforms in front of the houses of fig. 96, are larger, in order to allow the boats to be placed here in safety, when heavy weather occurs.

Finally it must still be mentioned, that on the north coast, two-storied houses were seen in the village of Kaptiau, (fig. 97), as only reported until now of Netherl. N. G. (of K. W. Land they are reported by HAGEN [1899, 302, Pl. 31], of British N. G. by SELIGMANN [1906, 234]) by ROBIDÉ VAN DER AA [1879, 304] of Argúni on the south coast of the Mac Cluer Gulf, pile-dwellings standing in the water. At Kaptiau these houses stand on dry land; only the lower floor has on all sides a vertical wall, the top floor to be compared with an inhabitated loft being situated under the roof, which projects in front over the verandah, here added to each of the floors. There were even houses here, which, judging by the rows of window openings, through which women and children were watching the visitors and the participators in the festive dance, must have contained three floors, of which the two first were placed between the exceptionally high side walls and only the top one directly under the roof. Fig. 98 gives an oppurtunity to consider some of the details of the construction of these houses.

The houses of Nimbúran are also characterised by the overlapping roof and a verandah in front, but are otherwise of the Sentáni shape. How far this style of building can be followed westward and where it passes into the turtle-backed type, cannot yet be made out, through the incomplete ethnographical knowledge of this part of the coast.

Whilst the settlements of the mountaineers (Manikion) consist altogether of one house only, the pyramid-shaped houses form villages, which however have no squares or streets as known of Br. N. G. (D'ALBERTIS [1880, I, 290, 318], ANNUAL REPORT [1897—98, 23], SELIGMANN [1906, 234]); where they are standing in the water the shape of the sandbank or the shore is decisive. In Sěkâ, where there is always a surf, the villages are built on the shore, Kajó Entsáu stands along the shore with which all the buildings are connected by small bridges, as is also the case at Waba. Tobádi, Ingrâs and Ingrau on the other hand are standing on

isolated sandbanks and can only be reached by boats. Tobádi has besides a large platform; the same has Kajó Entsáu, near the temple, part of it being visible in fig. 85; it was, apparently, under repairs in 1903 and in rough weather the boats were placed on this platform. The village of Seisårå on Lake Sentáni has a similar platform, also built above the water (fig. 92); I came across it in no other village.

Lake Sentáni which has depths up to 26 fathoms and possesses no sand banks, is only close to the shore fit for the placing of houses. Therefore the shape of the villages is ruled by the direction of the shore line; thus Ajápo is built along both sides of a peninsula, Asé round an island, as well as Ifår, Simbårå in a bend, Seisårå along a promontory. I still wish to remark that the temples and the young men's houses are generally built at or near to one of the corners of the villages, presumably in the interest of defence, but perhaps also in the interest of the seclusion to which the young men have sometimes here to submit, and for which purpose also partitions and fences of palm leaves are made, with openings, covered with dependent palm leaf fibres.

Stockaded villages, as known in British N. G. (ANNUAL REPORT [1897—98, 15], SELIGMANN [1906, 234, 237]), I have not noticed in Netherl. N. G. The fencing-in of each dwelling is also reported (ANNUAL REPORT [1894—95, 15, 41], SCHMELTZ [1904, 199]). Otherwise, dwellings, which have been temporarily deserted, appear to be safe against robbery, if only, by the placing of bark or mats in front of the house, it is indicated that the inhabitants are absent and admittance to the house is prohibited. The objects placed in front have a meaning, which it is often difficult to probe; probably always something is hidden here which is connected with the idea of „tabu". Thus the settlement of Nagramádu, through which the expedition passed on the 4th of August 1903, appeared to be then quite deserted, whilst houses and gardens were well stocked; what means had been adopted here against theft, I do not know. In Humboldt Bay a palm leaf with plaited side leaves is often sufficient; in the west (VAN DISSEL [1904, 947, fig. 3; 1904b, 806] all sorts of objects are used, called *kèra-kèra* and it is considered to be a crime against the person of the depositor to disturb the same.

As regards the further arrangement of the houses in general, it was noticed that usually the door openings can be closed by doors made of palm leaf stalks, to be fastened on the inside in such a manner that it is impossible to force them without making a noise. Separate noise-creating objects, as the bunch of nut shells, which would rattle at an attempt at house-breaking, as met with by CHALMERS [1885, 88], I have never seen. The door is, during the day, the principal source of light, which is further admitted through the defects in the roof and often parts of a house remain inhabited, when another part has already fallen to pieces. The custom that when the owner of a house dies the house is deserted and allowed to fall into decay (ANNUAL REPORT [1903—04, 10]) surely is not the rule on Netherlands territory. After sunset the fire place is the only source of light; torches as customary when fishing, I never saw used in the houses, but to my regret I never participated in one of the numerous nightly feasts. At all events my petroleum hand lantern, suspended outside the tent at Asé, excited genuine admiration, and even more, for after the first night I was requested not to leave this lantern hanging about outside any more during the night, as otherwise, without any doubt, people from other villages would come and steal it. Now a Papuan does not easily risk himself, with the intention of stealing, in a strange village during

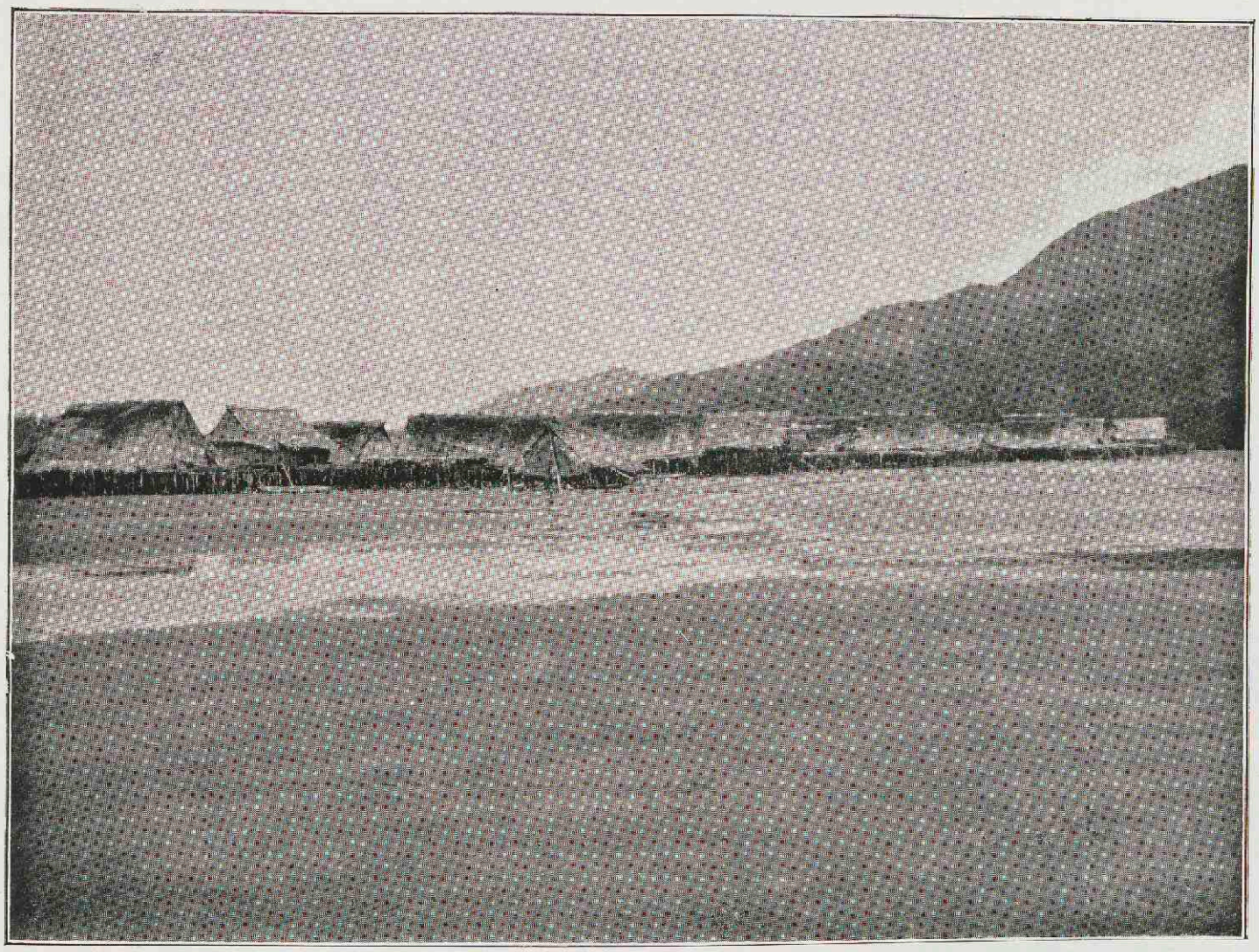


Fig. 95. Village of Tarfia, at low tide.

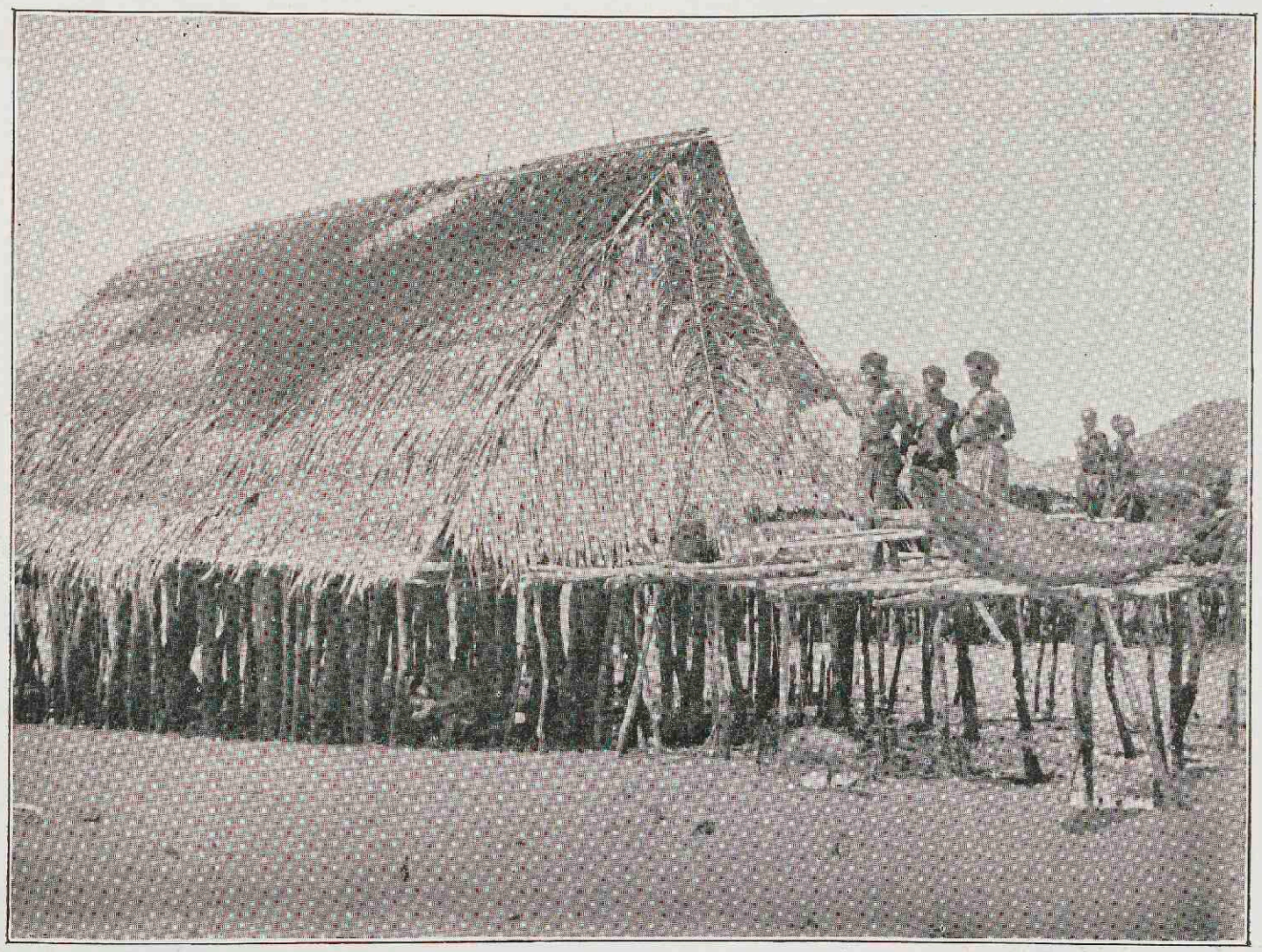


Fig. 96. Dwelling at Tarfia; low lide.

the night, I therefore understood that the local inhabitants themselves were not all to be trusted, and followed the advice, availing myself unasked of the opportunity to show the arms, which I might use against such strange(?) thieves. We can hardly realise what the western artificial light must be in the eyes of these people; in the evening, when writing by a lamp, which quite illuminated my tent, opened on one side, a number of interested people was squatted down outside in the darkness, unable to see enough of the light. If I placed a native in the dark and threw with a concave mirror the reflected light into his eyes, the man tried, however courageous and trustful he might otherwise be, to evade the light which frightened him.

All these things were incomprehensible for the Papuan, otherwise not deprived of intelligence. On an evening when my lantern was burning very poorly on account of smoking and charring, and the servant did not answer my call, I myself, after cleaning the globe, trimmed the lamp, with a spare piece of lampwick, upon which an approving murmer at once saluted the improved light. Next morning the bartering, to my surprise, would not get on at all with the ordinary means, as, it turned out, there was only a demand for .... pieces of lampwick!

Above the fire places large wooden gratings are often suspended, called at Asé, *ĕngóngŏ*, often consisting of three or four stages and used in order to place thereon all sorts of kitchen utensils, spatulas for stirring up, *jancharu*, pots, etc., whilst also sometimes bags and cylinders, of which one wishes the contents to be protected from mice and insects, are suspended here. For the smoking proper of fish, for which, according to VAN DER GOES [1858, 176] they are intended, I did not see them used; the smoking cylinder (N°. 62, Pl. I, fig. 15), serving for the purpose, hanging much lower near the flame and is closed at the top. ERDWEG [1902, 334], regarding Tumleo, considers that both kinds of instruments serve for smoking fish. At the Ramu River the gratings are round (NACHRICHTEN [1896, 60]). At Asé the stage gratings are as long as 2 m. and more than 1 m. broad, at Angádi of the same shape but smaller, whilst DE CLERCQ and SCHMELTZ [1893, 63, N°. 272, Pl. XVII, fig. 13] mention a similar but still smaller rack of Sailolof, used to protect already prepared fish against cats and rats. Such precautions are always necessary in the house of the Papuan (see also p. 129); when looking round, one finds, preserved in the smoke of the fires, in flat, plaited baskets (at Asé called *arau*), all sorts of objects of daily use, larger objects being suspended by their own strings. Thus the valuable drums of Tobádi (figs. 187—190), and the specimen of Asé (N°. 1277, Pl. XXVIII, fig. 4) were hanging over a fire, protected against wood beetles. Generally these objects are suspended from a suspensory hook, which is again suspended with a string from the roof. These wooden hooks, so common in the eastern part of Netherl. North New Guinea in the dwellings and temples, seem to be very rare in K. W. Land. The Berlin Museum possesses one, probably the specimen met with by FINSCH [1888—93, 196; 1888a, Pl. III, fig. 2] in Finsch Harbour; but still hook-shaped branches, suspended by strips of bark, are mentioned from Tumleo (ERDWEG [1902, 361]). TEN KATE [1895, 5] reports of Röti a hook, which is strikingly alike the kind from North New Guinea, whilst EDGE PARTINGTON illustrates two of the lower Fly River [1898, Pl. 72, N°. 1 and 2] and two beautiful ones [l. c., Pl. 88, N°. 1 and 2] of Woodlark Islands. One sees sometimes large, rough S-shaped hooks, as the one hanging on to the rafters in fig. 186, but the greater part of the hooks of the collection are cut from massive wood and show by the beautiful way in which they are carved, how much

this furniture is treasured by the Papuans. A specimen of Sägeisårå (N°. 533), has half a cocoa-nut shell pierced in the middle, strung on to the suspending string, the convexity upwards, preventing mice, rats, lizards, etc. from reaching the hook. Very often a disk-shaped piece of wood (N°. 537), which FINSCH [1888—93, 196] also reports of K. W. Land, is used for this purpose, but the cleverest defensive apparatus invented, was the one I saw at Asé, a pear-shaped calabash, both poles pierced and strung on to the suspending cord with the thick end upwards. Not a single mouse risks itself over such an exceedingly hard, slippery surface. The other hook from Sägeisårå (N°. 534, Pl. XVII, fig. 12), out of naturally bent wood, is ornamented with three carved quadrupeds, which are intended to represent dogs and again furnish a clear proof how the nature and shape of the material rule the products of plastic art; without the information obtained, one would have been more inclined to take these animals, with their long bodies, long, stretched-out tails and short legs, for lizards. Both hooks of Nächeibe show the type most common in these parts, with more or less cylindrical points, with N°. 535 (Pl. XVII, fig. 13) shaped into a male and a female human figure, the further meaning of which has remained unknown to me, but otherwise like N°. 536 (Pl. XVII, fig. 14), entirely covered with a regularly carved ornament. N°. 537 (Pl. XVII, fig. 11) originates from the temple of Kajó Entsáu, where the bamboo flutes, all in baskets, were suspended by similar hooks; the protecting plank is carved and painted and was indicated by the name, „*chöra*", of which word I remark that it sounds phonetically very much like the name of the apron here used by some men.

The collection contains two more specimens (N°. 538 and N°. 540, Pl. XVII, fig. 11) of Ingrås, which, like the object of Asé (N°. 539, Pl. XVII, fig. 10), are at once noticable by the carved loop coils, so customary in the ornaments of Humboldt Bay and especially on Lake Sentáni. N°. 540 is also a fine old piece, with a disk-shaped enlargement near the top end, possibly also intended as a protecting plank against vermin, both points of the hook again shaped into figures of different sex. N°. 541, finally, was taken by me, as a curious proof of ethnographical degeneration, from the owner, who had manufactured it from a plank of a petroleum case and painted it, which certainly will never occur on the real hooks; it is an imitated, ethnographical, commercial article. As seen above, lofts occur for storage, as also reported by HAGEN [1899, 203] of K. W. Land. At Angádi all sorts of objects were placed on the roof-ties, and very often small objects are simply stuck obliquely between the horizontal beams of the inside of the roof itself.

Amongst the objects which are also met with in the houses of the Papuans as necessary parts of the furniture, are also the head supports, used when sleeping, and, according to VON LUSCHAN (KRIEGER [1899, 472]), nowhere in the world so common as just in New Guinea, although in British New Guinea (D' ALBERTIS [1880, I 393], CHALMERS [1885, 162], MACGREGOR [1897, 50], ANNUAL REPORT [1897—98, 25]) and on the upper reaches of the Ramu River (NACHRICHTEN [1897, 64]) the hammock appears to be generally in use. Certainly the Papuan can manage without such a support; when he lies down to sleep on his stomach, he rests with the temples or forehead on the arms folded across the head. When lying on his side or back he can, as an inveterate sleeper, be content with any object, which has about the desired heigth, varying with the supports of the present collection between 11.5 and 20 c.m. Whether however the use of such head supports is allowed to all young persons, as reported by DE CLERCQ

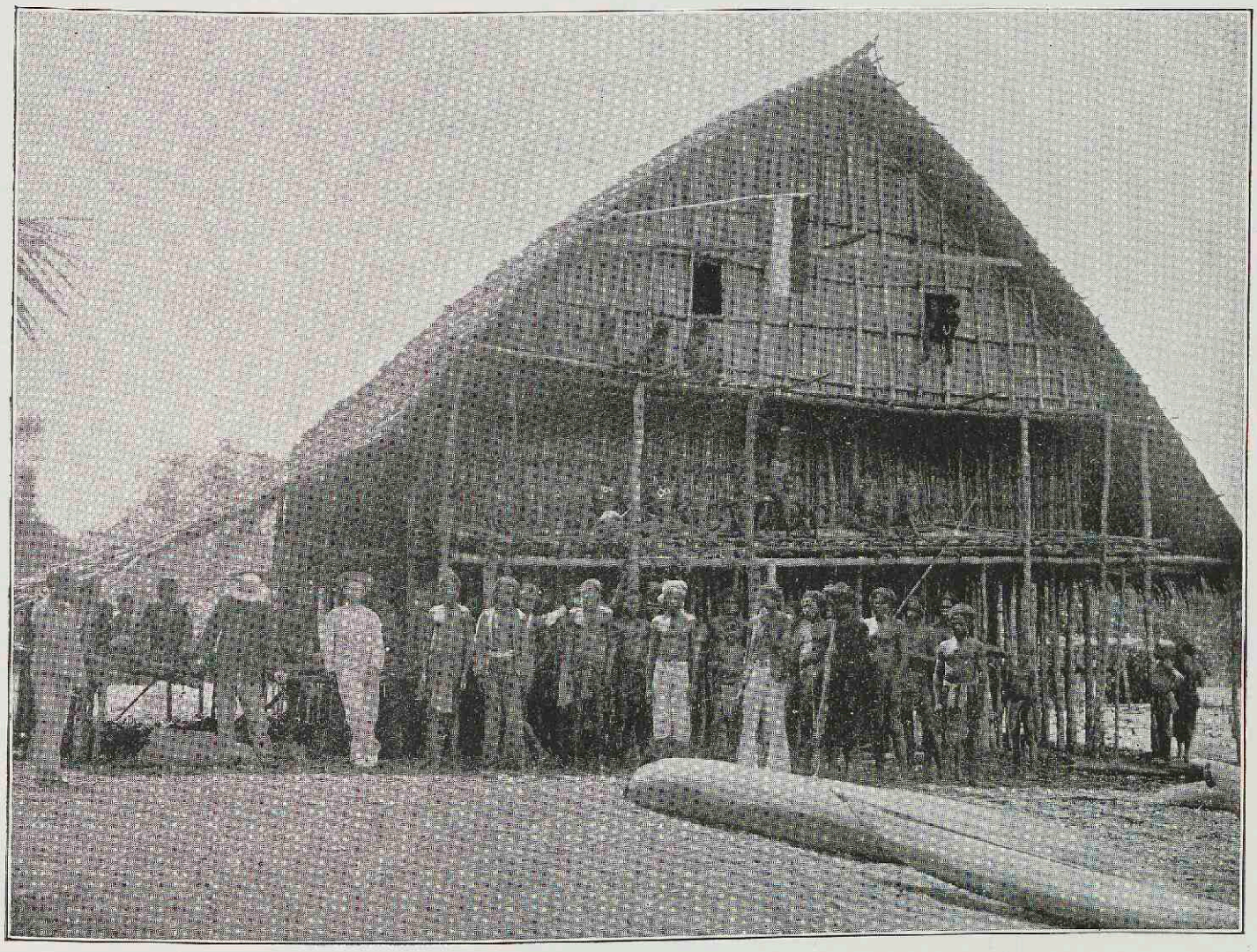


Fig. 97. Two-storied house; Kaptiau.

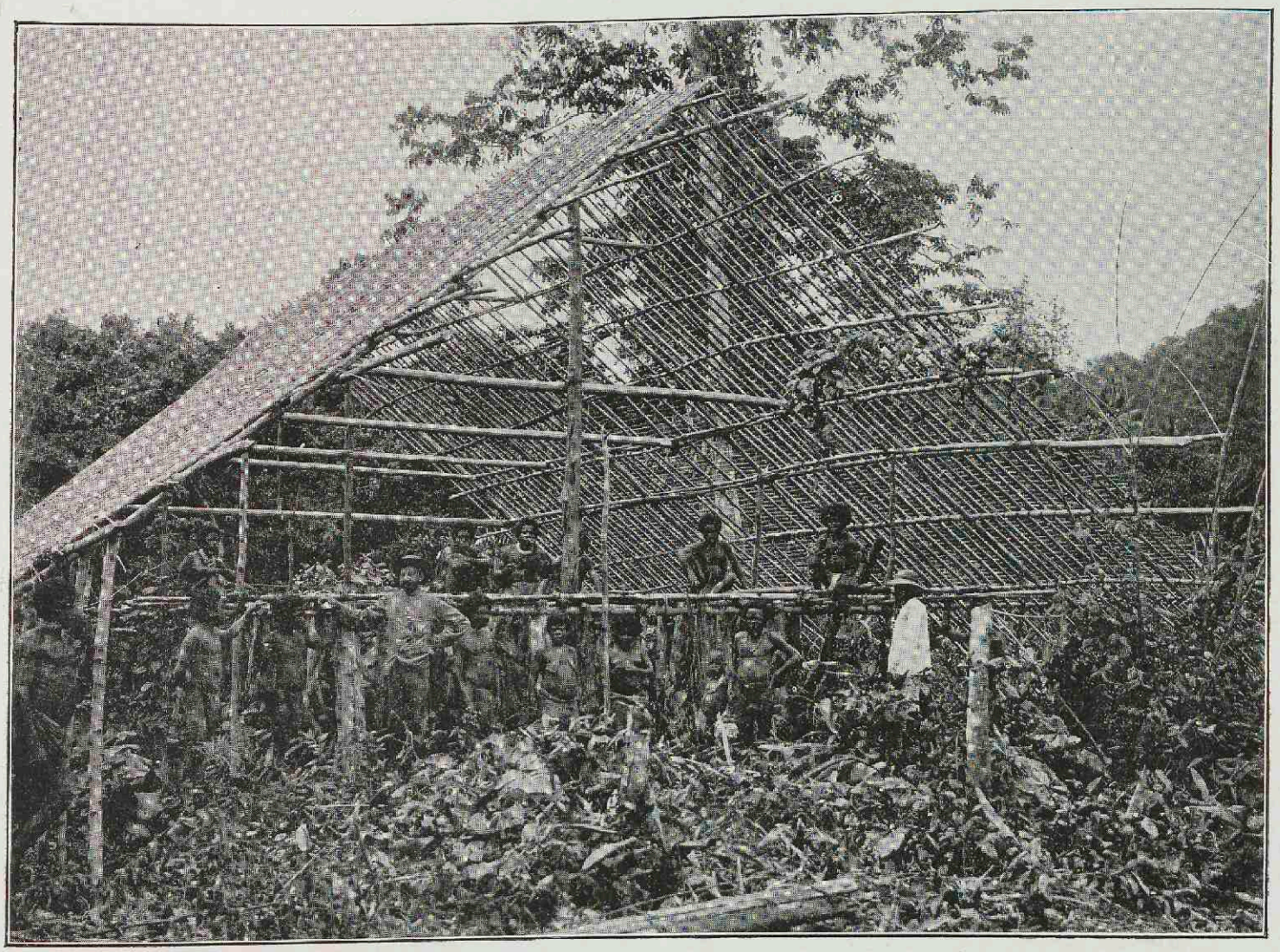


Fig. 98. Two-storied house in course of construction; Kaptiau.

and SCHMELTZ [1893, 85, N°. 427, Pl. XVIII, fig. 7], seems doubtful. At least, of the *rum sĕrams*, the sleeping houses of the marriageable young men, no head supports are reported and I myself found the rum sĕram at Mios Kórwār also without any furniture whatsoever. In the club-houses of German New Guinea one often meets, according to HAGEN [1899, 202], with a long, thick bamboo, which serves as a head support for a number of sleepers at the same time; thus it was noticed at Jamna that the men use only an ordinary piece of wood (DE CLERCQ and SCHMELTZ [1893, 85]) and the use of a regular head support appears neither to be always allowed to the women. As well at Ingrås as at Angádi I saw a woman using a piece of fire wood and the oblong, ornamented, wooden object, obtained by DE CLERCQ in Humboldt Bay as upper part of a head support, without legs, for the use of women ([l. c. 89, N°. 442, Pl. XXI, fig. 1]) is, as I found out, a „weaving wood", (see N^{os}. 649—652, Pl. XXI, figs. 1, 5, 6, 7, 8). From the Kabadi district, British N. G., it is mentioned, that whilst the men sleep in hammocks, the women must sleep on the floor (CHALMERS [1885, 162]). When on visits elsewhere the head support, provided with a sling, is often carried along. In the forest-bivouacs I saw how the Papuan carriers of the expedition manufactured for themselves an arrangement, to which on the road the kettle is suspended over the fire, viz. two forked twigs stuck vertically into the ground and a third twig laid crosswise in the small forks; on such a rack they slept the enviable sleep of the Papuan. The head itself and not the neck then rests on the cross piece, for which reason DE CLERCQ and SCHMELTZ [1893, 84] and VON LUSCHAN [1897, 66] rightly reject the name "Nackenschemel" or "Nackenstützen", still maintained by BIRO [1901, 64].

According to the shape two kinds of head supports are to be distinguished, as well in Netherl. New Guinea as in K. W. Land (FINSCH [1888—93, Pl. 10]): 1° the monoxyle type, cut out of one piece of wood and 2° that with removable legs. The second kind is used in the central part of the north coast, embracing as well Netherl. as German territory, (from Tanah Merah to Astrolabe Bay), whilst to the west of this, Geelvink Bay, as well as to the east, Finsch Harbour, centra are found where the monoxyle type is exclusively met with. VON LUSCHAN ([1897, 67], KRIEGER [1899, 474]), deriving the ornament from East Asia, found the most evident monoxyle types in the district of Finsch Harbour. The composite ones, of which VON LUSCHAN [1897, Pl. XLVI], as well as SCHMIDT [1903, figs. 5, 20 and 21], gives fine illustrations, would mean a degeneration, but the human figure occurring on these is said to be derived from the Telamones of the monoxyle type. A combination of bird and snake, to be met with on the head supports of Finsch Harbour, is also ascribed to pure Indian influence. In connection with this it is not unimportant to point out that on Lake Sentáni, a bird motive (hornbill) has been met with on the here universal composite head support with rattan legs, (N°. 542, Pl. XVIII, figs. 2^a, 2^b); a snake motive is however wanting here. I am willing to apply to the other animal figures, the supposition of VON LUSCHAN (KRIEGER [1899, 473]), that the Telamones are connected with an ancient, mythological idea. A fish motive, as reported by SCHMIDT [1903, figs. 21^a and 21^b] and supposed by him to be derived from H. B., has not been here met with by me. The motive which is generally attributed by SCHMIDT to the lizard, I look upon as a crocodile; in N^{os}. 543—545 (Pl. XVIII, fig. 1), of Sägeisårå, the opening of the mouth is plainly visible, and at the tail-end there is a toothed ridge, by which the comb of the crocodile's tail is indicated. With

the next four objects (N^os. 546—549, Pl. XVIII, figs. 9 and 3) the crocodile's head has however been applied to both ends; with N°. 546, it is true, only in a primitive form, but experience has taught me that such a long head with a broadening in front at the snout, (see also DE CLERCQ and SCHMELTZ [1893, Pl. XVIII, fig. 1, but above all fig. 13], VON LUSCHAN (KRIEGER 1899, 484, fig. 27], BIRO [1899, 41, N°. 9832, Pl. IX, figs. 9, 11 and 13]) means a crocodile, which, in reality, has such a broadening near the nostrils (see also Pl. XVIII, fig. 6b; Pl. XIX, fig. 9). It is further remarkable how often the crocodile is met with together with a human figure. It is generally represented with its jaws catching hold of the human being in the partes posteriores, as with N°. 548 (Pl. XVIII, fig. 9) of Nächeibe, sometimes sitting on the top of the crocodile's head (N°. 549, Pl. XVIII, fig. 3a), sometimes in the lengthening of the tail (?) (N°. 550, Pl. XVIII, fig. 6a). It is true, VON LUSCHAN has shown that human figures, at the end of the head supports, can be interpreted as the transposed Telamones, but I fancy, that a special, possibly a religious, combination of thought is intended here, and this on account of the fact that the representation of the crocodile with a human being caught with the mouth from behind, is met with on graves as well as on buildings for a special purpose. Thus, both prolongations of the ridge pole of the house of assembly at Thaë (fig. 175) are carved in this manner. Next to the opinion of VON LUSCHAN [1887, 69], that the lizard (crocodile) cannot be looked upon as an integral part of the supports, as it is wanting with several specimens, I mention the opinion of UHLE [1886, 5 and 6], who, from the frequent joint appearance of crocodile and human figures, concludes the mutual relation between both in the ideas of the Papuans. Further investigation will have to show what is the foundation of this; the same the representation on a support of SCHMIDT [1903, fig. 20b], a human being sitting on the neck of an animal's head; also the meaning of the round object, which this animal holds in its mouth (see also DE CLERCQ and SCHMELTZ [1893, Pl. XVIII, fig. 10] and BIRO [1899, Pl. IX, fig. 10]).

As the crocodile is the only animal which seriously threatens the Papuan and, judging by the numerous occurrence of scars, actually often catches hold of its human prey, this might have created an adoration out of fear. I point out that with N°. 549 the lower parts of the heads are provided with carved slits, representing mouths with teeth. What the dog may mean, which is here introduced on one of the heads, Pl. XVIII, fig. 3b, (with N°. 547 such a figure is broken off), is also quite obscure. This dog with its short paws and long tail, again looks very much like a lizard and although according to SCHMELTZ (DE CLERCQ and SCHMELTZ [1893, 88, note]) the great importance of the lizard in the Malay-Polynesian popular belief has been proved, such animal figures have been generally explained to me as dogs, sometimes as crocodiles, but never as lizards.

The collection contains three specimens of the monoxyle type. One of these, N°. 552 (Pl. XVIII, fig. 7) of Mios Kórwār, shows the type, which occurs everywhere in Geelvink Bay (EDGE PARTINGTON [1890, Pl. 263, N°. 2], characterised by two figures (Telamones), the rumps either or not connected, which support a cymatium, for which a set of snake-like animals has been substituted (see UHLE [1886, Pl. VII, figs. 2 and 4]); a mouth opening and eyes are indeed often found at the outer end of these snake-like parts, — N°. 552 has two eyes at one end. The fairly permanent type of these head supports makes it almost impossible to accept what was communicated on the spot to DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 84]) viz. that

the figures of animals and human beings on these objects were without any meaning. The Papuan is so loath to talk about his religious convictions, that it will, no doubt, be very difficult to find out all this. The people of Mios Kórwār called the horizontal Telamones "*mān*", which, curiously enough, means, "bird" in the Numfōr language. The head support of Lake Jamūr (N°. 553, Pl. XVIII, fig. 8) clearly shows the influence of Geelvink Bay, although the Telamones have been dropped; in its place ornaments of horseshoe-shape, such as also occur on head supports of DE CLERCQ and SCHMELTZ [1893, Pl. XVIII, fig. 2; Pl. XXI, fig. 4], have been added. The name "*aruda*" reminds one of "*arua*", according to the same [l. c., 87] the name on Jăpen. On this island and along the eastern shores of Geelvink Bay, on the Schouten Islands and in Pigajap, DE CLERCQ [l. c. Pl. XVIII—Pl. XXI] has collected head supports which clearly demonstrate the transition between the monoxyle and the composite types.

I have never noticed that Papuans slept outside the house proper under lean-to's, as observed in Astrolabe Bay (KRIEGER [1899, 153]). Neither have I ever noticed fires under the dwelling proper, in order to drive away the mosquitoes (D'ALBERTIS [1880, I, 393], MACGREGOR [1897, 86]). With the Manikion I saw the fires smouldering under the raised sleeping frames; possibly they are also intended for warming and it is to this system of heating that MACLAY [1873ª, 248] attributes the many diseases of the respiratory organs. Where covering is required, beaten bark is used as a blanket, whilst mats are used to lie on (MACGREGOR [1897, 50]). In H. B., on Lake Sentáni and surroundings neither mats nor blankets are in regular use. At least the men sleep on the common flooring (see also FINSCH [1888, 354]), which is kept very clean. VAN DISSEL [1904, 950] relates of a Papuan, who heated some stones in a fire, and when going to sleep pushed his feet between the warm stones.

Tables or anything like that, I have never seen in the houses, neither have I ever met anywhere with the scaffoldings, placed in front of the houses, as described by HAGEN [1899, 201, 244, Pl. 36], and exclusively intended for the men.

The decoration of the houses in the territory visited by the expedition, is generally of very small importance. From this the temples and other public buildings must be excluded. On the other hand it is not uncommon to carve into human or animal shapes the poles of the dwellings and of the stages. I already mentioned above, the carved poles in a house of Asé; still more beautiful ones are possessed by the "community house" there, where moreover one of the stage piles near the entrance is carved into a cassowary turned outwards. A similar bird figure was seen in a women's house (?) at Ajápo, where KONING [1903, 275] saw a representation of a woman in childbirth, also occurring on a supporting pole of the platform at Tobádi, where a gangway conducts to the house of the village chief; over it a crocodile was carved. Private houses with a horizontal roof pole have these sometimes lengthened and carved into fish shapes (see the roof pole of the house near the child's grave, in fig. 168). Decorations suspended outside the house I saw but once, namely at Hiri (fig. 72), in the shape of a string of Megapodius eggs, hanging down in front from the roof-pole, mentioned by THOMSON [1892, 124] of a temple at Daumori. BIRO [1891, 23, 24, figs. 4, 3] saw at Tsinjadi cassowary eggs applied in the same manner and considers them, just like the similarly suspended parts of animal skeletons, simply as the remnants of meals.

Of the articles to be discussed next, all found in the eastern part of the Netherl. north coast, inside the houses or offered loose for sale, it might be doubted of some (the human

figures) whether perhaps they were worn as talismans. The saw (serra) of a sawfish (N°. 554) was offered to me as a house ornament, and not used as elsewhere as a formidable weapon. Both the stuffed and painted fish skins (N°s. 555—556, Pl. XXIII, fig. 1) were hanging simply as ornaments in a private house. The fish figure (N°. 557, Pl. XXIII, fig. 2) and the crocodile figure (N°. 559, Pl. XIX, fig. 9), manufactured from the leaf sheath of the sago palm, were obtained from the eastern temple of Waba, which building has however more the purpose of a watch-house. The crocodile has the broadening of the snout in front, spoken of on pag. 146; the cross lines covered with longitudinal lines indicate the scales; the drawing in the middle is however unintelligible to me. N°s. 560—563 (Pl. XIX, figs. 3—6) two dog's and two pig's figures were obtained in this house. The interpretation of these animals is not always clear in the Papuan art; the indications are by the Papuans themselves. Where a scrotum is represented on an animal's figure, a dog is generally meant, where the snout is round and flat in front generally a pig. Coloured wooden birds' figures (N°s. 564—565, Pl. XIX, fig. 8) were hanging at Ingrås in a private house and at Thaë in the house of assembly; here several of these birds, represented as flying, uncoloured and manufactured from one single piece of white wood, were suspended by a piece of rope from the rafters; I could not find out what their meaning was. The same is the case with the human figures (N°s. 566—571, Pl. XIX, figs. 1, 2 and 7; Pl. XVIII, figs. 4 and 5) male and female. They were produced from the houses and I never found anything of the sort carried about on the person; — perhaps they represent deceased relatives or perhaps spirits. N°. 567 shows the joint representation of a human being and a snake.

Of N°. 570 it was said, that it should remain suspended in one of the men's watch-houses. N°. 572 (Pl. XV, figs. 1 and 2) finally, a carved and painted plank in the shape of the blade of an oar, again from the interior of a house of Ingrås, gives a combination of representations, amongst which the middle figure was said to represent a Varanus, *prom.* The object reminds me of what HADDON [1901, 103] describes of Kiwai Island, viz.: "an oval board about three feet in length, hung up in houses to bring good luck".

SUSPENSORY HOOKS.

N°. 533. *Chanjau.* Sägeisârâ; out of yellow brown wood of low spec. grav., anchor-shaped, thick 1.5, long 20.5 c.m., both arms pointed, turned up 8 c.m., with a reach of 7 c.m.; "shank", paired off round, with 3 circular relief bands, has near the broadened end an opening, in which a 40 c.m. long rattan strip, *kèchè*, to which is strung, the round side upwards, a half cocoa nut shell, *dâduă*, pierced in the middle.

N°. 534. Pl. XVII, fig. 12. 1/7. *Chanjau.* Sägeisârâ; hook-shaped, from a branch; lower end of "shank" carved into an animal's head, with eyes and nostrils, the point of the hook protruding out of the mouth; along the point a dog's figure, *chonje*, reaching with the head up to the above mentioned animal's head; "shank" continued in 2 dog's figures, heads downwards; higher up with another hook; top forming an eye, through which rattan strip, *chè*. Found in temple.

N°. 535. Pl. XVII. fig. 13. 1/7. *Chanjau.* Nächeibe; from yellow brown wood, ± 2 c.m. thick, "shank" broadened at top opening (cracked, repaired with lashings), carved on both sides with 2 eye ornaments, between 4 pairs of spirals. The body with horizontal, encircling row of 13 carved eye ornaments and triangles. Both cylindrical points carved into a male and a female figure, moplike hair of

which a small ridge (nose), descends on triangular face with pointed chin; slit of mouth an upward concave, navel circular; shoulders and shoulderblades in relief, arms descending as narrow lists; hands with 3 fingers joined before the trunk; man, with vertical ridge (penis), woman with 2 concave slits (vulva); back and nates in relief, knees very prominent; no feet.

N°. 536. Pl. XVII, fig. 14. 1/8. *Chanjau.* Nächeibe; like N°. 535, 2.5 c.m. thick; body of hook with double row of eye ornaments; "shank" on both sides with spiral carving, alongside of which eye triangles and spirals; opening surrounded by circular slits and eye triangles; points cylindrical, partly as 2 human figures (front outwards) of which only the hair, faces and arms down to wrists are indicated. Blackened (soot and water?), before working it, intaglio portions being blank.

N°. 537. Pl. XVII, fig. 11. 1/8. *Chanjau.* Kajó Entsáu; "shank" conical, points sharpened parallel with margins of handle; on both sides with carved eye ornaments with several zigzag lines; rattan suspending string, *chätjĕ wárå*, runs through central opening of a square plank, 1 c.m. thick, *chŏra*. On both surfaces a carved eye motive, the opening as centre, round this divided into 6 black and red coloured sectors. From the temple.

N°. 538. *Chīnjau.* Ingrås; as before, length 54.5, thickness 2—3 c.m.; body long 21.5 c.m., broad 15 c.m. below, 20.5 above, the "shank" below 5, above 14.5 c.m.; sharp points, *chīnjau jè*; rattan suspending string, *wār*, in opening, *dibŏ*; carved with spirals and eye motives.

N°. 539. Pl. XVIII, fig. 10. 1/7. *Injau.* Asé; as before, thickness 2 c.m., tapering off towards the sides; carved ornament, *sĕmå nèjè*: double loop coils and eye triangles; points, *mĕ*, small and sharp; "shank", *ènè*, bulky, all 4 sides with one spiral, at top with oval broadening, in which roomy hole, *puru*.

N°. 540. Pl. XVIII, fig. 11. 1/8. *Chanjau.* Ingrås; old and smoked, thickness 3.5 c.m. or less; "shank" thinnest and narrowest between bases of points. Higher up broadened and cut out on the „shank" on both sides with 2 dogs' figures, heads upwards; above this disk-shaped square, *pau*, above which again with dogs' figures (one broken off); points, *sīnjèw*, carved into male and female human figures, *charchĕrau*; hairdress high, face triangular, eyes indicated by circular lines, nose by 2 lines meeting in sharp angle, (nose-wings); breast with 2 horizontal carvings, navel circular; woman with oval carving (vulva), man with one vertical (penis) and two round (testes) reliefs; hands joined below genitals, fingers turned outwards; body of the hook with eye ornaments and spirals; carved ornament, *åne wáisokwáde*, of "shank" on both sides in the middle consisting of fish figures, *tsau*, with one or more pairs of fins.

N°. 541. *Chanjau.* Tobádi; from a plank of a petroleum case; body with rows of triangles and zigzag lines; along margins 2 dogs, heads downward and eye motives on each side of rumps and heads; backs with transverse rows of longitudinal carvings (hair); "shank" with eye ornament and hole for string of rattan, *chi*. Intaglio parts white, raised parts red or black. Specially manufactured for barter of ethnographica.

Head supports.

N°. 542. Pl. XVIII, figs. 2^a, 2^b. 1/5. *Jumáke.* Asé; horizontal rack of yellow brown wood, supported by 2 pairs of legs of rattan; each pair consisting of one piece of stout rattan, *kè*, on the middle of lower side with broad notch, with which bent over and round rack and diverging ± 30°; secured by a rattan string, *sa*; middle part of rack smooth, somewhat deflected and transversely convex; one end carved into head of hornbill, *tĕbari*, neck with fish ornament; other end like a bird's tail, *kobă*, top side toothed, *fŏri*, sides carved, *sĕmå*, with fish ornament. Sleeping on this = *jŏchu muga*.

N°. 543. Pl. XVIII, fig. 1^a, 1^b. 1/5. *Ponchă.* Sägeisårå; as N°. 542, middle portion, *honje mărčjă*, smooth, one of the ends, *nata*, carved into flat, long, pointed head, with eyes and mouth slit; other end in the middle with row of 9 sharp points, alongside of which 2 rows of carved eye triangles; legs of rattan, *kè*, *chè*, held together by strings, *chaisja*, *warŏ*.

N°. 544. *Ponchă.* Săgeisărâ; as N°. 543, height 16.5, length 54 c.m. One end, 11 c.m. in length, carved like head end of N°. 543; the other flat, 9.5 c.m. in length, 2.5 c.m. broad, and side margins toothed.

N°. 545. *Ponchă.* Săgeisărâ; as N°. 543, height 17, length 68 c.m.; tail with scalloped margins, below and above with longitudinal relief ridge.

N°. 546. Kajó Entsáu; height 20, length 79 c.m. the ends resp. 17.5 and 19.5 c.m. in length, represent crocodile's (?) heads, both with eye ornaments in the middle of a broadening placed half-way; the same at the end. Used by men in temple.

N°. 547. Kajó Entsáu; height 18.5, length 74 c.m., each end terminates in a knob, ± 3 c.m. thick, otherwise carved into animal heads with eye ornaments; one of the heads with mouth slit and teeth; the other on upper side with remains of broken-off dog's figure; obtained like N°. 546.

N°. 548. Pl. XVIII, fig. 9. 1/6. *Ponchă.* Năcheibe; as before, each head, rounded off in front, with pair of eyes; one with open jaws catching nates of a human figure, face downwards, legs bent in the knees and with soles of five-toed feet against throat of animal head; moplike hair, face triangular; nose as a ridge, mouth slit concave upwards; short neck, shoulderblades in relief, arms slightly bent, free from body, five-fingered hands flat on knees. No nipples, navel or genitalia. Obtained from a man, out of a private house.

N°. 549. Pl. XVIII, fig. 3. 1/5. *Ponchă.* Săgeisărâ; ends as with N°. 548, teeth indicated; on the middle of one of the heads (3b) with longitudinal dog's figure, *honje machè*, tail continued in row of 5 points. On the other (3a) human figure, *chăru*, legs stretched, knees strongly in relief; feet (5 toes) flat against crocodile's head; figure apparently with wig, ears with concha and opening; nose as transverse carving below the point; no eyes or mouth, shoulders in relief, arms joined to body; five-fingered hands alongside of penis and scrotum.

N°. 550. Pl. XVIII, figs. 6a, 6b. 1/5. Kajó Entsáu; one end with longitudinal ridge, and 3 pairs of eye ornaments; the other, with one pair, is horizontally continued in body of a male figure, head as N°. 548, face upwards. Shoulders and arms in relief, with indication of armlets, both five-fingered hands between circular navel and conus-shaped penis. From the temple.

N°. 551. *Afia.* Mios Kórwār; from one piece of wood, long 36, broad (high) 18 c.m., lower surface 7 c.m. broad, saddle-shaped upper surface of 27 c.m. concave length, ± 6 c.m. convex width, each end with circular opening (eyes?) and carved like a set of jaws. From private dwelling.

N°. 552. Pl. XVIII, fig. 7. 1/8. *Afia.* Mios Kórwār; like N°. 551 between base and saddle openwork; 2 animals, *mān*, lying down, with rumps connected in the middle on base; towards the heads, *mān ka ĭm*, somewhat raised; front limbs, *wrasi*, reach towards corners of base round buttoned poles, another pair of forearms turned up as far as lower jaw; heads pig-like, nose as longitudinal ridge with nose wings, front part of snout oval, with deep carved circle; mouth slit; set of snake-like ridges from the middle horizontally towards heads and in upward curve towards ends of saddle. With loop of vegetable rope.

N°. 553. Pl. XVIII, fig. 8. 1/8. *Aruda.* Angádi; shallow, concave saddle, transversely convex. Erect on base, 3 horseshoe-shaped ornaments, under an upwards concave ridge of which the ends support the saddle ends. In the middle another supporting ornament like the central one of the 3 lower ones. Loop of tanned cotton string, *têmani*.

HOUSE ORNAMENTS.

N°. 554. *Tĕri tembuèd.* Tobádi; saw (serra) of a sawfish, *tĕri*, length 5 c.m., 25 teeth along each side. From private dwelling.

N°. 555 and 556. Pl. XXIII, fig. 1. 1/4. *Tĕmĕrú.* Ingrâs; 2 fish skins, *itje tĕmbu*, of *Balistes flavimarginatus* Rüpp, stuffed with vegetable refuse and piece of fishing net, backs sewn up with

thread of Pandanus fibre, *im*; painted with red, black and white stripes, eye-sockets in triangular spaces; fastened on to strip of rattan; were suspended in a private house.

N°. 557. Pl. XXIII, fig. 2. 1/4. Waba; Fish figure of the sheath of a sago leaf; strengthened with rattan strips, eyes as 2 red and yellow circles, mouth slit angular, side margins of head continued in long fins; homocercal caudal fin; painted with red, black, white and yellow stripes. Found in temple.

N°. 558. Waba; painted piece of material as above; irregular shape, breadth 45, length 60 c.m., with deep, alternating cuttings on the sides; painted with angular, red, black and white bands, inside which black rings. Obtained like N°. 557.

N°. 559. Pl. XIX, fig. 9. 1/4. Waba; crocodile's figure from material as above; snout with broadening in front; 2 eyes, red, with white circle, lined angularly in front and behind; paws bent backwards; in the middle red and white circle between 2 white curved lines each, with numerous spots. Many transverse lines, each with side lines pointing backwards, alternately in red and white. Obtained like N°. 557.

N°. 560. Pl. XIX, fig. 3. 1/5. Waba; wooden dog's figure; carved eyes, raised ears, double mouth slit; shoulders and haunches in relief, rump on both sides with eye ornament, tail half-way with encircling carving, female genitals; connected with a round handle, carved with circle of eye ornaments; deepened parts white, relief parts black or red. Obtained like N°. 557. Roof ornament?

N°. 561. Pl. XIX, fig. 5. 1/2. *Obŏ*. Waba; wooden pig's figure; relief ears, mouth carving long, upper jaw with flat front part; rump barrel-shaped, carved; indication of foreskin; shoulders and haunches in relief, forelegs joined, like hindlegs, mutually connected by longitudinal piece of wood on which toes carved in; tail round, downward; deepened parts white, otherwise red and black (scorched). Obtained like N°. 557.

N°. 562. Pl. XIX, fig. 6. 1/3. *Obŏ*. Waba; like N°. 561 ears loosely inserted, longitudinally carved rump without genitals; forequarters as well as hindquarters joined on the back; longitudinal piece of wood connects hindlegs with forelegs (all without toes) and lower jaw; coloured red, black and white. Loop of reed for carrying. Obtained as N°. 557.

N°. 563. Pl. XIX, fig. 4. 1/2. *Jŏgu*. Waba; dog's figure; ears notch-shaped; eyes with set of triangles, mouth slit toothed; back carved longitudinally, forequarters in relief, tail carved transversely; scrotum. Before the carving scorched (?) black, alternately coloured red. Obtained like N°. 557.

N°. 564. *Ponbă, pâme*. Ingrâs; bird's figure of flat piece of wood, 8 m.m. thick, head rounded off in front, neck long, wings extended backwards, tail broadened backwards; coloured white, yellow and black. Length 22, flight 13.5 c.m. From private dwelling, suspended by a two-stranded cord of Pandanus fibre.

N°. 565. Pl. XIX, fig. 8. 1/3. *Tauwa*. Sĕkâ; wooden bird's figure, pointed beak, *lĕ*, black head, *subí*, red circles round the eyes, cylindrical neck, *kè*, wings, *fā*, opened downwards and backwards, hind margin of tail, *fū*, concave; coloured red, *mè*, white, *tătun*, and black. Manufactured by men; for private houses and for house of assembly.

N°. 566. Pl. XIX, fig. 7. 1/3. *Charchărau*. Tobádi; human figure, on handle bored transversely; head like semi-globe, face triangular, eyes and nose in relief, mouth as horizontal toothed line; arms with five-fingered hands reaching down to 3 horizontal relief bands; similar bands round upper arms and wrists; below deepened navel a transverse carving; carvings along spinal column (fig. 7a); coloured red and black; symetrical black figure in the red coloured hair; armlets white, mammae indicated by 2 black stains. Said to be used also as a toy.

N°. 567. Pl. XIX, fig. 1. 1/3. *Charchărau*. Tobádi; as before, head knob-shaped, with symetrical black figure in the red hair (1a); line of profile sharp, without nose; eyes circular, mouth slit concave upwards; shoulders in relief and with eye ornament, arms with wrists close to median line and then bent

backwards; right hand (with fingers) continued in a raised snake, *mate*, taking 1 1/2 twists round handle; head, *mate chăbúr*, with 2 eyes, *uèndu*, and mouth slit, *tsuwibŏ*; left hand transformed in head of a snake; raised parts red or black. Probably ornament of temple or boat.

N°. 568. Pl. XIX, fig. 2. 3/4. Waba; as before; hairdress globe-shaped; nose as a raised ridge, mouth slit concave; shoulders and breast with carvings; mammae and papillae in relief; navel circular; arms with 3 carved bands; hands alongside mons veneris, rima vulvae and clitoris. Coloured red, black and white. Presented by a full-grown man, after leaving the temple.

N°. 569. *Tŏtĕre ună*. Asé; wooden human figure, high forehead, eyes crescent-shaped, nose and mouth as with N°. 568; conchae of ears in relief, deepened meatus; mammae in relief, navel circular. Shoulders with 2 bow-shaped carvings, upper arms with relief band; right hand 5, left hand 3 fingers, along the thighs next to mons veneris with rima vulvae; lower parts of legs ending in joint block without indication of feet. From watch-house. Length 26, width 4, thikness 6 c.m.

N°. 570. Pl. XVIII, fig. 4. 1/5. *Tŏtĕre ună*. Asé; like N°. 569. Upper arms and wrists with raised bands; five-fingered hands along spread upper legs; nates, thighs and knees in relief, below a single block, with vertical row of 5 toes; papillae and navel circular, penis, *mū*, cone-shaped. Was suspended by a strip of rattan in a men's watch-house.

N°. 571. Pl. XVIII, fig. 5. 1/5. *Sĕbro*. Tarfia; wooden human figure with pyramid-shaped head covering (wig?), hair projecting with horizontal rim, nose and ears ridge-shaped; eyes and mouth like oval carvings, both on front and back of head; shoulders and breasts (both on front and back) in relief. Arms bent, hands with tips of fingers joined in front; raised waist band, hips broadened; genitalia as raised disk with slit; legs slightly spread, ending in single block.

N°. 572. Pl. XV, figs. 1 and 2. 1/4. *Mănĕ mank âne*. Ingrâs; oval board with carved and coloured ornaments in red, black and white; middle figure represent Varanus, *prom*, angular stripes along margin (see fig. 2) represent "an eatable material from the earth", *bia*; triangular, marginal figures with hooks at the top corners were called *ār âne*. From private dwelling.

CHAPTER IV.

HUNTING AND FISHING.

HUNTING must be of great importance, especially for the nomadic New Guinea tribes (see page 127), who of course do not occupy themselves with agriculture; but also the settled Papuan far from being a vegetarian, by hunting provides himself with the animal food the forest can procure, none of which he despises, unless Islam or animism forbids. Although KENNEDY (ANNUAL REPORT [1894—95, 38]) asserts that private hunting rights do not exist, we should consider the hunting-ground divided among the different tribes or villages by common assent, and the European New Guinea traveller (PRATT [1906, 135, 195]) should always be aware of being in other people's hunting-ground. WEBSTER [1898, 57] also experienced this, when one of his people shot a wild boar in the midst of a primeval forest and the inhabitants of neighbouring villages, arms in hands, claimed their rights to the animal; "having no brand or ear-mark of any sort, I knew this to be untrue", WEBSTER adds not without ingenuity.

I never had an opportunity of watching the way in which the natives captured different sorts of game, but I found the confirmation of the fact that, in contrast to K. W. Land, the people of Netherl. N. G., as well as those of Br. N. G. (MACGREGOR [1897, 70]), use dogs in hunting. Although FINSCH [1888, 54] positively says that the dogs are no good for hunting, their use in boar hunting has already been mentioned by VAN DER GOES [1858, 119, 47] from the Gulf of Kaimani and the hinterland of Lakahia, where boars are driven into a narrow dell and killed with arrows and lances. D'ALBERTIS [1880, I, 50] also relates this about the interior of Sorong and DE CLERCQ and SCHMELTZ [1893, 85, 113] tell the same about Geelvink Bay. The Manikion people also informed me of the use of dogs, especially in boar hunting. Though their dogs seemed to me very small, they nevertheless bravely and fiercely attack a boar which, being bitten in its back and sides, while trying to escape, must at last stop to defend itself against its assailants and is then killed with spears and lances. Though the use of dogs in hunting is less frequent east of Geelvink Bay, we should pay attention to the dog as a companion and housemate of the Papuan.

FINSCH [1888, 53, 54] gives an accurate description of the New Guinea dingo. MACGREGOR

[1897, 23] when ascending the Owen Stanley Range, came across some wild ones. According to the expert Dr. HECK (HAGEN [1899, 195]) it is of the same race as all other tropical dogs, being characterised for its shyness and its bad qualities as a watchdog. Nevertheless some dogs of Asé ventured to attack my watchdog (a streetdog from Batavia) which was bigger. However, they only fight for their own benefit and not for their master and though they fly into the houses when a European approaches, as soon as he enters they try to escape through the back door. Far from being the favoured animal, like in British N. G. (PRATT [1906, 331]), it is especially the men who ill-treat the dog; only too often the painful yelping of the dogs after a severe punishment is heard from the dwellings. A Maníkion from Mapār meeting a dog on the notched trunk serving as a stair-case to his high dwelling (fig. 73), simply kicked the animal down. Special dog-ladders and separate entrances sacred to the dogs (PRATT, l. c.), I never saw. The women are more gentle in their behaviour; the dogs are more attached to them, as also HAGEN [1899, 195, Pl. 25, 37] relates about K. W. Land, and are often to be found in their company. The Maníkion women serving the expedition as bearers, took their dogs with them on marches of several days and when wading through swamps and overcoming other difficulties of the soil, put up with the trouble of taking the animals in their arms. According to BIRO [1901, 54] it is also the women who cook the food for dogs and pigs in the afternoon; I doubt, whether dogs are taken so much care of in Netherlands New Guinea and I ascribe their thievishness that Finsch also speaks of, simply to hunger. At Asé they tried to steal victuals from my tent, gnawed through the stretchers and even tried a plaster-cast; they nibbled off the little flesh left in a cocoa-nut shell, which had been thrown away and in Oinåke Bay I watched them tearing out the remains of flesh from the carapaces of big Chelones, lying on the beach and already spreading a bad smell. The dog multiplies as a domestic animal and in the east part of New Guinea shares the fate of many domestic animals to be butchered and eaten (FINSCH [1888, 54], MACGREGOR [1897, 60], HAGEN [1899, 96]). As stated above (page 2) this is not the case in Netherlands New Guinea and that is why the animal does not enjoy the pleasure of being fattened. In Geelvink Bay DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 115]) noticed dog skulls hanging beside boar jaws in the dwellings, but he does not mention in which way the skulls had been got. None of the members of our expedition remember to have seen dog skulls in the dwellings, but we often saw kangoroo skulls.

The second domestic animal of the Papuan, the pig, appears wild and is hunted and eaten. Travelling with a large and sometimes very noisy troop of bearers, etc. we never caught sight of a boar, though large spots of earth, freshly rooted up, clearly showed their abundance. The way of hunting is very different. The people of Adi (VAN DER GOES [1858, 110]) lay snares in the gaps of the garden fences, but in the other parts of Netherlands New Guinea I only know of battues, either, as in the western part, with dogs driving the boars into a river, where they are shot with arrows when trying to swim across (DE CLERCQ and SCHMELTZ [1893, 113]), or, as in the eastern part, with human drivers.

In 1901 VAN ASBECK, Officer in H. M. „Ceram", witnessed such a battue, held by about 80 people of Tobádi and gave a description (Bulletin N°. 41), which shows how cautiously they proceed. The organization was entirely in the hands of one man, the chief of Tobádi. First of all, the ground as well as the hunters were charmed by an aged Papuan, so as to make them invisible to the boars; then the chief ordered the line of hunters to the top,

the line of drivers (the boys) to the bottom of a wooded slope, probably because the boars, preferring to hide in the marshy valleys during the heat in the day-time, only reluctantly and slowly escape upward. The hunted boar did not escape the deadly shot. Neither dogs nor nets were used, though FINSCH [1888, 353] saw large nets there, such as he also saw in K. W. Land and British New Guinea. D'ALBERTIS [1880, I, 417] also mentions those nets, made of Pandanus fibres (WYAT GILL [1885, 331]), and PRATT [1904, 6; 1906, 327] demonstrates the position of the nets and how also the cassowary and the wallaby are driven into them. During the stay of the expedition in Humboldt Bay, nets were never seen nor heard of.

According to NACHRICHTEN [1888, 230] the same way of hunting as described above of the Tobádi people, is used in K. W. Land, bow and arrow being the principal arms and the spear being less frequently used. It is very remarkable that HAGEN mentions the bow and bamboo arrow as the principal weapon, while FINSCH [1888—93, 190] gives an inferior place to these arms. Covered pits, hurdles and screens are also mentioned; deep pitfalls are dug (HAGEN [1899, 248]) which remain uncovered, into which the boars fall at night; on the slope of Sattelberg (NACHRICHTEN [1889, 42]) a great many of those pits were seen. In British N. G. pitfalls are also found (MACGREGOR [1897, 40]), sometimes with sharp spear heads fixed in the bottom (ANNUAL REPORT [1899—1900, 94]). Another way is that the hunting-ground is set on fire on all sides (HAGEN, l. c.) and the fainting animals are attacked with spears and arrows, the opossums with clubs; whether the hunters, penetrating into this burning circle, protect their feet against the hot ground is not mentioned. MAC FARLANE [1888, 124], however, writes that the long grass in front of the nets is set on fire and the natives only take care that the game cannot escape at the sides.

Apparently the ways of hunting in various parts differ according to local circumstances. Such a difference also exists between Humboldt Bay and Lake Sentáni, where boars are only hunted with long and heavy lances (N°. 574 and 575). A hunting company consisting of Asé men, all of them armed with those lances, is to be seen in fig. 99. The

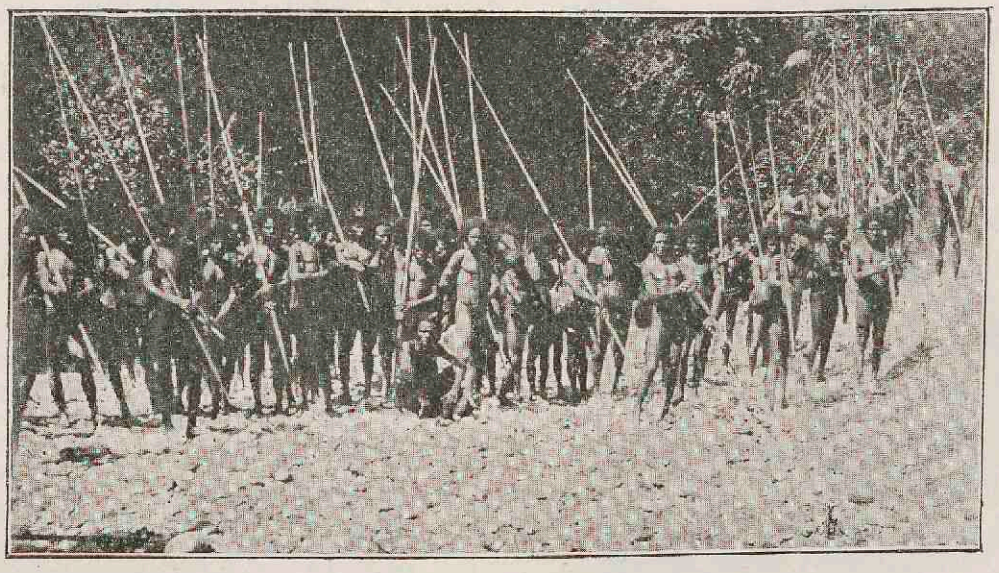


Fig. 99. Asé men with lances for bear hunting.

weapon is unique in length and weight. Among the 14 groups of lances made of Areca palm wood that BIRO [1901, 106, Pl. VIII] speaks of, there is none resembling the Asé boar lance; most of them however have the circular notch near the end, to be seen on the BIRO specimens. The two objects from Asé measure 5.15 and 4.25 m. resp. Made of the same dark

brown wood the weight, hardness and durability of which I already mentioned above, page 139, they were always indicated with the name of that sort of wood, *soām* or *soáme*. Without exception the lance is carved a little above the centre of gravity with ornaments, which are very characteristic of that country (fig. 100a, 100b). The boar lance is a highly valued object,

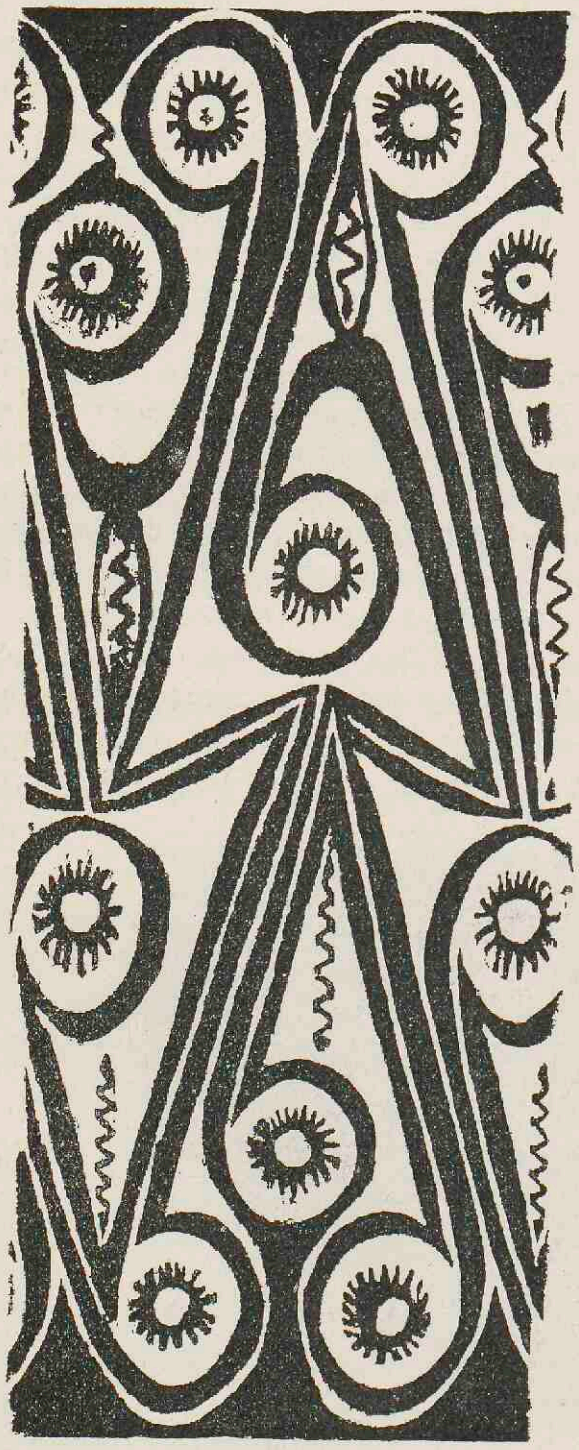


Fig. 100a. 1/2. Carved ornament of a boar lance from Asé.

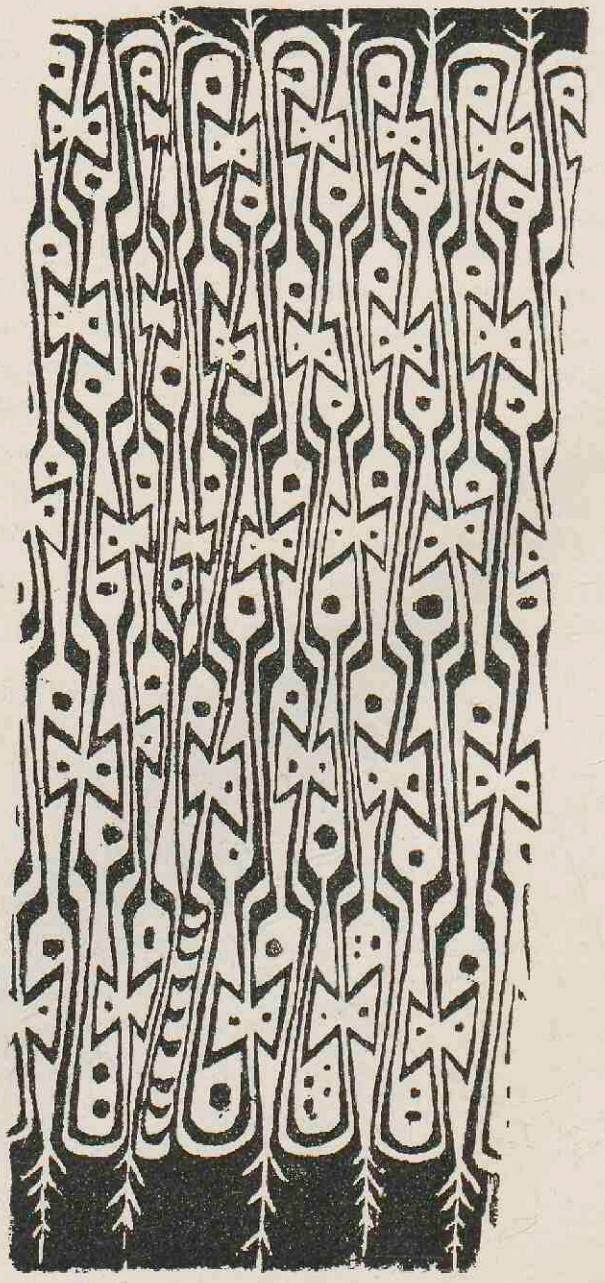


Fig. 100b. 1/2. Carved ornament of a boar lance from Asé.

durable enough to pass from father to son and already in great honour for that reason, but also because its construction in the stone period, from which the store of lances at Asé dates,

must have cost a great deal of labour. Some very old ones, *sinâiă*, the people shortly declared, were not to be sold. They generally all lay in the watch-houses, *ŏbè*, on the horizontal tie-beams, *niau*, about 7 feet above the floor. I never saw the men carry those lances as ordinary arms; the men who every day rowed to the gardens to protect the women, only had their bow and some arrows lying before them in their little boats, *īsja*. Probably this lance may also be found in other villages on Lake Sentáni; my not seeing it again during our rapid course across the lake, nothwithstanding the men were everywhere armed, proves its not being used as a weapon of war. In Humboldt Bay it is not used, that is a fact; nor did I find it in the temples of Năcheibe and Săgeisårå, places on the north coast, where the language has a striking resemblance to that of Asé. I am sorry not to be able to answer the question how a number of men, armed only with such lances (fig. 99) go boar hunting. I also found shorter specimens, which point to a difference in the position or action of the hunters.

The arrows used for boar hunting generally have a bamboo point; the Tobádi people have three different kinds: *ubrè*, *mankaini* and *jèdri*, distinct from each other by breadth and shape of the furrow. Among the *jèdri* I found another form, called *rugwè* (N°. 760, 764), with a wooden point in which was one row of barbs. Of course those sorts are differently used: I only know the lengthwise furrowed bamboo point causes a heavier loss of blood than the ornamented wooden point, (see also MACGREGOR [1897, 70]).

The transport of the spoils takes place in a festive mood. At Asé some boats carried it to the watch-house, accompanied by songs heard from afar and by a regular beating with the oars. At Tobádi the dead boar was slowly transported to the village in a boat, *wăche*, adorned with fresh palm leaves fastened erect and accompanied by a whole fleet of *wăche*. A many-voiced song rang over the water, stronger than I ever heard from the Tobádi people, interrupted every now and then, but intonated again with great unity of time. The fleet landed at the platform (pag. 142), the boar was carried into the temple and one of the palm-leaves was stuck into the eaves near the entrance, close to others which were standing there, probably also representing hunting trophies (figs. 102, 183, 200). Later on at the feast the marksman was pointed out to us; his success seemed to be a great honour for him and in a way he was celebrated as the host of the feast, the spoils being consumed the very same evening amidst dancing and music. Probably the marksman host claims a right to the teeth (N^{os}. 312—321, Pl. XII, fig. 20), and the tail as ornaments. An Ajápo man had tied a boar's tail with two strips of the rump skin round his upper arm; (see also N°. 519, Pl. XI, fig. 7). The Tugeri wear the scrotum on either arm and sometimes even wear a great many; the hairy strips of skin which they wear on their breasts also come from the boar's tail; strange enough, the women who never take part in hunting, also wear this breast ornament here, consequently the right of wearing it seems to be no personal right of the marksman (see pag. 85).

At Tobádi the boar skulls are hung up in the temples. The Maníkion people decorate the interior of their dwellings with them. In the dwelling at Mapār which, as I was told, had been built a short time ago, I counted more than thirty, which made me suppose part of the skulls had been removed from a previous dwelling. I should give the same explanation to the fact that MEYER [1873, 308], in his journey from Geelvink Bay to the Gulf of MacCluer, counted in one, evidently new, hut 83 lower jaws of *Sus papuensis*. The reason they treasure

them up is obvious from the rows of boar skulls ornamenting a grave at Nimbúran (fig. 171) namely as a hunting trophy, evidently intended to honour the deceased as a great hunter.

When the natives get hold of little live pigs they rear them as is known; even sometimes at the beginning the women suckle them, as FINSCH [1888, 53] and PRATT [1906, 330] often saw and PFEIL [1899, 19] also mentions of New Mecklenburg. This probably explains the attachment the natives often show for these animals and the tears which the people on the Utanata River shed after having sold a pig to BOUDIJCK BASTIAANSE [1845, 77]. All the pigs at Angádi were said to have been caught wild and at Asé a very young one was brought up by the men of the watch-house opposite my tent, not always very gently, it is true, but though it was strolling about by day, trying to gather its food, it was always shut up at night in a wooden trellised cage, *warânga*, standing on the platform. So we see a hunting-people in the age of stone, getting settlers, taming game and making it a domestic animal; also the next step is taken, the domestic animal is bred, cattle rearing is started. The tamed swine indeed seem to feel attached to man and his settlement and do not return to their wild state; in the villages on Lake Jamūr, where the population had fled at the approach of the expedition, the pigs, as usual, remained near the dwellings. For swine breeding at Asé I saw two little sheds, *fâre*, purposely built on the shore, the walls made of planks of old boats, the watertight roof of palm leaves (fig. 101). A sow with some six little pigs, going about freely by day, was shut up in such a shed during the night. These animals are occasionally fed, as BIRO [1901, 54] also mentions of K. W. Land, though I never saw it myself, but they continually went into the shallow water under the dwellings to look for refuse.

For the rest, however, the number of pigs was not so large that they could be traded in, but the neighbouring Ifār, where there were a great many, may be supposed to do so. In villages built on banks, not connected with the shore, swine rearing cannot be imagined. From Waba, where the dwellings are connected with the shore, BINK [1897, 157] mentions the great number of pigs, which fact however did not strike me in 1903. In the country of Sĕkâ on the contrary, under the dwellings built on the shore, I saw a large number of pigs amidst the firewood piled up around, and there some swine rearing is carried on, which largely contributes to the prosperity of those villages. With the Sĕkánto, dogs and pigs went about inside the dwellings built on a level with the ground, but these two species of animals are constantly at war with each other. Just as FINSCH [1888—93, 201] states, the tamed pigs behave very peevishly towards man, and at Angádi one of the big swine very nearly stole some chops from the pan while several members of the expedition were standing around it in culinary occupations. Together with the dogs they were little profitable for our night's rest.

The crocodile is pretty generally hunted in N. G. In Wandámèn (DE CLERCQ and SCHMELTZ [1893, 114]) it is shot with bow and arrow, where the hunter tries to hit the animal in the fleshy part of its body behind the forelegs. In K. W. Land, according to HAGEN [1899, 247], it is killed with spears, some of which are put like a fence round the animal while it is sleeping on the shore, whilst the other spears are used to finish the animal with thrusts into eyes, breast and throat; sometimes it is attacked on its return to the water. In Humboldt Bay and in villages on the coast the crocodile seems to be an object both of fear and honour and therefore it is not hunted; in the western villages on Lake Sentáni,

however, I saw several skulls carelessly thrown away at the side of the footpath along the shore. How they catch the animal, I do not know.

In hunting opossums the people of H. B. make use of small arrows made from the stems of sago leaves, *nö* (N°. 745, 746), which are also used for shooting rats and mice. In British N. G. they are driven into hunting nets, while on favourable occasions they are speared (THOMSON [1892, 69]).

Many birds such as Cassowary, Megapodius, Goura, Rhyticeros, also Pteropus are shot as well for their flesh as for other parts of the body, serving for practical use or ornament. To hunt a cassowary does not seem to be without danger, at least the wounded bird is more feared by a Papuan than a wounded boar (VAN DISSEL [1904a, 624]). Ample information about the method of shooting different species of birds is given by DE CLERCQ and SCHMELTZ [1893, 113—115], whilst VAN DER GOES [1858, 122] relates how on Kaimani Bay, Goura is caught with snares. Not only do the Papuans exactly know the characteristic calls of the different sorts of birds, but they can also imitate them to perfection. Characteristic of the cassowary is a sound like the beating of a large drum heard at a great distance, while the Goura utters a peculiar breast sound: "krūm-krūm". The bird of paradise, sometimes caught with gum smeared over the branches of the trees (CHALMERS [1885, 247]), at Bessir on the south coast of Gemīn captured alive in snares (HAGA [1884, II, 153]), is however generally caught in the way described by WALLACE [1869, II, 151, frontispiece]. DE CLERCQ and SCHMELTZ [1893, 114] draw attention to the fact, that certain tall, blossoming trees are chosen by the females in which also the males gather. These are the dancing trees THOMSON [1892, 68] spoke of; these trees once being known, the hunter is not obliged to ramble about the woods. In Papua Tālandjang *Paradisea minor* Shaw. is more frequent; wherever the primeval forest is pretty dry and consists more of foliage trees than of palm trees this bird is found and what is very remarkable often chooses small, insignificant dancing trees. Under such a tree on the south slope of the Cyclops Mountains, a Tobádi man perfectly imitated the whistling of the male bird, trying to decoy jealous rivals. According to information got from the natives, Paradisea minor is not found in the higher parts of these mountains. The arrows from the stems of sago leaves damage the birds so little that the feathers and even whole parts of the body and the head may be used on ornaments and weapons. The extensive trade in the skins of Paradisea, however, has brought fire-arms into N. G. Some years ago a trial was made in H. B. to give guns and munition on free loan to Papuans and to pay them for the skins supplied, but these people, though soon becoming good marksmen, brought little profit to the Ternatian tradesman-hunter and this made him go hunting himself. In the west part old single-barrelled guns have been introduced, which are also used by the Manikion (figs. 3 and 42) for arms in time of war. The percussions they want for those muzzle-loaders are often kept in bamboo cylinders (N°. 573).

The presence and the trade of foreign hunters (mostly from Ternate) often cause bloody fights with the natives. It was feared the birds of paradise would be extirpated and the different governments made restrictions about their being shot. This fear seems to me to be ungrounded, considering the large part of N. G. where the birds are not hunted for trade and considering the circumstance that as a rule the males are shot only after being full-grown. The disappearance of the birds of paradise in certain parts may sometimes be ascribed to

the felling of the dancing tree. At Manokwari, the oldest Netherlands settlement, where there had been much hunting, one could, in 1903, often hear the whistling of Paradisea from the edge of the wood.

N°. 573. *Otjè.* Kwatisoré; bamboo cylinder, 16 × 3 c.m., lower part scraped and blackened; the sexangular stopper, *madŏ orè*, of yellow-brown, corky wood, fitting with 2,5 c.m. long, cylindric part in tube. Used to store percussions, *dŏpīs*, (corruption of the Netherlands "dopjes").

N°. 574. *Soām.* Asé; boar lance of heavy palm wood, *soām*, length 5.15 m., square, with 4 lengthwise ribs, *kū*, each cut near the point, *jŏmŏ*, over 1.5 m. of the length into a number of barbs, *kara*; more to the middle a carved ornament (fig. 100a), behind which, near the centre of gravity, 13 narrow, plaited, rattan rings, *sari*; greatest thickness 3 c.m., at the end thinner and at 15 c.m. from the end, *kobă*, a narrow circular notch.

N°. 575. *Soām.* Asé; as N°. 574, length 4.25 m., carved ornament (fig. 100b), 6 rattan rings, no circular notch.

N°. 576. *Soām.* Asé; as N°. 574, length only 2.04 m., max. thickness 3 c.m. in the middle; front part over 55 c.m. square and hooked as above, behind it, over 33 c.m. of the length, carved with 5 circular bands, each of 4 loop coils; 3 plaited rings.

Besides hunting, also FISHING supplies the want of animal food. According to the different sorts of fishing-tackle found everywhere about Netherlands N. G. (DE CLERCQ and SCHMELTZ [1893, 100]) it cannot be true what BIRO [1901, 66], in contradiction to FINSCH [1888—93, 190], writes about K. W. Land, that fishery is no "Nahrungsquelle erster Ordnung", but to a certain extent only a pastime of the men. Since then ERDWEG [1902, 330] describes fishery as one of the principal occupations of the Tumleo (Berlin Harbour).

As to Humboldt Bay I already quoted BINK [1897, 147], who says that the inhabitants are never withhout fish a single day; and, to the information of KONING [1903, 268]: "the native of Jótĕfa is, first of all, a fisherman; he seldom goes out hunting and occupies himself very little with agriculture," — I can add from my own experience: "not any practical occupation of the men so much requires their time, devotion and strength as fishery, which is here indeed the principal source of animal food". The reason of this peculiarity is to be found in the natural formation of the Jótĕfa Bay, the inner bay of Humboldt Bay, and in which lie extensive banks, partly dry in the low spring tide. When these banks, at half tide, are covered with from three to four feet of water, the occasion occurs to catch the fish in enclosed spaces of long nets, ± 4 m. broad, provided with sinkers along one edge and floats along the other. Perhaps similar nets are meant by ROBIDÉ VAN DER AA [1879, 88] speaking of large drag-nets used at Ansus; at all events the opinion of DE CLERCQ and SCHMELTZ [1893, 100] that east of the Arimoa Islands fishery is not carried on with large nets, is a wrong one.

The description which BINK [1897, 147] gives of this method of fishing requires some modification and supplement. The course of things is as follows: A number of 30—45 men's boats, *wăche*, each manned with from 2 to 4 persons, proceeding in a line of a hundred or more M. in breadth, row to a bank and when a shoal of fish is seen in front of the fleet the two wings advance rapidly amidst shrieks and shouts and, rowing towards each other, form a large circle. In doing so the long nets, regularly coiled up upon the platforms of several boats are gradually

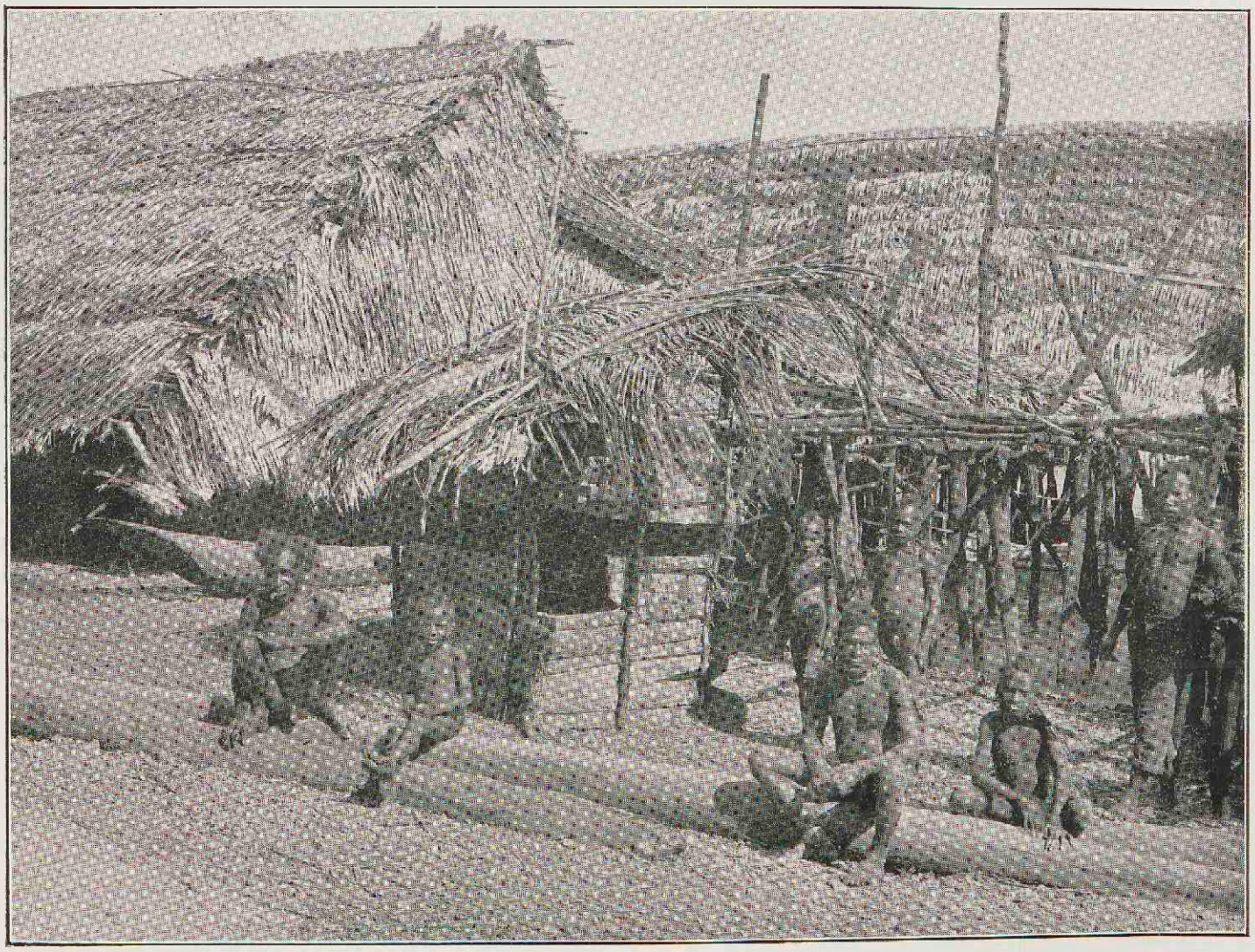


Fig. 101. Pig-sty; Asé.



Fig. 102. Making twine from Pandanus fibres; Tobádi.

veering, in order, when the two wings meet, to make a basin 80—100 M. in diameter, enclosed by the standing net. Meanwhile most of the men, armed with their long spears, place themselves on the gunwales of the boats or on the platform, even sometimes as in fig. 105 on the railing of the platform, to spear the fish which clearly stand out against the sand of the banks. Others, armed with a dip net, jump into the water outside the net between the boats, to catch with a rarely failing skill the frightened fish, which try to escape with great rapidity and a high jump over the edge of the net. This stage of the action and part of the basin is represented in fig. 103, where also, in the distance, in the middle of the photo, a man

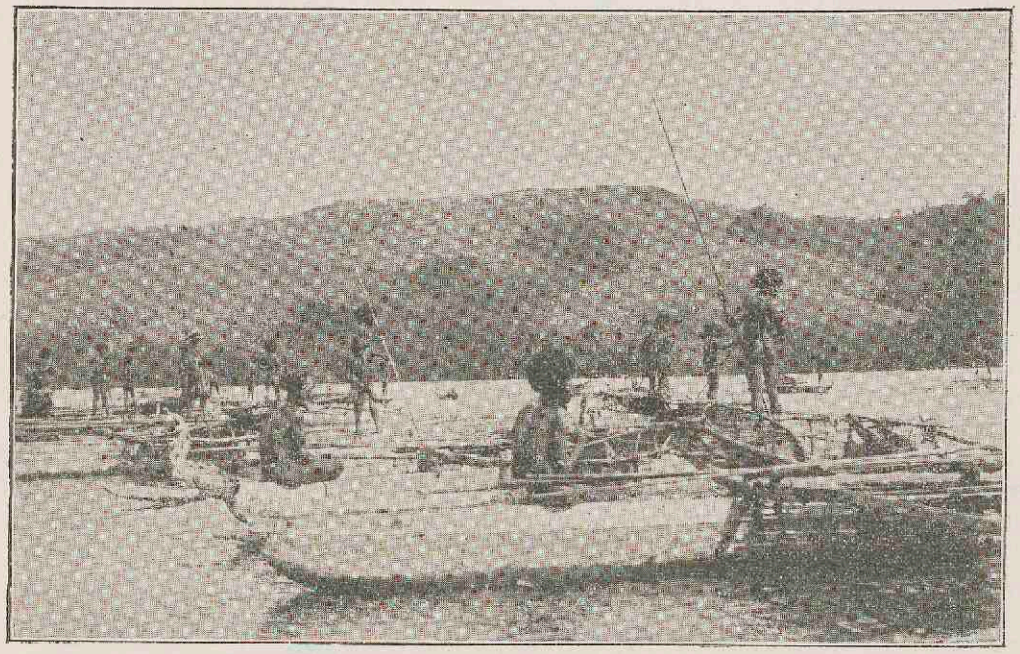


Fig. 103. Fishery in Jótěfa Bay; a shoal of fish enclosed.

with a dip net is standing in the water. On the boat in front a dip net is lying, for the moment not in use. Some of the boats, which use no large nets, spread in the basin to pursue the fish, which have retired to the centre; the scene now offers the greatest liveliness: the fish, darting to and fro with great rapidity, are speared by the excited crowd with cries of exertion, disappointment or success (fig. 104), whilst the men with the dip nets show the greatest alacrity. At length a single fish shoots to and fro among the boats, its way marked out by the spears thrust towards it, till also this one is speared or caught in a dip net when trying to escape by a brave leap. At once the activity is over, the suspense is gone; the nets are taken in behind on larboard and orderly piled up in coils on the platform (fig. 105), so that they can smoothly glide into the water with the next manoeuvre. While the booty, greater or smaller, is sprawling and jumping at the bottom of the boats, the fleet again sets into motion to repeat the same thing on other banks and afterwards to return home with a booty of from two to five fishes a head, each fish 40—50 c.m. long. On the large platform of Tobádi everything is spread out; the chief, *kŭrĕsŏri*, first chooses the finest fish for himself and gives every partner his share. One day on the occasion of such a fishing party on the bank east of Metu Débi, a member of the expedition was standing with me in the water outside the net-

circle, when one of the co-operators presented a fish to each of us, asking nothing in return, from which I concluded these fish were not his property at that moment, but they must be con-



Fig. 104. Fishery in Jótëfa Bay; spearing fish inside the enclosing nets.

sidered as a gift from the community. Another day a violent dispute arose at Tobádi, one of the partners of a fishing party having kept back some fish in his boat. It is obvious from

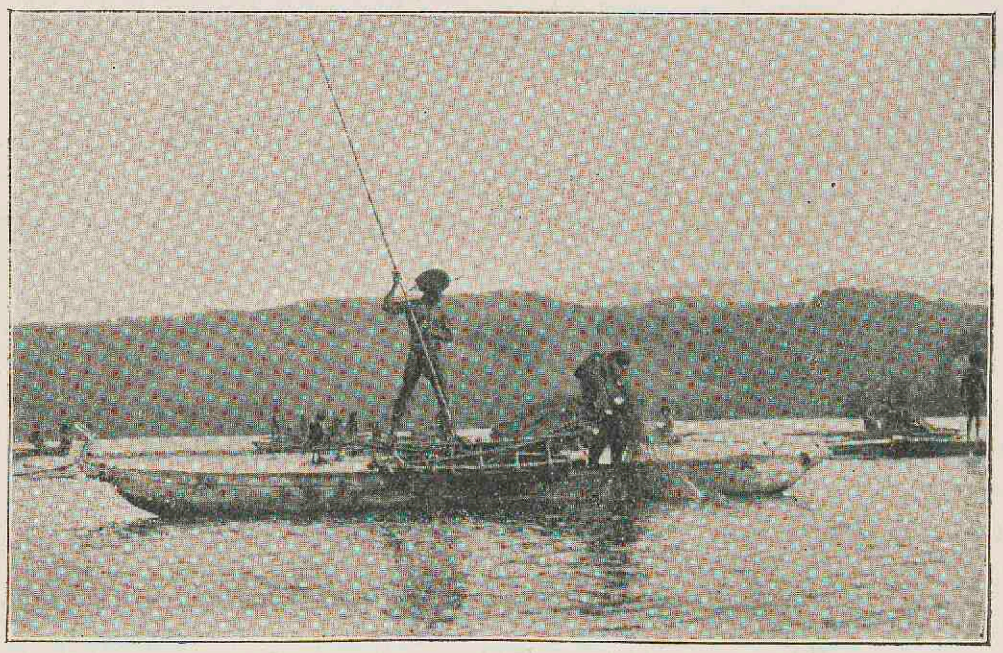


Fig. 105. Fishery in Jótëfa Bay; taking in a net.

those two facts, that only after the distribution every partner has the free disposal of his own share, and can offer the fish for sale, fresh or smoked. Every now and then fish was brought to the members of the expedition, generally by the chief of Tobádi, but always as a

present, though the man was not easily satisfied with the reciprocal gift and probably forbade his villagers to sell fish to us. I never heard of another example of fishing parties where success is due to the co-operation of so many partners. FINSCH [1888—93, 463] and KUBARY [1888, 135] mention about the Caroline Islands the use of long nets for fencing in shallow places, where fish are killed by spears or poison. The joint fishing of the men with nets 600 feet long is related (FINSCH [1888—93, 25]) about Blanche Bay, New Pommern, but without referring to the number of the partners. The "Riff-Fischerei" of the Marshall Archipelago [l. c. 404] is done by men, women and children, and the course of things is quite different.

The organization of the described fishing parties lies probably with the chief of Tobádi, his boat usually being seen in the middle of the front row. When an important shoal of fish is discovered, every man knows his work and everything is done with admirable swiftness. Of course a sufficient number of well kept boats, hundreds of meters of the standing net, a great many dip nets and spears must always be ready at hand, and this gives an idea of the great, practical importance of this business. The tenacity with which Tobádi, Ingrâs and Ingrau stand up for their fishing rights on those banks and compel Waba to remain within the limits of the south and south-east basin, where no banks are to be found, may easily be understood. This arrangement, however, is a continual source of grievance and injury to Waba, which consequently is also excluded from the outer bay and from any coasting trade.

The large nets, *jane*, mentioned above, are, according to BINK [1897, 148], 40—50 fathoms long; in my opinion, and this may also be judged from fig. 106 of Ingrâs, where such a net has been hung up to be dried, they scarcely measure half that length. A piece in the collection (N°. 577) is 4 m. broad. At regular distances floaters are attached (see the series of floaters behind the stern of the boat in front of fig. 104), sometimes made of the husk of the Nipa fruit, *sĕruwách*, *sĕruwá*, sometimes of little pieces of a light sort of wood, *janĕgon*, with carved ornaments, (N°. 578, Pl. XX, fig. 9), as also FINSCH [1888a, Pl. IX, fig. 2] illustrates of K. W. Land. Along the opposite margin *Cardium* shells, *tèvanki*, *dipangi*, are fastened, each with a cut aperture, used as sinkers, for which purpose *Arca* (FINSCH [1888—93, 220]) is used elsewhere; — they are clearly visible by their white colour in fig. 105. Certainly all these nets are not the property of the community, as FINSCH [1888—93, 25] stated about the large nets of New Pommern and as he supposed of those of the Gilbert Group [l. c. 321], at least I often saw them hanging up on racks, before private dwellings, to be dried, as seen in fig. 106. Still I found similar nets in the house of assembly of Tobádi; more-

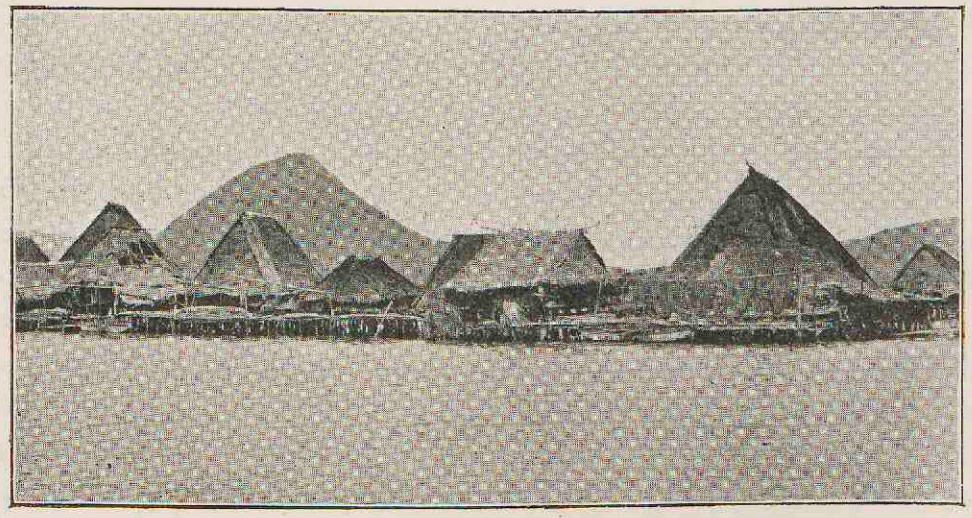


Fig. 106. Ingrâs; on the right a fishing net is hanging.

over in the temple I always found bundles as N°. 579, of the Pandanus aërial root fibre, *ime*, and as well the making of the string (fig. 102) as the making of the nets by the youngsters of the temple has been watched inside this building and behind the fence placed near it. Possibly these boys work for the chief of the village and I remember that the chief himself brought me one of those *ime*-bundles; it is also possible that the nets, made there, belong to the whole village. The prepared *ime*-fibres were already offered to TEYSSMANN (ROBIDÉ VAN DER AA [1879, 122]), who describes them as a long, white, fibrous material, prepared by beating and washing the aërial roots of Pandanus. ERDWEG [1902, 333] gives an accurate description of the manufacture, the fibre obtained having the full length of the original root. According to FINSCH [1888, 236] it exceeds all our fibrous material in durability and length of the thread, according to this author [l. c. 217] 1.5 m. maximum. The fibres from Tobádi (N°. 579), however, measure 4 and 4.65 m. — KONING [1903, 266] also praises the strength of this material and compares the colour to that of Manila hemp fibre. Mr. J. M. DUMAS, who accompanied the expedition, stated that the fibre of the fishing nets dried and moistened alternatively, sooner crumbles off than would be expected. The strength and sustaining-power is not very great, it being too woody and too brittle. KONING indicates the preparation of the roots into fibres with the name of "hackling". I found a little instrument (N^{os}. 580—582 Pl. XX, fig. 16) not mentioned by him, nor by ERDWEG, but of general use in H. B. and which might be called "hackling stick". It consists of a cylindric piece of wood, of the kind called *soáme* (see page 139), sometimes at Tobádi pronounced *soáne*, about 20 c.m. long, with a short but solid piece of string, *ligjai*, fastened to it in the middle. The natives explained to me that tearing off, *imwaitje*, the fibre, *ime*, from the aërial root, requires much strength and, in order to protect the hands, the beginning of the bundles of fibres is tied to the string of the little stick, which they take into their hands and now by pulling strongly they tear off the whole length of the fibre. The hackling stick is always carved with the same ornament, *âne*, such as I found on the handle of a wooden knife (N°. 56, Pl. I, fig. 20) and on the middle piece of an arrow (N°. 748), but I cannot in the least make out what it means. In a man's bag from Ingrâs I found some pieces of *ime*-string, each 1.25 m. long (N°. 584), probably destined for hackling sticks, but indicated with the name of *didai*.

Fig. 102 shows the Tobádi temple boys preparing twine for the nets. The *ime*-fibres are fastened by the middle to the vertical stick. The sitting boy on the right holds the large bundle of fibres which have to be prepared, the two others are twisting them. I saw how every time the standing boy separated 5 fibres, which were divided into two strands, one of two and one of three threads, how each of the two strands was twisted round to the left over a length of about 1 d.m. and then the two were allowed to roll together to the right, forming a rather loose string. Two of such strings fastened to the vertical stick, and coming from the left were alternately rolled on the right thigh with the palm of the right hand. The rolling movement always is towards the knee, with the sun; the left hand has the task to catch the string, when it has reached the knee, and bring it back again higher up the thigh. When the first string has been sufficiently twisted, it is for a short time fastened on the great toe of the left foot (see also HAGEN [1899, Pl. 25]); now a second string is twisted and then both are rolled up together to the left, against the sun. Nearly the same manner of twine making is described by PFEIL [1899, 87] from the Bismarck Archipelago, and MACGREGOR [1897, 88] aludes to something similar.

When making nets from the prepared string, which is also done here by the men, (according to DE CLERCQ and SCHMELTZ [1893, 100] the making of fishing nets is women's work almost everywhere in Netherlands N. G.), they use wooden meshpins, *jane ja*, (N°. 585, Pl. XX, fig. 17; see KRAUSE [1904, Pl. 14, fig. 520]) upon which the loops are formed. Its circumference determines the width of the meshes, which is 3 c.m. square for the large nets. The stitch is the same (see ERDWEG [1902, 332, fig. 232]) as the one used in western Europe (SCHUCHHARDT [1902, 330, fig. 1]), which MAC FARLANE [1888, 97] also mentions about British N. G.; his wife often surprised the natives by taking the netting out of their hands and doing a little for them. The Tobádi temple boys followed the same method, but they work in the opposite way, perhaps forced to this by the other direction in which the twine has been twisted; this MAC FARLANE does not refer to. Also netting needles (N^os^. 586—588, Pl. XX, fig. 15) made of the same, dark brown sort of wood, *tsoáne*, are used in making nets. They are very oblong, something like those KRAUSE [1904, Pl. 14, fig. 512] illustrates of the Easter Islands, but a little shorter and with longer points, resembling the objects the Berlin Museum possesses from unknown origin and from British N. G., in which country also short, broad ones are used. N°. 9734 in the same Museum, from K. W. Land, is unornamented and described as "Filetnadel", "Webenadel". The three specimens from Netherlands N. G., however, are covered with beautiful carvings in which the fish ornament of course takes a great place.

The dip nets used in H. B. are shaped like a bag, the edge of which is fastened to an elliptically curved piece of wood, in every detail resembling the "Hebnetz" which BIRO [1901, 68, fig. 32] describes of K. W. Land. Such a dip net lies on the boat in front of fig. 103 and is only just visible in the righthand lower corner of fig. 102, while one is hanging on the pole of the *kărĕwări* in figs. 187, 188 and 190. The width of the meshes corresponds to the meshpin N°. 585. The edge of the net cannot be moved entirely to one side so as to form a closed bag, as KUBARY [1895, 135, Pl. XXVIII, figs. 3 and 3^a^] found with the Pelau people. Another curious variation of this net, constructed in two halves, closing like a spring-purse, is used by the women of the isle of Seleo near Berlin Harbour (MEYER and PARKINSON [1900, Pl. 14]). A spider's web as a fishing net, as PRATT [1906, 263, 266, 269] describes and illustrates, provided with a handle, is unknown to me from Netherlands N. G.!

Among the collection of the expedition are three sorts of the fishing spears (N^os^. 590—592), thrust or thrown at the fish from the boat. The two first are exceedingly long (5,25 m. and 5 m.) and consist of a bamboo, *ide*, in which a bundle of smooth points is inserted; N°. 590, *chītjai*, has 6 of such points: a short one (71 c.m.) within a circle of 5 longer ones (75 c.m.); the thrusting of that weapon was called: *wŏráte*. The other one, N°. 591, *pĕrur*, has 15 points, one central point around which an inner circle of short ones (47 c.m.), and an outer circle of 9 longer ones (52 c.m.); the thrusting of those spears was called *ītjáte*. FINSCH [1888—93] and also KRAUSE [1904, 181] mentioned a maximum number of 9 points for K. W. Land; ERDWEG [1904, 331, fig. 231^b^], however, has proved, that near Berlin Harbour the spear points exceed this number, and he adds that those spears are only used for fishing by night. KRAUSE [l. c. 171] also mentions this, but I must lay stress upon the fact, that this is not the case in H. B. The shorter spear, N°. 592, was called *uruai*; it has only one point, *kĕtai-bu*, but this measures more than one m. and the shaft is made of

reed, *piār*. The thrusting of this weapon was again differently named, viz. *chū*; from this variety of terms it may be concluded that those spears are used in different ways or for different purposes. The lack of barbs seems to indicate that they are driven into the sand of the banks. In Chapter IX a number of shorter fishing spears is mentioned.

I never saw bow and arrows used in the common fishing parties, probably because the fish, darting with marvellous rapidity along the bottom, offer too little chance of being hit. Many Papuans have a remarkable skill in shooting a fish even if it does not swim quite on the surface. VAN DER GOES [1858, 179] already praised the cleverness of the H. B. people in this respect; I myself witnessed how a Tobádi man on board the government-steamer „Zeemeeuw" shot a horn-fish, which was not swimming quite on the surface and immediately after leapt into the water to seize his booty; undoubtedly this man was acquainted with, and availed himself of, the phenomenon of refraction. In Humboldt Bay the people use arrows with one or more points, sometimes barbed, the longest also used for thrusting; for further details see Chapter IX. The people of H. B. have no opportunity of going along the beach with torches and so getting the fish within shot, as MODERA [1830, 90] relates about the south-west coast, but with their little boats I saw them go on nightly fishing parties to the deeper parts of the inner bay. Judging from the slight motion of the torches there was little or no rowing; the fact is, that the natives await the fish attracted by the light, as PRATT [1906, 172] mentions from British N. G. Also the natives of the village of Kajó Entsáu, situated in the outer bay, carry on the nightly fishing, using spears as well as arrows (KONING [1903, 265]). This nightly fishing seems to be here the principal thing; just as ERDWEG [1904, 331] relates about Tumleo. He however mentions that the fishermen generally do not allure or await the fish but drive them to shallow places by several illuminated boats. The people of Suwamŏ (Tanah Merah Bay), according to DE CLERCQ and SCHMELTZ [1893, 101], have even erected in the water stagings with platforms, from which to harpoon the fish.

Fishing with hook and line I never saw in H. B., still, it is said to take place there, at least according to BINK [1897, 147], who, however, does not mention whether the hooks are made of *Tridacna* or *Hippopus* (FINSCH [1888—93, 190], [1888a, Pl. IX, figs. 3 and 4]) or of turtle-shell [1888a, Pl. IX, fig. 7 and 8] as those which are dragged after a rapidly moving vessel, to allure by their glittering the fish of prey to bite. In the west part of Netherlands North N. G. fishing hooks are made of brass wire by the people themselves.

On Lake Sentáni fishing and repairing nets, as well as diving for fresh water molluscs are left to the women. For the sake of their skill in this respect, many Jótĕfa men prefer them as wives to the women of their own tribe. The women who dive for snails go to the shallow places along the banks of the lake. They take a dip net, *fĕrfare*, as N°. 589, (Pl. XX, fig. 14) with them, in order to gather the snails, *fĕre*, either from the bottom or by sieving them out of the mud, and a bamboo to rest on after every dive and in which to put the molluscs. I was informed about the women's diving into four fathoms of water. The woman represented in fig. 107 had also hanging from her bamboo a bundle of small fish; how she had got them I cannot tell. The molluscs, which after being cooked are a very favourite dish (page 3) with the men, are caught all the year round.

Another branch of fishery, of no less importance, however, is limited to a definite season. This refers to a large kind of fish, *kā joi*, 2—3 feet long, which about the month of

February enter the lake in great numbers from the sea by means of the Tami River (Sechstroh-Fluss of Finsch) and the Jafúri River. Probably for spawning or for impregnating the spawn, the fish like to stay near objects standing in the water. For this reason the natives have erected in the water circular weirs, *măra* (figs. 94 and 107), consisting of vertical piles driven into the ground and mutually supported by circular twigs tied round them. The interstices between the piles are large enough to allow the fish to pass through. A certain number, having gathered in the inner space, all of a sudden see the openings blocked up by a grate of thin, vertical laths, and are now caught with spears. This was what I understood from the information by the natives. During my visits in April and June this fishery of course was not carried on; the *măra* were more or less neglected, but the grates, 3—4 m. high, were put in the houses. At Asé however I saw them lying on the tie beams of the community house which is connected with the chief's dwelling, and so I strongly presume the *măra* and the grates to be the property of the community and this fishery to be for the general benefit. In June I saw the people eat this fish smoked, *joi uwí* or *jŏ huwí*; I noticed rows of sharp teeth in the jaws. In the right season the fish seem to be so abundant that the women cannot manage the fishery without aid: men and children come to their assistance.

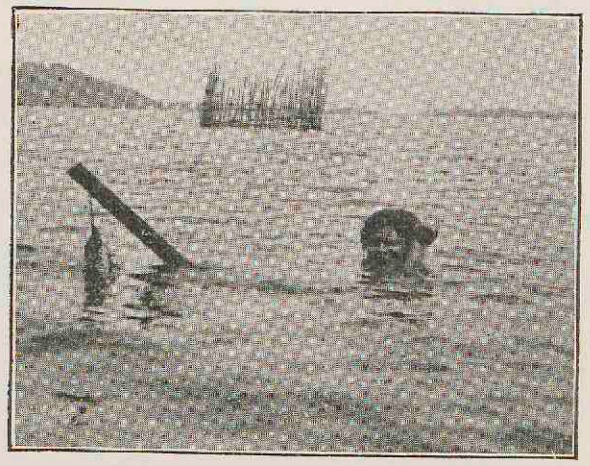


Fig. 107. Woman diving for freshwater Molluscs; Lake Sentáni.

The existence of fishing weirs like the *măra* mentioned above, in various forms and with different methods of use, in use everywhere about the Malay Archipelago, found in the Caroline Islands by KUBARY [1895, 149], at Tumleo by ERDWEG [1904, 331], up to the present was only known in two places in Netherl. N. G.. DE CLERCQ and SCHMELTZ [1893, 100] describe them from the south coast of the MacCluer Gulf, where they are very frequent, especially in Sekār Bay, while ROBIDÉ VAN DER AA [1879, 279] mentions them from Tanah Merah Bay, however without indicating the way of using them. Fig. 108, representing one of the two Muris Bays, situated a little west of Tanah Merah Bay, when looked at attentively, shows a number of stagings standing in the sea, to which little platforms seem to be attached. They were entirely wanting in the fresh water lake of Jamūr.

Another method of fishing, practised in Lake Sentáni, requires a square hand net: a few women drive the fish under the dwellings towards the shore, over the net, previously laid on the bottom, and which is supplied with a lath on either side, like the "Zweistangennetz" of KRAUSE [1904, Pl. 13, fig. 461]. At the right moment two other women lift up the laths with the net; — in this way only small fish are caught. The dimensions of these nets may be judged from fig. 90, where a net is drying on the roof. Once I watched some women making or repairing such tolerably large nets in the chief's dwelling; they pronounced the word *chă hèrä* or *kă hèrä*, in which *chă* or *kă* means fish, *hèrä* perhaps net, or the kind of fish caught in it. ERDWEG [1902, 332, fig. 232] describes a similar net but shorter, shaped like a bag and the two lengthened laths tied together at one end. Trapezium-shaped nets are

mentioned by BIRO [1901, Pl. IV], as being used in Astrolabe Bay; the two laths are longer and kept asunder by a cross lath, in order to be handled by one woman.

I never heard of any fishing with hook and line on Lake Sentáni. The men understood the use of tinned hooks, which I had with me as barter, and to which they gave the name of *chamba*; they were however not very eager to have them, presumably, because fishing with hooks, if it is done there at all, is no occupation of theirs.

The collection still contains (N°. 593) a fishing basket, which DE CLERCQ and SCHMELTZ [1893, 102, N°. 496, Pl. XXVI, fig. 4] describe from Wiak, found by the expedition at

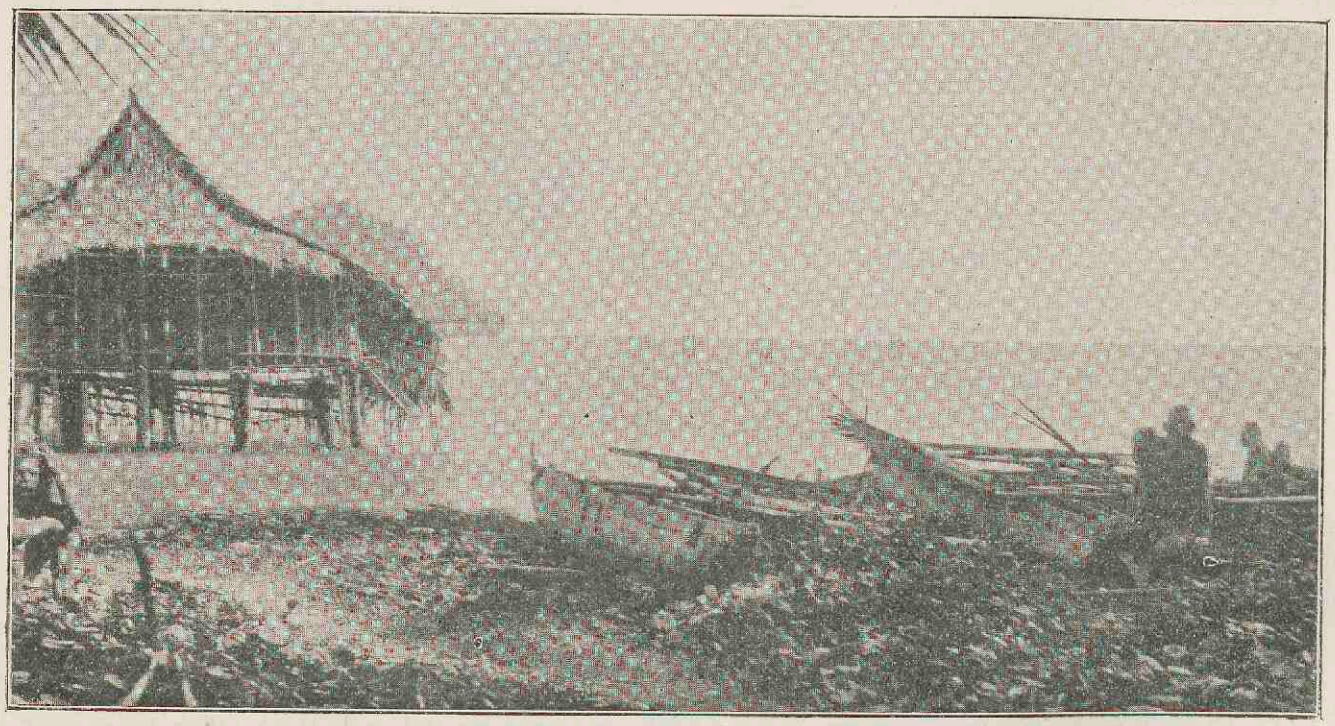


Fig. 108. Muris Bay; stagings for the fishery built in the sea.

Kwatisoré; see also EDGE PARTINGTON [1895, Pl. 175, N°. 3]. It has the same shape as the object mentioned from Ceram by KRAUSE [1904, 259]. On shallow banks it is suddenly put over the small fish and then gradually drawn together and twisted, so as to confine the fish in it. So it is a variation of the circular cast net, used in the Malay Archipelago, also thrown out wide and afterwards twisted. The person on the right of fig. 109 is going to close this open apparatus with the booty inside, while the two girls standing by, one of them carrying a bundle of small fish, show the apparatus in the compressed state. The boy standing next to them has a fishing arrow, which he has evidently used as a throwing spear.

N°. 594 (Pl. XX, fig. 6) is a rattle to decoy sharks. It was gathered at Wári on Wiak and is nearly of the same shape as the specimens found (DE CLERCQ and SCHMELTZ [1893, 104, N°. 508, Pl. XXVI, fig. 7]) at the village of Wadiwū on the same island and those from British N. G. (FINSCH [1888—93, 169], HADDON [1894, 237]) and from the Bismarck Archipelago (FINSCH [1888—93, 26]). According to information from the natives of Wári, the decoyed sharks are caught with spears, fastened to lines veered to the necessary length. East of Cape d'Urville shark fishing is of great importance, which explains the frequent represen-

tation of the shark on the beautifully carved prows. KONING [1903, 264] mentions peculiar ceremonies taking place before the natives start for shark fishing, while a successful expedition gives rise to great festivities (DE CLERCQ and SCHMELTZ [1893, 101]). During our stay in H. B., however, from March till June, the people did not set out for shark fishing. The spears used for this work are described by KONING [1903, 256]; they are 3—5 m. long, made of wood with carved ornaments, and with one point.

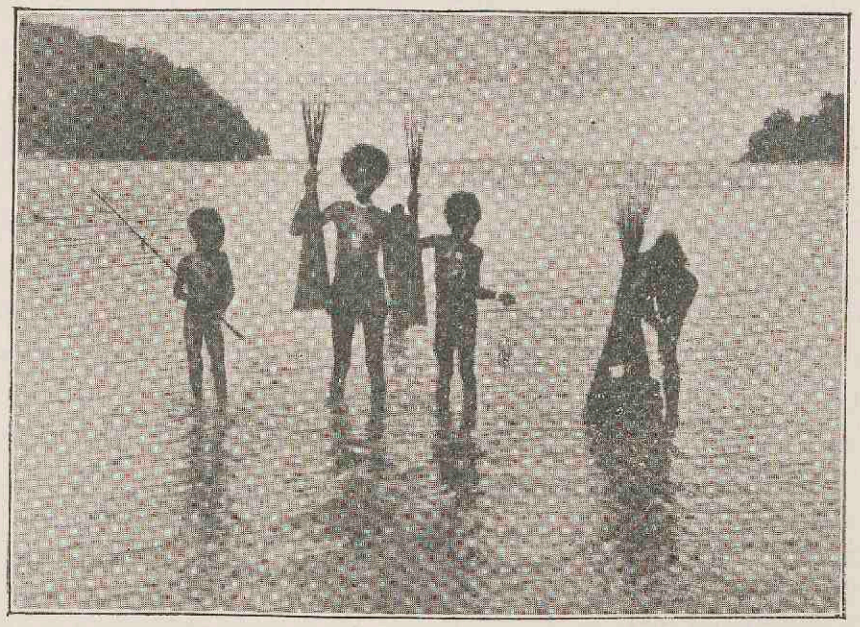


Fig. 109. Fishing with the fishing basket; Geelvink Bay.

Catching turtle in H. B. is done with long harpoons with double metal points, and attached to long lines; the iron points are bought from the traders at Metu Débi. As I never saw anything of this fishery, I don't know whether turtles are caught by nets, as reported by MAC GREGOR [1897, 70], or by diving (MAC FARLANE [1888, 123], ANNUAL REPORT [1899—1900, 25], ERDWEG [1902, 333]). One day while making an excursion along the coast with Tobádi rowers in their little boats, whenever a turtle showed itself, and there were great numbers of them near the reef west of Point Tuadja (Cape Caillié), the oars lay motionless, so much did the animal attract the attention of the rowers. KONING [1903, 266] supposes the right to fish to be free there, the right of catching turtle however is supposed to belong to Kajó; the fishing right on the reefs in H. B. (outer bay) is divided among different villages, and the chief of Tobádi possesses one reef here, where fishery may be carried on only by himself or for his benefit. Turtle eggs are generally found in the sand near the sea or the lagoons. The Tarfia men knew very well how to discover the places where the eggs had been laid, and in the excursion of the expedition they could not be persuaded to go on before the eggs had been dug up. I saw the empty eggs in strings hanging on the outside of the temples, but also put on pegs as ornaments for the graves.

How Halicore Dugong (DE CLERCQ and SCHMELTZ [1893, 101]) is caught is unknown to me; I never saw any stagings built in the sea, as those described from the south coast (HADDON [1890, Pl. VIII, fig. 1]), or large nets in which the animal is caught (WYATT GILL [1885, 288]; see also FINSCH [1901]). Occasionally, knives with beautifully carved handles, made of the teeth of dugong, were found in Geelvink Bay.

I never noticed bow nets, fykes. However, they are met with in N. G. as far eastward as Wiak (DE CLERCQ and SCHMELTZ [1893, 102—103, Pl. XXVI, figs. 3, 15, 16], but, according to SCHMELTZ [l. c. 218], they are merely imitated from the West. Moreover they are known from K. W. Land, both of places situated on the sea as well as on rivers and torrents. Even of the adjoining territory of German N. G., the Berlin Harbour district, PARKINSON [1900, 30] describes bow nets, made from bamboo strips, and other

more complicated implements. MEYER and PARKINSON [1894, Pl. 10, 11, 12] give pictures of exceedingly fine fykes from New Pommern, also noticed by PFEIL [1899, 83], whilst on the Pelau Islands (KUBARY [1895, 140]) many sorts and sizes are in use. All this makes the lack of these traps in Papua Tălandjang very remarkable.

Another way of capturing fish is stupefying them by dissolving poison in the water, as HAGEN [1899, 247], BIRO [1901, 67] and ERDWEG [1902, 334] mention of K. W. Land. According to these authors the natives get the poison by grinding leaves, which are afterwards thrown into small fishing waters. I never found the use of *Derris elliptica* mentioned of Netherlands N. G., so I was greatly surprised to find the long roots of this plant, not the leaves, stored by the people of Sĕkâ, surely to be used in the little brooks flowing through their country. The expedition bought some of this root, ground and hammered it between stones, and employed it very successfully in dammed-up waters. So the use of *tuba* (this is the Malay name), may be accepted of other parts of the Netherlands territory and probably MULLER [1857, 95] means this, where he mentions the use of vegetable poison in rills and dammed-up waters.

Catching fish by means of a kite, a tassel made of cobweb, just touching the water, serving as bait, is mentioned in ANNUAL REPORT [1897—98, 46, Pl. I, II].

N°. 577. *Jane.* Tobádi; part of a large net, broad 4 m., of string twisted from 6—12 aërial root fibres of *Pandanus*, *ime*; stitch as the European netting-stitch, meshes 3 c.m. square; along one edge, at distances of 3 meshes, a *Cardium* shell, *tèvanki*, fastened, perforated near the umbo; along the other edge, at equal distances, pieces of the husk of Nipa fruit, *sĕruwách*, *sĕruwá*, are attached; made by men and youngsters.

N°. 578. Pl. XX, fig. 9. $^2/_9$. *Jánĕgon.* Ingrâs; floater of white wood of low spec. grav., oval, with short handle, (fish shape); on one side circular furrows, on the other spiral ones, barbed in the centre. Used on nets as N°. 577.

N°. 579. *Ime.* Tobádi; 2 bundles of aërial root fibres of Pandanus, yellowish white and stiff, threads 0.1—0.4 m.m. thick, 4 m. and 4.65 m. long; to manufacture string for nets, *jane*, as N°. 577. Found in the temple.

N°. 580. Pl. XX, fig. 16. $^2/_9$. *Idjai.* Tobádi; hackling stick of heavy wood, *soáne*, cylindric, both ends rounded, one carved into a man's head, *chára*, with triangular face; for the rest entirely carved with symmetrical ornaments, *âne*, consisting of four open ovals, united by stretched ridges; piece of seven-stranded cord, *lugjai didai*, wound 6 times round the middle, hangs down with a loose end of 25 c.m. To tear off, *imwaitje*, *ime*-fibres.

N°. 581. *Idjai.* Tobádi; as N°. 580, long 19, thick 1.2 c.m.; carved only over 12 c.m. of the length; five-stranded cord 70 c.m. long.

N°. 582. *Idjai.* Tobádi; as above, long 16.5, thick 1.3 c.m.; loose end of seven-stranded rope only 15 c.m. long.

N°. 583. *Idjai.* Ingrâs; long 28 c.m.; at one end a length of 9 c.m. being square, carved with 4 chevrons; cord twisted from 4 two-stranded twines, loose end 22 c.m. Probably old lime spatula, now used as hackling stick.

N°. 584. *Didai.* Ingrâs; two pieces of four-stranded cord as above, each 1.25 m. long; probably to be used on hackling stick. From man's bag N°. 634.

N°. 585. Pl. XX, fig. 17. $^1/_4$. *Jane já.* Ingrâs; piece of heavy wood, thick 1.4, circumference 7.6 c.m.; meshpin for netting. From man's bag N°. 634.

N°. 586. *Tsoáne.* Tobádi; piece of dark brown, heavy wood, long 28, thick 1.2 c.m., both ends with two points, *tsoáne aiè*, 6 c.m. long, rounded at the top, *tsoáne tĕbèri*; the space between, *tsoáne nĕnsai*, being 6 m.m. wide; both at the bottom, *tsoáne gaái*, united by an incised line. Carved fish ornaments (heads on the bases of the points), caudal fins of 2 fishes enclosing an oval. Netting needle.

N°. 587. Pl. XX, fig. 15. $^2/_9$. *Tsoáne;* Tobádi; as N°. 586, fish eyes each with eye-triangle; before the tail cross carvings.

N°. 588. *Tsoáne.* Tobádi; as N°. 586, circular eyes, connected with wavy, longitudinal ridges.

N°. 589. Pl. XX, fig. 14. $^1/_{12}$. *Fĕrfáre.* Asé; twig, bent till the ends cross each other, and in the oval ring a bag-shaped net, fastened by means of two-stranded cord, *tsa*, made, like the net, of bark fibres, *sui*; stitch as above, width of the meshes 1.5 × 1.5 c.m. Used as dip net.

N°. 590. *Chītjai.* Tobádi; spear with smooth points, *chītjai bu;* a shorter one, 71 c.m., inside a circle of 5 longer ones, 75 c.m., clamped by 7 plaited bands, *châde, châte*, and inserted over 50 c.m. into a bamboo, *ide*, long 4.5 m., around which 5 bands and a rattan lashing, *chi.* To "thrust at fish" = *wŏráte.*

N°. 591. *Pĕrūr.* Tobádi; as above, with 15 points, *chĕkai fŭk;* one central point, around which an inner circle of 5 shorter ones (47 c.m.) and an outer circle of 9 longer ones (52 c.m.), clamped by 3 bands, *châde;* inserted and compressed into a bamboo by 3 similar, little bands and a spiral lashing of rattan. To "thrust at fish" = *ītjáte.*

N°. 592. *Uruai.* Tobádi; as above, one point, *kĕtai bu*, 1.05 m. long, with sharp end, *mishäri*, fastened to a long, cane shaft, *piār*, with lashing of lianes (?), *ăbom.* To throw, *chu*, at fish.

N°. 593. *Pèrè.* Kwatisoré; fishing instrument, made of 1.65 m. long ribs of sagopalm leaves, all loosely tied together by 6 wattling, horizontal strings, forming a conical basket without lid or bottom, circumference of the wide lower border 1.70 m. Used by women and children on shallow banks; see fig. 109.

N°. 594. Pl. XX, fig. 6. $^1/_{13}$. *Tŏbek.* Wári; bent twig, *ariau*, both ends bound by 2 rattan lashings, on either side of the flat faces of a wooden handle, *ai;* bow with ± 40 slices of cocoa nut shell, *tŏbek*, each with central aperture and scalloped rims; the concave sides turned to each other; near end of handle 2 circular carvings. Rattle to decoy sharks.

CHAPTER V.

AGRICULTURE.

The favorite mental picture amongst ourselves of primitive man, living without cares, of what his surroundings provide, is, as far as vegetable food is concerned, often confirmed in New Guinea by the extensive sago forests, growing in valleys, on the shores of lakes and other marshy places, generally providing ample food for local wants. Missionaries consider these sago forests the curse of these countries, as without them, the population would be forced to cultivate the soil more and would become more peaceable in consequence. In the same manner as the hunting- and fishing-ground have been willingly or reluctantly divided between the villages (see pag. 154, also KONING [1903, 265]), the same has been the case with the forests of sago trees and other edible and wild growing plants. WYATT GILL [1885, 314] and ANNUAL REPORT [1894—95, 38] state the same thing of British N. G.: "although growing spontaneously it is regarded as private property, for every inch of land is owned". Guides of the expedition looked on sadly, when the Malay carriers plucked and consumed eatable *Myristica*-, *Artocarpus*-fruit, etc. met with in the forest, because, as they said, all these were private property. On the tour of the expedition to the district of Sĕkâ, one of the accompanying people of Tobádi told us as a very interesting peculiarity, viz. that a sago forest, along which we passed, called *Miáuwè*, had been discovered a few years ago by himself, and that it had since been looked upon and treated by his village as private property. From the communications of DE CLERCQ and SCHMELTZ [1893, 56 and 57], concerning the gathering, transport and trade, it will be seen, how this sago is the cause of much ado. At Siarí I saw on the margin of the forest a boat of Wārsambó, covered with leaves, the crew of which had been collecting for some weeks, in the interior of the forest, sago, for consumption at home.

The procuring of the sago out of the pith of the tree, cut down before it is going to flower, takes place everywhere in New Guinea almost in exactly the same manner, as also described of Ceram (Seran) by MARTIN [1894, 207]; the person operating is seated right across the opened tree, as shown in fig. 110, beating or cutting into pulp the pithy fibres. The principal instrument is therefore no doubt the sago club of which the working end is

made of bamboo in the isle of Ceram, of hard, heavy wood in West New Guinea and of serpentine, in Humboldt Bay and also on Lake Sentáni. Such a stone, *fèmă*, N°. 595 of Ajápo, more or less conical, ± 12 c.m. in length, has at the thick end always a round concavity of which the margin acts like a circular edge, clearly visible in fig. 7 of Pl. XX.

The fixing of the *fèma* into a previously lengthwise split holder of wood, both halves hollowed into the shape of a gutter and afterwards caught between one or more rattan rings, *sari*, and the placing of this into an oblique hole of another longer piece of wood, which serves as a handle, differs on Lake Sentáni in no way from the description already given by DE CLERCQ and SCHMELTZ [1893, 64, N°. 309, Pl. XVII, fig. 6] of Humboldt Bay.

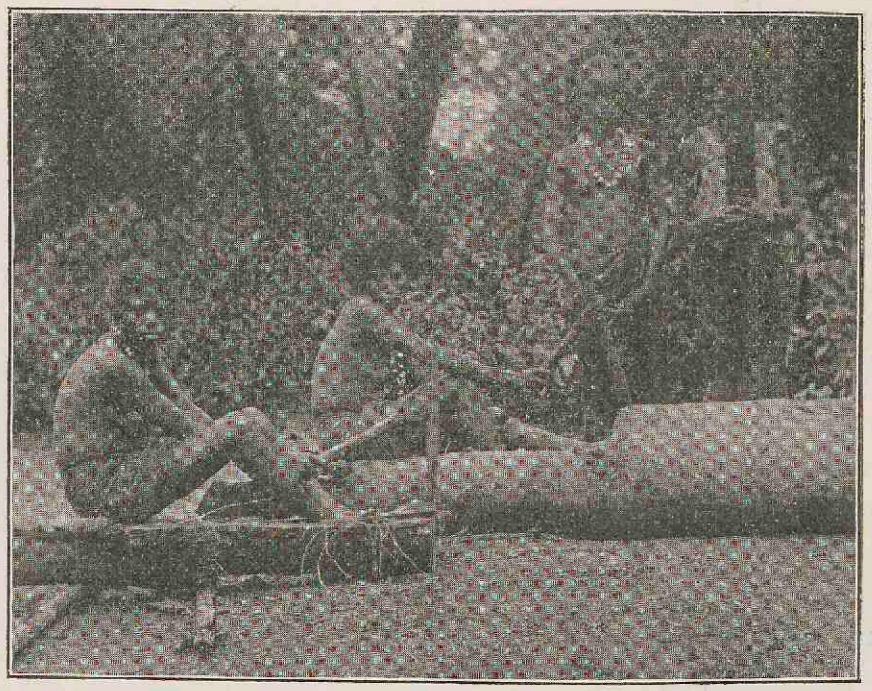


Fig. 110. Beating sago; Geelvink Bay.

What these writers indicate as a carrying sling, is a string of rattan or other material (Pl. XX, fig 7), called *murŏ* on Lake Sentáni, and which is tightly strained like a cord between the handle and the holder of the stone, in order to prevent the splitting of the handle near the hole. MARTIN [1894, Pl. XXII, fig. 11; Pl. XIX, fig. 19] already illustrated with the sago club of Ceram, as well as with the one of New Guinea, this tensioned string.

The geographical distribution of this kind of sago club seems limited to Papua Tălandjang; to the west, in Geelvink Bay, the object is not only entirely of wood, but the handle is fastened to the other part by rattan lashings (see fig. 110 and DE CLERCQ and SCHMELTZ [1893, Pl. XXI, fig. 8]), whilst to the east, in the Berlin Harbour district, the part which holds the stone is also connected by rattan with the handle, which in front is provided with a broadening (PARKINSON [1900, Pl. XIX, fig. 3], ERDWEG [1902, 341, fig. 234]). Of British N. G. EDGE PARTINGTON [1898, Pl. 79, N°. 8] illustrates another form, in which the tied string also appears.

MOSELEY [1879, 444], who looked upon the instrument as an ordinary hammer and tried to use it in nailing down something, blames the people of H. B. for not noticing, that the part, which holds the stone, is, according to his experience, too long for practical use; the length, however, no doubt facilitates the holding of the handle by a person sitting.

The work to be done with the sago club, means moreover, not only the loosening of the fibres, but also the crushing (the Malay people correctly speak of *pukul sago* = sago beating), in order to make the washing out of the fecula thoroughly effective. It is therefore no sign of uncivilised life if metal hatchets are not used for this work. In New Guinea and

elsewhere the apparently primitive instrument continues to be used, even in those parts where ironware has penetrated; there is no reason to accept a priori PLEYTE's supposition [1887, 588], that a religious reason is at the bottom of the partiality for the old instrument.

The collection still contains two sago strainers of Ingrås (N^os^. 599—600, Pl. XX, fig. 2) made of string, with the simple "figure eight" stitch (fig. 9), in a wooden ring. N°. 601, (Pl. XX, fig. 3) of Kwatisoré, has the shape of a basket, as illustrated by DE CLERCQ and SCHMELTZ [1893, Pl. XVI, figs. 1, 3 and 22] of Geelvink Bay and the western islands. The material for this strainer consists of strips of the sago leaf stalk (N°. 602).

Next to the sago club the stone hatchet is the most important agricultural instrument. The hatchet of Papua Tälandjang, however, has no thin, flat blade, as seen in eastern parts (SELIGMANN [1906, 353]), the stone is more chisel-like, having near the edge a biconvex, transverse section (transverse to the edge). As a rule the instrument is used to knock off superficial scales, whereby the convex shape prevents the edge of the hatchet going deeply into the wood, being driven again to the surface. The fastening of the stone in the stone-holder, is done by rattan rings, which, by being forced along the conically shaped wood, cause the highest degree of tightness. This is necessary because the strokes with the hatchet are so much heavier than those of the sago club. Such tightening rings are also applied to the handle, generally at both sides of the socket. Here it should again be noticed that the handle is conical towards the socket, and that the rattan rings, plaited on the thinner part, are only afterwards forced down towards the thicker part, by knocking on them with small hammers, like N^os^. 705 — 709, thus stretching the rings to the utmost and making the tightening as strong as possible. Besides, as in the case of the sago club, a rattan string is generally strained in the sharp angle between the holder of the hatchet and the handle, as already illustrated by MOSELY [1879, 445]. Notwithstanding all these precautions, some of the 13 hatchets (N^os^. 603—615), which all come from Lake Sentáni, are cracked near the socket.

I must still remark that the handle is always more or less ornamented by carvings; those most constantly occurring are the circular carvings, which prevent the string from slipping, but a pointed ornament, of which the meaning is unknown to me, and which shows in N°. 610 a splitting like a fish tail, also often occurs, mostly on the back part, but sometimes along the whole circumference as well.

On the handles of small hatchets like N^os^. 616 and 617 there are no tightening rings, and the great number of indents do not occur either; (See MEYER [1883, Pl. 6, fig. 7]). Finally N°. 618, Pl. XX, fig. 8, of Kaptiau, which also lacks the indents and the tightening string, is distinguished by a button-shaped thickening at the end of the handle, which reminds one of a glans penis.

The material of the hatchet consists of chloromelanite, amphibolite or gabbro. The expedition was lucky enough to find a deposit of chloromelanite in the Toráre River, near Sägeisårå, on the northern slopes of the Cyclops Mountains. On the tree, lying across the river (fig. 111), several pieces of different sizes, dug out of the river sand are to be seen. The people of Asé also fetched the material from the Cyclops Mountains, in pieces of ± 30 Kilos, fastened with rattan to the middle of a carrying pole for two men. Such an excursion, there and back, they could make in one day, from which I presume that the place where this material was found is situated on the southern slopes and is not the Toráre River.

I do not know how they split up these large pieces. BINK [1897, 168], when dealing with the working of the stone hatchets of H. B., simply states: "a piece of stone is cloven, cut and split until the desired shape and a good sharp edge is obtained". SELIGMANN [1906, 353], who got some information about the lost art of stone-working of the Sulogа-villages, writes: "free flaking was the method by which implements were roughed out; the flakes occasionally being of such size and shape as to make a useful adze-blade when one edge was ground. A slab of suitable size and shape was brought to the village, but no quarrying or serious trimming was attempted, and it was a case of finding the proper thing ready-made".

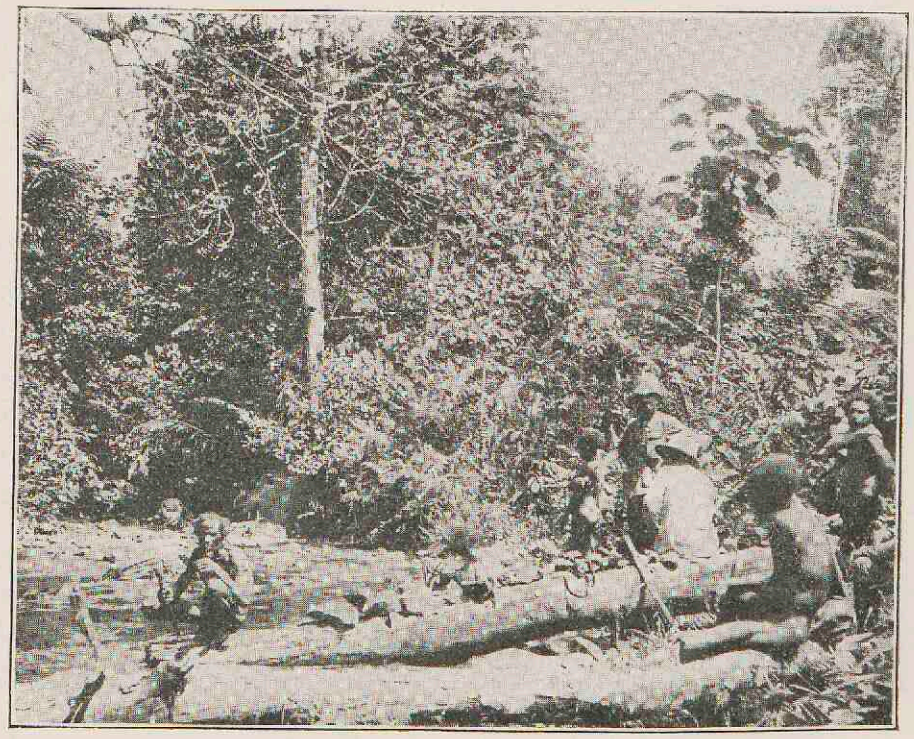


Fig. 111. Toráre River; where chloromelanite is found.

I presume that the people of Asé have a simple method, of which, possibly, heating and local cooling form a part, otherwise smaller and more suitable pieces would have been brought from the place where they were found.

The manufacture of the stone head of the sago club and of the hatchet, is the work of the men, apparently only of old and experienced hands. At Asé the stone was held in the left hand (fig. 112), whilst the right with a piece of an old stone hatchet, which served as a hammer, *tsè wèri*, constantly knocked off small flakes. Similar flaking by the former Suloga people was done with spherical water-worn stones about 2 to 3 inches in diameter (SELIGMANN l. c.). This knocking, *wèri woi*, caused the *fèmă* to obtain during the operation, which lasts several weeks, a light, greyish white colour (see the fig.). I saw the concave hollow, called *ani*, *fimè* or *ŏwje*, made by a revolving friction with another stone of a pointed shape, called *ŏbi*, obtained, it was said, from the *Abè*-Mountain, situated close to Jotĕfa Bay, but chloromelanite may be used for this purpose.

The stone hatchets, *tsè* or *sè*, receive their shape in the same manner, also at the hands of the older people, see again fig. 112. The old village chief of Asé, whom I saw almost daily during my stay of 16 days, was occupied all the time knocking on a stone hatchet, which in fig. 163 is lying under his right hand. The lighter coloured stone is here again the hatchet, the darker one, a piece of an old hatchet, *tsè wèri*, with which the knocking is performed. The stones having got their required form by flaking, the grinding and polishing, *tsĕtjai*, *sèsè*, *sèsai*, are done at the same time. This work appears of less importance, at all events, I saw it done by a boy on a big, flat grinding stone, *sèdère*, without sand, but with

plenty of water, whilst now and then he plunged the hatchet into the lake, in order to wash off the shavings, the „tooth" (SELIGMANN l. c.), and to ascertain the result. The entire operation takes several months. Sago club stone and stone hatchets are still treasured very much on Lake Sentáni, which is proved by the fact, that in purchasing a woman, they are still included in the price. The finest hatchets are somewhat translucent near the edge. The Papuans of Lake Sentáni generally examined them as to this particular quality.

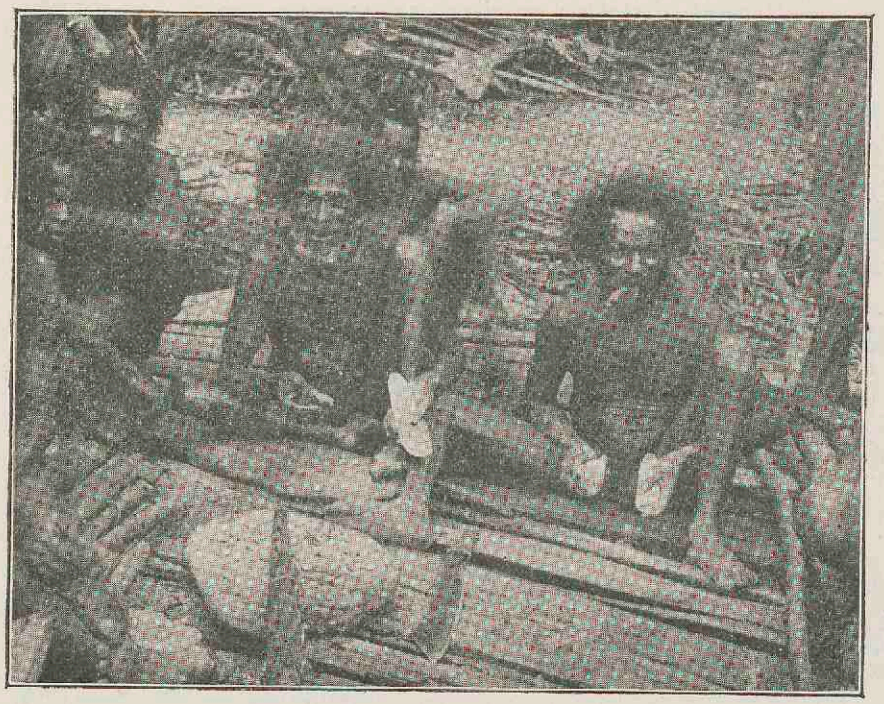


Fig. 112. Stone-working for sago club (to the right) and hatchet (to the left); Asé.

The gardens are laid out sometimes on flat ground, at other times, as often happens on Lake Sentáni, on the fairly steep slopes of the hills, and in cases where they are more or less distant from the village, (at Asé the distance was about one hour), they are provided with small houses or sheds, for shelter in bad weather; a meal is sometimes taken there and implements are stored in them.

In clearing the ground, the stone hatchet is or was used, exclusively by the men, often, however, the tree is ringed, and when dead it is set on fire. For the enclosure of the garden many saplings are required which, on the north coast, are piled up horizontally between vertical stakes, different from the enclosures illustrated of the Tugèri (SCHMELTZ [1904, 202, fig. 7]), made out of vertical poles placed against each other in the ground and connected at the top with a horizontal lath. These enclosures have no opening or door; sometimes a small, vertical pole of 1—2 feet is stuck into the ground on the in- as well as on the outside, which assists persons in climbing over. Bamboo skewers, to protect gardens (ANNUAL REPORT [1894—95, 44]) I never saw.

The man never seems to take any further part, on the Netherlands territory of the north coast, in tilling the soil. Perhaps he participates in the works of the artificial irrigation, as noticed on Lake Sentáni (MOOLENBURGH [1904, 180]), and in British N. G. (SELIGMANN [1906, 359]), but tilling of the soil with wooden instruments resembling rakes, already mentioned by FINSCH [1888, 56], BIRO [1901, 66, fig. 31] and ERDWEG [1902, 336], is on Netherlands territory, also according to the experience of others, not done by the men.

But NACHRICHTEN [1888, 229] prove that in K. W. Land the conditions differ in different places, as according to the same, the man, after laying out the gardens, does no further work inside them, whilst in the Berlin Harbour district, according to PARKINSON [1900, 39] the weeds, which have remained or grown after the bush has been burnt down, are not removed. HAGEN [1899, 244] reports that the Jabim only proceed to the gardens

late in the morning, 10—11 o'clock; at Asé the women and girls who went to the gardens in their large boats, were stirring before sunrise. Some men, provided with bows and arrows, followed later on in their small boats, but simply for the women's protection, remaining usually close to their boats on the shore and not entering the gardens proper. Cases in which the men do all the gardening (ANNUAL REPORT [1902—03, 16]) are exceptional. Where gardens well cared for and cleared of weeds occur, as mentioned by KONING [1904, 273] and HORST [1889, 252] of the hills situated behind the village of Waba, and as I saw on Lake Sentáni, this is to the women's honour. The gardens of Ifâr, on the southern slope of the Cyclops Mountains, are also distinguished by a regular cultivation of sweet potatoes; those of the Sĕkánto people, who live on the banks of the Jafúri, are, on the other hand, according to MOOLENBURGH [1904, 185], exceedingly primitive. Within one and the same enclosure the grounds of different families are divided by all sorts of marks. In the gardens of Tobádi, a row of palm leaves, with parts of the leaves twisted together, was sometimes lying on the ground, or more or less carved stalks of palm leaves were stuck vertically with the thin end into the soil; ornamented boundary posts also occurred, amongst them some with a snake figure carved in relief, spirally round the pole and coloured red, white and black. I am unaware how the division of these grounds was arrived at.

The cocoa nut palms apparently sometimes form an exception to the rule that the tiller of the soil has a personal right to the production. But not according to the supposition of BINK [1897, 147], who, supposing that they grow wild, writes that every one was allowed to pluck as many as he liked, and that he himself and his attendants were allowed to help themselves. BINK evidently did not understand what favour he was enjoying; for in reality every tree has here its owner, who often indicates his ownership and the prohibition to others to pluck, by a palm leaf tied round the stem, sometimes also by cutting figures in the bark. KONING [1904, 262], admitting that the village chief of Tobádi has the right to the management and disposal of all agricultural produce, states that the gathering of the fruit by his orders is the occasion of a harvest festival, for which also provisions from elsewhere can be procured. This last point seems to make the correctness of this view doubtful. The feast does not depend on the ripening of the harvest, but the gathering of some fruits is put off, by order of the chief, till the date of certain feasts, in a manner which strongly reminds one of the tabu of the cocoa nut palms, mentioned by SCHURTZ [1895, 54] concerning Polynesia: "in order to provide a sufficiant quantity of fruit for the festive day".

For the making of a new garden, in some places (ANNUAL REPORT [1899—1900, 64]) the trees of the forest are left, the branches being lopped off, at other places circles are cut in the bark, the trees consequently die and afterwards are burnt. In Netherl. N. G., however, it is a work of magnitude, all the trees being felled. The expedition once came across such a newly opened area, where an enormous quantity of trees of all sizes and heavy branches were lying about, so that we had much difficulty in climbing over all this. Now it is said that in some parts of British N. G. the same area is never planted twice in succession (ANNUAL REPORT [1904—05, 26]), but it is well understood that the Papuans of the north coast do not easily resolve upon making a new garden and generally exhaust the soil (see also HUNT [1905, 8]). In this way, the people of Lake Sentáni had, according to the opinion of Prof. WICHMANN, entirely exhausted the fertility of their soil; the hills near the lake, except

on the top and in some valleys (fig. 113), being now grown over with the wild grass, *Imperata arundinacea*, causing a very barren appearance.

I have nowhere examined the different plants in the distant gardens, nor the methods of cultivation; but certainly no manure is used. It was easy to ascertain that, as everywhere else, the women and girls are employed for carrying the heavy loads home from the gardens. In the west, on the banks of Geelvink Bay, and also on Lake Jamūr, larger or smaller baskets are used for this purpose, carefully plaited of strips of *Pandanus*-leaf (N°. 620, Pl. XX, fig. 12) or of strips of *Hibiscus*-bark (N°s. 623—624), but also of reeds (N°. 625).

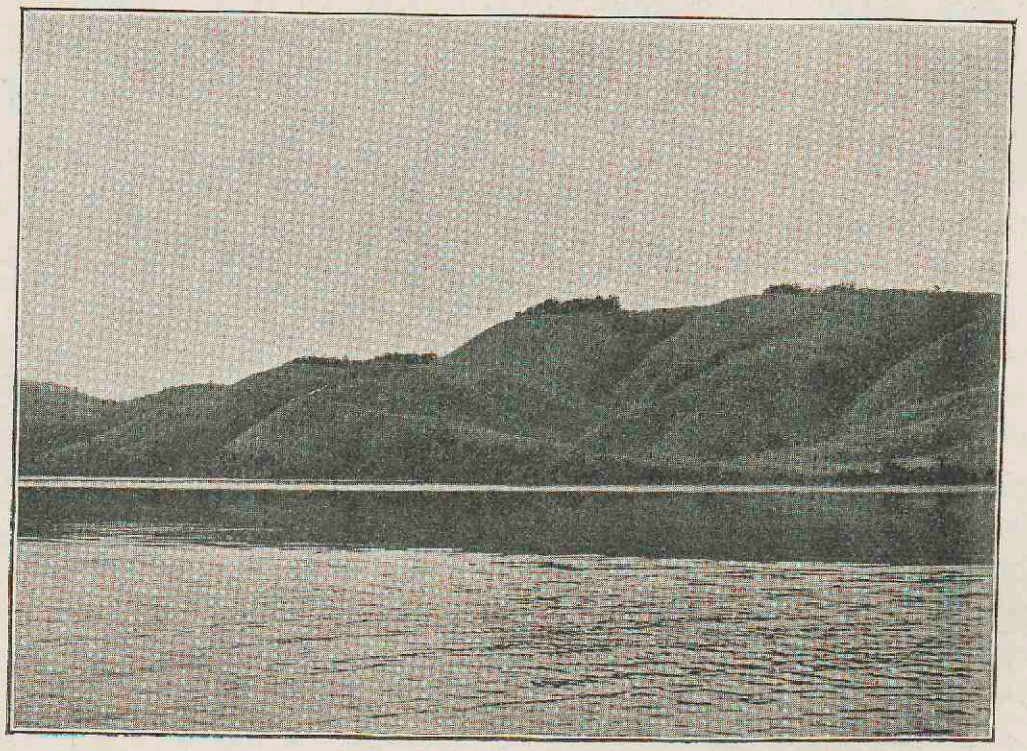


Fig 113. Hills almost totaly cleared of the forests; Lake Sentáni.

Otherwise, over the whole of New Guinea, the bag made of cord with the simple "figure eight" stitch (fig. 9), seems to be in general use, and is carried on the back with a string round the forehead. To these bags and the men's bags I refer more fully on subsequent pages.

Meanwhile the method is everywhere understood how to make, at a moment's notice, a basket out of a green palm leaf. When the pieces of chloromelanite, seen lying on the oblique stem in fig 111, had to be removed, the Papuans, accompanying us, had, in the twinkling of an eye, made for this purpose such baskets with slings, to hang from their shoulders. The technique adopted, is to split in two the stalk of a palm leaf and to make of each half a plaiting by twisting, according to the simple system of fig. 4, the even and uneven side leaves, folded lengthwise or not. Thus the little basket N°. 621, from Tobádi, has been plaited, resembling in principle the food basket of Asé, described under N°. 87 (Pl. III, fig. 17), and also the basket of Tarfia which DE CLERCQ and SCHMELTZ [1893, 81, N°. 404, Pl. XXII, fig. 12] illustrate. Of Astrolabe Bay, BIRO [1901, 63, fig. 28, *1*] illustrates such a basket, round which a network of cord has been formed in order to strengthen it. The basket of Kaptiau, N°. 622 (Pl. XX, fig. 13), shows a very practical application of plaiting of

the side leaves, two split leaf stalks being bent round and forming the upper margin, whilst the plaited side leaves form the body of the basket. The small tobacco receptacles mentioned above under N^os^. 108—111 (Pl. IV, figs. 7 and 9) and all coming from the north eastern part of the Netherl. territory, have been plaited in the same way, but with this difference, that each side leaf, at its issue from the main stalk, has been split at once into 4—6 small strips and a much finer plaited work is thus obtained; the plaited work of the one side also runs down along the bottom and on the other side to the top, the strips thus, for the greater part, lying double. Similar to these, are the small baskets for carrying tobacco, (see also DE CLERCQ and SCHMELTZ [1893, 79]), used in H. B. and its surroundings by the men when they leave the large bag at home. Baskets made of reeds are not mentioned by DE CLERCQ; it is, however, not surprising that two of the baskets of Angádi are manufactured from *Juncaceae*, which grow so very plentifully on the shores of Lake Jamūr, and which yield leaves, triangular in transsection, which, once split lengthwise, form an excellent, tough and pliable material. The large specimen, N°. 625, (Pl. XX, fig. 11), with two loop handles of a strip of bark, is used here for conveying home the fruit from the gardens.

The bags of cord for women will be discussed here at the same time as the men's bags, although the latter are not used for agricultural purposes. They form together a category of articles of daily use, common almost over the whole of New Guinea; but whilst BIRO, in classifying his bags, is principally guided by the ornament, the first consideration here will be the purpose for which the bags are used and further the mode of construction, which again is in accordance with this purpose. The stitches of the bags deserve the special attention of ethnographers and may, like other products of handicraft, be considered to be characteristic, and useful in distinguishing culture districts; particularly if, on a closer examination, it should turn out that, as is apparently the case in Humboldt Bay and surroundings, the manufacture of the bags is especially the work of the women. It seems to follow however, from information given by FINSCH [1888—93, 205], that in K. W. Land the men make their own bags; BIRO [1901, 55] leaves this point untouched and concerning the small, knitted bags of the Arfak people, VON ROSENBERG [1875, 93] does not give any further information either. In this respect the communication of VAN HASSELT [1889, 263], that the Numfōr people imagine the moon inhabited by a woman knitting bags, is, however, not without importance. Especially the technique of female industry, taught and left by mothers to their daughters, originating and continuing to exist in the village-households, must to a very high degree be permanent, and therefore characteristic of tribes amongst which the girls participate already at an early age in the work of the mother and, as is the case here, are often kept apart from the youths. Tied down more to the house, at all events to their village, as they take a much smaller part than the men in voyages or excursions for the purpose of trade or war, the women come less than the men into contact with foreign influences. As objects of female industry are often dragged about over great distances, the utmost importance is to be attached to the objects which are still being made. With regard to the "dragging about" of knitted bags, I may refer to BIRO [1901, 55], who supposes that the much admired breast bags of the men in Astrolabe Bay are imported from elsewhere; besides it was declared of bag N°. 633 (Pl. XX, fig. 1) of the collection, which I bought in Tobádi, that it came originally from Tarawái (Berlin Harbour district) of which it has all the characteristics (see FINSCH [1888a, 29, Pl. X, fig. 1]).

The cord for the bags, is, as far as can be judged in H. B. and surroundings, generally made of *Artocarpus*-bark fibres, although for the better class, the bark fibre of *Hibiscus tiliaceus*, praised also by KRIEGER [1899, 50] for this purpose, is used. Near Waba I saw a man tearing very white fibres out of the inner parts of the bark of a shrub, intended for men's bags. The shrub was possibly *Pueraria novoguineensis*, according to KRIEGER [l. c. 68] especially used for the cord of the bags. This white material becomes eventually dark in colour, from dirt and especially from contact with the skin; it even happens that the kind of stitch cannot be distinguished until the bag has been cleaned. With finer bags (N°. 641), it is therefore not unusual to suspend a piece of prepared bark at the back of the bag, in order to protect it against perspiration and dirt of the body (see fig. 143).

For the purpose of ornamenting the bags, the cord is often made of fibres dyed beforehand, or else the already made cord is afterwards coloured with a liquid pigment, in which case the colouring often does not penetrate to the interior fibres. It is also not unusual, in places where traders import coloured calico, to find the cord made of the threads of this (red and blue in bag N°. 640). In the place where the colours blend, the twisting of the differently coloured fibres can be recognised. For, during the work, as already described by BIRO [1901, 58], the twine is "angestückelt", and the tying or knotting of the twine is generally avoided, both with the bags, the aprons, the bandoliers, the girdles, etc. SCHELLONG [1905, 606] wrongly places the fabric of the bags on a line with that of the fishing nets. It is better to avoid such terms as "netting", "plaiting", "Knüpfmethode" (FINSCH [1888a, 29], [1888—93, 205]) and "Knüpfarbeit" (HAGEN [1899, 180]) as, like the term "Flechten" of BIRO [1901, 58], they lead one astray. It is more correct to call it "knitting" (VON ROSENBERG [1875, 93]) or "Filetstrickerei" (HAGEN [1899, 180]), as the technical principle of the bags only requires a single continuous thread. No warp and weft occur, crossing each other at right angles, nor crossings with oblique angles of numerous threads, according to the technical terminology required for the real webs and for plaited work respectively. The thread can be moved more or less in the meshes or loops, as is the case with the knitted work of stockings, where also each row of loops bears another row.

WOMEN'S BAGS, whether belonging to the extreme east or the extreme west of the island, are, without exception, made with the simple "figure eight" stitch of fig. 9, page 37, which proves, in connection with what has been stated above, that the whole population is allied in this respect. These bags are begun with the border, which forms the edge of the opening, either, as shown on Pl. XXI, fig. 9 of a bag, *dari*, from Fak Fak (West New Guinea) and by BIRO [1901, 59, fig. 1] of Astrolabe Bay, simply by hand, or the stitches are applied to short cylindrical meshpins or split leaves [l. c. fig. 2]. No use is made of "knitting needles", neither here nor elsewhere; the loops of the stitches are wide enough to pass through the end of the thread after twisting it into a point between the fingers. The run of the rows is spiral and the end of the string is to be found in one of the lower corners.

The bags of the women are always larger than those of the men; N°. 626 of Tarfia even reaches a breadth of 120 and a depth of 42 c.m. In conformity with the size of the objects, as agricultural produce, pieces of fire wood, etc., which have to be carried in them, the stitches of the bags are sometimes as high as 4 c.m. and as wide as 2 c.m., the bag thus easily adapts itself to the shape of the contents. In the west (Fak Fak) the large bags,

called *kabari*, (VAN DISSEL [1904, 931, fig. 4]), are principally used for carrying nutmegs. At first rectangular, the middle sinks down by use and the bottom part becomes longer, whilst the little elastic border remains the same. In cases where the length of the sling is less than the length of the opening of the bag, the transformation is no doubt greatest.

The ornamenting of women's bags very seldom occurs in H. B. and surrounndings; N°. 628 (Pl. XX, fig. 5) of Nimbúran has, however, spaces of greyish blue and brownish red, obtained by alternate colouring, over certain distances, of the already prepared string, at all events the change of colours takes place suddenly, and on the section, the interior fibres appear blank. The women's bags of British and German N. G. form a great contrast with the above, differently coloured stripes, rising and descending through the horizontal rows of the bag, forming a pleasant design; each thread, however, retains in its course its own colour. Evidently the work is here done with several threads at a time; i. e. in a fine bag of British N. G., Ser. 929, N°. 409 of the Leyden Museum, one grey thread, two brown and four white threads can be distinguished. Sometimes the colouring matter is applied to the already manufactured bag, but it is impossible then to prevent the unequal distribution of the liquid colouring matter, as the limits of the coloured design become indistinct and the effect is untidy (see Leyden Museum, Ser. 350, N°. 127, bag of British N. G.).

Of bag N°. 629 of Asé it is still to be noticed that in the upper turn, with every 7—10 stitches, the lateral connection between two stitches has been omitted once, whereby openings have arisen, which enhance the appearance of the bag.

The border of the women's bags, which is sometimes manufactured out of somewhat heavier cord, has been worked in a practical and simple manner according to the pattern of fig. 61 or after that of fig. 114. This border is also found in British and German N. G., where also (see Leyden Museum, Ser. 350, N°. 127, of Br. N. G.) another border occurs, not mentioned until now of the Netherl. territory and consisting of one or more cords running straight, festooned with turns of other cords.

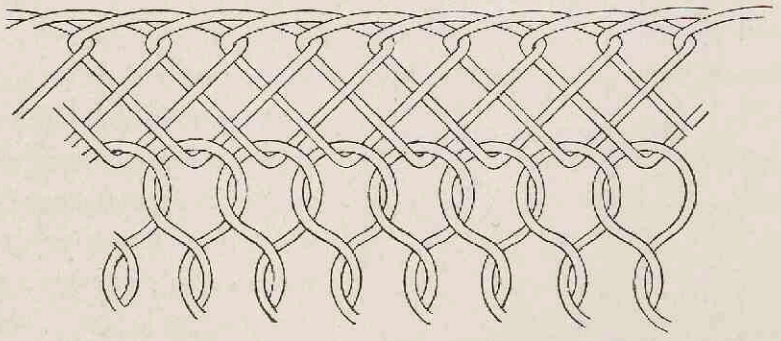


Fig. 114. Pattern of border along bags.

Finally the slings, when also made of cord, often consist of transverse rows of the same simple "figure eight" stitch. The greater the number of stitches (6—9) of one row, the broader the sling and the less the local pressure when used. At the end of each row the cord ascends towards the next row, consequently the turns are applied, working alternately from left to right and from right to left. The sling of bag N°. 629 also shows this peculiarity, that each of the stitches is doubled in the length, as shown in fig. 115. Besides in finishing the row, a knot is here laid round the last loop, in order to prevent the sling losing its shape in the use.

The way in which the women carry their bags, appears everywhere to be the same, as already mentioned by VAN DER GOES [1858, 159] of Ajambori, namely the bag on the back and the sling in front of the forehead, along, on, or somewhat above the limit

of the hair. In this manner girls and women can, and must, carry heavy loads, to the great annoyance of most European visitors. When I was buying bag N°. 629, one of the men showed me its use; hanging the empty bag on his back, the sling laid along his forehead, he pretended that the bag was filled with a heavy load and walked with his body bent forward, sighing with assumed exertion, with bent knees and short steps. The representation left nothing to be desired in its vivid exhibition of cruelty and barbarism; that the women themselves shared in the general hilarity, only proves that the heavy, daily labour is not looked upon by them as an injustice. On Lake Sentáni great distances were never covered with these heavy loads, as the gardens could all be reached by boat.

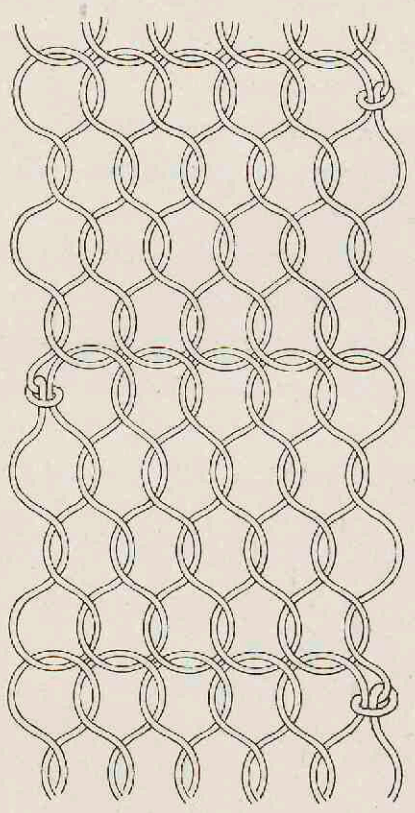


Fig. 115.
Pattern of sling for carrying bags.

Pregnancy (VAN DER GOES [1858, 159]) is no reason for exemption, and HAGEN [1899, Pl. 36] gives an illustration of a woman of Tamo returning from the garden, who, besides her filled bag, carries on her back a bundle of fire wood and a baby in her arm. Under such circumstances it becomes intelligible that sometimes a patch of white hair is to be found (PRATT [1906, 303]) and even an impression on the head, at the point where the sling has pressed (FINSCH [1888—93, 111]). When the bag is empty, the baby is sometimes put into the same, and it is then occasionally suspended in front of the body, the sling lying across the crown of the head (THOMSON [1892, 80]), whilst at other times (FINSCH [1888, 40], [1888—93, 108]) the bag is carried at the side with the sling over the shoulder. The young Papuan is able to slumber peacefully inside; at home the bag is sometimes suspended from the rafters and kept in motion by the mother, like a rocking cradle. MORPHY [1904, 331] calls it "a most ingenious composite cradle and mosquito net combined"; the last qualification is, however, incorrect, for the women's bags of the territory indicated by the author, on the continent opposite Yule Island, are the same as those of the Netherl. territory and can be recognised on his photo, manufactured with the common "figure eight" stitch, through which mosquitoes easily pass. Nobody will be surprised to learn that women also carry their favourite dog, in its turn, in the bag, as seen by D'ALBERTIS [1880, I, 92] amongst the Hätam people.

The way in which the women take up their loads, I could see on every occasion, when the expedition used women as carriers; they then spread out their bags on the ground, placed inside the often very heterogeneous objects, crouched down with their backs against the load, placed the sling along the front of their head and then rose straight up with their loads.

The MEN'S BAGS are only intended for carrying articles of daily use, to be compared with our dressing bags and valises.

Some four different stitches are, however, to be noticed on the same, which make a difference in the outward appearance. One of these four kinds of stitches again turns out to be our simple "figure eight" stitch (fig. 9), but considerably smaller than in the case of the women's bags. It is only applied in the larger, coarser, mostly uncoloured, square bags (Nos. 630—633), intended for holding not too small objects.

The mode of manufacture and the point where these bags are begun, do not appear

to be the same everywhere. Such a bag, *dari*, half finished, which was forwarded to me by Mr. J. VAN DISSEL, official of the Netherl. Indian Government at Fak Fak, and illustrated on Pl. XXI, fig. 9 on the scale of $^1/_6$, is set up by hand beginning at the border, and to this the body of the bag is formed, one row after the other, all of them closed at a corresponding place of the circumference by a knot; see in the fig. at the bottom, to the right. The third row is here started, and in the direction opposed to the hand of a clock, advanced to a point at the bottom, to the left.

By applying so-called "letting-outs" (which are always wanting in the women's bags), principally in connecting the third with the second row, the bag becomes much wider towards the bottom. On another *dari*, from the same source, about the same way of working has been applied; all the rows on the vertical back margin of the bag (supposing this being suspended from the left shoulder, the coloured surface outside), being closed by knots.

Something similar can be noticed on bag N°. 632 of Oinâke, both front as well as back surface consisting of horizontal rows, of which the threads end at the margins, where they are tied together, whilst the ends hang down like long, ornamental fringes. At the bottom of this bag the stitches of front and back surface do not join each other either, in contrast to the N^{os}. 630, 631, 633 and the *dari* of Fak Fak, but the connection is made by loops of a continuous cord. Bags of this construction appear to be scarce; in the collections at Leyden, Amsterdam and Utrecht I found nothing similar. To this class also belongs bag N°. 633 (Pl. XX, fig. 1) obtained at Tobâdi, but made originally at Tarawâi, which, in shape and ornament betrays its more eastern origin. It belongs to the kind which BIRO [1899, 32, Pl. XII, fig. 2] describes as "bags ornamented with Nassa", the appendices however, and this is the case with all these bags, are not worked with the simple "figure eight" stitch, but as per fig. 43. The greater part of these coarse men's bags are plain, but N°. 633 forms an exception, as well as some of the *dari*, along the bottom of which there is an ornament made out of a cord with the stitch of fig. 5, by which, moreover, small, coloured calico tassels may be suspended.

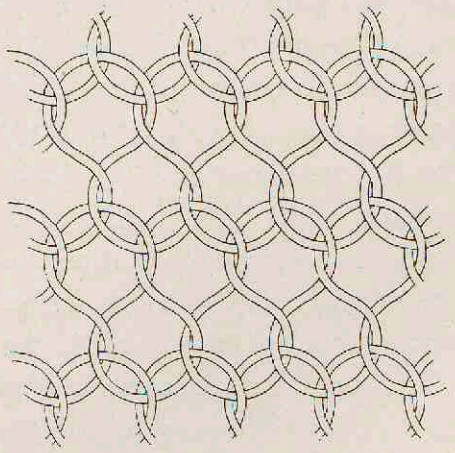


Fig. 116. Composite "figure eight" stitch for men's bags, etc.

The composite "figure eight" stitch, is another type, represented in fig. 116, often used in H. B. and surroundings for men's bags of similar size or smaller; it closely resembles the previous one, but the cord of each stitch runs in its upper as well as in its lower loop, through two stitches of the higher and lower row respectively. The arrangement of the stitches thereby becomes different, they also reach further into each other, and consequently a closer fabric is obtained. The collection contains four (N^{os}. 634—637; Pl. XX, fig. 4) of these bags, all square, therefore, without "letting-outs", besides two (N^{os}. 647—648) which are still being made, showing that these bags are started at the bottom. For this purpose a rope is stretched along and fastened to the ends of a wooden lath, with N°. 647 a piece of white wood, with N°. 648 (Pl. XXI, fig. 1) dark brown, nicely carved. Commencing at the right and working towards the left, on this rope the first row of stitches, intended for the back of the bag, is made; at the end of the row a return is made without interruption, now making,

the first row of stitches for the front, from the left to the right, at the same time interlooping the stitches of front and back row, so that the bottom is closed, even when the suspensory cord is removed. After the first turn, the rows are continued without interruption, therefore in a spiral. The number of turns does not always form a complete number; this depends on the place where the thread of the last row passes into the border. Finally the sling is made, generally with the same thread.

With this kind of stitch, presumably because it is closer and has smaller openings than the previous one, a needle is used, consisting of the hollow phalange of the front limbs of Pteropus (N°. 653, Pl. XXI, fig. 11). Of this the thinner end is sharpened to a point, and near the other end a transverse opening is made, through which a couple of decimeters of the thread is passed (Pl. XXI, fig. 4; see EDGE PARTINGTON [1890, Pl. 290, N°. 11]). The same needles are, according to objects in the Berlin Museum, used on the Salomo Islands, but also in British N. G. (MACGREGOR [1897, 50]) and K. W. Land (not in Astrolabe Bay; BIRO [1901, 58]), where pierced fishbones are sometimes (FINSCH [1888, 318]) used instead.

On account of the greater amount of work and the larger quantity of material required, these bags are much more valuable than those of the previous kind; often they are decorated with coloured stripes, with seeds, beads and also with an elaborate border. It is remarkable, that with these bags, see Pl. XXI, fig. 1, the work is done, two rows at a time, therefore with two threads. The introduction of the coloured stripes indeed requires the use of more than one thread. On N°. 647 it can be easily noticed, that the first coloured stripe, at a certain place, is simply inserted between two spirals of white rows, and from this moment the work is done with two threads and thus continued. The coloured stripes, each of the height of one single stitch (therefore coloured rows), are by preference applied in sets of two, to an uneven number (3—5) and as a rule only occur on the front, viz. at the back the coloured threads pass into white ones. Often (N°s. 636, 637, 647 and 648) a group of stitches out of such a coloured row jumps over to a higher or lower white row, whilst then an equal number of white stitches obtains a place in the coloured row. In this way systems of small patches are formed, as illustrated by DE CLERCQ and SCHMELTZ [1893, 82, figs. 30 and 31], the "painted pattern" (?), "dice design" of BIRO [1899, 30, Pl. VII, fig. 1]. It should here be noticed that both cords, the coloured as well as the uncoloured, can be traced uninterruptedly in their patches, therefore pass constantly from one row to another; in this respect the drawings of DE CLERCQ, referred to above, are not accurate enough. To increase the outward appearance of these bags they often have (N°s. 635—637), like the women's bag of Asé N°. 629, open spaces in the upper row.

The following bags of the collection (N°s. 638—641) are, on an average, somewhat smaller than those of the previous category, but are used for the same purpose. The breadth is very much larger than the depth, moreover, the slit-like opening is much shorter than the breadth of the body of the bag and the bottom line, whereby a peculiar shape (fig. 143 and Pl. XX, fig. 1) is obtained. But the real peculiarity of these bags is the loop-shaped stitch (fig. 117), which differs from the western knitting stitch, in this way, that the loop of each stitch has been turned 180° round its axis, in the direction in which the cord has been made, towards the left. Thereby the cord has gained in strength. As each stitch grasps a higher placed one round its base, a vertical arrangement and a vertical striping of the web (Pl. XXI, figs. 2 and 3) are

caused. This was also noticed by FINSCH [1888—93, 205] who, on the other hand, indicated the "figure eight" stitch as a kind of "netting work". These bags are made of fine, two-stranded cord, composed of Artocarpus bark fibre (?) and the stitches are not larger than necessary to encircle one another; they are also placed transversely so close to each other that a very close web is obtained, not even allowing somewhat coarse powder to pass through. The same kind of stitch occurs on bags of the south-west coast (Wiener Hof Museum, N°. 15385). When following the thread, it appears that the work here again is done spirally in the round, whilst the closing of the bottom is done by the same cord, with a long row of hitches, as indicated in fig. 118. The end of this cord hangs down free at a corner of the bottom; it can be easily removed, whereby the whole bottom is soon opened. It therefore appears plausible, that the closing of the bottom according to fig. 118, is the last process in the manufacture of these bags. This being granted, the term "taking-in" must be given to the mode of work by which the number of stitches of a row decreases towards the bottom (fig. 117, *a*), whilst the opposite mode of working (fig. 117, *b*), must be called "letting-out". As the width of these bags increases towards the bottom, few "taking-ins" can a priori be expected; indeed they only occur with N°. 641 (three) and with N°. 643 (two).

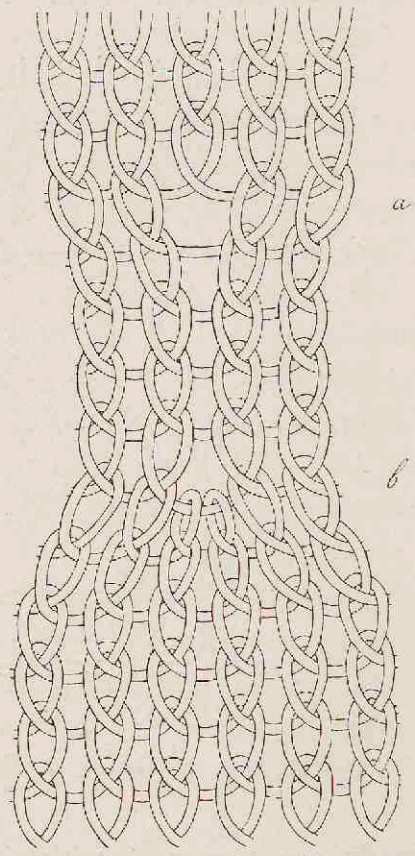
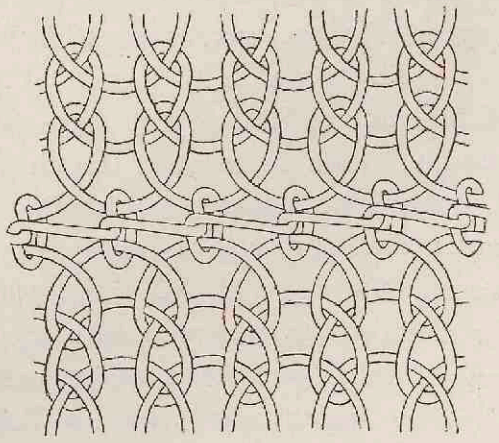


Fig. 117. Loop-shaped stitch of men's bags; with "taking-in" (*a*) and "letting-out" (*b*).

Besides the two fold "letting-out", — represented in fig. 117, *b*, — single, three and four fold ones occur on the bags under notice. Thus N°. 640 has: 14 single (9 at the back, 5 in front), N°. 639 5 four fold, 12 three fold, 7 two fold and 1 single. For the latter bag this means, that the number of stitches of one row at the bottom, is 71 more than at the top. With N°. 641 the difference amounts to 72. However large this number of "letting-outs" may be, the difference in breadth between bottom and opening originates in a still larger measure, in the passage of the first row with exceptionally long stitches towards the second.


Fig. 118. Closed bottom of men's bags.

Whilst the bags with the "figure eight" stitch are called *sŏgèri* in H. B., the name *srosror* is given to the bags with the stitch of fig. 117, which name, without doubt, indicates at the same time the kind of stitch, the technique of the manufacture. They are again more valuable than those previously mentioned and are often ornamented with coloured stripes, cord fringe (according to Finsch rare to the east of Attack Harbour), Coix, bells made of shells, balls of cuscus skin, larval envelopes, sweet scented leaves sometimes smelling like musk (FINSCH [1888—93, 207], sets of ground boar's tusks and beads. The coloured stripes generally occur in the shape of three sets, each consisting of a brown

and a grey row; the middle set sometimes contains more stripes. With N°. 640 foreign yellow, red and blue thread has been used. One yellow row, composed of the "figure eight" stitch, is introduced between the others, as per fig. 119, whilst between two red rows, one blue one has been worked, as per fig. 120. Amongst the bead ornament of these bags the currency

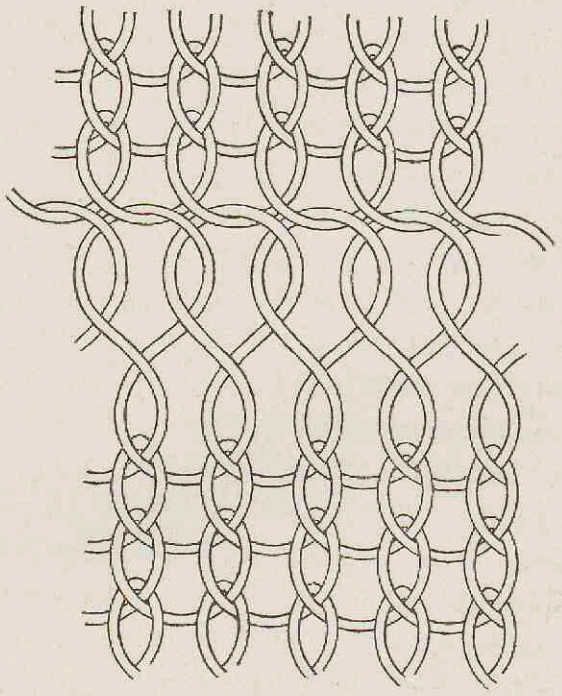


Fig. 119. Stitches on men's bag N°. 640.

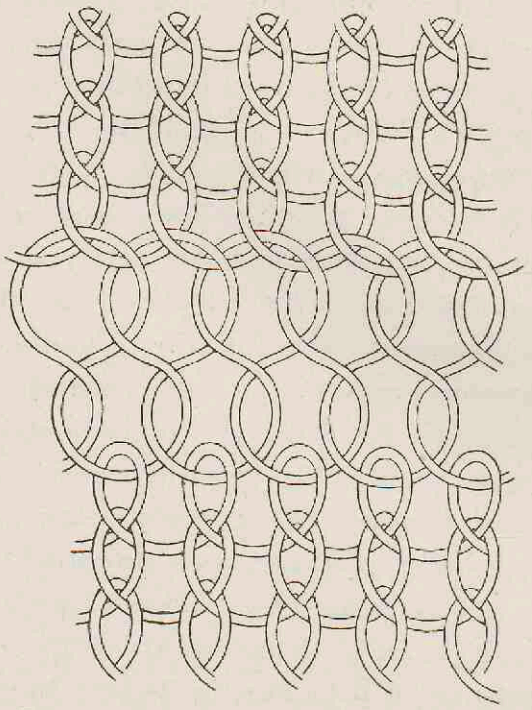


Fig. 120. Stitches on men's bag N°. 640.

beads are also met with. The headman of Tobádi now and then wore a *srosror* (fig. 143) decorated with so many and such valuable beads, that the bag itself was of comparatively little value. All this to a certain extent indicates the dignity of the man, who has the charge of the beads, which are the property of the community (see Chapter VII). It was impossible to procure this bag with our means of barter. Indeed a well decorated *srosror* combines here all that is most valuable amongst the personal ornaments and other preciosa, possessed by the Papuan. An excessive decoration with dogs' teeth, as in K. W. Land, is not usual in Netherl. N. G.

The smallest kind of men's bags, seen on the north coast to the east of the Mamberamno River (N^os^. 642—644), is not carried from the shoulder but round the neck, hanging down in front of the chest, sometimes with the sling tied on to a separate neckstring. They are only used for holding tobacco and siri, whilst the lime receptacle is then carried under the arm or in a larger bag. They are also made with the stitch of fig. 117, for which reason N°. 642 (Pl. XXI, fig. 3) of Asé is also called *srösrö*. Although exclusively intended for men, they are made by the women, by hand, without a weaving wood being used and out of the fibres of a plant, called *pâtai* (?), specially cultivated for this purpose. The name *chèndâri* which was given at Tobádi to such a small bag (N°. 643), no doubt points to the way in which it is carried (see N^os^. 388—391), i. e. "on the breast"; FINSCH [1888—93, 205] looks upon these small bags as breast ornaments. When empty, they are quite flat. Ornamented with two or three sets of coloured stripes, they are often deeper than they are broad, but otherwise right-angled, except that, with N°. 642 one "letting-out" and with N^os^. 643 and 644

two "taking-ins" occur. The bottom is again closed as in fig. 118; the ornamentation with cord fringe, etc. is however seldom wanting; when at the bottom, it is tied on to the continuous string, which closes the bag. With N°. 644 (Pl. XXI, fig. 2) of Ifâr the opening is closed with one of the dependent small bits of twine; perhaps the owner kept valuable beads in it. Small bags, made with the stitch of fig. 117, like several specimens in the Berlin Museum, originally from the Ramu Valley and elsewhere, are sometimes used to put amulets in.

The fourth kind of stitch is found in N°. 645 (Pl. XXI, fig. 10) of Liki. The sling of this breast bag, too short (42 c.m.) to pass over the head, was fastened to a separate neckstring. The stitch (see fig. 52) consists of a loop, twisted like the previous one; however, each lower loop being suspended from two loops of a higher row, the web gets a twilled appearance. Similar bags, found in Geelvink Bay, are in the collections of Amsterdam (Ser. 8, N°. 29; Ser. 9, N°. 6) and Rotterdam (N^{os}. 6229 and 6701). I had no opportunity to watch the manufacture of this very close web, but the Leyden Museum contains a bag (Ser. 16, N°. 542) from Netherl. N. G., made with the same stitch and in the spiral rows of which a yellow strip of leaf is entwined, which naturally shows the same spiral course. The conclusion is easily arrived at, that in this case the same technique is followed as demonstrated by the illustration of BIRO.

The bag of Liki really consists of two, each worked separately in the round, but they have the continuous border in common; both bottoms are closed with one continuous string, according to the pattern of fig. 121, the same in principle as that of fig. 61, and little different from fig. 122.

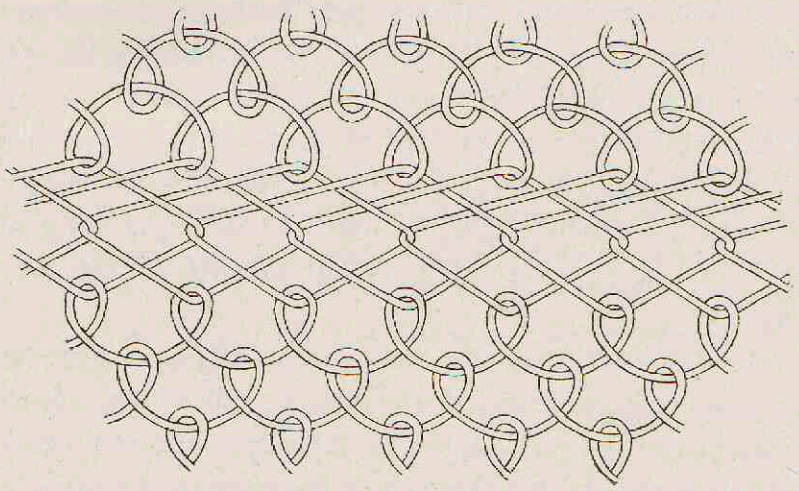


Fig. 121. Closing the bottom of bag N°. 645.

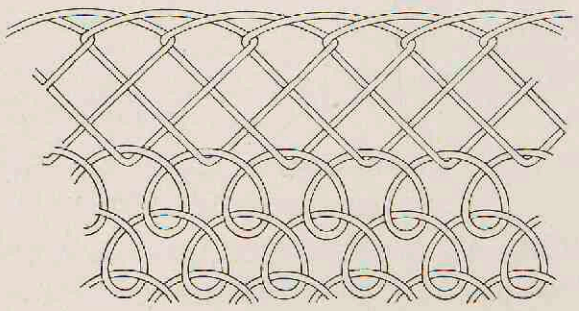


Fig. 122. Border of bags which are made with the stitch of figs. 52 and 117.

This same border occurs on a small men's bag of the collection, N°. 646 of Nimbúran, which, as an exception to the rule, is entirely made with the "figure eight" stitch.

Four patterns of borders may be distinguished, that of fig. 43 occurring by far the most frequently. To begin with, on all the small bags (with the exception of N°. 645, of Liki) and besides on most of the larger bags. The geographical distribution may be, to some extent, judged by its occurrence at Kaptiau, as well as in Humboldt Bay, on Lake Sentáni and in Berlin Harbour. Of 16 bags of the collection, 12 show this pattern and it is therefore to be regretted, that the system of the manufacture has remained unknown. Related to this pattern, in fact a doubling of the same, is the pattern of fig. 50, found in the border of bag N°. 637 of Ingrâs (see also N°. 404, Pl. XVI, fig. 3).

The second border pattern is to be found in women's bags (N^os^. 627—629) as well as in men's bags; in N°. 630 it is fastened as per fig. 61.

The third pattern has been already met with on women's bags (figs. 114 and 122).

The fourth pattern, fig. 123, is more complicated; for the sake of greater clearness, the bends are drawn very ample, notwithstanding that the outward appearance is in this way somewhat modified. The charm of appearance of this border is principally obtained by superficial bends, which lie like a thick, twisted cord (*ab*) on the surface. N°. 635 of Ingrås shows this border in two fold breadth, N°. 636 of Tobádi is three fold, whereby these bags also show two and three superficial cord-shaped ridges (*ab*) respectively. Working once round with one thread, the border is only obtained in single breadth. In N°. 635 and N°. 636 therefore, the margin must have been worked round two and three times respectively. This beautiful border has, as far as Netherl. N. G. is concerned, only been met with until now in Humboldt Bay; without doubt it is made by needle, and, it is then, as I noticed, not difficult to make.

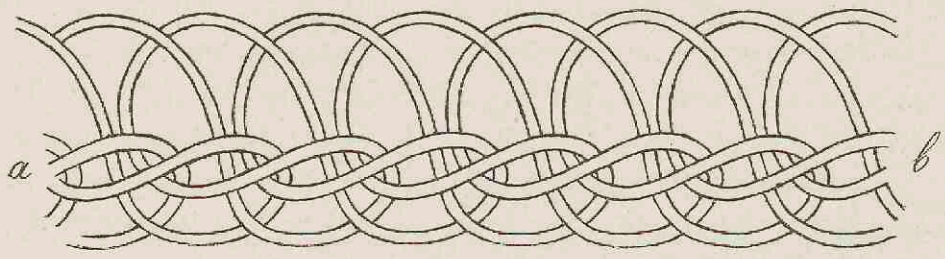


Fig. 123. Border on men's bags.

The slings of the men's bags consist sometimes of a strip of bark, at other times of the single or plural "figure eight" stitch (figs. 9 and 115), but often also of pattern fig. 43. As this pattern produces on a single breadth a narrow sling, it is only found with the small bags, amongst them with N°. 645 of Liki, whilst the larger bag of Tarawái (N°. 633) has already a sling of double width (fig. 50), and therefore with two relief ridges. For the larger bags, which generally contain heavier weights, a broader sling is used. Finally the sling of bag N°. 639 of Tobádi is manufactured as per fig. 47, retaining its full breadth in the use, decidedly advantageous for naked shoulders.

From the foregoing it may be judged to some extent, that in the bags, as FINSCH [1888—93, 205] already noticed, a not unimportant textile artistic skill is laid down, which deserves further comparative study. It would be profitable also to take into account other countries. Thus the simple "figure eight" stitch is also used in the bags of Paraguay and Southern Brazils (Wiener Hof Museum, N^os^. 41417 and 3609). On a so-called prince's cap from the neighbourhood of Lake Tanganyika (Leyden Museum, Ser. 387, N°. 30) oblique patches occur of stitches like those of fig. 117. The stitch of fig. 52 also occurs on the small bags of the Viti Islands (Wiener Hof Museum, N°. 3914) only with this difference, that the twist of the loop does amount to 360°. Turned in an opposite direction, the same stitch may be met with on a skull-cap (Leyden Museum, Ser. 1032, N°. 43) from a district close to Lake Tanganyika. Finally it appeared to me very remarkable, that the beautiful border found in Humboldt Bay (fig. 123), also occurs, with a very slight modification, along the margin of the caps mentioned above. The cord-shaped relief ridge (*ab*) is the same with both patterns and where these borders have been multiplied along the caps, also more of these ridges occur.

The collection contains as N^os^. 649—652 (Pl. XXI, figs. 5—8), four carved wooden laths, as used with N°. 648, to fasten on the bag, *sögĕri*, during the manufacture, and called

sŏgĕri ai (*ai* = wood). In the Batavia Museum four of these pieces of wood, "use unknown", occurred (VAN DER CHYS [1894, 163, N°. 6970]) and a similar object was collected by DE CLERCQ ([1889, 1266]; DE CLERCQ and SCHMELTZ [1893, 89, N°. 442, Pl. XXI, fig. 1]), who supposed it to be part of a head support for women. In this information obtained by DE CLERCQ: "for women", a confirmation is probably to be found of my experience, that the women and not the men manufacture the bags. I notice that on these objects dog figures, carved à jour, often occur, also on that of DE CLERCQ; that the dog is often the companion of the women, has already been stated above.

N°. 595. *Fèmă*. Ajápo; stone of sago club, of dark grey serpentine, conical, 12 c.m. in length, one end with diameter of 2.2 c.m. the other, having a concavity, *ani*, 8 m.m. deep, with diameter of 3.7 c.m.

N^{os}. 596—598. Pl. XX, fig. 7. $^1/_{18}$. *Wăń*. Ingrâs; stone like N°. 595, jammed with 5 c.m. of the thin end into a round, conical piece of wood, split, and sufficiently hollowed beforehand, round which tightening, circular and spiral strips of rattan; this, with thin end sticking in conical socket of a piece of wood (handle), cylindric or (N°. 598) square in front, either or not strengthened by plaited rattan strips. Strip of rattan stretched between holder of stone and handle.

N°. 599. Pl. XX, fig. 2. $^1/_{10}$. *Frĕgäsi*. Ingrâs; sago strainer, made of a circularly bent piece of rattan, closed by bark fibres; in this, with two-stranded cord, a net of the stitch of fig. 9, in parallel rows; in the last rows, the central stitches longer, in order to obtain joining with the edge, to which it is fastened by spiral lashing. Manufactured and used by women.

N°. 600. *Frĕgäsi*. Ingrâs; as before, diameter 30 c.m.; the openings of the meshes ± 4 m.m.

N°. 601. Pl. XX, fig. 3. $^1/_{10}$. *Năhă bĕrè*. Kwatisoré; basket-shaped sago strainer, of leaf strips, *èhĕrŏ grè*, crossing at right angles; bottom in square frame of 4 sticks; the strips of the bottom form on all 4 sides, by crossing with 10 horizontal strips, an erect wall, bending over the upper edge, and descending obliquely, together with 4 other horizontal strips, they form an outward covering. Each of the short edges with a cord loop on which 2 white beads and strips of red calico.

N°. 602. *Èhĕrŏ grè*. Kwatisoré; bundle of strips of sago leaf, 90 c.m. long, 1—3 m.m. broad; for the manufacture of N°. 601.

N^{os}. 603—617. *Tsè, sè*. Lake Sentáni; hatchets; chisel-like pieces of chloromelanite, back end nearly cylindrical, broader in front (up to 6.5 c.m.) and oval on the section (thickness up to 3.3 c.m.), with convex edge; fastened, like N^{os}. 596—598, in wooden holders, 16—28 c.m. in length, under an angle of 70—80° in socket of wooden handle, 35—60 c.m. long, which in front and at the back of socket, has numerous plaited, rattan bands. Behind this with carved ornament, more or less circular notches, on which a rattan string (if present) is fastened, strained between handle and holder of stone.

N°. 618. Pl. XX. fig. 8. $^1/_{10}$. *Kăsao*. Kaptiau; hatchet as before, handle without rings, the upper side carved. Grip end formed like glans penis.

N°. 619. *Kăsao*. Kaptiau; as before; the stone in a holder, handle wanting.

N°. 620. Pl. XX, fig. 12. $^1/_{16}$. Kwatisoré; hexagonal basket, plaited out of strips of Pandanus leaf, 1 c.m. broad, in three directions under angles of 60°; in the border a strip of rattan for strengthening; on each of the sides a star-shaped ornament, and along the border a band, both of red strips of Pandanus leaf. For use in garden and household.

N°. 621. *Arâbe*. Tobádi; basket, the edges formed by 2 strips, *ărâbiai*, of palm leaf midrib, each 45 c.m. long, the plaited side leaves forming the bottom. The ends of the leaves plaited three fold, tied together to form the sling, *pĕtĕbide*. For carrying agricultural produce.

N°. 622. Pl. XX, fig. 13. 1/13. *Karkīr.* Kaptiau; like N°. 621, both woody strips bent round to form an oval rim; side leaves, folded up lengthways, plaited into herring bone design, vertically and horizontally. Sling, consisting of a strip of calico, 60 c.m. long. Used by men.

N°. 623. *Nadiè.* Kwatisoré; basket, bottom 14×14, height 19 c.m., plaited of strips of Hibiscus bark, 5—9 m.m. broad; in bottom, under right angular crossing, in side walls, split into 2—4 narrow strips, producing finer design. Those ascending towards the left, coloured green, forming three rows of swastikas. Cord binding, *wu ärigè*, as per fig. 5. Also with cord, a border of squares, as an ornament. Two loops for carrying, *rö örè*, plaited as per fig. 4, ending in tassels at sides of basket.

N°. 624. Pl. XX, fig. 10. 1/9. *Etähè.* Angádi; as before, free ends of some strips twisted along the edge, at the corners, forming two plaited strings, connected for carrying loop.

N°. 625. Pl. XX, fig. 11. 1/12. *Etähè.* Angádi; basket made by simple right angular plaiting, of long flexible reeds, *mörömö*, the margin over a breadth of 7 c.m. strengthened by plaiting back. Binding as per fig. 5, of two-stranded cord, *tèmani*; carrying loops of bark, *kama*, opposite each other.

N°. 626. *Tār.* Tarfia; women's bag, made of two-stranded cord, with stitch of fig. 9, 3.5 c.m. high; 120 c.m. broad, 42 deep; border as per fig. 114, sling, 38 c.m. in length, made of transverse rows of stitches as before. For carrying agricultural produce.

N°. 627. *Tār.* Tarfia; like N°. 626, 75 c.m. broad, 40 c.m. deep, stitches 4 c.m. high; border as per fig. 61; sling for carrying 90 c.m. long, 6 stitches wide.

N°. 628. Pl. XX, fig. 5. 1/11. *Käba.* Kaptiau; like N°. 627, the cord, after the manufacture, coloured with red and grey stripes.

N°. 629. *Sětěboi.* Asé; like N°. 627, the body, *sětěboi ji*, 65 c.m. broad, 25 deep; stripes of white alternating with stripes of darker cord, *sa bårå*; border, *tsoi*, as per fig. 61; in first row, at every 8—10 stitches, the lateral connection between two stitches omitted, thus forming openings, *tsoi puru puru.* Carrying sling, *ěbui*, 75 c.m. long, as per fig. 115. Space inside the bag called *ètu.*

N°. 630. *Pěsjanke.* Ajápo; men's bag of white cord, broad 40, deep 21 c.m., with stitch of fig. 9; upper row as with N°. 629; border as per fig. 61, carrying sling 55 c.m. long, after fig. 115. On the front, below border, hung with primaries of *Trichoglossus cyanogrammus* Wagl., pig's tail, Conus shell ring and the N^os. 518 and 519. For carrying articles of daily use.

N°. 631. *Něbrå.* Kaptiau; as before, 32 c.m. deep; border as per fig. 43; at each corner a loop, of four-stranded cord, festooned after fig. 64, sling of bark, 63 c.m. long; no ornaments.

N°. 632. Oinåke; as before, broad 30, deep 27 c.m., with 6 horizontal stripes of reddish and 5 of dark brown cord, each stripe 2—4 stitches high; cords in horizontal rows of front and back surface connected on the margins by tying, ends dependent like a fringe; bottom as per fig. 118; border as per fig. 43; opening at each corner with cord-loop, for sling of bark, 64 c.m. long; groups of 1—4 beads tied on red stripes. Containing cockatoo feather, Areca nuts, Betel fruits, Japanese mirror (Nippon Sukarai Seix) in red calico, the N^os. 60, 101, 102, 150^a, 193^a, 439, 522, and at one of the corners N°. 526.

N°. 633. Pl. XX, fig. 1. 1/8. *Sögěri.* Tobádi; men's bag made at Tarawái; stitch of fig. 9; first row with stitches which have no lateral connection, in the other rows, on each third stitch a Nassa shell disk, *dèr*, is threaded, on front surface composite ornament, according to fig. 50, bordered with Nassa; sling according to same system.

N°. 634. *Sögěri.* Ingrås; men's bag, made with stitch of fig. 116, broad 40, deep 28 c.m.; 2 sets of one brown and one grey row, (white at back side) separated by one white row; upper row, at every 4 stitches with an opening; border as per fig. 43; sling 55 c.m., as per fig. 115. Contains Betel fruit, *sidi.* Areca nuts, *pu*, and the N^os. 35, 43, 51, 55, 59, 105, 107, 218, 293, 296, 312, 374, 471, 583, 584, 585, 653, 698 and 699.

N°. 635. *Sögěri.* Ingrås; like N°. 634, broad 50, deep 34 c.m.; 3 sets of coloured rows; upper row

with stitches of double length (fig. 115), at certain distances with openings; border as per fig. 123, but double; sling for carrying 58 c.m. in length, as per fig. 115.

N°. 636. Pl. XX, fig. 4. $^{1}/_{10}$. *Sŏgĕri.* Tobádi; like N°. 634, 5 sets of coloured rows; in the 2nd and 4th sets, 5 coloured stitches go over several times to the higher placed white row, stitches of this row to the coloured ones, forming patches; worked with 2 cords at a time; upper row as in N°. 635; border as per fig. 123, three fold; in upper row and along margins, bundles of threaded Coix, the strings depending as a fringe. Sling of bark strip fastened in two loops, festooned as per fig. 64.

N°. 637. *Sŏgĕri.* Ingrâs; like N°. 636; coloured rows: grey, brown, red, blue and green, the last 3 of cord made of calico fibres; border as per fig. 50; sling 50 c.m. of bark and calico; front surface with threaded Coix and black seed rings, the strings forming fringe, *wār frā.* N°s. 513 and 514 hanging on.

N°. 638. *Srosror.* Tobádi; men's bag, deep 19 c.m., opening 20, bottom 48 c.m. long; stitch of fig. 117, worked in spiral rows; in the upper part 11 single and 12 two fold "letting-outs"; front with 3 sets of horizontal, brown and grey stripes, each two stitches broad; stitches of upper row 2.5 c.m. in length, without lateral connection; border as per fig. 43; sling, *unampö* or *urampö*, 46 c.m. long, as per fig. 115, but without the knots; along opening a string of 12 round (9 white and 3 reddish-brown) beads, *pusaimè*, and 2 disk-shaped yellowish ones, with check design on the borders, on the dependent cords, *wār frā*, 4 cord bands, *unanka*, (as per fig. 43) with bundles of Coix and beads; plugs of sweet scented leaves; N°s. 511a, 511b. Containing a spoon of cocao nut shell, *prèw.*

N°. 639. *Srosror.* Tobádi; like N°. 638; 18 and 38 c.m. broad, 15 c.m. deep; 5 four fold, 12 three fold, 7 two fold (see fig. 117, *b*) and 1 single "letting-outs"; front surface with extra band, *kchŏre*, worked with same stitch, bearing larval envelope, skin of a bird's leg and 5 bands, *unanke*, as above with yellow beads; 2 horizontal rows of Nassa and 2 of yellow beads, threaded on to the stitches, at opening two balls of cuscus skin, *èm arú*, as N°. 522; sling, *urampö*, 48 c.m. long, as per fig. 47 (8 parallel cords).

N°. 640. *Srosror.* Tobádi; like N°. 638, 20 and 42 c.m. broad, 19 c.m. deep, 14 single "letting-outs", along lower margin a blue, half-way up a brown row, between two red ones, below this a brown one; higher up a yellow one as per fig. 119, and near upper margin between 2 red rows one blue one, as per fig. 120. Upper row and bottom cord with cord fringe; sling 75 c.m. long, made of transverse rows of the stitch of fig. 9; along opening, a string of 46 white beads, further N°s. 512a, 512b.

N°. 641. *Srosror.* Ingrâs; like N°. 640, broad, at the top, 13, below 26 c.m., deep 12 c.m.; 8 two fold, 12 three fold and 5 four fold "letting-outs" (fig. 117, *b*), 3 "taking-ins" (fig. 117, *a*); sling 51 c.m., as per fig. 115. On front surface 3 bundles of Coix, *uruār*, all with dependent cords; these also along bottom cord, and sweet scented leaves attached to them. On the back, fastened to the border, a depending piece of bark, *mār*, a Chinese bell, *chărindè*, of brass and N°. 527.

N°. 642. Pl. XXI, fig. 3. $^{1}/_{5}$. *Srŏsrŏ.* Asé; stitch of fig. 117, border and sling, *ĕbúr*, *ĕbui*, *ĕboi*, as per fig. 43. Three double sets of one grey, *nongoi*, and one reddish brown, *tsai*, stripe, running all round; along margins many Coix seeds, *kèmbĕri*, with long strings, *sabărā*, of a fibrous plant, *pătai*, hanging down half-way up, on one side 3 blue beads, *fĕtăchwă*, on the other side one blue and one multi-coloured bead tied on. Is worn on breast, sling round neck.

N°. 643. *Chèndŏri.* Tobádi; as N°. 642, broad 8, deep 10.5 c.m.; in front as at the back, one single "taking-in" (fig. 117, *a*); no beads; at the border a leglet, *jènĕti*, with depending fibres, *piār frā.*

N°. 644. Pl. XXI, fig. 2. $^{1}/_{5}$. Ifār; like N°. 643, only 2 sets of coloured stripes; 2 blue beads, Coix seeds and cord fringe along side margins; more or less closed by a cord.

N°. 645. Pl. XXI, fig. 10. $^{2}/_{11}$. *Tăpóntu.* Liki; bag composed of two, placed alongside each other, made with stitch of fig. 52, on one common bottom rope and with continuous border (fig. 122); sling, *böblèlèle*, as per fig. 43; front covered with Nassa, *ikni*, and black seed rings, threaded on vertical

strings, the ends hanging down at lower margin. Containing a monocotyle leaf, in which to roll up tobacco (?), and a rhizom. Worn on breast, the sling on to a neck string.

N°. 646. *Kĕbŏ*. Nimbúran; stitch of fig. 9, broad 14, deep 11 c.m.; the cord coloured blue, red and yellow; border as per fig. 61; calico sling 70 c.m. in length.

N°. 647. *Sögèri mĕndi*. Ingrâs; bag with stitch of fig. 116, half-finished; bottom set up on a two-stranded cord, stretched along a yellowish brown piece of wood, *sögèri ai*, 50 c.m. in length, and fastened at each end. Bag 32 c.m. broad, only finished to a depth of 12 c.m.; at first worked with one thread, *sögèri uwār*, begun with bottom at the right hand corner (imagining the bag with the piece of wood turned away from you, the ornamented side at the top) first making the back, afterwards, by working from left to right, the front; the first coloured row is inserted between two white rows, and after this, the work is done with 2 threads, ending at lower margin in 2 different rows, each with its own cord; 3 sets of one red and one grey (blue) stripe, the central set with spotted patches (see pag. 184 and Pl. XXI, fig. 1); one of the cords with needle, *sugwétje*, of terminal phalange of front limbs of Pteropus.

N°. 648. Pl. XXI, fig. 1. $^1/_4$. *Sögĕri mĕndi*. Ingrâs; like N°. 647, but the piece of wood, *sögĕri ai*, dark brown, 1 c.m. thick, on both sides with carved spirals, with barbed centre or herring bone design; each end with 2 openings, between which a small bar to fasten a double cord; on this the bag set up, with the stitch of fig. 116; 2 cords, one forming the 1st, 2nd, 4th, 6th etc., row and another the 3rd, 5th, 7th etc., beginning with the back at the right hand corner; 2 sets of coloured stripes, as an ornament, *âne*, the second with spotted patches; ending in the 16th and 17th row, the thread of the 16th row provided with a needle, *sugwétje*, (Pl. XXI, fig. 4) as before.

N°. 649. Pl. XXI, fig. 8. $^1/_3$. *Sögĕri ai*. Tobádi; piece of wood like that of N°. 648, one end open-worked, leaving a longitudinal bar, the other end with carved dogs, heads, paws and tails against longitudinal middle bar; outer ends, as well as heads and bodies, provided with eye ornament. Carved spirals, along a central row of oval spaces, each with a central relief disk (eye ornament).

N°. 650. Pl. XXI, fig. 5. $^1/_3$. *Sögĕri ai*. Tobádi; like N°. 649, each end with 2 dog figures along central bar, tails turned towards the end, where openings have been made, side surfaces with pairs of spirals, between which, dental carvings.

N°. 651. Pl. XXI, fig. 7. $^1/_3$. *Sögĕri ai*. Tobádi; like N°. 649, no ornament at the ends, only 2 large openings; one side transversely convex, without ornament, a cord stretched along this; the other side, flat, with 3 carved ovals, in two of which, spirals; in the third, triangles and curled ornaments; at the ends of the central oval, 2 fish ornaments. Along edges, 4 pairs of eyes.

N°. 652. Pl. XXI, fig. 6. $^1/_3$. *Sögĕri ai*. Ingrâs; like N°. 649, both ends partly open work, partly with superficially carved fish ornament (?), both surfaces half-way the length, with a pair of spirals, placed transversely and toothed in the middle, to which joined caudal fins of 2 pair of fishes, heads directed towards the ends; besides transverse, dental rows and stretched triangles.

N°. 653. Pl. XXI, fig. 11. $^2/_3$. *Sĕkwé* (*Sugwél*). Ingrâs; phalange out of the hand of Pteropus, intended for manufacturing a needle, as occurring in N°s. 647 and 648 (Pl. XXI, figs. 1 and 4); of bag N°. 634.

CHAPTER VI.

NAVIGATION.

Settlements on the sea, on lakes and on rivers often make the use of crafts for fishing or communication necessary; where the houses themselves are built in the water, not even connected with the shore by foot bridges, boats are equally indispensable. It has also been noticed that people, who do not live on a navigable river, but, in order to reach their gardens, forests or trading connections, must cross a large river, too deep to ford or too broad to have a tree dropping over it as a bridge, use a raft or other craft, which is always to be found at the spot on the shore. The expedition came across such a craft on the Tami River for the use of the Möso people. Papuans, who are in the habit of using canoes, are certainly all able to swim, and often risk themselves on floating timber through the surf (FINSCH [1888, 344], HORST [1889, 246]). Amongst the most primitive crafts, the catamarans, composed of some four logs, may be mentioned, as met with by FINSCH [1888, 232] at the East Cape, or those of stems of palm leaves which FINSCH [l. c. 323] saw more to the west.

The universal craft of New Guinea is simply a hollowed tree trunk, the produce of the stone period. None the less, the nature and amount of the labour, on account of the poor instruments with which the Papuan has to make his boats, are very arduous, and for this reason admiration is due to him. The longest of these dug-outs reach, as MODERA [1830, 78] reported of the south-west coast, a length of 60 feet, but on other coasts also very long crafts are known. The construction generally takes place to a greater or smaller extent on the trunk as it has fallen down, and afterwards, as it is too heavy to be carried, it must be shoved towards the shore along a path more or less cleared, and covered cross ways with numerous thin, smooth stems. ERDWEG [1902, 363] saw this done by the Tumleo people; to the south of Wendèsi I myself was able to follow such an artificial road to the sea over a distance of about 25 minutes walking. It is therefore evident that in selecting a tree, the distance to the shore, and the nature of the ground to be passed, must be taken into account and that well shaped, favorably placed trees, belong to the most highly treasured forest possessions of the Papuan, which no stranger may cut or damage with impunity. MOOLENBURGH [1903, 221] relates, how the population of Karwān assserted its rights to trees, fit for this

use. In case good trees are wanting in one district and abundant in another, a trade in trunks springs up (ANNUAL REPORT [1902—03, 18]), sometimes in finished crafts, and a considerable industry is therefore connected with it at certain places (MACGREGOR [1897, 56], SELIGMANN [1906, 238]). At other times, the right to cut the proper trees is sold by one village to another, and the craft is after all made by the purchasers themselves, either on the spot, or at the village of the latter, whither the felled trunk has been removed along a river. WYATT GILL [1885, 295] mentions a quarrel which had arisen over the payment of the right here referred to (see also ANNUAL REPORT [1904—05, 25]).

Usually a wood which is light and not too hard is selected, which greatly facilitates the work with the stone axe. At Asé, fig. 124, I saw the stone axe still used in the manufacture of a moderately large women's boat, and it certainly cannot be entirely replaced for this purpose by the metal axe or hatchet. For the part which holds the stone can be turned round in the socket of the wooden handle, and the edge can thus be placed, either transversely (adze) for the cutting of the inside bottom, and lengthways (hatchet) for the side walls; also in any other direction in which it may be wanted. As stated above, the stone hatchet only knocks off small scales, and the cut surface therefore consists of small concave indents. Gutter-shaped stone hatchets, the edge forming a semi-circle, as mentioned by ERDWEG [1902, 364] as used in Tumleo, but unfortunately not illustrated, were never mentioned before. In fig. 124 the man squatting down at the back end is busy making the outside surface smooth with a chisel like N°. 702 of the collection. On the prow, as well as on the after deck, an assistant is seated to maintain the stability of the craft, whilst the inside part is being cut out. For this they receive food on every day that they assist in the work; exactly the same as with the building of the houses.

The superficial burning, inside as well as outside, by means of torches made of cocoa-nut leaves, as reported by HADDON [1900, 287] in Keapara, by VAN DISSEL [1904a, 629] in Salakiti, or, only outside by a wood fire, by ERDWEG [1902, 364] in Tumleo, as far as I know, is not done in H. B. or on Lake Sentáni. It is very common in the case of sea-going craft to increase the height of the sides by sewing up a plank; two or three planks lashed on, as reported by MAC FARLANE [1888, 118], MACGREGOR [1897, 57] and SELIGMANN [1906, 238] in eastern British N. G., were, however, never seen by me. But this increase of the moulded depth, on account of the reduced stability, necessitates the addition of an outrigger on one or both sides. That the carrying capacity is reduced by the weight of the non-immerged parts, is a disadvantage which is taken into the bargain. Light kinds of wood are preferred for this purpose, whilst the floats are made pointed at one or both ends, to decrease the resistance in the water. Naturally, the larger this float, the shorter can be the cross piece of the outrigger, and vice versa. Where the space admits, as for instance with boats for use at sea, very long cross pieces may be met with. HADDON [1894, 247] thus writes, concerning Collingwood Bay, of a very small float which reaches an unusually great distance from the canoe. Other crafts have a float of the same length as the canoe, but only two feet distant from it (MACGREGOR [1897, 58]). Two outriggers are an advantage which is, however, often abandoned e. g. in cases where fishing with large nets necessitates one of the sides of the craft being kept free (see fig. 105). That platforms on dug-outs are only possible with outriggers, goes without saying.

On Lake Sentáni two kinds of craft are met with; one, roomy and long, fit for removing heavy loads is, as may be guessed, the women's boat and is called *kají*, or after the nature of the wood (?) *antŏw kají*. It has, as fig. 124 shows, a round keel, a hull, *ŏ̈j*, which is narrower at the top than half-way down, a blunt bow, *ĕbĕgwè*, and similar stern, *mĕri* or *mŏri*, each with a projecting prow, flat on top, in which alongside of each other and at a distance of ± 10 c.m. two square holes, *puru*, to fasten a line (see at the right of fig. 125). In the bow and stern of the hull, where the core, *fèw*, of the original tree trunk is, a thickening, *kĕnă*, *kană*, is left, by which this place, inclined to split, obtains the necessary strength, (perhaps the word *kană* means here the rosin with which the slits are filled up; see N°. 225). During the first period after the construction, 6—8 short cross pegs are placed between the edges of the side walls, to prevent these from bending inwards; later on, care is still taken not to expose the canoes too long to the direct rays of the sun; they are therefore fastened under the houses.

The ornamentation generally consists only of a ridge, *fărōi*, along both edges, ending fore and aft in a triangle, with a circular centre which was called, *jŏro*, presumably representing an eye (=*jŏrè*, *jŏche*). Below the bow of a women's canoe, belonging to the village chief in Asé, I also saw suspended a bundle of palm leaves, as PARKINSON [1900, 30] illustrates of the Berlin Harbour district. In these crafts the women sit on the bottom; they go in them to the gardens, and, as fig. 125 shows, often several at a time in one boat, paddling first to the right and then to the left. At Ifār, I could already hear a women's canoe approaching a long way off, by the noise of the paddles dropping together on the sides of the canoe at the end of each pull, for they are guided by the sound. Whoever wishes to navigate Lake Sentáni safely with native craft, must as BINK [1897, 188] and also the expedition did, make use of this *kají*, on account of its great loading capacity.

The men's canoes, *īsja*, are of no use for this purpose. BINK [l. c. 189], as well as KONING [1904, 276], mentions the *īsja*, but it still deserves particular attention, as it is, as far as I know, not mentioned with certainty in other parts of N. G. The peculiarity of this craft consists in its being very narrow (26 c.m.) and short (on the waterline 3 m.), and still more in this, that, when left to itself, in consequence of the light specific weight (the whole craft only weighs ± 12 K. G.) and the high-ending prow, it falls over on its side and then generally fills. This aptitude for capsizing, of course, increases as soon as a person steps into it, who, on account of the small width between the edges (in the specimen of the collection, N°. 657, 16 c.m.) must seat himself on the top of the edges, with his knees in the air and one foot placed before the other in the canoe. The use of an outrigger would be here expected, but the Sentáni man, and this is the strangest part of it, uses another expedient. He places his paddle, held in the usual manner with both hands, alongside the canoe in the water, the blade of the paddle parallel to the axis of the canoe. In this way he obtains a transverse resistance, by which any inclination to capsize is prevented. A few times I tried in vain to sit on an *īsja*; although I am not unaccustomed to water sport, yet, nothwithstanding my earnest, persistent, and therefore to the spectators amusing efforts, I was unable, even for a single moment, to maintain my equilibrium. The Papuans of Humboldt Bay were equally unsuccessful. Although it appears incredible, it is a fact, that the Sentáni man with his *īsja* is constantly in unstable equilibrium, and his cleverness deserves sincere

admiration, when it is considered that, in order to obtain the forward movement, the blade of the paddle must of course be placed more or less transversely, whilst each time when the paddle is taken out of the water for a fresh stroke, the whole remains for a moment entirely without any lateral support. The paddle is also used right and left alternately. When not in motion, the man, in order to obtain the use of his right hand, seizes the paddle in the middle, the blade being in the water and the handle resting on his left thigh, now making the necessary compensating movements. If the man wishes to have both hands at his disposal, he places one leg (KONING [1904, 276, the figure to the left]), sometimes also both legs, over the edge in the water and with them makes the necessary, short, transverse movements. In this position he can use his bow and arrows. At a sham fight, once held by request, some men could, whilst resting on one knee in the canoe, the other leg only just in the water, keep the upper part of their body quite erect.

The people of the Agaiambo tribe (ANNUAL REPORT [1904—05, 6]), although their canoes are described as "frail and narrow", kneel in the bottom, supporting the body upon their heels. FINSCH [1888, 319] mentions of Guap Island and Caprivi River, fast boats, in which the paddlers cannot place both feet alongside each other. ROBIDÉ VAN DER AA [1885, 88] and HORST [1889, 247] both mention crafts of the Witriwai; the first named states: "they are about eight feet in length, nearly round at the bottom and so narrow, that it is almost impossible to place the legs inside, one in front of the other, but one is obliged to sit on the edges"; — the second: "canoes of a very primitive make, the paddlers being unable to place their legs alongside each other, whilst they are seated on the edges. On the bar in front of the river mouth, we saw some men, standing with one leg in their canoe, whilst the other was hanging outside and served as a paddle". THOMSON [1892, 135] describes a small craft of the upper reaches of the Fly River: "which had no outrigger, was from twelve to fifteen feet in length, sharp at both ends, ten inches in breadth, and about the same in depth". About this craft MACGREGOR [1897, 55] writes: "It seems marvellous how they can maintain the whole in equilibrium. This is perhaps done by means of the paddle". Especially these last reports give rise to the supposition that an analogue with the *īsja* is here described; however for the present no certainty has been obtained respecting this.

The *īsja* is in the fullest sense of the word a men's boat; I never saw a woman making use of it; on the other hand, boys from 10—12 years old, manage it with the greatest confidence. The possession at this time of life of a somewhat smaller *īsja*, depends, no doubt, upon the early age at which boys are here admitted into the men's watch-houses. Every Sentáni man, has an *īsja* all his life, and he cannot really do without it, as he has to go to the gardens daily, to protect the women. After a visit to a village, the expedition was generally followed by a swarm of men, each in his own craft (fig. 126). To get inside, he pushes the canoe off the shore into the shallow water, places a foot in the middle at the bottom, and letting himself down with the nates on both edges, the other leg is pulled inside and simultaneously the canoe is shoved off with the paddle. Fig. 127 plainly shows that it is really incorrect to talk of a seat (see above, HORST), as the man only rests with both trochanters on the edges, whilst (fig. 131) really only the lower part of the legs finds a place inside the hull of the craft. The freeboard at the middle of the boat can be estimated in the last mentioned fig. as fully $1^1/_2$ handbreadth; loaded with two persons this is reduced to barely one handbreadth. Thus I saw, now and then, a father removing his son, whose feet had been bandaged, placed in front of him on the *īsja*, the boy with his face towards the fore part, and once some of our quite untrained Malay coolies were even

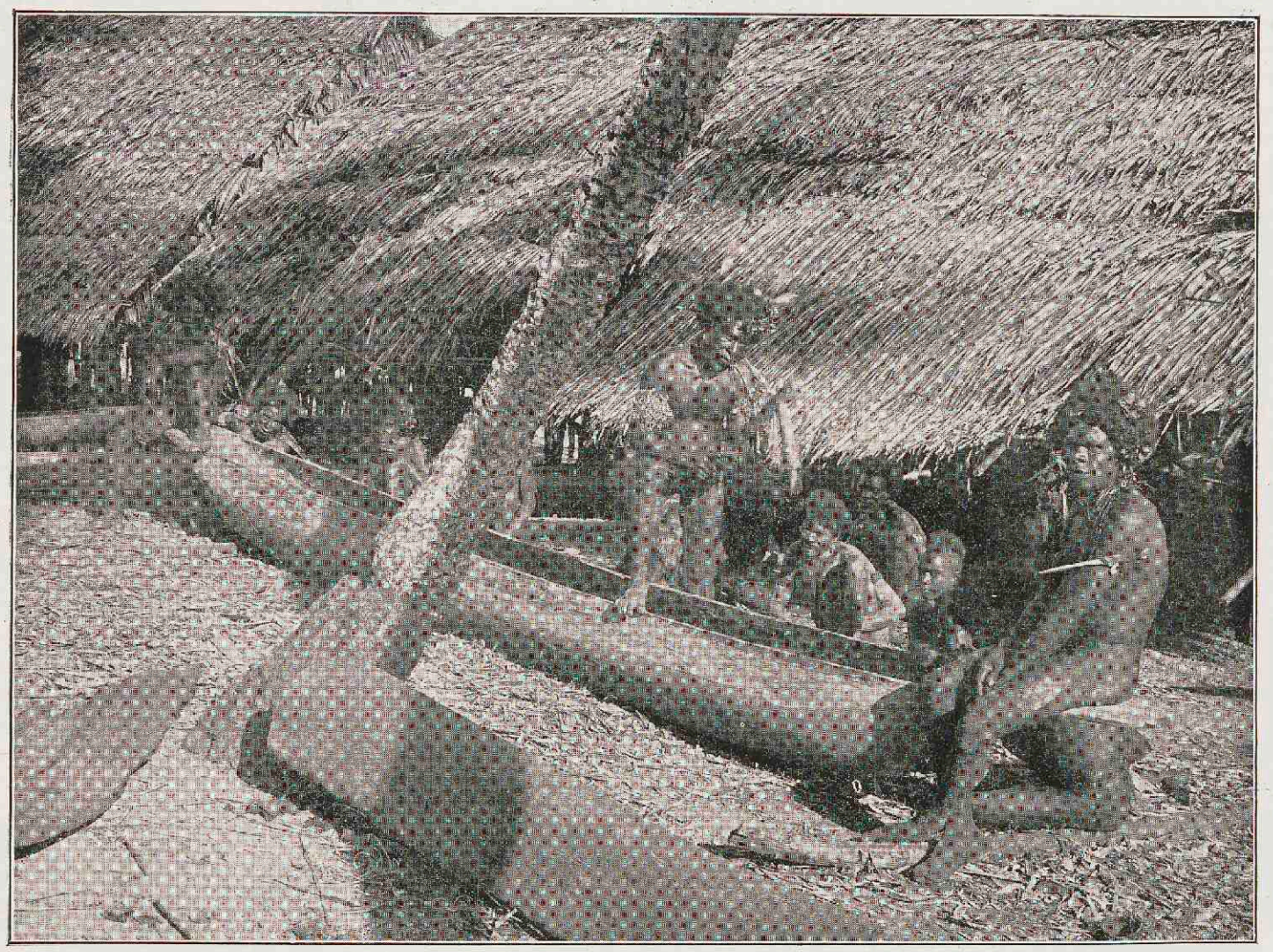


Fig. 124. Making a women's canoe with the stone adze; Asé.

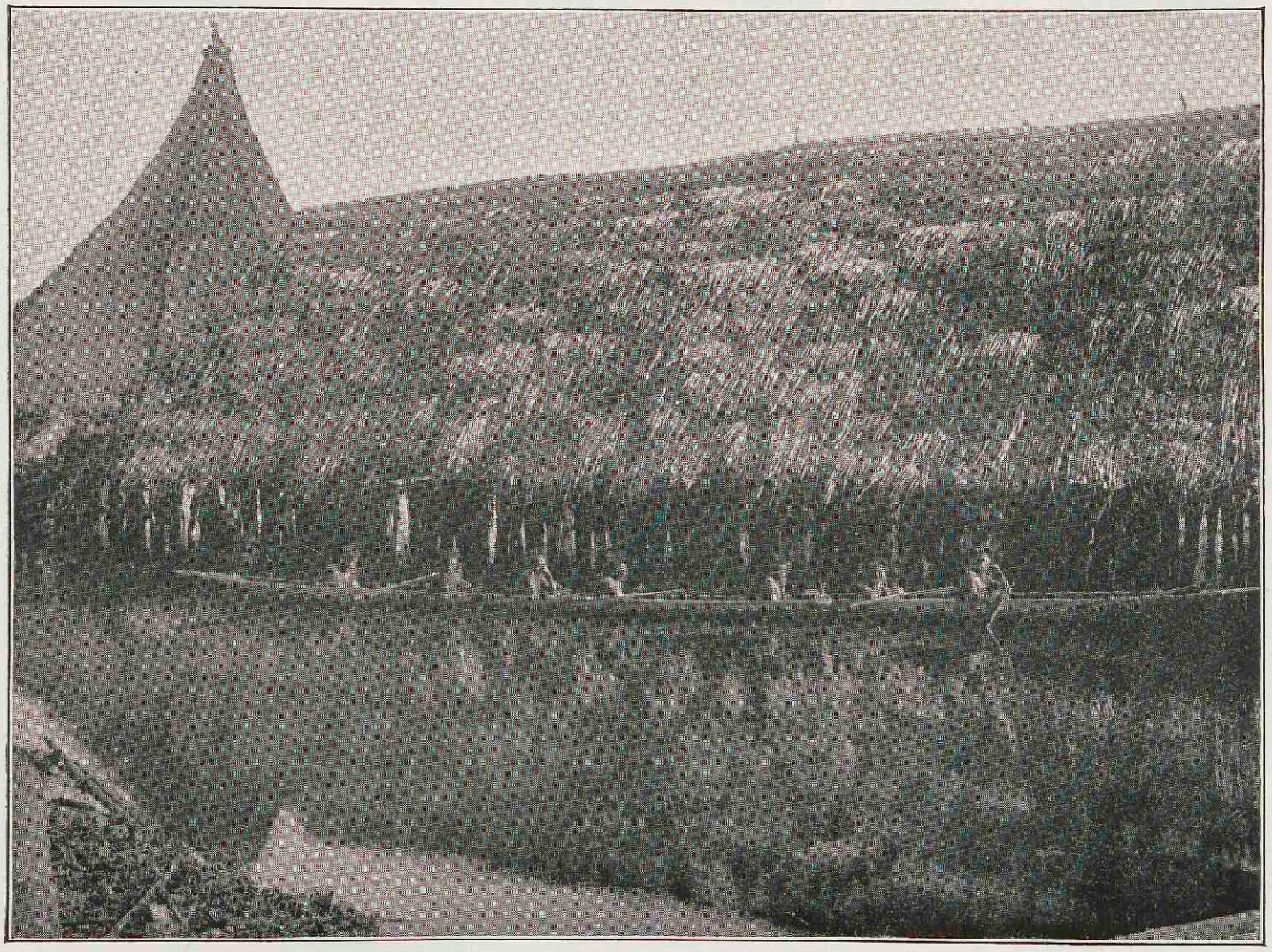


Fig. 125. Women's canoe; Asé.

conveyed across in the same. A speed of 6 nautical miles (10—11 K. M.) is very common; the weight of the craft hardly enters into consideration, whilst the shape and the smoothness of the surface below the waterline reduce the resistance to a minimum. When not used, the *īsja* is always hauled up on dry land, but so that the bow is turned towards the water, and therefore ready for immediate use. In the afternoon, when the men had all returned to the village, the beach at Asé was almost lined with *īsja*, as can be seen in fig. 128. Then the water is bailed out, but in each *īsja* there is a paddle kept like N°. 669, about 1.5 m. in length, of which almost half is formed by the uncarved blade, which is in shape a pointed ellipse. If an *īsja* has become useless for some reason or other, it is at once cut transversely through the middle; the planks are afterwards used for flooring or partitions. Besides these very simple paddles, others are found on Lake Sentáni, of which the blade on both sides is entirely covered with a carved fish ornament (N°s. 670—672, Pl. XXII, figs. 1 and 2). Amongst many dozens of paddles which I saw lying in several *īsja*, I only once found an ornamented one; besides, ornamented paddles were generally offered for sale by women, whilst in fig. 125, with a magnifying glass the ornament on the women's paddles may be recognised. And although these ornamented paddles are manufactured by the men, they are used by the women. Moreover, PREUSS [1899, 174, Pl. V, fig. 27] also describes the same paddles as women's paddles; (his indication of origin, viz. "Humboldt Bay", is however incorrect). The men's paddle is therefore not ornamented, but the women's is. I emphasize this unusual fact, which pleads for

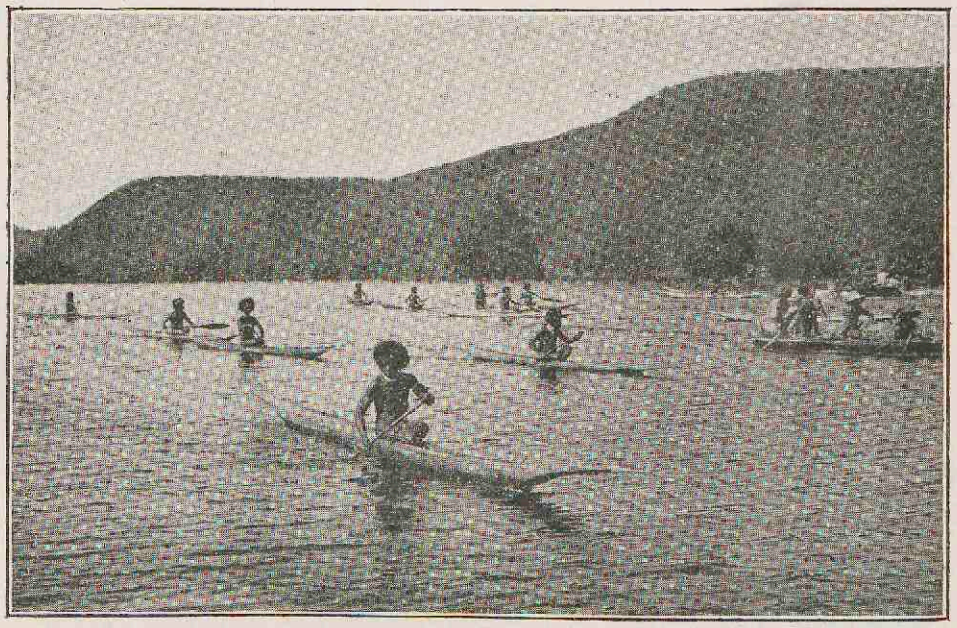


Fig. 126. People of Lake Sentáni on their *īsja*.



Fig. 127. Manner of sitting on an *īsja*; Asé.

the practical sense of the men, preferring smooth, uncarved paddles, because the blade, serving for the greater part of the time as a support in the water, must slide through the water like a sword. A carved surface would increase the resistance in the water in an undesirable degree. For bailing out the water, the long, smooth bract of a palm leaf (N°. 678) is used on Lake Sentáni (see Pl. XXIV, fig. 14), which I found from personal experience, was very well adapted for the gutter-like bottom of the *īsja*. Another manner of bailing, also known amongst the Malays, is, by suddenly pushing the foot, the sole turned forward, throwing the water over the side. This could also be done in the *īsja*, even whilst it was in motion.

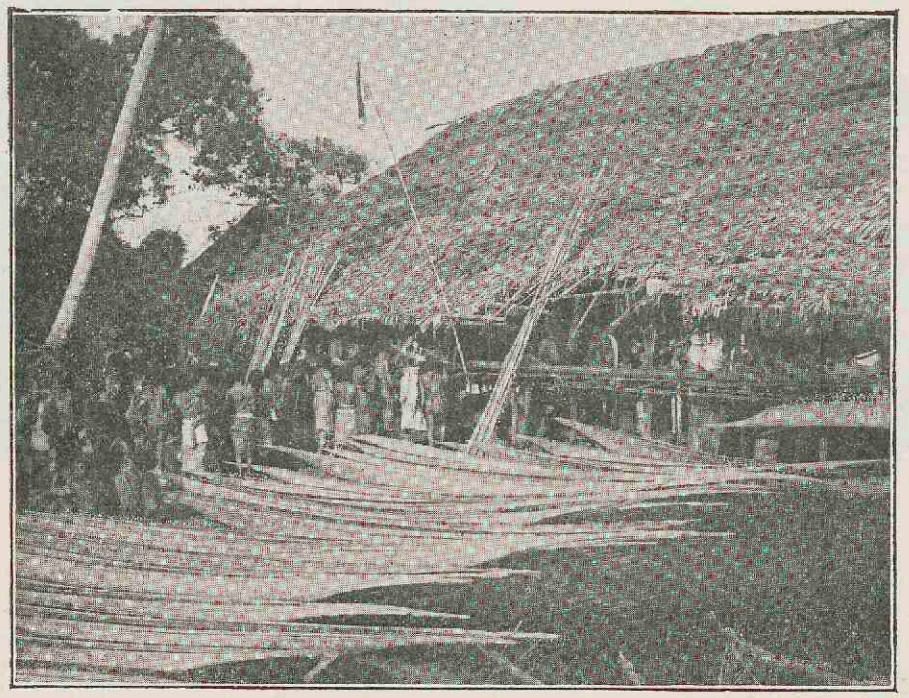


Fig. 128. Bridal procession; many *īyja* on the shore; Asé.

The men's boat of Humboldt Bay is the *wăche* or *wăre*. Cut out of a tree, but higher than it is broad, the height being increased by side-boards, *brĕbáre*, *wachbrĕbáre*, sewn on, and provided with an outrigger, it represents a type, which is found along the whole of the coast and the islands of North N. G. to the east of Point D'Urville, as far as K. W. Land. More to the east (HAGEN [1899, 218]) the number of side-boards increases, like in the Murua boats, *waga* (SELIGMANN [1906, 237]) of British N. G. There is scarcely any difference between the ends of the hull proper, although the stern is sometimes more perpendicular; otherwise both are curved. The gunwales approach each other in such a manner that both legs cannot be placed alongside each other, although the width of the hollow is large enough. The wood of which these crafts are manufactured, light and easely worked, is not very durable; after a couple of years the boat becomes untrustworthy and is cut up into planks. In front of each village you see one or more of these crafts being made, often protected under a roofing, against the rays of the sun. The Tobádi people have their wharf on a sand bank on the small island of Entjemåg; the people of Ingrås theirs on the peninsula opposite their village.

The collection contains a couple of pieces of a broken-up *wäche*, (N°. 656), which show, inter alia, the thickness of the sides (1.7—2.4 c.m.), of a regularity which certainly deserves admiration, when it is considered that the Papuan uses no special implements but only judges of the thickness, by placing the palm of his hands simultaneously inside and outside. In order to prevent them from bending in or out, two small, transverse planks are inserted at the middle of the boat, as mentioned of Tumleo by ERDWEG [1902, 366]. The ornamentation of the hull is not obtained by burning, as VAN DER GOES [1858, 174] thought, but by carving.

The intaglio carvings, coloured red and black, represent, according to my conviction, birds, called *mārau*, which are often joined, or meet in threes and fours, with the heads at an ornament shaped as an angle, called *sĭrĕbāb*, but otherwise unintelligible to me. The wings were called *pau*, the triangles behind the eyes *gaijār*. Sometimes the entire surface of the hull is carved in this manner, but this, according to my experience, is not seen in Netherl. territory outside H. B.. Regarding Berlin Harbour, ERDWEG only mentions the coloured, uncarved ornament of the side-boards; PARKINSON [1900, 32], however, does mention, from here, carved figures on the hulls of the lagoon crafts, like the women's boats without outriggers, and gives of these, two fine illustrations. FINSCH [1888a, Pl. VII, fig. 2] takes the figures on the gunwales of the craft of Attack Harbour to be fishes, as DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 94, N°. 451, Pl. XXIV, fig. 6]) does, who considers the figures on the model, *wag, waga* (= *wāche*), obtained by him in H. B., also to be fishes. On this model as well as on a similar one, somewhat truer to nature, N°. 654, Pl. XXII, fig. 11, a peculiarity may be noticed, which pleads for the interpretation of "birds". For on the latter the figures are alternately represented with the wings stretched out backwards and forwards, something which cannot be reconciled with the representation of fins; on the model of DE CLERCQ, the bird at the stern has two pairs of wings in the forward, and one in the backward position. The usually ornamented side-boards or gunwales are (also in Oinâke) never wanting, but according to FINSCH [1888, 336], [1888a, Pl. VII, fig. 2], in Attack Harbour these boards are not lashed on, but worked out of the trunk together with the boat. PARKINSON, who also visited Attack Harbour, only speaks [1900, 30] of boards lashed-on; so does HAGEN [1899, 218] concerning the more eastern parts.

N°. 655 of Oinâke, a toy for children, possesses no gunwales lashed on. A good jointure on the boats is obtained by sharpening the edges of the hull and providing the lower part of the side-boards with a corresponding groove; afterwards at several places strong lashings are applied, of reddish brown liana, *nă*, *nâre*, or *nâche*, a material which is much tougher than the strips of rattan, which, according to PARKINSON [1900, 30], are used in Berlin Harbour; ERDWEG [1902, 365] however mentions a similar kind of liana used by the neighbouring Tumleo. The caulking of the seams and holes is also an important part of the technique of boat building; in H. B. a kind of elderberry material, *sui*, is used for

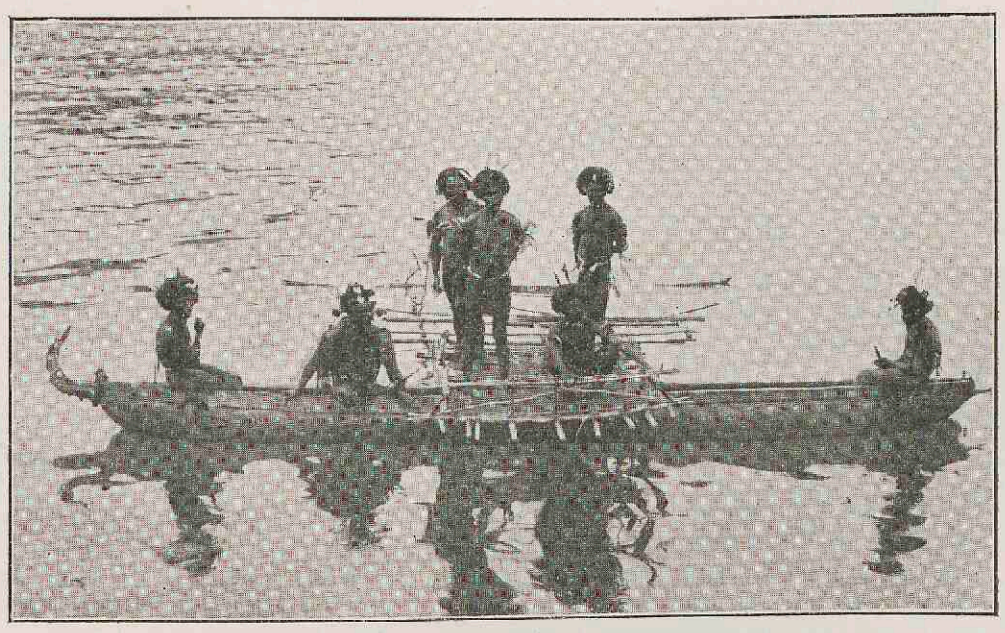


Fig. 129. Men's boat, *wăche* of Humboldt Bay.

this purpose; in Berlin Harbour, however, (PARKINSON l. c.), powdered nut kernels of *Parinarium laurinum*; in Tumleo (ERDWEG [1902, 365]) a mixture of soot and the scrapings of the inside of a soaked bark; more to the eastward (HAGEN [1899, 218]) such a resinous bark unmixed, or (KRIEGER [1899, 50]) resin out of *Calophyllum inophyllum* is used. That clay is deemed sufficient, as SCHELLONG [1904, 177] mentions, appears very improbable. At both ends the side-boards are usually connected by a handsome plaited work of *näche*. which can be recognised in fig. 129.

The outrigger, in the territory here referred to, is always carried on the starboard side. According to DE CLERCQ and SCHMELTZ [1893, 92], on the islands of Jamna, Masi-Masi and others, to the east of Point D'Urville, the outrigger is carried on the port side (?), the same as in Tumleo (ERDWEG [1902, 364, 366]). It consists mainly of two wooden cross poles, *wäriät*, in H. B. generally to a length of 5—7 m., somewhat more thick than broad, fastened



Fig. 130. Manner of sitting on a *wäche*; Humboldt Bay.

with *nå*-lashings to the hull and to the side-boards, and at this end bent slightly down (see fig. 130). The longitudinal float, *tsäm*, considerably shorter than the boat itself and at both ends pointing upwards, is fastened to each of the *wariät* in a practical manner by means of two sets of oblique pins.



Fig. 131. Manner of sitting on an *ɔja*; Asé.

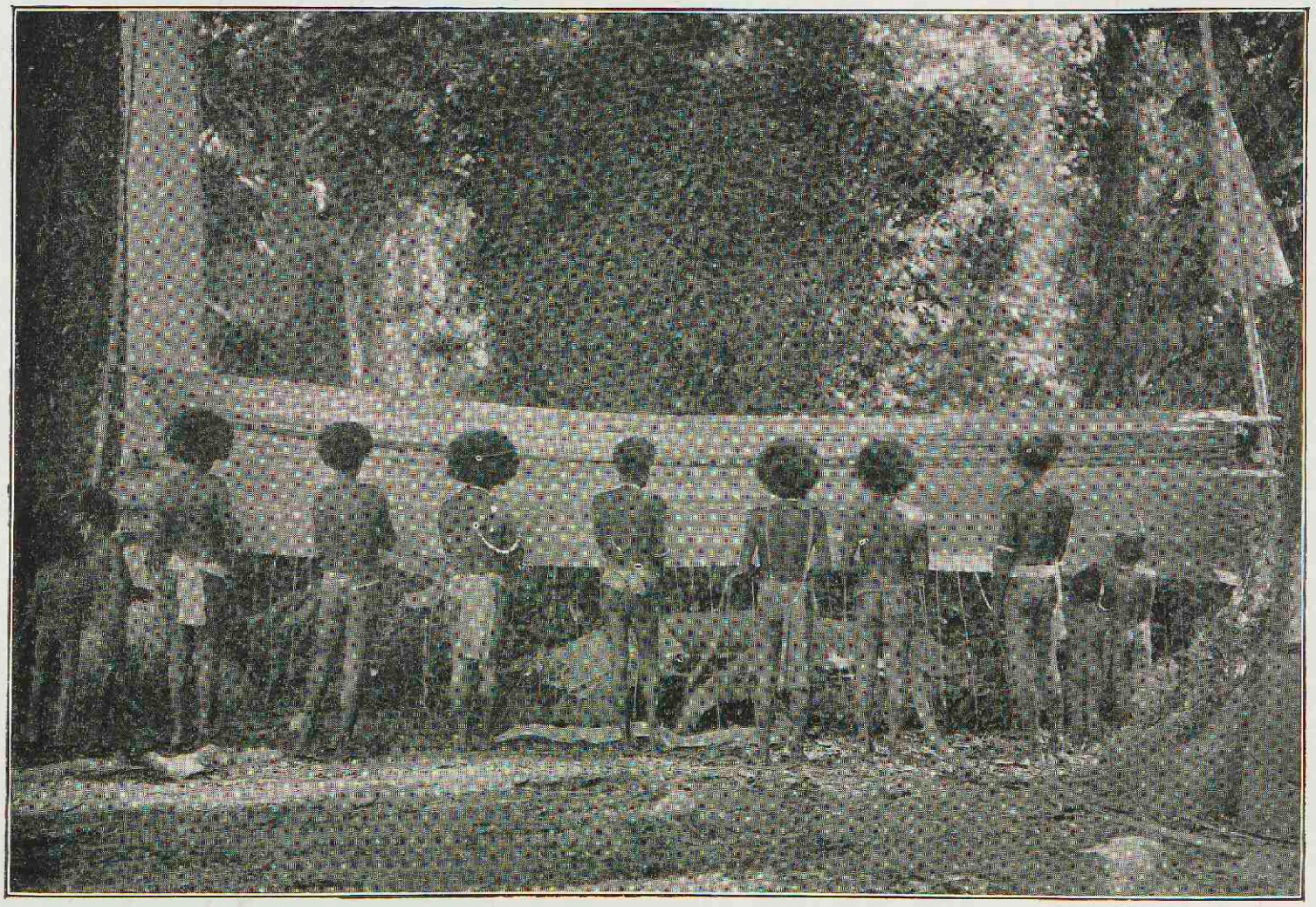


Fig. 132. Manufacturing a sail of Pandanus leaves; Doré.

On the cross poles, which in H. B. also reach a little over the left side of the craft, the platform is generally placed, which in this bay, on the side opposite to the outrigger is often provided with a low railing, turned in fig. 129 towards the spectator, in figs. 130 and 133 to be seen to the left.

This railing is the last remnant of the large, 1—1.5 m. high frame works, which are placed to the right and left on the platform of the large crafts of K. W. Land (Meyer and Parkinson [1894, Pl. 44 and 45; 1900, Pl. 10], Hagen [1899, Pl. 33], Erdweg [1902, 364, 366]), for stowing away materials, and which in Oinâke and more western parts, are entirely missing. At Tanah Merah and on Liki (fig. 136), there is even no longer any question of a platform proper and the two cross poles neither reach here over the side-plank opposite to the outrigger. The platform, *wäkob*, is placed (figs. 129, 130 and 133) with its length exactly between the two cross poles, reaches on both sides outside the craft to the extent of 2 or 3 feet, and consists of longitudinal palm laths; not transverse as in the Bongu boats (Finsch [1888a, Pl. VI, fig. 1]) and not of bamboo, as Van der Goes [1858, 173] thought; this material is entirely lacking on the craft. The palm laths are tied on transverse saplings, *samrarí*, in fig. 129 coming out below and which in turn are fastened to the lengthways saplings, which are supported by the *wariāt*.

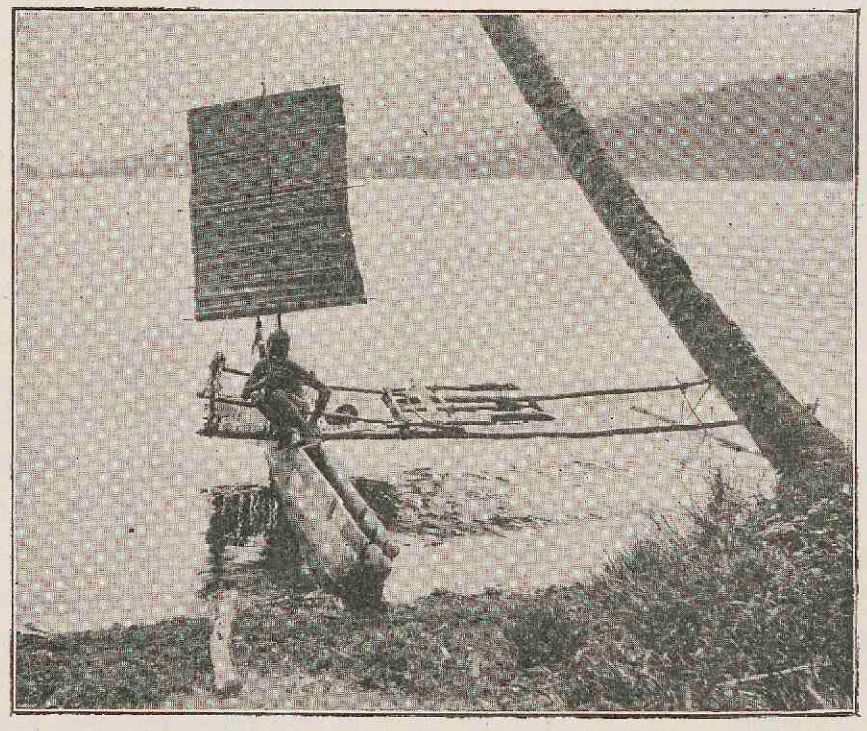


Fig. 133. Men's boat, *wäche*, of Humboldt Bay.

The above named railings, rests on a set of these lengthways spars and the upper edge is also formed by a couple of these, between which, a set of long, diagonal, *ánia*, two sets of cross pieces (small trestles) and a few short, vertical pieces of wood, the latter resting with their feet on the *samrarí*, are fastened. This construction, which can be recognised more or less on fig. 129, and to which two rattan lashings, fastened between the lower and the upper set of spars, also belong, is general and could hardly be improved upon. Lateral support is obtained by two transverse spars, *samrarí*, in fig. 130, sticking outside the railing to the left, near fore and after edge of the platform, and descending towards the other side, where they are jammed between two longitudinal spars, lashed on to the cross poles. Between these and another set of spars, fixed 1 1/2 foot farther on the cross poles, three horizontal, transverse pegs, of which the free ends have been carved into an ornament (bird, snake, and fish?) are fastened (see fig. 133) and on which (see also figs. 129 and 130) arrows, bows, spears and sometimes also the mast and the sail are carried. The bird generally represents the hornbill, but N°. 668 (Pl. XXII, fig. 7), originally part of such a peg, is a cassowary, *chätuār*, and in fig. 133 the pig can be recognised. The principle of these pegs as a depository, is also found elsewhere and they are always ornamented; on the craft of Liki (fig. 136) they stick out with curved points, not unlike the heterocercal caudal fin of a shark. In Attack Harbour (Finsch [1888, 336]) their number is only two; here also the fish ornament (Preuss [1899, Pl. V, fig. 18]) occurs on them.

Of the four paddles obtained at Tobádi (N^os^. 673—676), only N°. 673 (Pl. XXII, fig. 5) can be relied upon, as far as the correctness of its origin is concerned. It has the blade at the lower end continued by a blunt, somewhat thickened point, which is certainly intended to protect the blade from being damaged when, in fishing on the banks, the paddle is used as a pole to push with; probably for the same reason the paddles are made so long. This and the narrowness of the craft, where this is still increased by side-boards inclining inward, DE CLERCQ and SCHMELTZ [1893, 92] attribute to the paddlers standing. With the same or more right, the contrary may be supposed, viz. that the space between the boards is reduced in order that they may be able to sit down. I remind the reader of the *īsja* of Lake Sentáni, which is equally narrow or narrower and in which, on account of the unstable equilibrium, it is quite impossible to stand upright, whilst the Tugèri in their more roomy dug-outs, paddle standing (SCHMELTZ [1904, 204]). The N^os^. 674—676, obtained through the intermediation of the headman of Tobádi, probably come from somewhere else; — the ornament of the handle end and especially the blade, being very like those, which on the island Tumleo are used on rudders, (ERDWEG [1902, 370, 371, figs. 256, 257]). The leaden ball on N°. 676, about which they did not feel inclined to give any exact information, is also very suspicious, whilst the name *wărĕpú* of N^os^. 674 and 675 is the same as given to the mysteriously ornamented pole, met with in the village of Waba (fig. 193), and provisionally considered as the ornament over a grave. The most interesting part of these paddles, the ornament, is until now almost unintelligible.

Part of the outfit of a Papuan boat is the fire place, for which, along the entire coast of K. W. Land (FINSCH [1888—93, 199] a pot sherd is used, placed on the platform (fig. 130, in the middle, near the fore part). In one single instance, I saw a small carapax used for this purpose; sometimes a wooden box with a layer of ashes in it (VAN DER GOES [1858, 173]), or a sheath of a leaf, bent open and covered with sand and ashes (ERDWEG [1902, 371]) is seen.

The opinions respecting the *wăche*, as a rowing and sailing craft, vary a good deal with the different authors. BINK [1897, 164] calls them miserable boats, which have a small loading capacity, answer the rudder badly, sail badly and with hard rowing advance only slowly. MOOLENBURGH [1904, 170], who, in May 1903, with two members of the expedition, near Cape Bonpland, was caught in a heavy squall, thankfully praises the *wăche* as an excellent sea-going craft. Very gloomy, on the other hand, is the judgment of FINSCH [1888, 351]: "Indeed, it is stated in most books, that the outrigger prevents capsizing, but whoever saw, as I did, many a canoe tumbling over, knows better" and therefore Finsch decided to make no experiments with the *wăche*, which was a pity. Most Europeans are too much afraid of being capsized on the side opposite the outrigger. But I more than once satisfied myself, that a person weighing 80 K. G. can safely go to the extreme sides of the platform, without being able to capsize the boat. The loading capacity of the craft may be judged from fig. 129, — with a load of seven persons, a large freeboard still remaining. When there is a sea on, no doubt, the case differs; for the seams and the holes of the lashings often admit water, and the narrow craft, heavily laden, does not rise quickly enough with the head seas, and more water enters than can be bailed out. On such an occasion my paddlers had to get outside to lighten the boat and bail the water out; another time, with a comparatively small *wăche*, the shore could barely be reached.

The people of Tobádi proved to be indefatigable paddlers, of which they are not a little proud, often blaming the Sentáni people for their poor paddling, and illustrating with a few strong strokes, how well the people of "*ëmbolbai*" paddle. With the usual stroke of 50—60 per minute, a speed of ± 4 knots is obtained. With the lower hand the paddle is taken hold of close to the blade, and this hand consequently reaches, when paddling, far below the gunwale of the boat and close to the surface of the water. The other hand reaches up to, or above the head, and does not properly seize hold of the handle, as this is placed between the index and the 3rd finger; but the thumb and the 4th and 5th finger are somewhat bent towards each other. This peculiar grasp can frequently be noticed; see for instance MEYER and PARKINSON [1894, Pl. 34], where the two men to the right, hold their spears in a similar manner. After the paddle, with the body bent forward, has been placed far ahead into the water, the lower hand pulls, with the body inclining a little towards this side, strongly backwards. At the end of the stroke the upper hand, hyper extensioned in the wrist joint, the palm of the hand placed against the handle, pushes it forward, the oar levered powerfully, the left hand serving as a fulcrum. The paddle never touches the edges of the boat or scrapes against the outside, as the surface would thereby soon wear off and get damaged. With a festive procession, or when spurting, the hindmost paddler, who steers at the same time, throws with each stroke the foaming water backwards, far and high.

The stages of the pile-dwellings are always approached with the side of the craft, which has no outrigger. In beaching on a coast with breakers, the craft is first turned, outside these breakers, with its stern towards the shore, in which way the advantage is obtained, that during the further maneuvring, the bow is turned towards the approaching breakers and less water is taken in in consequence. The paddlers also turn round inside the boat, thus facing the shore and now await, standing and looking backwards, a favorable moment. At once paddling with very quick, short, but powerful strokes, they generally succeed in landing between two breakers; then, jumping out of the boat, with the same speed, they carry and haul up the *wäche* by the cross poles, high and dry. Therefore, where a craft is found lying on a shore with breakers, the bow is turned towards the sea. To get off a beach, is also done with great skill, by preference in the early morning, when the breakers are less heavy than when later on the day the sea breeze sets in. During the east monsoon voyages of several days are undertaken along the coast, from Humboldt Bay westward till to Jamna, eastward till to Berlin Harbour, as well for paying visits as for trading purposes. Should the weather become bad, a more favorable opportunity is awaited on shore, but with a fair wind they are fond of sailing. I doubt whether they make a harbour every evening (see SELIGMANN [1906, 239]), unless in want of provisions. BIRO [1901, 73] reports that with a calm they whistle and blow on a Triton shell, in order to call the wind.

The outfit for sailing consists of a mast and a sail.

The pole-mast, *äbiái*, ± 15 feet high, is made of a sapling, the top bifurcated, to receive the halliard, and usually ornamented with cassowary feathers. In different families (PARKINSON [1900, 30]) or villages (ERDWEG [1902, 368]) this ornament differs; and thus it may be considered as a distinctive signal. As analogous, and again characteristic of the state of affairs amongst the Jótëfa tribe, the fact may be mentioned, that the people of Ingrås and Ingrau are not allowed to carry more than one plume, whilst Tobádi asserts its right to 2, 3 and 4 plumes.

For pivoting the mast there are two steps, *ăbè gĕnú, ăbiái gĕnú,* situated on the platform, near the fore edge, one at the starboard side, one at the port side. They are formed upon two athwartship spars, *samrari,* which actually bear the foot of the mast (see fig. 129, under the right foot of the man standing in front); but to prevent the slipping of the mast athwartships, at each step, by means of strong rattan, a pair of fore-and-aft spars is lashed, fitting between the laths of the platform.

The sail, *ăbiái,* like in British N. G. (SELIGMANN [1906, 238]) is made of Pandanus leaves, sewn together horizontally (fig. 132), unlike the sails of Tumleo (ERDWEG [1902, 368]) and Attack Harbour (FINSCH [1888, 336]), which are made of pieces of bark. It is higher than it is broad, flat-headed, yard and boom, laced to it, being equally long and horizontal. A single halliard is bent to the yard, somewhat outside the middle, and at the boom, near the clew of the sail, the sheet is fastened. When not used it is always rolled up, from the bottom to the top, and laid on the ornamented carrying pegs (page 201).

Running before the wind a very great speed can be attained with these narrow boats; the same as with the craft of eastern British N. G., which "will outsail an ordinary whaleboat" (MAC FARLANE [1888, 117]). In sailing along the coast one has the land- as well as the sea breaze abeam. Close hauled the *wăche* are of small value, they can't beat to windward and it appears strange to me to read in PITCAIRN [1891, 86] of the Wari canoes: "it is surprising how close to the wind they can go". Indeed, by-the-wind they make a considerable leeway and by tacking at intervals, make very little progress in the direction from which the wind is blowing (see also SELIGMANN [1906, 239]).

With regard to the practical sailing with the *wăche,* reports vary a good deal. Personal experience and enquiries have taught me, that the mast in H. B. is erected on the platform, close to the fore edge, stepped into one of the two "*ăbè gĕnú*", namely in the one which is on the weather side. The model N°. 654 (Pl. XXII, fig. 11) has only those two *ăbè gĕnú* at the indicated places. The mast does therefore not rest on the bottom of the craft, as customary in Astrolabe Bay (BIRO [1901, 74, fig. 37]) nor on the edge of the side wall, that is opposite the one where the outrigger is, as PARKINSON [1900, 30] mentions of the Berlin Harbour district, — for the latter purpose the mast is provided at the lower end with a deep cutting. In fig. 133 the position of the mast is wrong.

VAN DER GOES [1858, 174] writes: "mast and sail are turned arbitrarily towards the weather side, in such a manner, that the outrigger is at the lee side". This would mean that the mast is always erected at the port side and that the craft only sails ahead when on the port tack and otherwise, goes astern; in the latter case therefore the mast, which has to stand before the middle (in the direction of the movement), being erected near the real back edge of the platform!

To prevent misunderstanding, I must remind the reader, that the outrigger is always carried in H. B. on the starboard side, the right hand side of the boat, looking forward from the stern; besides one then has the ornamented prow ahead, which proves that the opinion of DE CLERCQ and SCHMELTZ [1893, 93], that the ornamental prow in H. B. is generally fastened at the back, is incorrect. Fig. 134, representing a *wăche* sailing backward, shows an accidental exception to the rule. That the mast is not placed here according to the rule of VAN DER GOES and of PARKINSON, on the side which is turned away from the outrigger,

but exactly on the side of the outrigger, where the weather side is, can be easily seen. At Tumleo (ERDWEG [1902, 367]) the mast is placed on the side-board, on the side of the outrigger; the large craft have however fixed masts, which is not the case in H. B.; here craft, with two masts, as reported by FINSCH [1888—93, 191] of Finsch Harbour, are not met with either.

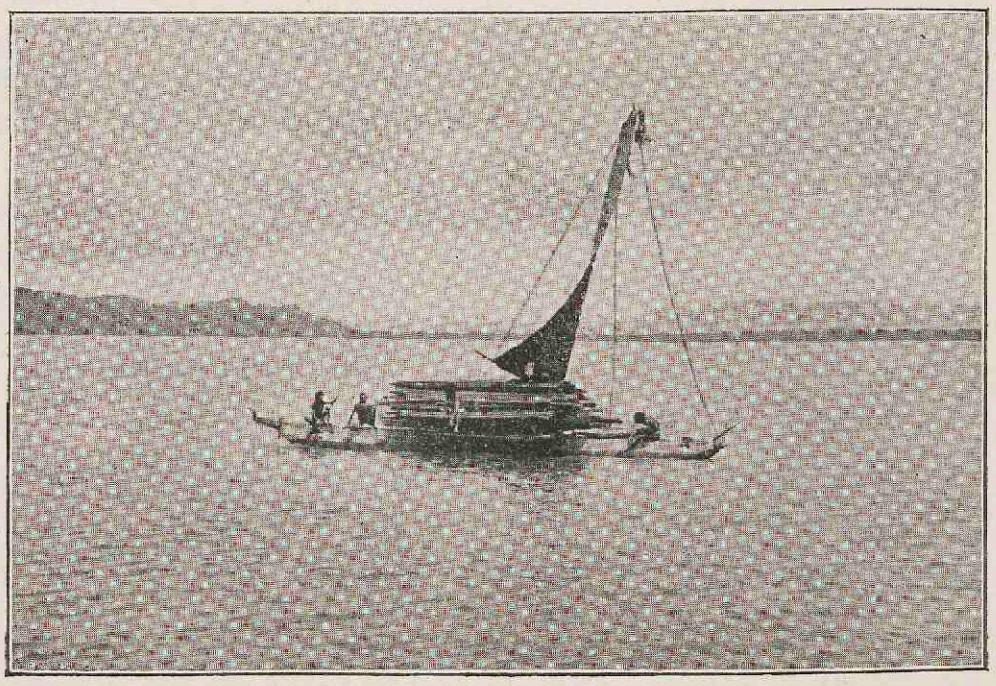


Fig. 134. *Wäche* of Kajó, exceptionally sailing with the stern foremost.

The mast placed in one of the *ăbè gĕnú*, then leans forward against the front athwartship *samrarí* and is maintained in this position by a forestay, from the head to the stem; a second stay, the middle one on fig. 134, often passes round the outside end of a cross pole and from here runs back to the foot of the mast, which it encircles together with the *samrarí*. To take this rope outside, curiously enough, one of the sailors has to jump overboard for a moment. The third stay is nothing else but the fall. All these ropes are manufactured out of bark fibres; I never came across rattan ropes, as seen by PARKINSON [1900, 30] in Berlin Harbour. The hoisting of the sail by one man, I saw performed in this way, that the rolled-up sail, held in the right arm bent upward, on the weatherside of the mast, rolled off at the top, with each pull with the left hand at the fall, running over the head of the mast. Whilst changing his hold with the left hand, our practical sailor held each time the fall with his teeth. When the sail is unfurled the fall is generally belayed at a point towards the stern. With a steady breeze and a fixed course, the sheet is also belayed. The danger

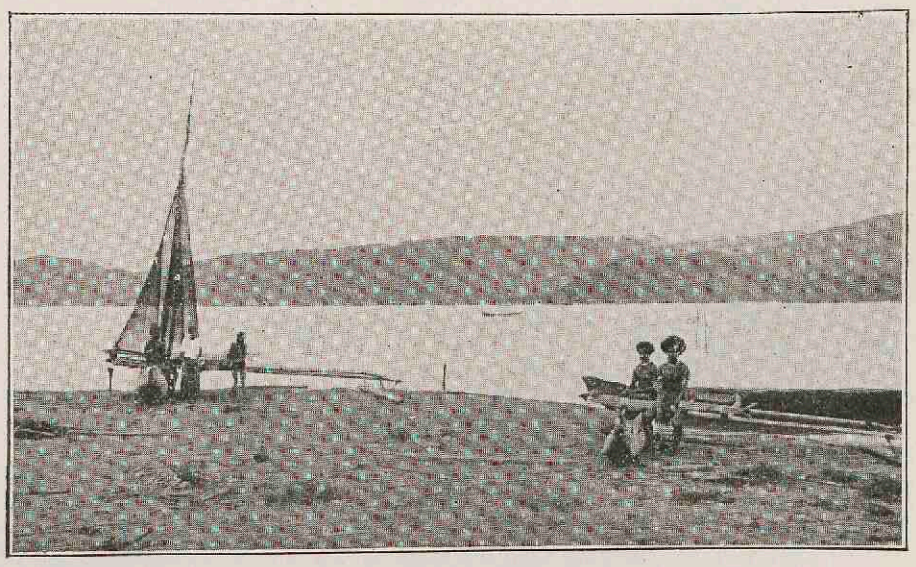


Fig. 135. *Wäche* of Humboldt Bay, pulled on the shore.

of being capsized with a sudden gust of wind, is diminished by the crew always being prepared to remove themselves as living ballast on to the platform, if necessary to scramble on the outrigger.

When not used, part of the craft of Tobádi are beached on the north-west point of Metu Débi (fig. 135), more generally they are tied on to the stages of the houses and only pulled up when in need of repair. In Kajó Entsau they are often placed on the stages, also on the large platform near the temple (see LORENTZ [1905, 135]), because here in the outer bay there can be a nasty jump of a sea. The people of Tarfia do the same for the same reason (fig. 96). At Waba, built on a shallow reef, dry at low water, and which then cannot be reached by boats, separate stages have been constructed, each consisting of a stage for the hull and, standing parallel with the stage, two gaffs on which the float rests, all high enough to be protected against the beating of the waves, even with the highest tides. As appears from fig. 180 stages and gaffs are placed in such a manner that here again the bow is turned away from the shore.

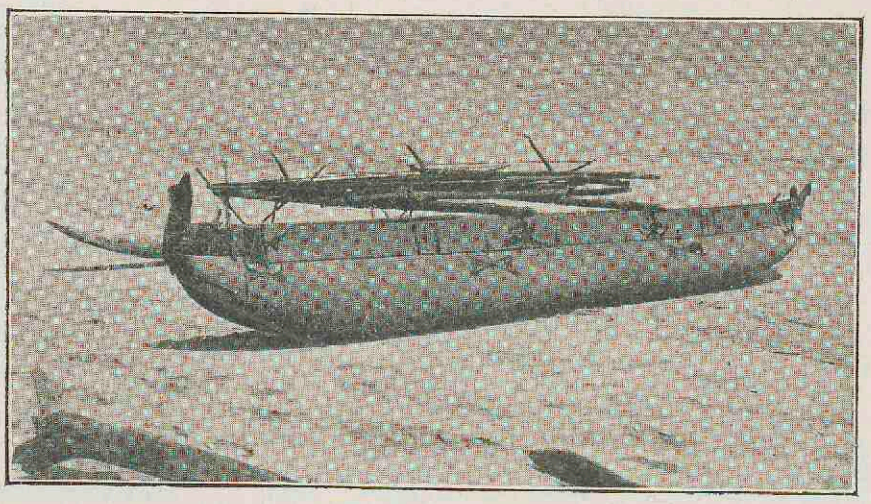


Fig. 136. Boat of Liki; outrigger at the starboard side.

The women's boats used in H. B. belong to the craft without an outrigger, which are much more numerous in N. G. than supposed by SCHELLONG [1904, 176]; they correspond pretty well with those of Lake Sentáni, and like these generally have no ornament whatever.

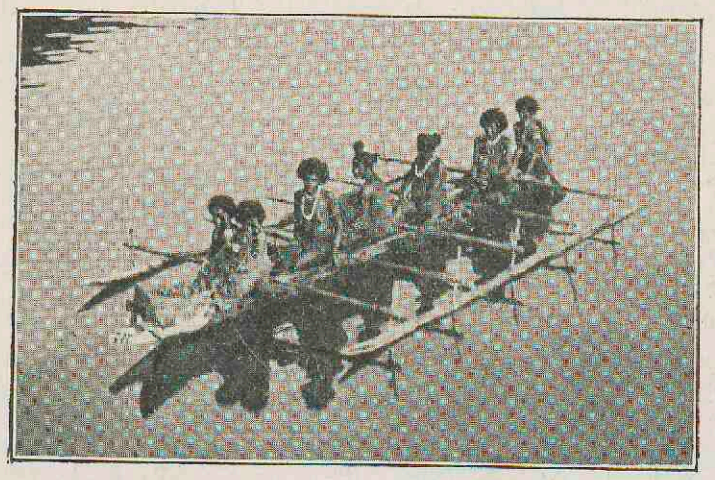


Fig. 137. Boat of Kwatisoré.

The type of boat, which is met with to the west of the territory of the *wâche* — I first came across this type on Wiak —, is distinguished by larger width and by two outriggers. The keel forward, continued in the shape of a heavy projection with a slightly upward curve, like the craft of Kwatisoré (fig. 137) show; an arrangement, which is useful in beaching and for the better lifting of the bow in the surf. The larger breadth necessitates the use of transverse planks for seats. The largest breadth is between the edges of the side walls, of which the height is increased by several sago stalks, fastened horizontally, with the concave sides turned down. As well on the stem as on the stern, a simple V-shaped piece of wood

is fixed to increase the height, the foreward one, however, often carries an extra ornament (N°. 667); carved ornament on the side walls is entirely wanting. On each side a float is carried of about the same length as the craft and only pointed and somewhat raised in front. Six fairly long cross poles are fastened on the hull, (they also serve for carrying different things on), all reaching from one float to the other, whilst close to the ends the vertical wooden pins are tied, which are stuck into each of the floats, as shown in fig. 138 of Wakobi. This model appears to be adopted in Geelvink Bay and also on Wiak for all the larger craft. The one of Wakobi has a platform of longitudinal laths fixed on the two middle of the cross poles and curved upwards, both to the left and to the right, to form a vertical railing, about 50 c.m. in height. On the biggest of these dug-outs, cut with iron axes out of the largest giants of the forest, small roofs are built (fig. 139). Fig. 140 represents the real Numfōr type, resembling the model collected by DE CLERCQ at Ansus (DE CLERCQ and SCHMELTZ [1893, 94, N°. 450, Pl. XXIV, fig. 5]), even the peculiar wooden erection immediately behind the ornamental prow, is not wanting; the sides having coloured figures, and in front with a figure like N°. 667 of Wári. However, smaller craft are also used here, with or without raised boards of stalks of sago leaves, in front, with a somewhat rising stem; they only carry one outrigger, on starboard (fig. 141).

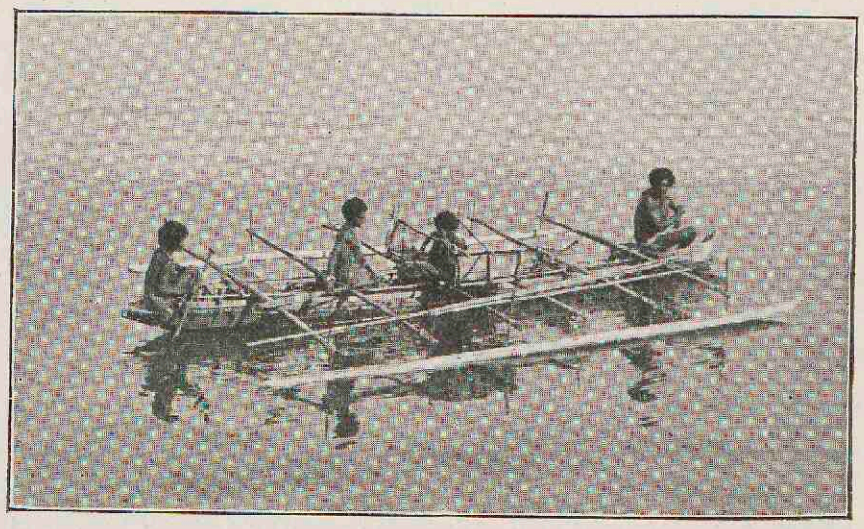


Fig. 138. Boat of Wakobi.

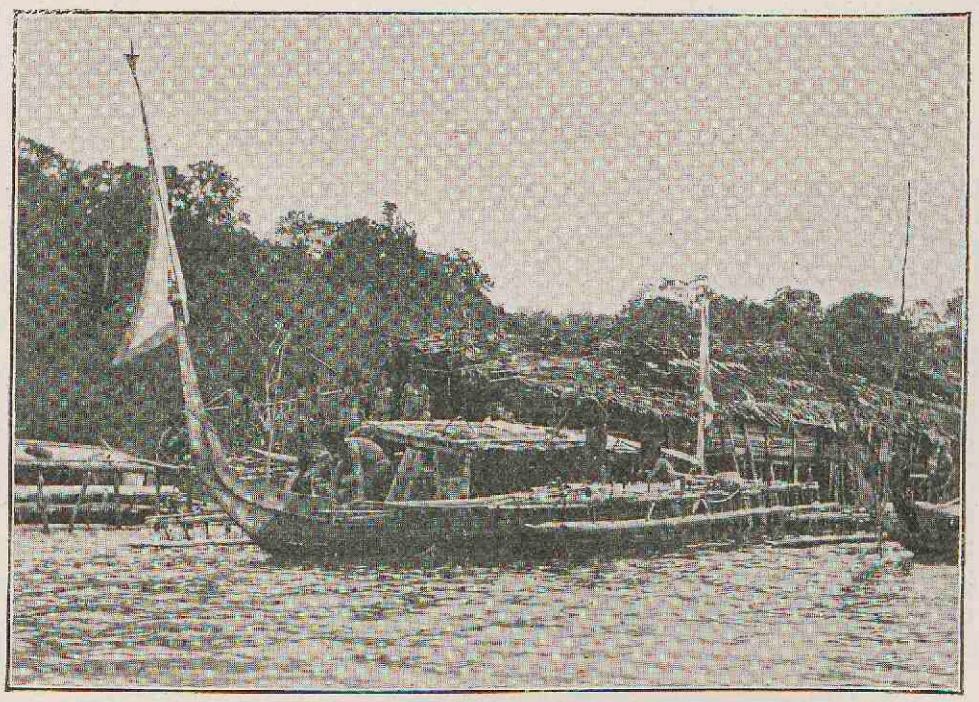


Fig. 139. Boat of Geelvink Bay.

The paddles used here have often at the end of the handle and cut out of the

same piece, a short cross piece, sometimes also a large, wooden ring, as on N°. 677 (Pl. XXIV, figs. 12, 12a). The canoes of Angádi, in which the expedition navigated Lake Jamūr and the Urama River, flowing towards the south, are fairly broad, without outriggers and without side boards, and nothwithstanding, of a large carrying capacity. Stem and stern are straight up and down, whilst on the inside small pieces of wood have been left, to fix on planks, as seats. I have not noticed on them any arrangements for sailing, although during the visit of the expedition, 6th—12th August 1903, a fresh S. E. monsoon blew every afternoon on the lake. Neither did I observe any difference between the men's and the women's canoes. A great part of the inhabitants had, however, fled in boats, and of these I only saw three.

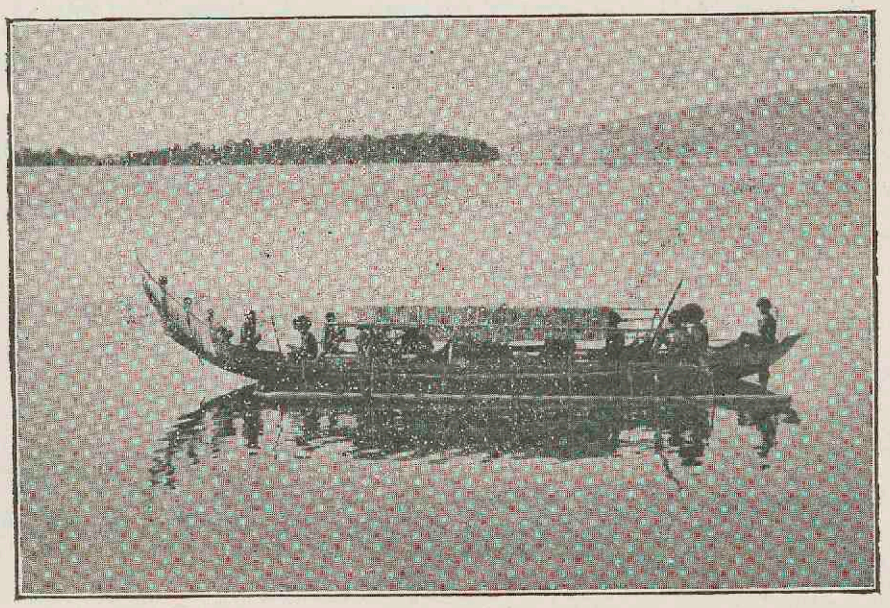


Fig. 140. Boat of Numfōr; Geelvink Bay.

The ornamental prows used in New Guinea, are well worth noticing, not only because they are so widely distributed (on the north coast of the Netherl. territory they are only wanting at Takar (DE CLERCQ and SCHMELTZ [1893, 93]), partly even (UHLE [1886, 2]) running parallel with the extension of the Melanesian race, but also because, differing in the various territories, they offer a means to define culture areas, all the more important, because to these ornaments the opinion of HADDON [1894, 250] may be applied that, "the art of a people has an intimate relation with their religion (using this term in the widest significance). A considerable portion of savage art is, or has been primarily religious in character". According to UHLE'S opinion, several times confirmed for Geelvink Bay, the objects illustrated in the bow or stern have a talismanic meaning, and the information obtained about a stern ornament of Masi Masi (DE CLERCQ and SCHMELTZ [1893, 97, N°. 473]), viz. to attract the fishes, possibly means something of this kind. Amongst all the varieties in the shape, the ornamental prows of H. B. offer a uniformity of the motives, in which some of the largest inhabitants of the sea are illustrated. The S-shaped, coloured ornamental prow (Nos. 658—661) is exclusively carried in front; this to correct the

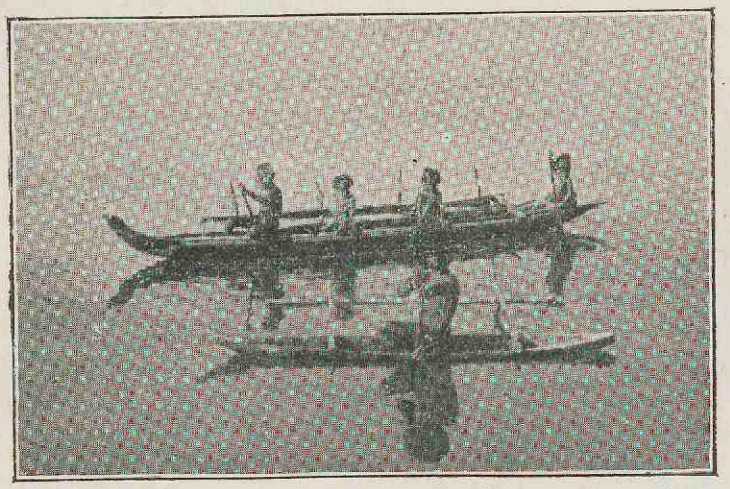


Fig. 141. Small boats at Manokwari.

report of DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 93]). A loose ornament tied on to both stem and stern, as illustrated by FINSCH [1888, 358] of Humboldt Bay, I have also never noticed. He may have seen this a little more eastward, in Berlin Harbour, although the object is here much less important and simply consists of knee-shaped, coloured pieces of wood (ERDWEG [1902, 364, fig. 249]).

DE CLERCQ gives some information as to the meaning of the figures [l. c., N°. 468 and N°. 469, Pl. XXV, figs. 2 and 11], supposing that amongst them *Echidna* also occurs; this animal is however unknown in these parts, as was proved when an illustration of it was shown to the natives. PREUSS [1899, 168] has, however, guided by a much larger quantity of material, given an extensive explanation of the formerly little understood figures, and at the instance of VON DEN STEINEN, indicated the oval pieces between two fish bodies as the two tails touching each other (tail-ovals). Being unaware of this discovery, the same thing had already become clear to me by questioning the people of Tobádi. From this it appeared further, that the bird's head, *wāmdi*, which forms the fore part, represents the cormorant (*Graculus carbo*), at the neck of which there is a crop-shaped excrescence, *fŏrĕ túge*, (see Pl. XXIII, figs. 3 and 4, at *a*). The scrotum (Pl. XXIII, fig. 4 at *b*), of the dog figure (no cuscus!), occurring on the bill, was indicated by the same name. It simply means bag, in this case a crop, filled with fish. Behind the bird's head there is a carved piece (figs. 3^a and 4^a from *a* to *b*), according to PREUSS [1899, 169, Pl. V, fig. 9^a, *x*) "wings, either or not bipartite". On my objects it is clear, that the front part (*a*—*c*) represents the wings, the back part (*c*—*b*) the spread-out tail; on a few prows of the Berlin Museum, the material of PREUSS, the same thing can be recognised, especially where the tail is narrower than the outstretched wings. Whether these wings and this tail belong to the large bird's head, seems doubtful; they have somewhat different name: *waime*, according to DUMAS a small, black, sparrow-like bird, which is sometimes seen on the roofs. Immediately behind the *waime* a yellow fish figure (figs. 3^a and 4^a from *b* to *d*), usually with curved gill slits (fig. 3 near *b*, fig. 4 near *c*, fig. 4^a near *e*) is noticed, and besides, one finds two sets of paired fish figures, the heads turned away from each other and the tails placed against each other, encircling an oval hole, *dibŏ*; each of these two parts of the tail was called *cháse*. Of each set of fishes, the one turned down (or back), coloured red, has a blunt head and represents the shark, *oi*, the other fish always has a pointed head and particularly also an indication of teeth in the slit of the mouth, all certainly characteristic of the animal here represented, whilst the greater or smaller length probably depends on the room available. It represents an animal "living in the sea and larger than a human being", it was said. Sometimes it was called *gărèbe* or *gărèp*, *sèrĕwāche* or *sèrĕbáche*; the latter name was, alternately with the name *tĕri* (also mentioned for the saw (serra) of the sawfish, N°. 554), equally applied to the yellow unpaired figure, which, with its tail-end again encircling a hole, *cháse*, reaches under the bird's wings. I therefore presume, that the sawfish is meant here. The head of the unpaired sawfish has the shape of a square broadening, the „Zwischenplatte" of PREUSS, carrying sometimes on the upper (outside) surface, and again at other times on the lower (inside) surface, a dental cross line (mouth and teeth; see also PREUSS [l. c., Pl. V, fig. 9^a]). On the lower end, *nŏ* or *wăche mĕtí nŏ*, of the ornamental prow, yellow painted figures are carved on both sides, taken by DE CLERCQ and SCHMELTZ [1893, 96] and by PREUSS [1899, 171, Pl. VI, fig. 28] for

flying birds; I, however, look upon them as fishes and heard the name *sĕnâbûne* or *sĕnubâne* mentioned, (another member of the expedition understood: *sĕrungûne*) once only it was called: *oi* = shark; no certainty was obtained regarding this. The name *sjŏri*, which DE CLERCQ [l. c.] gives for the ornamental prow of H. B., has not been mentioned to me by the people of Jótčfa, they always talked of *wăche mĕti*; the stem ornament of Tanah Merah N°. 662 (Pl. XXII, fig. 6) was, however, called *sŏri*, which comes very close to *sjŏri*. This object furnishes, in its being uncoloured and carelessly finished, the proof that here the western limit of this style of prow is approached; nevertheless all the representations of animals can still be traced on it. Of the territory, which adjoins to the west, DE CLERCQ [l. c. Pl. XXV] and UHLE [1886, Pl. I, figs. 4 and 6] illustrate fine objects, e. g. of Jamna and Podena. But the latter's opinion, that the area of distribution of these ornamental prows with handles, passes in the west, near Wakidé, in east longitude 139° 5′, directly on to the Geelvink Bay type has proved incorrect, in so far as between these, a territory is still to be found with ornamental prows as on the craft of Liki, fig. 136. (As an exceptional case, this craft lies with its stern towards the sea). These ornamental prows (N^{os}. 663—664, Pl. XXII, figs. 9 and 10) have two small, diverging planks, which placed on the hull, join the side-boards. In this respect they resemble the shapes of Geelvink Bay, of which the influence is also considered by PREUSS [1899, 163] to reach as far as Takar and the Arimoa Islands. However, the heads, which occur on them, largely resemble those on the above named prows of DE CLERCQ [l. c., 97] and UHLE, which heads are looked upon as human heads, with the tongues sticking out. I do not know whether this information has been obtained from the natives themselves, but judging by a specimen of Korido [l. c., Pl. XXIV, fig. 2] it appears to me, that the beak-like nose with nose wings is not necessarily applied to a human figure, but also, as in this instance, to the figure of a dog. Still more: the head on the prow of Liki (N°. 663) was explained to me as *piakŏre* (BINK [1902, 7]: *piakor* = black bird of paradise), the one on the stern (N°. 664) as *kŏkār*, which is supposed to represent the black crested *Microglossus*. I observe, that the crests which occur on the heads of the prow from Podena (UHLE [1886, Pl. I, fig. 6]), can be more easily interpreted as birds' crests than as human hairdresses.

N^{os}. 665 and 666 (Pl. XXII, fig. 8) of Kwatisoré and N°. 667 of Wári entirely correspond with the type, which is found in the south of Geelvink Bay.

As far as the technique of these ornaments is concerned, it would appear that at several places the small, round holes have been made by red hot, iron pins. As to the meaning of this ornament the reader is referred to UHLE. Of the unornamented, high, wooden prows (DE CLERCQ and SCHMELTZ [1893, 92, fig. 36]), common in Geelvink Bay with big craft, fig. 139 gives a good illustration, whilst fig. 140 shows the ornamented prow of a Numfŏr canoe, in the road-stead of Manokwari.

I did not see ornamental prows on the craft of Lake Jamūr; the drawing fig. 178, however, on the wall of the house on fig. 80, made with lime, and which represents a boat with one superior and three ordinary warriors, shows a high prow, from which I conclude, that on warlike expeditions, ornamented prows are used.

N°. 654. Pl. XXII, fig. 11. 1/9. *Wäche.* Ingrâs; model of men's boat, hollowed out of white wood; a toy, not exactly true to nature. On and near the front edge of the platform, *wäkōb*, as well to the right as to the left, a strong support, *äbè gĕnú*, *äbiai gĕnú*, for the mast, *äbiái*; the head of this with bifurcation and ornamented with cassowary feathers, *chätuār arú*; cord stays towards bow, stern and transversely, towards end of hindmost cross pole, *wäriāt*; side-boards, *brĕbáre*, and hull painted: birds with wings in a forward and backward position, and with several appendices; head sometimes represented by one or three dashes. Fore stay missing.

N°. 655. Oinâke; model of men's canoe, 76 c.m. in length, diameter of hull 10.5 c.m., opening 4 c.m. wide; no side-boards; prow, longer than stern, with barbs along lower margin. Cross pole 65 c.m. long and sticking out 10 c.m. at the port side; platform (incomplete) and railing see page 201. Children's toy, found under a house.

N°. 656. Ingrâs; two pieces of the wall of men's boat, thickness 1.7—2.4 c.m.; upper edge sharp and showing by a 2 c.m. broad, light coloured border, how far the side-board overlapped. Carved with bird (fish) figures, *märau*, the heads of 2 figures continued in curved bands and 5 figures, all with the heads turned towards a carved, angular band, *sèrĕbāb* (see also fig. 177).

N°. 657. *Isja.* Asé; men's canoe, out of a trunk of yellowish white, specific light wood. Keel, *èdu*, *ètu*, rounded, towards both ends with a flat, projecting extremity; side walls, *ènĕwai*, slightly convex, along edges with a ridge, *färōi*, ending fore and aft in a carved (eye?) ornament, *jöro*; round stern, *möri*, *mĕri*, an ornamental border. On lower part of prow, *ĕbĕgwè*, amidships, a longitudinal row of 4 carved points, *kara*, on upper part one of 6 points, both passing in front on to a bowsprit, *kŏ*, at the foot with 4 circular notches. Length over all, 4.76 m., on waterline, 3 m.; draught, with board 22.5 c.m., extreme beam, 26 c.m., depth of hull, *öi*, 19 c.m., beam between the edges in the middle, 16 c.m.; bowsprit, 27 c.m.; weight, 11.95 K. G.

ORNAMENTAL PROWS.

N°. 658. *Wäche mĕti.* Tobádi; S-shaped wooden ornament for stem of men's canoe, *wäche*, front part pointing upwards 60°, represents bird's head (*Graculus* = *wāmdi*) with crop, *förĕtúge*, 2 eyes and long beak, *súge*, (at the point a projection pointing down (hooked bill) is broken off); on this a dog, *gonje*, the head, with eyes and mouth-slit, 4 paws, each with 3 toes carved on the beak; his tail on and over the bird's head, connected with bird's wings and a broad bird's tail (of a kind of sparrow = *waime*). Behind this, the tail and body of a sawfish (?) *gärèp*, *gärèbe*, *sèrĕbáche* or *tĕri* with a flat, square, inclined head, on which 2 black spots, as eyes. On front side of vertical part, a set of 2 fishes with wooden projections as fins, *pötúge*, tails, *cháse*, against each other, encircling a round opening, *dibŏ*; the upper one, *sèrĕbáche*, with a pointed, long beak, as far as bird's crop, the lower representing a shark, *oi*, with round head and slit beak; horizontal end, *wäche mĕti nŏ*, with transverse hole, *dibŏ*; upper part with set of fishes as before, sides with carved ornament, *âne sĕnöbúne*, consisting of 3 eye ornaments and a fish figure. Painted red, yellow, white and black; loop for suspending of bark fibre.

N°. 659. Pl. XXIII, figs. 3 and 3a. 1/4. *Wäche mĕti.* Tobádi; like N°. 658, bird's beak with slit; ends of bird's wings not touching the tail; quarters of dog in relief; side projections (fins) on unpaired animal figure, carved eye and transverse, dental carving on square head part; upper *sèrĕbáche* with teeth. Painted as above.

N°. 660. Pl. XXIII, figs. 4 and 4a. 1/4. *Wäche mĕti.* Tobádi; like N°. 659 bird's crop red, with black and white spots, ends of wings (fig. 4a near *c*) free; dog with small projections as ears and scrotum, *företúge*, (fig. 4 near *b*); unpaired figure on both sides of body with curved gill slits (fig. 4 near *c*, fig. 4a near *e*), head with eyes and transverse, dental line.

N°. 661. *Wäche mĕti.* Tobádi; as before, total length 71 c.m.; on back of bird's beak only an oval

excrescence; ends of wings connected with edges of tail; both *sèrĕbáche* with teeth in mouth-slit; unpaired animal figure with fins, gill slits, but no transverse carving on square part.

N°. 662. Pl. XX, fig. 6. $^1/_8$. *Sëri.* Tanah Merah; as before, but less curved and not painted; bird's beak straight, crop pointed, behind and under the head, an excrescence with eye ornament, on both sides of neck carvings (wings and tail?); unpaired animal figure without tail, on both sides of body 3 gill slits; head part rounded and with eyes; horizontal, paired figures with double mouth-slits; end with transverse rows of triangles, in front corner a fish figure.

N°. 663. Pl. XXII, fig. 9. $^1/_6$. Tobádi; as before, in the shape of two small planks, meeting in an angle, on outside with connected fish figures in relief; in front, at the point, an erect head, *kökār* (*Microglossus*), bent somewhat backwards, with crest, from which the nose ridge descends; to this nose wings; eyes circular, mouth-slit as two horizontal carvings, between which, a relief ridge; in the planks two holes for lashings. Derived from more western parts; see fig. 136.

N°. 664. Pl. XXII, fig. 10. $^1/_6$. *Murí tăbor.* Tobádi; stern ornament belonging to and in the style of N°. 663; but the point continued obliquely upwards, in a blunt end with carved button. Side-planks carved as above, port side moreover with five pointed star; crest on narrow skull; nose beak-shaped; mouth-slit partly double; to the right and left along back part of head a dog (?) figure, the paws on a vertically carved band; in front and at ends of side-planks, transverse holes for lashings. The head is said to represent the black bird of paradise, *piaköre.* Origine as above.

N°. 665. Pl. XXII, fig. 8. $^1/_3$. *Horiè.* Kwatisoré; a plank, 7 m.m. thick, on both margins along plain middle strip, coloured systems of curls and hooks in open work; upper part unfinished, but the plan superficially carved and some round holes burnt in; caught between 2 wooden strips; on top squatting, human figure, *jömĕnŏ idjè*, feathers, *wèhĕgrè*, of cassowary, *töpabrè*, instead of hair, and above this a plume of yellowish brown feathers, *mabrugrè.* (See Uhle [1886, 2, Pl. II, figs. 2, 5 and 8]; De Clercq and Schmeltz [1893, 94, N°. 456, Pl. XXIV, figs. 9 and 9a]).

N°. 666. *Tödiè.* Kwatisoré; of yellowish brown wood, length 47, breadth ± 9 c.m.; at top 6 c.m. thick, lower down thicker and with a deep slit (in the plane) and holes burnt in for fastening on canoe; upper end represents human head, mounted with cassowary feathers, *töpabrè*; limbs and body open worked on a transverse part; four arms, knees drawn up as far as elbows, feet curled upward. (See De Clercq and Schmeltz [1893, 95, N°. 457 and N°. 462, Pl. XXIV, figs. 3 and 4] of Wandămen and Supiori).

N°. 667. *Manga numè.* Wári; as before, in the shape of squatting human figure, 22 c.m. in length; head cylindrical, hair of vascular bundles of *Arenga* leaf sheaths, *mansimak*, eyes and ears oval; nose as vertical ridge, with pierced point continued as far as the mouth and chin; neck, octagonal; open-worked body and limbs in frontal plane; lower arms upwards, knees drawn up against arms, feet with short side projections as toes. Used on small craft. (See De Clercq and Schmeltz [1893, 95, N°. 457; 96, N°. 465, Pl. XXIV, fig. 3 and fig. 8] of Tandia and of Wardò; Uhle [1886, N°. 4533, Pl. II, fig. 8]).

N°. 668. Pl. XXII, fig. 7. $^2/_{11}$. *Chătuār.* Tobádi; figure of cassowary out of brown wood, 2 c.m. thick; head with comb, carved eyes and beak-slit; in front a short projection (representing bunch of coarse feathers, hanging from breast); body with longitudinal carvings and continued into a stem; painted black, white and red. Ornamented carrying peg of a canoe.

Paddles.

N°. 669. *Tĕm.* Asé; for men's canoe, *ĭsja*; of dark brown wood; cylindrical handle, *kŏ*, 2 c.m. thick, 77 c.m. in length, of which by a circular carving, *fŏri, sum*, a grip, *ĭmŏ, kobă*, 11 c.m. long, is marked off; blade, *fèw, ĭnè*, oblong oval, 71 c.m. long, and 11 c.m. broad, edges rather sharp.

N°. 670. Pl. XXII, fig. 2. 1/8. *Těm.* Asé; for women's canoe, *kají*; blade on both sides with fish figures, the long jaws, each with an eye and a fish figure; body taken up by 2 similar fish figures and rudimentary eye ornaments (?); long fins; tail also formed into a fish figure; intaglio parts smeared over with red clay, relief parts black; 4 transverse, black stripes at edges. (See PREUSS [1899, Pl. V, fig. 27]).

N°. 671. *Těm.* Asé; like N°. 670; grip marked off by 2 carvings; blade broader and 6 c.m. longer; body of fish figure with central eye ornament and 6 fish ornaments.

N°. 672. Pl. XXII, fig. 1. 1/8. *Těm.* Asé; like N°. 670, near grip, 6 carvings, the end flat; body and jaw of fish figure with spirals, and barbed centre; breast fins narrow and short; only 3 transverse, black stripes at the edges.

N°. 673. Pl. XXII, fig. 5. 1/8. *Sijau.* Tobádi; of heavy, brown wood; handle, *sijau nŏ*, 117 c.m. in length, of which 17 c.m. as grip; oval blade, at lower end with blunt appendix; handle continued on both sides of blade in a relief figure, alongside of which, another, *sijau âne.* (See DE CLERCQ and SCHMELTZ [1893, 100, N°. 485, Pl. XX, fig. 9], PARKINSON [1900, Pl. XX, fig. 5, middle figure], PREUSS [1899, Pl. V, figs. 24 and 26]).

N°. 674. Pl. XXII, fig. 3. 1/8. *Wărĕpú.* Tobádi; like N°. 673, handle 82 c.m. long, thickened end carved with 2 eye ornaments, of which the 4 triangles open worked and with head of crocodile; blade, *isjau*, oblong oval, the upper 2/3 with carvings, *isjau âne*, bird (?), of which, parts and additions modified as snake motives; alongside of head covered with complicated carvings; relief ornament black, remainder with broad, transverse, red stripes. Obtained from village chief of Tobádi; perhaps coming from somewhere else. (See PARKINSON [1900, Pl. XX, fig. 3]; ERDWEG [1902, 371, figs. 256 and 257]).

N°. 675. Pl. XXII, fig. 4. 1/8. *Wărĕpú.* Tobádi; like N°. 674, handle 110 c.m., grip toothed and with black rings; on blade, bird figure (half black, half red), connected with other bird and snake figures. Obtained like N°. 674.

N°. 676. *Wărĕpu.* Tobádi; like N°. 674, handle 114 c.m. long, grip with opened crocodile (?) mouth (jaws of unequal length), each with set of eyes and "prominent valvular nostrils" (HADDON [1894, 53]); out of mouth the remainder of handle projects; middle figure of blade, snake-shaped. A leaden ball sticks in blade; result of hostile encounter?

N°. 677. Pl. XXIV, figs. 12 and 12a. 1/8. *Boris.* Manokwari; of heavy, brown wood, grip ring-shaped; passage to handle represented by an opened mouth; blade, in same plane as ring, quadrangular.

N°. 678. *Chīnkai.* Asé. baler, out of gutter-shaped bract of a palm; 31 c.m. long.

N°. 679. Pl. XXIV, fig. 14. 1/8. *Gai.* Tobádi; like N°. 678; 48 c.m. long.

CHAPTER VII.

TRADE AND COMMUNICATIONS.

After the discovery of N. G. by the Europeans it gradually became evident, that, already a long time before, the inhabitants of the Netherl. East Indies carried on trade with the western part of the island and principally bartered metals, pottery and cotton fabrics for massoi bark, nutmegs and turtle shell. Slave-trade was also very flourishing at that time and long afterwards.

On the west coast it was especially the people from Ceram (Laut Isles), but also from Mangkasar, arriving with the west monsoon and returning with the east monsoon, who had conquered the trading territory and monopolized it (VAN DER GOES [1858, 110, 121]), which even gave rise to Mohammedan settlements on that coast. (VAN DISSEL [1904a, 617]). The importance of the Ceram trade may e. g. be deduced from this fact, that the expedition having penetrated from the southern shore of Geelvink Bay as far southward as Lake Jamūr, had reached the trading territory of the Ceram people, as appeared from many objects made of metal, cotton fabrics, Patani boxes, etc. The Ceram people themselves do not penetrate as far as this lake, but the natives of the lake (Angádi) go down the Wa Udu River, a tributary of the Urama River, to the south-west coast, where this stream forms three mouths. The middle mouth, or the settlements on it, they called Opa, the one eastward, Nariki. East of this mouth, the Pura-Mountain (Buru?) was situated on the sea, and still further east, the Gomågwa River flows into the sea.

From Opa going to the west, the island of Agára (Lakahia?) is found, and on the coast lies a row of villages: Agára, Mawáta, Wai, Narèta and Kŏpamútu; the latter village situated on an island, at the entrance of a large bay, called Păpárŏ (Etna Bay). Another village Arèga, called Jamūr ketjil by Ceram people, was mentioned. The natives of Agára were said to have killed three foreigners some years before (Webster's surprise in Etna Bay). With the above information it will be possible to find out along what water-roads trade has reached Lake Jamūr.

Also at Mapār, which may be reached from Geelvink Bay (Sarí) in a three days' march in a westerly direction, I found objects obtained from Ceram traders, imported from

a place on the west coast. These commodities are very precious, in consequence of the long transport by land (a fourteen days' march). Multi-coloured cotton cloths, 1 m. square, called "*kain timor*" by the Malay guide, are highly valued by the natives, each being worth a wife. These cloths are adorned with a plume of cuscus skin in the middle, and one border is ornamented with a number of similar little pieces, feathers, bird's heads, etc. forming a kind of fringe. The main colour is red, but parallel to the ornamented border run dark blue and yellow stripes. Along the same road of transport, old single-barrelled guns are obtained. In this connection I remind the reader of the information by VON ROSENBERG [1875, 104], that also the Hätam people exchange commodities of Ceram origin from MacCluer Gulf, for tobacco. From Geelvink Bay the people at Mapār as well as at Horna (to be reached in a five days' march inland) obtain parcels of blue cotton goods (see page 94); in the latter village a six feet high pile of those parcels was in stock, not only used for clothing however, but also as a medium of exchange, circulating till they become rotten.

The princes of Tidore formerly exerted a great influence on the western islands, the west coast and the territory of Geelvink Bay; however, they acted more from political motives than from trading interests.

Ternatian traders and hunters perform their dangerous work all along the north coast and in Geelvink Bay; they may be considered as the pioneers of foreigners. Wherever the members of the expedition wished to penetrate into the interior, they nearly always came across these men, who could often serve as guides or interpreters, owing to their local knowledge. So the discovery on the island of Ali of a 4 lb. iron weight, bearing the date 1758 or 1738 (PARKINSON [1900, 19]) need not be wondered at.

Now that in the last decennaries, steamers under different flags touch N. G., the importance of the trade in H. B. has also increased, and by the time a steamer is expected, the boats of different villages on the coast gather there (see also HORST [1889, 251]).

Of more ethnographic interest than this sort of commerce, especially more attractive than the ill-reputed labour-trade of the eastern coasts, are the commercial relations, existing among the Papuans mutually, the great extent of which has only become known of late, and by the enlargement of the heading "Verschleppungen" has caused a great commotion in the camp of ethnographers. Every "Verschleppung" however, indicates particular relations between tribes, villages or persons, worth knowing. There is a communication by land between opposite coasts: between the MacCluer Gulf and Geelvink Bay, probably also between the S. W. coast (across Lake Jamūr) and Geelvink Bay. There is also much to be said in favour of the opinion, maintained by HADDON [1894, 256] and SCHMELTZ [1896, 113], that using the Fly River as a culture-route the same thing would take place between the Papuan Gulf and the north coast.

The great interest of the coasting-trade, all the more important because of the navigation connected with it, may be understood from examples such as the pottery-trade of Port Moresby. According to HADDON [1901, 248], sometimes a fleet of twenty lakatois, with a crew of some six hundred men, each of whom would take about fifty pots, would sail towards the Papuan Gulf (see MACGREGOR [1897, 56], ANNUAL REPORT [1902—03, 18, 19], [1904—05, 69—72]). Equally important is the pottery-trade of Bilibili. DE CLERCQ and SCHMELTZ [1893, 91] give an interesting account of the coasting-trade on the north and west

coast of the Netherlands territory, to which I must add, the trade in pigs, delivered by Sĕkå to H. B., the trade in bodily ornaments, productions of the industry at Tarfia, carried on along a great part of the coast (see pp. 89 and 101), and the trade of diligent Serué, on the south coast of Jăpen, to other places in Geelvink Bay (Kwatisoré).

It is evident, that the coasting-trade, is ruled by the monsoons, not only by the constant winds, but also by the strong currents they cause. The Ceram people land on the west coast in May and return in June (VAN DER GOES [1858, 122]); the trade in pottery and sago in the Papuan Gulf is carried on in October towards the end of the south-east monsoon (HADDON [1901, 248]), the trade of Bilibili on the north coast, during the calm sea of the south-east monsoon (PARKINSON [1900, 40]), and navigation is almost given up there (ERDWEG [1902, 371]) from November till March, during the north-west monsoon. On the north coast, westerly currents are strongest, and so the drifting of boats from east to west, as ELLIS [1888, 51] mentions, when meeting with natives from K. W. Land on the island of Liki, occurs more than from west to east.

The trade of the natives from the interior with those from the coast, can hardly be called free-trade, for nearly everywhere, at least on the west and north coast, the natives from the interior or from the mountains, are the sufferers, and are, to a certain extent, at the mercy of the inhabitants of the coast, who fix the value of the productions and obtain great profits with little trouble. NACHRICHTEN [1888, 226] and HAGEN [1899, 221] also mention a similar supremacy exercised by the population of the coast. Their jealousy is the cause that modern commodities do not directly penetrate into the interior [l. c. 219] and so my Humboldt Bay interpreter begged me, not to barter modern things in Asé, these objects not yet being known in H. B. itself. When, however, our looking-glasses, knives, etc. had become very abundant in H. B., the natives went with these productions to Lake Sentáni, in order to exchange them for antique, valuable beads (see below). The above mentioned trading supremacy generally extends only to the nearest villages of the interior, which in their turn, carry on the trade with places situated farther on. Whoever undertakes an excursion with guides or porters from the coast villages, usually experiences that those people do not go any farther than the nearest inland village, where other people must be supplied. More than once, those porters suddenly left the expedition in the lurch; the coast people of Kwatisoré held their heads so high, that they absolutely refused to carry any loads, but on good payment they were willing to send for natives from the interior (Nagramádu) to act as porters. So it is generally the mountaineers, who come to the coast on foot, and the expedition often succeeded in meeting with such inland natives in coast villages, as Bawé, Sarí and Tobádi, and could engage the women (see PRATT [1906, 323]) as burden-bearers. HAGEN [1899, 220] mentions periodical market-days, MACGREGOR [1897, 72] market-places, things, which are unknown to me from Netherlands N. G.. Tobádi has commercial relations, e. g. bartering sea-fish for sago, chiefly with the village of Asé, and a friendly relation exists between the families of both villages, of course mingled with some humility on the side of Asé. So not only marriages, which may be considered as a sort of trade, take place, but also business friends or their relations are entertained for a time. The village of Waba has more commercial dealings with Ajápo; Ifār seems to carry on trade with the villages on the north coast, across the passes of the Cyclops Mountains, while the western part of Lake Sentáni has intercourse with Tanah

Merah, and also deals with the tribe of the Djangu (MOOLENBURGH [1904, 170]), south of the lake.

The expedition also experienced, that communication in New Guinea, especially in the rainy season, when extensive, low lying woods are entirely flooded, offers the greatest difficulties. Rivers are bridged over by a single tree (ANNUAL REPORT [1896—97, 13], [1897—98, 21]; SELIGMANN [1906, 236]), or by trees felled from opposite sides, crossed and fastened in the middle, like the Ingsiim River, fig. 142. Sometimes a narrow trunk is supported by piles (MACGREGOR [1897, 87]), and when the bridge consists of a slender palm, a rattan rope stretches breast high from bank to bank. Fine suspension bridges of bamboo (?) (PRATT [1906, 128]), and similar ones of rattan, as PITCAIRN [1891, 241] and THOMSON [1892, 90] mention and illustrate of the Vanapa River, have not, however, been found in Netherlands New Guinea.

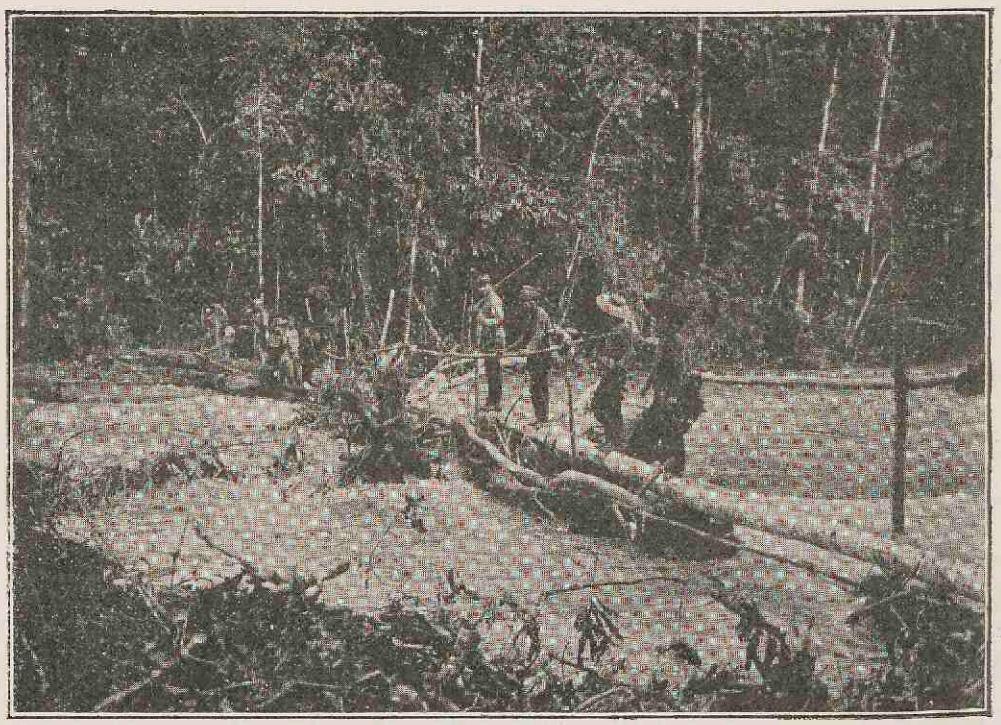


Fig. 142. Bridge across the Ingsiim River.

The path through the forest is generally marked by some tracks on the ground, and by the cutting off of boughs here and there; every now and then ashes and kitchen refuse indicate halting places, while for the night's rest little sheds have been built on river banks. The march proceeds in a quick tempo; in front generally a man, announcing the approach by loud cries, behind him the loaded women, their loads on their backs, the straps across their foreheads, behind these the armed men. Here I give the general advice to engage the porters, if possible, without being compelled to supply them with food; the male and female porters of the expedition, sometimes appeared to be so fond of our rice, that they purposely attempted to make small day marches, in order to share our food for a longer time.

The question whether an established article exists as measure of value, has been answered by FINSCH [1888—93, 222, 223] for K. W. Land in this meaning, that strings of Nassa shells, slices of Conus shells [l. c. Pl. 6, figs. 3 and 4] and also the teeth of dogs are used as currency, the latter article also mentioned of the Gogol River (NACHRICHTEN [1891, 51]). The abnormally bent boar's tusk (FINSCH [1888a, Pl. XXI, fig. 2]), and its imitation (HAGEN [1899, 171, Pl. 28]), however, form the most desirable earthly good. In British N. G. stone adzes form a kind of currency (MACGREGOR [1897, 58]); further information is given in ANNUAL REPORT [1904—05, 69—72].

Regarding Netherl. N. G. the Trochus rings (p. 101) and the stone hatchets (p. 176)

have already been mentioned, but of more universal use as currency all over Papua Tălandjang are antique beads. I have gathered some seventeen of these beads, of 8 different sorts (N^os^. 681—692, Pl. XXIII, figs. 5—15). They have the shape of a low (short) cylinder, sometimes flat like a mill-stone, sometimes bulging out like a cask. The latter sort often has a faint ridge in the plane of the largest diameter, (see N°. 690, Pl. XXIII, fig. 12; N°. 688 has such a prominent ridge, that it looks like a double frustum).

These beads are all made of coloured glass, the hardness of which has been defined by Prof. WICHMANN between 5 and 5,5. A single one, N°. 688, shows several colours, but I believe such are not considered to be so real as the others. Some are of a clear transparent material (N^os^. 681—684), the others are only slightly translucent. The surface of both species, however, has become dim by long use. Moreover, in most of the beads, the surface shows many small holes, more or less filled with dirt, whilst deep in the interior, bubbles are to be seen. In the transparent beads, dark blue, light blue and light sea-green, it can be discerned, that where the fewest bubbles are found in the interior, as in the sea-green ones, also the fewest holes are discovered on the surface.

The semi-translucent ones are brimstone-coloured, vernal-green or light sky-blue; the first named are generally covered with the little holes, looking like black dots, the green ones have fewer dots, the blue ones still fewer. By the aid of a microscope, the actual mass of glass of the brimstone-coloured ones, has been proved to be wholly colourless; the colour of the bead is caused by little spots, lying in it, and by irregularly shaped, little pieces of an unknown material.

The question how the technical manufacturing of these beads took place, can be answered with a high degree of certainty. Spiral furrows and folds occurring on the flat sides (N^os^. 686—688), prove that the mass of glass was not thin liquid during the manufacturing, and the coloured spiral stripes (N^os^. 689—692), that the mass, moreover, was not entirely of one colour, ergo not homogeneous of mixture. These furrows and stripes, are not interrupted at the central aperture, but seem to circulate round it, from which the conclusion may be drawn, that the bead was not perforated after cooling, — as may be done with a soft gimlet and hard grinding-powder (RIVETT—CARNAC [1902, 7]), — but that the hot, half liquid mass has been turned and cooled round a solid axis of other material. The deepened, spiral furrows on the upper-plane and under-plane, moreover, prove that each bead has been manufactured separately and has not been cut out of a longer glass cylinder. The transparent beads which have no furrows or stripes, show the elliptical bubbles, with their length parallel to the circumference of the bead, proving, that here too, the mass of glass was not thin liquid and that by turning round the axis, the spiral strata of glass shifted along each other. Wear and tear, not only brought the bubbles to the surface, looking like sharp edged, small holes, but also took away the superficial shining, which only remained in the furrows.

Sections of currency beads, at present in the Mineralogical Geological Museum at Utrecht, prove what has been said above. N°. 5553 (Pl. XXIV, fig. 8, $^4/_1$), section of a green bead, clearly shows the spiral arrangement of the stripes, lying more circular near the centre, round the aperture. N°. 5551 of the same collection also very clearly shows the stripes. N°. 5554, section of a yellow bead from Tobádi, is homogeneous, it however shows the typical shape and position of the bubbles.

I must also draw the attention to the beads of a man's necklace (N°. 375, Pl. XIII, fig. 3), made of white, semi-translucent glass, nearly spherical, supplied with a narrow hole, and having from pole to pole some fourteen superficial ridges, as also occur on Borneo beads (NIEUWENHUIS [1904, Pl. XIX, figs. 30—36]), all the ridges separated by sharp furrows. The section made of such a bead (Pl. XXIV, fig. 7, $^4/_1$), again shows the spiral drawing, in a surprising way, and also, that the strata bend in at the furrows and out at the ridges. This means technically, that the furrows are not made after cooling, by filing or cutting, but have been impressed whilst the bead was soft, without cutting the strata. An expert of the glass-industry, declared to me, that the manufacturing of this technical masterpiece was beyond his understanding. The above mentioned specimens, however, do not belong to the "überfangene" beads, which are manufactured by successive immersion into different masses of molten glass, for in this way circular furrows and stripes are obtained, not spiral ones.

These currency beads, according to MOOLENBURGH [1904, 169], are found as far West as Pt. D'Urville, as well among the coast tribes as among the mountain tribes. In Walckenaer Bay they are called *tètan*, on Lake Sentáni *tĕna* or *sĕnai* (= old), the people of Sĕkå call them *tjĕ*, those of Humboldt Bay *simbóni*, although generally only the blue ones are indicated by this name. They are seldom worn as ornaments, but sometimes in the nose, on combs and on the front of men's bags on particular occasions, as on the bag of fig. 143, belonging to the chief of Tobádi. Only now and then they have been found in the native bags, together with the tobacco and the wrapper of cigars; generally they are kept in little bottle-shaped baskets (N°. 693, Pl. XXIV, fig. 9), plaited from rattan strips and provided with a cover. The beads are used when trading with fellow-villagers and strangers.

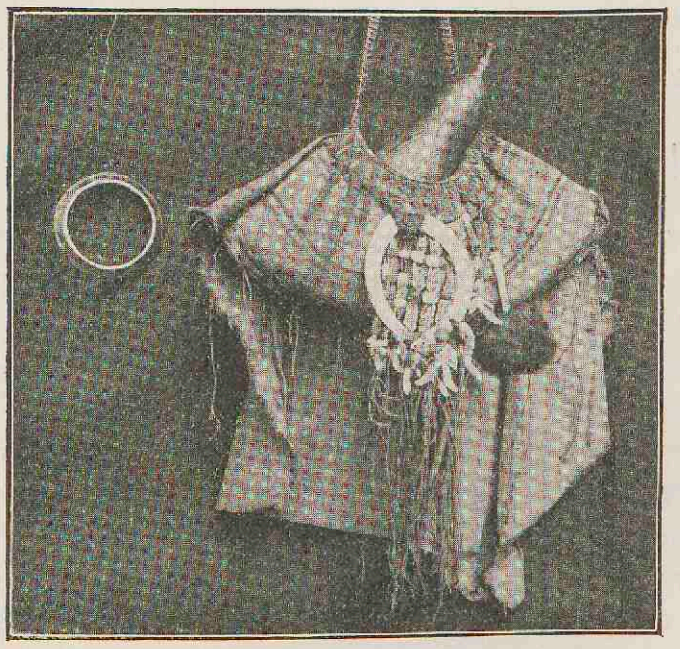


Fig. 143. Bag ornamented with *simbóni*, etc.; next to it glass ring, *kās*; Tobádi.

They derive their value, *mŏtĕri*, only from their antiquity, as NIEUWENHUIS [1904, 137] and SHELFORD [1905, 34] also stated about the Borneo beads. This value is indicated by MOOLENBURGH [1904, 169] as follows, the names, as they are used in H. B., mostly agreeing with mine: *īsjār* (blue) = fl. 5.—, *īsjār choi* and *tranjo* = fl. 3.—, *īsjār growanisori* and *suwá* = fl. 2.50, *simbóni* (azure-blue) and *protauri* = fl. 1.—, *dainjansi* (yellow, big) and *chrīs* (yellow, small) = fl. 0.50. Practically speaking these prices are of no significance, the people having very little notion about the value of the Netherlands coinage, but the mutual relation may be derived from it, and it agrees with a statement which I received at Asé, in other respects incomplete. From an abacus (N°. 1270, Pl. XXIX, fig. 23), on which the beads, paid as the price for a bride, were indicated by shorter or longer bars, the proportion of the value could be ascertained: 1° *nĕchŏ* (= *īsjār*, dark blue; longest bars), 2° *sâwa* (= *suwá*, light green), 3° *simbóni* (blue),

4° *chărisè* (= *chrīs*, yellow; shortest bars). The value of the beads may be measured from the fact, that 119 bars in all occur on this abacus. A similar abacus from Ingrås (N°. 1271) has 96 bars. When the daughter of the chief of Poë (also pronounced Powai) was married to the son of the chief of Asé, only 80 beads, besides some stone axes and a few other articles were paid. Now, the number of 80 beads as the price for a chief's daughter, compared with the numbers of 96 and 119 on the above mentioned frames, concerning marriages of simple villagers, propably from ten to fifteen years ago, proves that the beads are getting scarcer. The Tobádi people emphatically declared, that the increasing scarcity of the beads made it difficult for the young men to collect a sufficient number for a wife, which caused many of them to marry late. This scarcity, however, does not seem to be so much felt in the interior, by which I mean to say, there are more beads per head of the population in the interior than in the coast villages. The unfavourable condition of the coast villages in this respect, cannot be caused by an increasing population, for the number of inhabitants in H. B. villages was much larger before the small-pox epidemic of 1895—1896. Neither was I informed of beads being buried with the deceased, as NIEUWENHUIS [1904, 139] mentions of Borneo, or of beads, in any other way systematically getting out of circulation. I think the explanation may be found in the fact that Tobádi, Ingrås and Ingrau engage comparatively little in agriculture and do not rear swine at all, which causes them to buy sago from Lake Sentáni, and pigs from Sěkå and other places. Moreover, the fact, that women from the interior are married to natives on the coast, but that the reverse never takes place, causes a diminution of beads amongst the coast population, which is not unimportant. According to KONING [1903, 264], the natives from the H. B. travel very far into the interior now-a-days, that is to say, farther than Lake Sentáni, in order to collect beads.

Besides private ones, there are also beads in the community treasury. Such a treasury the village of Tobádi possesses, in which beads are found of such a high value, that they are not allowed to become private property. So I did not succeed in buying such beads; as the greatest favour, the chief of Tobádi, who has the charge of the treasury and evidently has the right to adorn his bag with these beads, allowed a photo of this bag to be made (fig. 143).

Papua Tălandjang has also its forgers, who, by grating and grinding, are able to give to the modern beads the shape and the appearance of the antique ones. The number and circulation of these false beads is so large now-a-days, that with every bargain the beads are accurately examined, one by one, and especially the stripes and bubbles. If they can be bitten to pieces, this is a proof of the beads not being genuine. This could not be possible with real ones. Attempts to deceive, where indeed there is an opportunity of examining every bead, are not taken in ill part; one simply has to arm oneself with cunning against the deceiver. Still my interpreter, being with his Asé friends, violently scorned the Ajápo people, one of them having given some false beads in payment, when purchasing a wife from Asé. However, I presume, his violence had some other political motive. Without the intention of cheating any one, modern ornamental beads are sometimes grated in some way or other, simply to give the glittering beads the dull surface of antique ones. A similar self-deceit the owner of the belt N°. 423 had committed on its blue beads.

This deadness of colour, the plain exterior of the beads, may have been the reason,

why travellers, if they noticed them at all, probably paid very little attention to them; at least the literature about New Guinea contains very little about the beads.

LE MAIRE [1622, 63], on the 23rd of July of the year 1616, when Papuans from Wiak in their little boats approached his ship, writes about: "geele Indiaansche Coralen, als van Amber, die een vrouwe hadde, die de President verhandelde van haar om een risken coralen" — (yellow Indian beads, looking like amber, in the possession of a woman and purchased by the "President" for a string of beads). The title "Indian" beads, proves that LE MAIRE found them very uncommon, not customary in Europe, though he presumed that they had been imported by Spanish ships, like some other foreign articles, found in the same place. The beads LE MAIRE bought, were not very expensive; this, together with the amber colour, leads me to suppose, that they were *dainjánsi* or *chrīs*, surely more abundant and still cheaper at that time than at present.

In Humboldt Bay itself, the valuable beads were first discovered by FINSCH [1888—93, 180]; however, he does not give a description or an explanation of their significance. Finsch also saw some of these beads at Attack Harbour, which may surely have been specimens of the real *simbóni*, for I got the evidence, that the Humboldt Bay people, in bartering with their eastern neighbours, make use of the currency beads. Beads used as nose ornament, like Finsch saw in the Huon Gulf, in his opinion came from MACLAY. Regarding the Tami River (Sechstroh-Fluss) Finsch writes: "Fragments of big, very fine, mosaic enamel, beads of glass of old Venetian origin, and undoubtedly dating from the times of the first Spanish and Portuguese navigators". Other "fragments of very fine beads" FINSCH places in the category of the Kalebúkubs of the Palau money, but these are totally different from the real *simbóni*.

The first report mentioning the high value of beads in H. B., has been given by BINK [1897, 175]: "the dowry consists of two stone hatches and a six feet long string of beads, flat, blue slices, which are highly valued here"; — he probably means *simbóni*, the dark blue *isjār* are too long and cylindrical to be called flat. BINK does not seem to have collected them, at least the Utrecht collection does not contain any.

KONING, also delivers a report [1903, 264]: "species of old beads, among which the so-called *semuni* (*simbóni?*), having a yellow colour, can hardly be got now"; — here KONING is wrong; the yellow *chrīs*, are the most numerous.

BIRO [1901, 56, fig. 23, *r*] describes: "two old, glass beads, no longer in circulation", on a men's bag from Bongu. Dr. SEMAYER (Royal Hungarian Museum, Ethn. Dep.mt), has been so kind as to inform me that one of these beads is red, untransparent, diameter 1 c.m., and furrowed all round; the other one, yellow, translucent, flat, and with a diameter of 7 c.m. In the same collection another small breast bag is found, from the isle of Thiar (Astrolabe Bay), which is also adorned with glass beads: a small, blue one and a double, white one, both untransparent, and with flat surfaces; a similar, but single, white bead is fastened on another men's bag from Thiar. As to the red bead, I must call to mind, that FINSCH [1888—93, 180] found in a bag at Dallmann Harbour, 8 red beads, carefully wrapped up in leaves, so probably very precious. Beads like the above mentioned, and red beads in general, I nowhere found in Netherlands N. G.

Interrogating the Papuans themselves about the origin of the *simbóni*, they answer (MOOLENBURGH [1904, 169]), that all their beads come from the interior, and are made by the mountaineers. The central mountains of Netherlands N. G., however, are entirely terra incognita; moreover, this possibility of origin need not be discussed.

In my opinion, a European origin must also be excluded; not only does the Murano collection contain no beads manufactured after the above mentioned system of the New Guinea beads, but even LE MAIRE was struck by the uncommon "Indian" appearance of the beads, bartering them for European ones.

A comparison might be made with the mutu labatta of the Timor Archipelago (RUMPHIUS [1740, 245]). Of course not with the most ancient sort, met with in old graves by LANGEN in Savu, and no longer in use with the natives, neither appreciated, when they happen to be found. These consist of

carneol (VIRCHOW [1884, 595]), and, according to ROUFFAER [1899, 628], were originally manufactured in Cambay (Bay of Cambay, British India), and imported viâ Malacca between the years 1400 and 1550. It may rather be conceived, that there is a conformity with the imitation of these beads, afterwards manufactured at Cambay, according to ROUFFAER, and especially with the mutu tanah, made of glass later on, now also in use and of high value, the origin of which has, however, not yet been traced. They are "schmutzig orangefarben" (WICHMANN [1891, 230]), ochre-coloured (NIEUWENHUIS [1904, Pl. XIX, fig. 24]) and, though KONING [1903, 264, note] and MEYER and RICHTER [1903, 25[a], note] spoke of analogy between the muti salah and the New Guinea beads, when held side by side with the latter, they show a difference in shape and colour, excluding all thought of equality. There is only one, but that a very important characteristic, which the beads of the Timor Archipelago have in common with the New Guinea beads, viz. the superficial, spiral striping. Moreover a section of such a bead of Sïka on Flores (Mineral. Geol. Museum, Utrecht, N°. 2071), shows the same spiral winding of the whole mass, as mentioned above of the New Guinea beads. These facts prove an analogy in a technical respect between these muti tanah and the New Guinea currency beads. The nature of the material, however, is different. A string of beads from Timor, now in the Leyden Museum, (Ser. 1, N°. 233), contains two small, malachite-green beads, bearing a striking resemblance to the *protauri* (N°. 689).

From West Ceram, from which country RIEDEL [1886, 106] also describes ancient, valuable beads, the Rotterdam Museum possesses a string of beads (N°. 7138), proceeding from a mountaineer, among which yellow ones occur, exactly resembling the *chrïs* (N°. 685), with similar little holes, which, more or less filled with dirt, appear like little, black dots.

Few ancient beads are known from Celebes (NIEUWENHUIS [1904, 153, Pl. XIX, fig. 19]), though agate and chalcedon are ground into ring stones (WICHMANN [1890, 979]).

Among the ancient Indian beads, mentioned by RIVETT—CARNAC [1902], I found on Pl. 24, green and blue coloured beads, of which it can only be said, that, judging from the illustation, they resemble the New Guinea beads of the same colour.

In the kalebúkub of the Palau Islands, relying on the descriptions and illustrations of KUBARY [1895, 1—28, Pl. I], I cannot discover any conformity with the *simbóni*, but the Palán-shape of the yellow Barák money [l. c., figs. 7 and 12] shows an outward resemblance with the *chrïs* (N°. 685). ROUFFAER [1899, 521] also established the connection of these currency beads with the yellow muti salah. KUBARY [l. c., 12] describes them as "a brimstone-coloured, very hard mass, with a shelly, dull fracture. The polished planes show holes, which, filled up by dirt, give a finely checkered appearance to the surface". All this may also be said of *chrïs*; the additional note, however, that the material seems to exist of jasper, makes any real resemblance impossible, because the New Guinea beads, known to me, are all made of glass. The greenish "olbiungl" of KUBARY [l. c., figs. 20 and 27] has only a slight outward resemblance to the *sâwa* (N°. 682) from Asé; in reality it is decidedly quite different.

As to Borneo, MEYER [1884, 15[a]] already mentions beads, found on a human skull on the west coast, which are described as having a dark blue colour and consequently remind one of the *ïsjār* (N°. 681) from Tobádi. LING ROTH [1896, II, 282—283] describes and illustrates a dark blue glass bead, found in Borneo, in a cave by Hart Everett, which bead has the true barrel-shape, so common with the dark blue *ïsjār*. The Leyden Museum possesses dark blue, transparent beads (Ser. 614, N°. 110), from Central Borneo, also exactly resembling the *ïsjār*; a string of threaded beads (Ser. 614, N°. 114; BORNEO [1907, II, 5]) contains some that are quite conformable to the *chrïs* (N°. 685), with regard to their brimstone colour and black dots. The resemblance between these blue and yellow beads from Central Borneo and those found in Humboldt Bay, is so perfect, that, when comparing them at Leyden, I carefully avoided an accidental confusion of the two collections, else I should by no means have been able to find the accurate assortment again; — these are indeed the same beads! One of the strings (Ser. 1219, N°. 248) contains

yellow, non-transparent beads (BORNEO [1907, II, 6, N^os. 37—38]), called *uti* (yellow) *una* (old), of which NIEUWENHUIS [1904. 139, Pl. XIX, fig. 8] gives an illustration; they differ in nothing from the *chrs*, and have, as my visit to Leyden convinced me, the spiral construction. Another bead (of string Ser. 614, N°. 115), also shows the spiral furrows. Finally I quote SHELFORD [1905, 34], who describes among the Borneo beads (type 9) of the Sarawak Museum, "weathered beads of vast antiquity, highly valued by the Kyans, forming part of their currency, and which exhibit a spiral structure".

The beads recently found in Java (Leyden Museum, Ser. 1552), are different from the N. G. beads.

From what has been enumerated above, it may be summarized that, as well on Timor, as on Ceram and Borneo, beads occur, which are just like some beads of Netherl. North New Guinea; and further, that the glass muti tanah, though from different material, has been manufactured in the same way as the N. G. bead.

The investigation as to the origin of the antique beads might, in the first place, lead to the question: "Where is, or was, in the bead-factory, the above described technique applied"?

Respecting this technique, I must still mention the opinion of SHELFORD [1905, 34, note]: "apparently the clay, when wet, was twisted in short lengths, round a rod, then shaped roughly into the form of a bead and baked; the final polishing and shaping taking place after the clay was fired". — According to my opinion, a fine, spiral structure as some beads indicate, can only be obtained by a fluid (heated) mass.

WICHMANN [1891, 230], speaking of muti tanah, considers its art of manufacturing, one of times long past, in contradiction to SHELFORD, who regards the beads as to be of Venetian origin.

I think, in the mean time anticipating the results of an inquiry, still to be made, of the Chinese glass industry (ROUFFAER [1899, 519]), that I must consider the beads under notice, showing the spiral structure, as Chinese products. Not only that LING ROTH [1896, II, 283] and NIEUWENHUIS [1904, 239] already considered a Chinese origin as probable or possible, but moreover, in the different islands of Netherl. India, and in the Philippines (MEYER [1884, 14]), more Chinese objects occur, which are regarded also by the population of great value and sometimes of supernatural origin. I refer to the old jars of Borneo, of which now the Chinese origin is generally accepted by experts (see also LING ROTH [l. c., 284—287]). Old coins of Ceram (RIEDEL [1886, 106]) and old jars ([l. c. 121], VALENTIJN [1856, II, 75]), such as those found from time immemorial on Ambon (MÜLLER—BEECK [1884—85, 35]), on Goram Island, Kei- and Aru Islands (MEYER [1884, 14, *b*]), are also products of Chinese industry. They were imported by a navigation, still living here and there in the historical remembrance of the natives, partly still occurring in our times.

The existence of a Chinese navigation, also on the north coast of N. G. in olden times, may be supported by the fact, that at present, in Geelvink Bay and on Wiak much Chinese pottery is found and is also used on graves, as I had an opportunity of stating myself (figs. 170 and 172). Such jars are kept for centuries, owing to their durability. MEYER l. c. gives illustrations of them; flowers and plants form the principal ornaments, which do not directly strike one as being characteristically Chinese. Finally I consider it very probable, that the cups and jars, painted red and green, found on the north coast, together with the *simbóni*, by LE MAIRE [1622, 63]: "wij creghen van haer een Warmoescop en een Schotel seer grof, met rood en groen gheschildert, 't was Porcelijn, daer zij seer licht afscheijdeden, voor twee riskens Coralen", — and which he took for Spanish import, were nevertheless of Chinese origin.

Moreover, an antique, green, glass ring, *kās*, found at Tobádi, corroborates the supposition, that Chinese articles, either directly or indirectly, in former times found their way to North New Guinea. In the said village namely, as property of the community (perhaps the villages of Ingrau and Ingrås are co-proprietors) and under the care of the chief of the village, the *kărĕsŏri* Hamadi, a glass ring was found, illustrated in fig. 16 ($^1/_4$) of Pl. XXIII, triangular on section (fig. 16^c, $^1/_1$), the outer rim (fig. 16^a, $^1/_1$), sharp and the inner rim (fig. 16^b, $^1/_1$), flat. Generally this ring is carefully wrapped up in a long, narrow strip of prepared bark, so thickly packed, that accidental breaking is nearly impossible and it is put by with the other treasures, making up together the Public Exchequer. With some trouble we succeeded in getting a look at this ring, so that a photo could be made (fig. 143) both of that and the bag of Hamadi.

The perfect resemblance of this ring with the mamacur, which RUMPHIUS [1740, 241, Pl. LII, A] describes and illustrates, and the estimation of extraordinary preciousness in which this ring, like the mamacur, was held, is indeed very striking. I might have begun the information about this ring with the same words, with which R. begins his Chapter XXV (Volume III) MAMACUR or MACUR: "Here I shall relate, how an insignificant thing, by single agreement and fancy of man, can be raised to such a value, that it is reckoned among the principal treasures". The ring of Tobádi is indeed considered to be an almost invaluable object. It is used for large expenses in behalf of the community, as payment for killed enemies or ransom for prisoners (MOOLENBURGH [1904, 169]). It seemed to me, however, that the ring had in some way become an object of worship, as is often the case with things of such high antiquity, that no one living, knows the origin of it. However this may be, my offer to buy it in exchange for 24 large axes, was not even taken into consideration. The appearance and the weight of the ring, make it undoubtedly recognizable as a ring of glass, while in the transparent material, stripes occur, parallel to the rim and also many little bubbles, which prove that the mass of glass was thick liquid during the manufacturing, and drawn in the direction of the stripes; I do not remember to have seen any fusion.

As the Papuans know nothing of the origin of the ring, I give here some information from other sources. — LE MAIRE [1622, 63] saw, worn by the people of Wiak: "Ringen door de Neusgaten, die groen waren: eenighe door de Ooren, Paarlemoeder Ringhen om d' Armen" (Green rings through the nostrils, some through the ears, mother-of-pearl rings round the arms). These green rings must have been of glass; still it is a singular fact, that they should have been used as ornament for the nose, to which they, being closed rings, could only have been fastened by means of strings or open little rings.

RUMPHIUS [1740, 241] and VALENTIJN [1856, II, 78], in their ample information about mamacurs, mention these rings from Ceram, the Aru-, Kei- and Timorlaut Islands, etc., and they indicate the green rings as the most precious ones. At that time traders ordered green, glass rings to be manufactured in the Netherlands, in order to deal in them in Netherl. India; this, however, entirely failed, the natives but too well distinguishing the ancient ones from the modern ones. Very striking is the narrative by RUMPHIUS [l. c., 243]: "In the year 1655 the "Praesident" SIMON COS, afterwards Governor of Amboina, was obliged to take away such a Mamacur in the village of Noccobay, on the north coast of Keram, because the neighbouring village waged war for it; but the chief Hulong, who was the administrator of this country and generally on our side, was very displeased at this, saying, that such a ring was worth 100 slaves, even a whole "negorij" (village), but they did not get it back, because it was lost". Quite conformable to the fact, that the ring of Tobádi is under the protection of the chief of the village, is the old information

about the mamacur, of its only being found in the possession of the kings, and moreover of its being considered a holy object, an oracle, an amulet, the stripes and bubbles of the mass being of great significance. As places of origin the natives mentioned different localities; still the real mamacur was said to have issued from the sea or from the mountains, while imitations came from Babber Island. Remarkable is RUMPHIUS's information, that the Papuans decidedly preferred the green sort of rings, and that they believed in the Chinese origin of the others.

BICKMORE [1868, 151] saw some six of these rings, in the possession of the prince of Assilulu on Ambon, coming from Ceram and having issued from the heads of snakes and wild boars and which were worshipped as most extraordinary objects. They were "evidently made by cutting off a piece of a glass rod, nine or ten inches long and half an inch in diameter. This piece, having been heated, was bent into a ring and the two ends united by fusion". Indeed sometimes a place of fusion may be seen, as RUMPHIUS illustrates. BICKMORE mentions China as the place of origin, because he found there nephrite rings of a similar shape.

RIEDEL [1886, 121] found them still used as ornaments for the arm on Ceram, which VALENTIJN also mentions, and he explains the belief of the natives, who accept their originating from the soil, as having arisen from the accidental finding of these rings, purposely hidden in the earth; — he does not at all doubt their Chinese origin. A couple of these rings (blue), now in the Dresden Museum (Nos. 5203—5204), were bought for 60 guilders; MEYER [1884, 15] considers them to have come from China, which up till now, as he proves, exports glass rings eastward and westward. From the fact that MARTIN [1894] does not mention the glass rings among the numerous sorts of bracelets, which he describes, and that he never saw them worn, as he kindly informed me in his letter of the 25th of Febr. 1905, may be concluded, that now-a-days they very rarely occur as ornaments for the arm.

According to VAN DER CHIJS [1885, 182, N°. 3038], the two mamacurs in the Batavia Museum are from Ceram origin and not from Java itself; both this, and Mr. P. G. ROUFFAER's experience, of which he was kind enough to give me a written account (February the 9th 1905), saying, that he had never perceived anything like the mamacur in the island of Java, render RUMPHIUS's narrative of the Javanese, buying up the mamacurs as presents for their chiefs, very improbable.

The Amsterdam Museum possesses four of these mamacurs (Ser. 1, Nos. 1416—1419), all coming from Wahai on Ceram, and N°. 1417 quite the same as the *khās* of Tobádi. Also the Leyden Museum possesses a mamacur, which has proved the mamacur to be as highly valued on Ceram at present, as it was two centuries and a half ago, and the same story about the possession was repeated here. VAN HOËVELL [1896, 508, 521], who presented the object to the Leyden Museum, was in 1893 obliged to seize this ring, because it was the subject of a quarrel between the villages of Sisiulu and Numiali, situated on the north-west coast of Ceram, several murders having already been committed for its possession. From little pieces, broken off, the material proved to be ordinary green glass. VAN HOËVELL, Ex-Governor of Celebes and Dependencies, and formerly Resident at Amboina, well acquainted with the Ceram ethnography, according to auricular intelligence, has no doubt about the Chinese origin.

In all these reports, New Guinea is very little mentioned. MEYER [1902—03, 14, 15], however, considers a nephrite ring of unknown origin, preserved in the Dresden Museum, and by its shape (inner rim thicker than outer rim), perhaps an imitation (or example?) of the mamacur, probably coming from New Guinea. I never heard of the ring being found in western New Guinea, nor has it been in Geelvink Bay.

It is to be hoped, that within a short time, especially on the coasts between Point D'Urville and Humboldt Bay, a further exploration may be made, to confirm by other finds, that Chinese trade had conquered these coasts before the arrival of the Malays.

In this connection I must mention three copper objects (Nos. 694—696, Pl. XXIV, figs. 1, 2, 3), found in the community house of the village of Asé (Lake Sentáni). In this

building, fishing-tackle, large drums (N°. 1277, Pl. XXVIII, fig. 4), and all sorts of spoils, collected in time of war, such as daggers and arrows were to be found; the latter things were put against the inside of the roof between the tie beams, and close to these things, to my great surprise, the copper things were hanging. I learnt, that long ago, when the father of the now reigning, aged chief of the village (see fig. 163), was still a little boy, these objects were said to have been found in the water, near the northern banks of Lake Sentáni, north-east of Asé. Though I should be quite willing to believe this story, yet the circumstance, that these three objects were hung up on a post of the roof near the trophies of war, makes me fear, that blood was also shed for these things, and that they were captured from foreign navigators, who may perhaps have penetrated as far as the lake, or that by barter the objects were obtained from the natives of the sea coast. They had little value for the Asé people, and for a trifling article of barter they became my property. All three objects are hollow, and, where the surface is not covered with intaglio work, the material is about 1 m.m. thick; two have the shape of an axe, as can be seen in the illustrations, the third is chiefly globular. The direction of the helve (now lost) is as on a spade, i. e. towards the edge. The latter is convex, while the sides run with a concave curve from the narrow socket to either end of the edge. The socket-part is flattened in the plane of the axe, and has one flat surface broader than the other, so that the sides stand obliquely, the section of the socket being an equilateral trapezium.

In shape and composition these objects have a striking resemblance to the "donderschopjes" (thunder-spades), which RUMPHIUS [1740, 212] describes from Celebes. Especially striking is the likeness between N°. 694 and the thunder-spade, illustrated by RUMPHIUS, Pl. L, fig. A. This illustration, being described as a thunder-stone on pag. 208 (N°. 1), is of course, a mistake of the compiler. Moreover the wording of that description, does not agree with this illustration. The latter, however, is in perfect agreement with the ample description, which RUMPHIUS gives on pages 213 and 214 of his first thunder-spade, which name (page 212) was expressly chosen by him, because of the great resemblance to European axes or spades. Now the illustration A represents the most obvious specimen, spade-shaped, and the way in which the text, after the description, beginning on page 213, with the marginal note: "Een vreemd Donderschopje beschreven", ("A singular thunder-spade described"), continued on pages 214 and 215, passes here to the figures B. and C., etc., makes it evident, that in the previous description fig. A was meant. I must lay stress upon this mistake, because later explorers were led astray by this; PLEYTE [1887, 593] e. g. places the copper thunder-spade, illustrated in fig. A, among the stone axes, type IV of his system.

MEYER and RICHTER [1902—03, 79, 95, fig. 10] reproduce fig. A with the subscription "stone (bronze?) axe from Banggai", they express some doubt as to the correctness of the description, thinking that RUMPHIUS himself would have been misled by the patina, to take a copper axe (a hollow one!) for a green, stone one. I entirely reject this absurd supposition, unworthy of the ingenious scholar.

RUMPHIUS's "Rariteitkamer" causes more difficulties, owing to the compilers putting the marginal notes, indicating the letters of the figures described, in the wrong places; this is done both in Chapter VIII, Ceraunia, and in Chapter IX, Ceraunia metallica (= thunder-spades). According to the text (p. 212), there are 2 thunder-stones and (p. 317) 2 thunder-spades figured on Pl. L, originating from RUMPHIUS, and represented in the figures A, B, C and D. — Like fig. A (see above), also fig. C in the marginal note, is added to the wrong description. — — I at once give this list:

Fig. A means the first described thunder-spade; see p. 213, marginal note: "Een vreemd Donder-shopje beschreven".

Fig. B means a thunder-stone; see p. 208, marginal note: "N°. 2", etc.

Fig C means the first described thunder-stone; see pag. 208, marginal note: "N°. 1".

Fig. D means a thunder-spade; see p. 215, marginal note: "N°. 4", etc.

After taking the trouble to find this out, RUMPHIUS's Thesaurus Imaginum Piscium Testaceorum, came to my hands. This book [1711, 11], containing the plates of the "Rariteitkamer", with a short enumeration of the figures, gives the meaning of the figs. A—D exactly as I indicated above.

WORSAAE [1878—83, 196] gives in his figs. 4, 3 and 2, the figures A, C and D respectively, all three as bronze axes! WORSAAE, however, has modified the original illustrations, supplying them all with clearly visible sockets. This, of course, causes confusion. The thunder-stone C, of which RUMPHIUS [1740, 208] purposely mentions, that one end looks as if it were transversely cut off, has now artificially the exterior of a hollow, copper axe and is demonstrated as such!!

Both figs. A and D of RUMPHIUS, show on the part of the socket 3 chevrons, not mentioned in the text. Where RUMPHIUS speaks of "veins" and "ribs" on his thunder-spades, he apparently means the concave sides along the flat surfaces of the metal thunder-spades, diverging falcatedly towards the extremities of the sharpened edge. So he writes (p. 213) about the spade of fig. A: "ter weerszijden van den steel liepen 3 of 4 uitbuilende aderen naar de kanten van 't Schopje toe;" — about N°. 2 (p. 215): "van de steel liepen ook ter weerszijden twee kromme en verheven aderen zikkels wijze naar de kanten toe"; — about N°. 3 (p. 215): "diergelijke verhevene aderen van den steel afkomende, en naar de kanten loopende"; — about N°. 4 (p. 215): "den steel, die zeer plat (en) gedrukt en hol was, met scherpe kanten aan de zijden, hebbende aan ieder zijde maar een ader of ribbe". It seems to me, that the signification of those terms was not understood by the people who, at Amsterdam, prepared RUMPHIUS's "Rariteitkamer" for the printer (probably SIMON SCHYNVOET took a great part in this; see ROUFFAER and MULLER [1902, 171]), and that they, eager to show in the figures, something that would correspond with the above mentioned terms, put on the original figures the chevrons, which figs. A and D show.

It is very interesting, that all the thunder-spades of RUMPHIUS were obtained from the east coast of Celebes or from the island of Banggai, situated in the neighbourhood. They were in his time considered as products from thunder-storms; evidently all remembrance of a bronze period had then already vanished. RUMPHIUS also reports the rumours, that, both in Luwu and before the king's residence in Bontuala, objects were found like fig. A of Pl. L; they were also said to have been seen in Demak on Java. RUMPHIUS himself, also believing that ceraunia metallica were formed by thunder-storms, does not give any information about a possible other origin.

They have never been found in New Guinea before. It is true, MALTE—BRUN [1856, V, 635] mentions "épées de cuivre", used by the natives of the south-west coast, but probably modern objects, imported by Ceram traders are meant.

KÜHN and RIBBE (MEYER und RICHTER [1902—03, 80, fig. 8]), brought to Europe two bronze axes from Banggai, lost alas since that time; but according to the illustrations, they were of a type, resembling both fig. A of RUMPHIUS and the specimens from New Guinea. Especially the trapezium-shape of the transverse section of the socket-part, may very well be recognized on these figures, and also the ribs terminating the flat sides falcatedly. They were also provided with low-relief ornaments.

KRUYT [1898, 63], on his journey from Paloppo to Posso, saw among the amulets of the Luwu people an axe of wrought copper, already seriously weather-beaten, long, 11 c.m., broad, near the edge 8 c.m.; the handle is put in at the top. It had been found in a small river, and it was said to be the incisive tooth of the spirit of Longga; every now and then this spirit loses a copper tooth, and when the fortunate finder wears the object round his waist in time of war, he is protected against all blows and stabs. A drawing of that axe, made from memory by Mr. KRUYT, and kindly placed at my disposal, shows a striking resemblance to fig. D of RUMPHIUS.

On their journey from Posso to Mori, ADRIANI and KRUYT [1900, 242] learnt from the Petasia

natives, that in the territory of Mori, similar copper axes like those from Luwu, are found in little rivers, also worn as preservatives against calamities. — In all the above mentioned sources it is thus stated, that copper axes like those from Asé, were considered as amulets in historical times, and were worn to make the wearer invincible in war. Their having been carried on nautical excursions is proved by the fact, that in 1679 at Ambon, RUMPHIUS bought axes from the Tambocco people, who came to visit him.

GROENEVELDT [1887, 312, 313] mentions axes from Java (N^os^. 1559—1565), made of bronze or copper, found in the district of Tjiheulang, Residency of Preanger Regentschappen, and he supposes these to have been used by the Hindoos, in their religious ceremonies. As the religious rites are conservative everywhere, GROENEVELDT argues, that the priests may have stuck to the older material of copper, for tools, which in every day life were then made of iron. By the kind assistance of the late Dr. J. L. A. BRANDES, from these axes I can illustrate: N^os^. 1560, 1561^c^ and 1561^f^, at the scale of $^1/_4$ (Pl. XXIV, figs. 4, 5 and 6). They are all characterised by the dove-tail form of the socket-part, of which in N°. 695 of Asé (Pl. XXIV, fig. 3), part is also retained, with a little, conical hole. The possibility of these objects having been transported from Celebes, is a priori not to be rejected.

Copper objects, alas, without further indication of their nature or shape, but also worshipped, because of their antiquity, are mentioned by RIEDEL [1886, 437] from Wetar, where also stone axes are worshipped; and from Ceram, the same author [l. c., 106, 107] mentions, among the worshipped objects of olden times, "tanei mutuana molia", generally hung up in a basket to the roof pole of the dwellings. There were also copper objects, among which, however, were no axes, but copper kettles, said to be of Asiatic origin, like the old earthenware jars. These precious objects were sometimes buried [l. c., 121] for the sake of safety, and, when accidentally found, raised the supposition of having been produced by the earth. I consider this course of things, mentioned by RIEDEL, also possible with regard to the copper axes from Celebes and Banggai, and if by this, a Chinese origin might gain in probability, the question again rises, whether the axes from Asé were imported directly by Chinese navigators, or by those from Celebes or Ceram? Baron VAN HÖEVELL (see page 225), to whom I showed the objects, considers the last suggestion as certain, and Mr. F. and P. SARASIN, though they never themselves had found any such objects on Celebes, declared, after examining the New Guinea thunder-spades, that the spiral ornamentation, as well as the shape ("Düllenbeil"), reminds of the culture of Celebes, to which they ascribe a bronze period of its own, these objects being productions of the later bronze period. The decision between these opinions and that of GROENEVELDT must be left to professional ethnographers.

As to the knob-shaped object (N°. 696, Pl. XXIV, fig. 1), found together with the thunder-spades, this gives the impression as if the open end of the handle-part, the hollow of which is directly united with the knob itself, was intended to be fastened on the top of a staff; the small hollow knob at the top, has probably served as a bell, which has lost its sounding ball; like the concavity of the big knob the bell is closed towards its four-sided handle.

In a private letter of the 8th of March 1905, Mr. KRUYT declared that the shape and ornament of the object reminds one of the lime boxes in use in the middle and the southern part of Celebes, made by the To Radja (people), from calabashes or from young cocoa-nuts, and imitated by the Buginese in copper, silver and gold. It is true, bells are uncommon upon these objects, but the To Radja (people) often supply the knob (which can be unscrewed) with little strings of threaded beads, which rattle against the box, when the lime is shaken out from the opposite aperture. Mr. KRUYT also suggested the supposition, that the old East-Indian Company had many indigenous objects imitated in copper, in order to use them as presents for native chiefs, or as barter for trade. In Central Celebes the To Mori are most proficient in copper industry, notwithstanding that the lack of copper on Celebes itself necessitates either the

import of this metal from Java, or the manufacturing of it from doits (KRUYT [1900, 460]).

Prof. A. GRÜNWEDEL, to whom I showed the objects, was so kind as to inform me, that, according to his opinion, the ornament of the knob was a little too fine to be considered as art from Celebes itself, but that similar objects occurred on the sticks of "Ceremonial-sunshades" in the Madras Presidency. Examining the photos of the Boro Budur, on the advice of Prof. GRÜNWEDEL, I did not find anything like the knob in question. The Leyden Museum, however, possesses photos of ruins at Prambanan near Djokjakarta, in one of which (fig. *b*) at the lefthand side of a male Buddha image, a globular object on a staff is to be seen, actually showing a great resemblance to the object from Asé.

As further proof, that the S-shaped ornament of the knob frequently occurs in the bronze period of Celebes, I refer to the bronze knobs of sticks (Minahassa) illustrated by MEYER and RICHTER [1903, 24[b], fig. 7[a]], and to the upper part of a staff (N°. 2523 of the collection of the Indian Institute at Delft), in use with the heathen priests [l. c., fig. 7[c]]. It is also found on the small rings mentioned from the northern (To Ondaë), as well as from the southern shore of Lake Posso [l. c., Pl. XIV, figs. 8, 10 and 12; the S-shaped ornament of the figs. 8 and 10 is illustrated separately on Pl. XXIX, figs. 35 and 36, as lying S and standing S]. That bells are in use here, can be seen from the bells fastened to the ends of lances, collected by F. and P. SARASIN in Celebes [l. c., 28, Pl. VII, figs. 1—4], and those on an armlet, worn by a Walian priest near Fossos, originating from Rurukan (Toum Bulus) [l. c., 24[b], Pl. IV, fig. 15], on which 4 small bells and one big one, cast from brass, are found, and from a bell from Lake Matano [l. c., 95[b], Pl. XXI, fig. 29] which, according to KRUYT [1900, 461], is tied with a cord round the waist, in order to make it ring against the legs in walking. But all this is cast work of modern times, the technique of which has been described by KRUYT [l. c., 460] as concerns the To Mori. Chinese signs on the above mentioned big bell, betray the Chinese origin. The same thing may be said of the small bells on the swords of the Lanuns, North Borneo (FOY [1899, Pl. I]). Such a small bell, globular, but somewhat flattened parallel to the slit, is generally on either side adorned with the same ornament; the one in the top half, however, differing from the one in the bottom half, whereas different specimens vary only in the word-signs, occurring on the quadrants, as appears in the figs. 1[d], 1[e] and 1[f] of that plate. The small bell in the collection (N°. 697) was found in the possession of a man from Ingräs, and had been purchased from a Chinese trader, settled in Humboldt Bay. It is supplied with an ornament exactly in the same style.

N°. 680. Wári; turtle shell for trade; 12 pieces, measuring between 37 × 21 and 19 × 13 c.m.

CURRENCY BEADS.

N°. 681. Pl. XXIII, fig. 5. 1/1; *Isjār, isjách.* Tobádi; two beads of dark blue, transparent glass, in which some bubbles, and with somewhat dull surface; shape of small casks, cylindrically perforated; height and diameter 8—10 m.m. The most precious of the currency beads in daily use. Called *nĕchâ* at Asé.

N°. 682. Pl. XXIII, fig. 6. 1/1; *Săwá.* Asé; bead of light sea-green, transparent glass, in which few or no bubbles; somewhat dull surface; shape of a small mill-stone or flat cheese, perforated in the centre. Following N°. 681 in value. In the language of the Jótĕfa natives = *súwâ.*

N°. 683. Pl. XXIII, fig. 7. 1/1. *Simbóni.* Tobádi; bead of light blue, transparent glass, in which a great many bubbles; exterior a little dull. Shape as N°. 682. Following N°. 682 in value. At Asé also called *simbóni.*

N°. 684. *Simbóni*(?) Abār; bead of light blue, transparent glass, in which many ellipsoid bubbles, the

long axes parallel to the circumference; almost purely cylindric, height 2,5 m.m. diameter 7 m.m., aperture 2,5 m.m. diameter.

N°. 685. Pl. XXIII, fig. 8. $^1/_1$. *Chrīs.* Tobádi; bead of brimstone-coloured, slightly translucent glass; dull surface, in which numerous little holes looking, because of the dirt, like little, black dots; shape of a centrally perforated cylinder, of which the two flat sides are not perfectly parallel. Value less than N°. 683. Called *chărisè* at Asé.

N°. 686. *Dainjánsi.* Tobádi; two beads like N°. 685, but the little holes larger and less numerous; regular, perforated cylinders, diameter 12 and 10 m.m. respectively; the latter has on the flat planes a superficial, spiral furrow, issuing from the aperture. Value as N°. 685.

N°. 687. Pl. XXIII, figs. 9*a* and 9*b*. $^1/_1$. *Tètan.* Mawes; bead of pale, wax-yellow, slightly translucent glass, with dull surface, in which a single hole; shape of a perforated cylinder; a spirally running furrow on the flat planes, shining in the depth. In the language of Jótĕfa called *dainjánsi.*

N°. 688. Pl. XXIII, figs. 10*a* and 10*b*. $^1/_1$. *Simbóni, tembóni.* Asé; bead of wax-yellow, non-transparent glass, of dull surface with little black dots; shape like two frustums, placed with their bases against each other, perforated in the middle. In two places, lying diametrically in the circumference, three coloured glass stripes, a red one between two green ones; the latter, lost for the greater part, show a superficial furrow. On each of the flat planes a spiral furrow, shining in the depth. Called *dainjánsi* by the Tobádi people.

N°. 689. Pl. XXIII, fig. 11. $^1/_1$. *Protauri.* Tobádi; bead of malachite-green, non-transparent glass, surface slightly shining, with few, superficial, small holes; shape like N°. 683; on either flat plane a spiral striping of darker green round the aperture, and also visible on the circumference. Value above the *chrīs.* At Asé called *prodŏgi* also *fotŏkwă.*

N°. 690. Pl. XXIII, figs. 12 and 13. $^1/_1$. *Simbóni.* Tobádi; two beads of turquoise-blue, opaque glass, surface slightly shining and with few small holes; one (fig. 12) half-way the height with optuse rim; spiral stripes of darker blue as with N°. 689. Value as N°. 689.

N°. 691. *Simbóni.* Asé; two beads, shaped as N°. 690, height 6, diameter 9 m.m., one of turquoise blue, the other of light bluish green, slightly translucent glass; surface slightly shining, and with few holes; spiral furrows as above; dark, spiral stripes. Value as N°. 689.

N°. 692. Pl. XXIII, figs. 14, 15*a* and 15*b*. *Simbóni.* Jåga (Lake Sentáni); two beads, shape like N°. 683; one of bluish green, slightly translucent glass; the other of similar blue glass; surface feebly shining, with many large and small holes, and with distinct, darker, spiral stripes. Value as N°. 689.

N°. 693. Pl. XXIV, fig. 9. $^2/_7$. *Arâbe.* Tobádi; basket, bottle-shaped with a hanging-over lid, made of spiral, horizontal, rattan strips, of which the twists, lying alongside each other, are bound together by spiral windings with the same material. Plane of bottom and plane of lid strengthened with cross-lashing of same material. Manufactured at Tobádi, for keeping currency beads.

N°. 694. Pl. XXIV, fig. 2. $^1/_2$. Asé; axe-shaped, hollow object of 1 m.m. thick copper, socket running as with a spade towards the convex edge. Sides of the narrower socket-part concave, passing with rounded corners into the edge. Flat surfaces of different width, so that the narrow sides of socket-part stand obliquely, and the transverse section becomes an equicrural trapezium, 1,5 c.m. high. On narrowest flat surface relief-work; along edge a row of deepened triangles; inside these and along sides of socket-part a row of zigzag ornaments, the central part with symmetrical spirals. The broadest surface unornamented, near the opening in the middle a conical hole; here and there holes and cracks, which show the cavity, in which a shell was found. Was hanging with N^{os}. 695 and 696 in the community-house near trophies of war. Was said to have been fished up two generations ago, near northern bank of Lake Sentáni.

N°. 695. Pl. XXIV, fig. 3. 1/2. Asé; like N°. 694, socket-part toward opening a little broader and provided with small conical hole. The edge here and there torn or bent in by chopping. No relief ornament, but near one of the corners of the edge, on the side of the handle-part an open-worked oval, situated in the plane of the axe in which part of an open lozenge with concave sides. On symmetrical place of other corner only a small elevation of the surface.

N°. 696. Pl. XXIV, fig. 1. 1/2. Asé; knob-shaped, hollow object of ± 1 m.m. thick copper; globular, but in one place passing into a hollow spout and opposite is a short stem, on which a little knob with a slit as in a bell, the stem closed towards the bell as well as towards the large, globular cavity. The surface of the knob ornamented with two parallel rows of little knobs, some of them pointed, between which 23 meridian relief stripes. Above this ornament two circular rows of relief spirals between circular relief rims; at the bottom one similar row, and lower down, on spout, 6 spiral rows of superficial scallops and below these a band of little squares. Stem of bell with 4 lengthwise ridges; the bell itself, on the greatest circumference, with a circle of little knobs, below that an ornament like plaited work; above this both halves covered with numerous curved furrows. Along all three rows of knobs a waved relief ridge.

N°. 697. *Chărindè.* Ingrås; brass bell in which a small, iron ball; Chinese ornament. From men's bag N°. 641; was bought in the branch of the N. G. Trading Company at Metu Débi.

CHAPTER VIII.

INDUSTRY.

In the social life of the Papuans the principle of division of labour has made as yet but little progress. On the contrary, where outward circumstances do not forbid it, every one procures for himself everything he wants, constructing his house, his boat, and as agriculturist, fisherman or hunter all the tools and arms required. Already in early youth, the qualities of an all round clever workman are developed in the Papuan, who if need be, also uses his feet, in order to catch hold of anything.

Besides the instruments mentioned in the former Chapters, the collection still contains a few more, which must be mentioned here separately. Amongst these is the small bone bodkin (N°. 698), which should not be mistaken for a borer, but it is intended to pierce (FINSCH [1888—93, 205]), or enlarge holes in not too hard objects, and above all (like a marline spike in splicing), it is used with plaited work (pag. 88) to separate strips and make room for introducing the next strip, as TEN KATE [1895, 8, Pl. III, fig. 11] mentions of Rŏti, and I myself saw it used by a man at Asé, in manufacturing an armlet.

As scrapers, sharpened pieces of bone are generally mentioned, and often sago spoons, carried in the left upper armlet, are mistaken for these. As a scraper for hard objects, ordinary bone cannot be used, as it is too soft. The greater hardness of the enamel of the teeth (between apatite and quartzite, 5 and 7 respect. of the scale of hardness) has however not escaped the notice of the Papuan, and he therefore understood, that of the boar's tusks (N^{os}. 699—670, Pl. XXIV, fig, 13), obliquely ground down at the point, as takes place naturally with the lower tusks, where these touch the upper ones, the enamel border protruding on the medial side, can be very useful as a scraper. This small instrument is the only real scraper, often found in the men's bags. I saw it used in a practical manner, similarly as with pieces of glass, scraping in the direction towards the user. Now that the are a of the stone and bone period on N. G. has already become very much reduced, the object will ere long disappear; CHALMERS [1885, 89] saw it used behind Port Moresby in the manufacture of spears, — VAN HERWERDEN [1906, 931] mentions similar from the Utumbuwe River, S. W. coast.

Borers, in the sense mentioned by PARKINSON [1900, 26, Pl. XIX, fig. 9] of the

Berlin Harbour section, must, according to the conical holes in hard material as in teeth and shells, no doubt exist in Papua Tălandjang; but I never came across them. Rasps, made out of ray's skin, as mentioned from other parts (FINSCH [1888, 63]), I have, never met with, though no doubt accidentally; neither the large bamboo knives, mentioned by some authors, which had greatly excited my curiosity, after I became acquainted with the small bamboo razor (page 61). However, I found no clear answer to the question, how the edge of these knives is made. FINSCH [1888—93, 198], when discussing the knives which are used in carving the meat, writes: "Bamboo knives, out of a sharp edged piece of bamboo, which cut remarkably well"; HADDON [1901, 115, fig. 11], illustrating a large knife with which a human head can be cut off, says: "a fresh edge has to be made for each head that is cut off", leaves the most important question, how during the stone period a fresh edge was to be made, unanswered. MACGREGOR [1879, 60] mentions about the western warrior (Br. N. G.): "he tears a thin slip of the bamboo, which then presents a keen edge". PRATT [1906, 44] writes: "it is simply a piece of cane, stripped off from the parent stem, leaving a natural edge". According to NACHRICHTEN [1888, 225]: "it consists of a lengthy piece of bamboo, which obtains a good sharp edge, by cleverly pulling off part of the vascular bundles". The "cleverly pulling off" is, therefore, the principal part; I presume that a method is meant as described above of the shaving with bamboo. Shaving, however, also takes place with pieces of glass and, where these are imported, with western kitchen-knives, which are sharpened on a whetstone like N°. 704 of Săgeisårå, consisting of biotite-quartzite, to which on the broken surface the mica (biotite) scales give a golden shine. How the Papuan workman knows to appreciate a good instrument, was proved to me at Tobádi, when amongst the articles for barter I used the very pretty, but really poor pocket knives. They at first, on account of the mechanical part, were very much in demand, but after their inferiority had been proved, I was asked to exchange them for ordinary kitchen knives. The blades of these, fastened with rattan lashings to a handle previously split, down the entire length (N°. 701, Pl. XXIV, fig. 10), are much used; ground down transversely at the point, they are used as a chisel (N°s. 702 and 703, Pl. XXIV, fig. 1), fastened into fairly long, and often very nicely carved handles, they can be used with both hands. The man crouching down on the back ground behind the canoe of fig. 124 is busy smoothing down the outside surface with such a chisel. It is still to be observed, that here the splitting of the handle does not continue as with N°. 701, but at a certain distance it goes in a transverse direction, whereby the end of the handle, on which they sometimes knock with the hand used as a hammer, is purposely left unsplit and smooth.

The collection contains besides, small wooden hammers (N°s. 705—709, Pl. XXV, figs. 4—8) of Lake Sentáni, consisting, like the sago clubs and hatchets, of a handle with an oblique socket near the end for inserting the hammer-head. The grip-end of the handle is usually fitted by a slight endwise thickening, for a firm grip; the other end, for a heavier knock, broadened and thickened. The hammer-head has a long and narrow striking surface, and fits into the somewhat transversely oval socket of the handle, which thus prevents it from turning round. The Amsterdam collection has for a long time possessed such a small hammer (Ser. 1, N°. 1579), described only as a wooden driver, and ornamented exactly in the same manner (fish-ornament), and said to have come from the S. E. coast, which statement must be

erroneous. The Utrecht collection contains one (N°. 478), brought by BINK under the name "*kat*" from H. B. and indicated as a driver; the real use was not known until now. Made entirely of heavy palmwood, this small instrument belongs to the stone period in as far as it serves exclusively, or principally, in manufacturing the two principal instruments of this period, viz. the stone sago club and the stone hatchet. It has to be used in driving the plaited or twisted lashings along the conical handle and stone-holder, from the thinner to the thicker part, until all the stretching has disappeared and the requisite degree of jamming has been obtained. By this use it has become an important, yea, indispensable tool, and in accordance with this is the beautiful manner in which all these objects are carved, the snake-like line and also the fish-ornament often occurring.

The preparation of bark is in Papua Tălandjang a very common work, as here the bark forms almost exclusively the dress of the married women. Like elsewhere, this preparation is done by the women. At Asé a piece of a sapling of ± 2 m. in length and 12—14 c.m. in diameter, cut off transversely at both ends, probably brought by the women themselves from the forest or the garden in a boat, was lying on the ground. Evidently it had been taken entirely out of the stem part, for I saw no traces of newly cut-off branches, and knots were very rare. With a shell (*Cyrena*) (N°. 710, Pl. XXV, fig. 9), obtained, it was said, from H. B., the top layer of greyish green bark was scraped off. A previous heating or even a slight superficial charring of the stem, as described by SCHELLONG [1888, 221] of Finsch Harbour, had not taken place here. After the scraping, the tree, as it was lying, was beaten on the outside with a short piece of wood, here called, *fèmă*, always taking care to beat neither transversely, nor lengthways, but in an angle of ± 45°. Small drops of moisture were issuing from the bark at each blow, and gradually this was beginning to lie loosely round the stem, as it became too wide for it. Near and round the knots, the connection between the wood and the bark here so much closer, was relieved by slight blows. Constantly turning the tree over, the whole surface was so treated, and after this the spot where most knots occurred in the same longitudinal line was carefully selected for cutting the bark open lengthways, in order to obtain a minimum of holes in the middle of the piece. The bark then dropped easily from the stem (fig. 144), except where, with a few knots, the connection had still to be severed with a knife. From the inside of the flatly outstretched bark, a thin, but tough, white fleece was now removed by lengthwise scraping with the shell, and after this the beating proper began.

By this beating the bark obtains a darker colour. All the time one or more large, flat, round stones (N°. 711, Pl. XXV, fig. 3), designated as gabbro, were lying under the spots where the beating occurred. As long as the bark was still hard, it was lying extended, after it had become more pliable under the beating, care was taken that the bark by a transverse folding was lying all the time in a four fold layer on the stone, carefully avoiding to beat on the folds themselves, by which the fibres might break transversely (figs. 145 and 146). During this preparation the bark lost plenty of moisture, it became thinner, broader and a little shorter, but also looser; the fibres were here and there so much parted from each other in a transverse direction, that it became possible to look through the piece. After this, the article was placed for a longer or shorter period in the water, wrung, *marå puje nugaáidi*, hard by two women, standing opposite each other, holding it lengthwise and



Fig. 144. Loosening bark from the tree trunk; Asé.

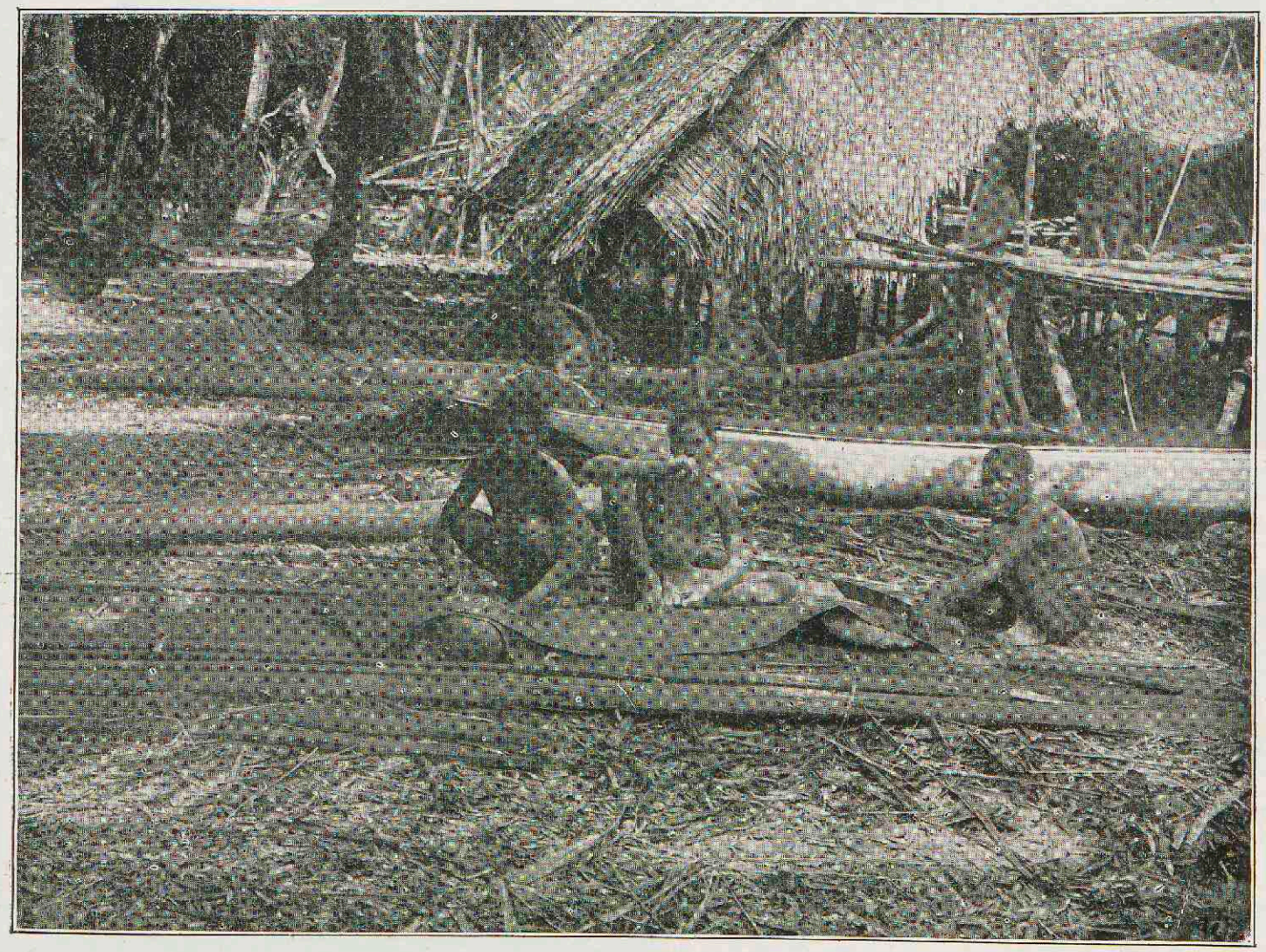


Fig. 145. First beating of the bark; Asé.



Fig. 146. Further beating of the bark, getting pliable; Asé.



Fig. 147. Drying prepared bark; Asé.

then hung outside the house in the sun to dry (fig. 147). This entire manipulation took place in the village itself, presumably because there is no very great safety for the women in the forests, or because the men are not inclined to stay close by, as in central Celebes (ADRIANI and KRUYT [1901, 139]), till the work is finished.

I never saw the boiling in an earthenware pot with the addition of ashes, in order to obtain a white colour, or a fermentation of the moist bark wrapped in leaves of *Livistonia rotundifolia*, as is reported from Celebes. The bark is lighter or darker according to the kind of tree which supplied it; this also holds good, as I was told by missionaries, for Geelvink Bay; both kinds are worn, whilst in K. W. Land only the lighter kind, supplied, according to SCHELLONG [1888, 221] by two kinds of tree, is used. The common name of the material is in H. B. as well as on Lake Sentáni *marå*, sometimes shortened to *mār*; the addition *chĕmbau*, therefore *marå chĕmbau*, for the red brown kind, according to my interpreter, points to the species of tree.

Not much attention was given in Asé to the nature of the beating instrument. Stones, as used on Celebes (ADRIANI and KRUYT [1901, 139]) but also in N. G. (SCHMELTZ [1888, 233]), or coral beaters (SCHELLONG [1888, 221, Pl. XIX, figs. 5 and 6]) as known of Finsch Harbour, carved on the striking surface, or wooden beaters with circular grooves as in the possession of the Utrecht collection from Geelvink Bay, and as illustrated by UHLE [1886, 9, N°. 4521, Pl. VII, fig. 1] from Doré, by ERDWEG [1902, 308, fig. 205] from K. W. Land, and by EDGE PARTINGTON [1895, Pl. 178] from British New Guinea, were not known here.

According to BIRO [1901, 47] it depends upon the work being done with wood or with stone whether a different article is obtained. However this may be, at Asé pieces of wood are used, like N°. 712 (Pl. XXV, fig. 11), and the sides of these are used for the beating. The old woman of fig. 145, to my astonishment, was beating with the broad back of her chopper. The great number of pieces which were hanging drying on fig. 147, made me presume that the female inhabitants of this house were preparing the bark wholesale and as an article for trading, but I was unable to obtain any confirmation of this, and I therefore conclude that every family works for its own needs. Often a stock of large bundles of prepared bark is suspended inside the houses.

Another industry, again in the hands of the women, is the manufacture of pots, of which the north coast of New Guinea has evidently several centra, amongst which the H. B. industry occupies an honoured place. The opinion of FINSCH [1888, 353], that this industry belongs to the villages in the inner bay, has been proved to be incorrect, also his idea, shared by VAN DER GOES [1858, 141, 180], that the same red clay obtained from the surrounding hills, used for the hair as a pigment, is also used in the manufacture of the pots. If the information of the Papuans has been properly understood, the case however is different and the material used consists of a yellow kind of clay (N°. 713), to be found in the neighbourhood of Kajó Jenbí, and the manufacturing is only done by the inhabitants of this village, who call their pots *úde*; in Tobádi they are called *anènă*, in Tanah Merah *sĕrai*. The yellow clay differs only slightly in composition from the red and the grey clay (see pp. 52—54).

On Lake Sentáni the village of Abār also produces pottery; greyish black clay, found in the immediate vicinity, is used. Specimens of this industry have been discussed as

N^os. 68—73, (Pl. I, figs. 22, 23 and 25), but during the short visit I also saw other shapes in the making, which very much resembled the ordinary pot of Kajó Jenbí; these articles are, however, much inferior to those of Humboldt Bay. The clay is prepared beforehand, and cleared of stones in a very unsatisfactory manner, at all events, once when I saw women manufacturing a pot, which was nearly finished, their knocking on the outside, brought to the surface small stones, of ± 4 m.m. in diameter, which had to be picked out and the hollows made again to be filled up. A flat, oval stone (N°. 714, Pl. XXV, fig. 2) out of a micaceous sandstone, plentifully found on the island of Pujo, was held inside, the flat, wooden beater (N°. 715, Pl. XXV, fig. 10), knocking on the corresponding spot on the outside surface, in a manner known of elsewhere. I am almost convinced that these pots are started in the way mentioned by PRATT [1906, 687] of the Motu women: "seize a lump of clay with both hands, and make a hole large enough to get the right hand in", and not by beating together clay rings, as mentioned by HADDON [1894, 223] of Teste Island; — rough pots, shaped inside a palm leaf basket, and then baked, as reported by PARKINSON [1900, 38] of Berlin Harbour, I have not met with anywhere.

Although until now no weaving industry has been described of New Guinea, still some articles are found, which may be placed under that heading.

It is BRAAM MORRIS [1885, 90] who mentions woven petticoats of the married women of Tanah Merah Bay, and DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 49, N°. 260 and N°. 261, Pl. XIII, figs. 4 and 5]) who collected a cloth of Anus and Jamna, worn by women in front and on the back like a "sarong"; according to HORST [1889, 245], however, they are worn like aprons (see fig. 40, the woman on the left), and obtained from the mainland. DE CLERCQ and HORST probably mean the same objects, of which I myself received a specimen as a present from a Netherlands naval officer, collected on the same part of the Netherl. north coast. I take the material used to be loose, narrow palm leaf strips, and the colours are between dark brown and light yellowish brown. The fibres of a strip are not twisted, but in order to keep them together, simple overhand knots have been made in all the strips, at distances of 3—5 c.m.; the fibres of a strip are lying in the tissue flat alongside each other, like in a narrow, flat ribbon. The threads in this case are lengthened, not as in the carrying bags by twisting the fibres together, but by knotting. The composition of the cloth, shows lengthwise running warp-threads, crossed by weft-threads, which return at the side margins, without interruption, forming the selvage of the cloth. As the warp-threads are longer than the length of the tissue, they form at both ends a fringe, + 16 c.m. in length, also mentioned by DE CLERCQ. In order to obtain an equal length of the fringe, some of the strips are lengthened by knotting. The tissue is fairly close and shows, in consequence of double stripes of the dark colour, introduced as well in the weft- as in the warp-threads, a design of large squares, which is crossed by a check of the lighter colour. At each of the four corners a knot is laid with some warp- (fringe) threads, inside which the end of the weft-thread is placed and in this way ravelling is prevented. Nothing is known of any weaving instrument for the manufacture of the above described cloth; on the other hand it can hardly be imagined that the whole of it can be made by hand.

It is rather remarkable that the first real tissues of inland make, used for clothing, are met with in Papua Tălandjang, the land of the naked Papuan.

The only weaving frame (N°. 716, Pl. XXV, fig. 1), the first mentioned from New Guinea, was met with by the expedition at Tarfia. It is used in the manufacture of brow bands, girdles, armlets, etc., which form the monopoly of this village. In its highly primitive form, it represents the loom in its most simple shape, such as was sketched by BUSHAN [1889, 230, fig. 1], as having served at the first stage of the art of weaving. Both systems of warp-threads and weft-threads can be recognised in the figure. The thread used is a two-stranded cord. The warp is wound spirally, being stretched lengthwise, round the two cross sticks, and forms between the same double warp-threads, which, lying at first in pairs above each other, are placed two and two alongside each other by the introduction of the weft-thread. As however the weft-thread is single, and the warp-thread being double, a tissue is obtained which can be placed on a par with the western rib weaves, i. e. in warp effect (lengthways). Whether the use of it requires any more instruments, as those employed with more complicated looms, I am unable to state.

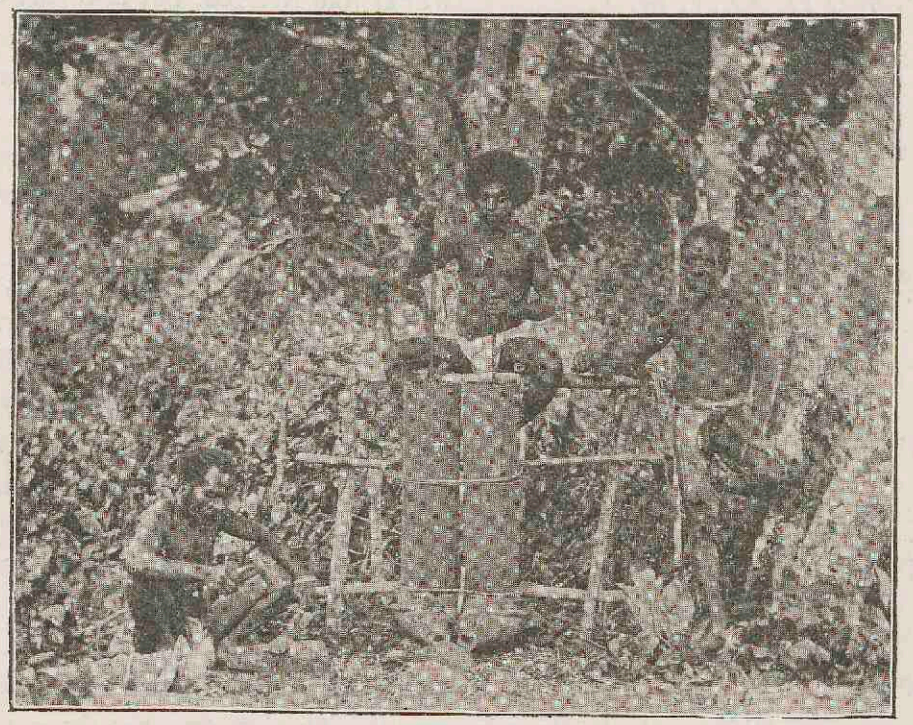


Fig. 148. Smithy; Geelvink Bay.

The smith's craft, still entirely unknown in Humboldt Bay and surroundings, is applied with much zeal in the west. This craft the Papuans owe to the Ceram people, and VAN DISSEL [1904a, 629—631] even found, that in the villages of Patipi and Rumbăti, at the south coast of the MacCluer Gulf, the people, who forge, are of Mohammedan religion and still show the Ceram type. Fig. 148 gives the customary arrangement, including the instrument, already mentioned several times by others, which takes the place of the bellows.

N°. 698. Ingrâs; bodkin of bird's bone, one end with head of joint, the other end sharpened into a point; length 11 c.m. To be used in plaiting. From bag N°. 634.

N°. 699. Pl. XXIV, fig. 13. $^2/_5$. *Por cheāb.* Ingrâs; boar's caninus, ground down from the concave side obliquely in the direction towards the point and the convex medial surface, here the enamel forming a sharp edge. Used as scraper. Found as before.

N°. 700. *Por cheāb.* Tobádi; like N°. 699, four pieces, the largest with an outer circumference of 16, the smallest of 6 c.m., and this one so much ground down that the dental canal is opened.

N°. 701. Pl. XXIV, fig. 10. 1/4. *Sigĕrĕriri.* Tobádi; blade of western kitchen knife, jammed between two longitudinal halves of a wooden handle; on conical part of handle a lashing plaited from reeds, nearer the blade, under a ridge, a rattan lashing.

N°. 702. *Sigĕri örí, ari örí.* Tobádi; blade of a knife, the end transversely ground down, in the shape of a chisel; the shaft fastened by lashings into brown, wooden handle, slit lengthways over 10 c.m. of the length (at this distance one of the halves transversely cut off). A flat, circular groove forms a knob at the end in the shape of a glans penis. Used as a chisel.

N°. 703. Pl. XXIV, fig. 11. 1/4. Simbărâ; like N°. 702, but also part of the blade in the slit of the handle; this partly conical, and with six plaited, rattan lashings; remainder of handle with bands of carved circles, 4 or 5 in each band, intermediate spaces with concentrical or snake-shaped, partly finned figures and longitudinal ribs.

N°. 704. *Tandèri.* Săgeisârâ; piece of mica-quartzite, 32 c.m. long, 11 c.m. broad, 12 c.m. high. On the broken surface a golden lustre of small scales of mica (biotite); used in sharpening stone hatchets, *djă, idjă, itjă.* Found on the ground close to a house.

N°. 705. Pl. XXV, fig. 6. 1/5. Pujo; hammer of dark brown wood; handle with round grip and broadened fore part; at broadest part 2.8 c.m. thick, here in the middle with transversely oval, conical hole, in which a piece of wood for striking, 11.5 c.m. in length, the striking surface transversely broadened; handle with carvings (human face?) on both surfaces, covered with lime. For beating down lashings.

N°. 706. Pl. XXV, fig. 7. 1/5. Pujo; as before, but handle more oblong, entirely covered with carvings, with exception of grip; on edges with triangles, between two sets of snake-like ridges; on flat surfaces with human face (?), in front of hole with convex, dental curves. Used as N°. 705.

N°. 707. Pl. XXV, fig. 4. 1/7. *Chatu* or *katu.* Asé; as before, lower as well as upper surface carved with two fish figures, the connected tail-fins encircling the hole of handle; on side edges also two fish figures; in between snake-like ridges, like those of N°. 706. Use as before.

N°. 708. Pl. XXV, fig. 5. 1/6. *Chatu* or *katu.* Asé; as before, the handle after the grip suddenly and after this gradually broadening; the forepart transversely cut-off: entirely covered with transverse rows of carved eye-ornaments. Use as before.

N°. 709. Pl. XXV, fig. 8. 1/5. *Chatu* or *katu.* Asé; as before, the grip separated by small relief border from conical front part; this with loop coils, connected by snake-like ridges. Use as before.

N°. 710. Pl. XXV, fig. 9. 1/3. *Kara.* Asé; shell (*Cyrena, Batifsa violacea*, brackish water fauna) for scraping, *kède*, tree-bark, *marâ*, intended for clothing, etc. Obtained from Humboldt Bay.

N°. 711. Pl. XXV, fig. 3. 1/6. *Atu.* Săgeisârâ; flat, round stone of a light green colour, in which darker spots and small, light spots (gabbro). On these, bark, *marâ*, is beaten.

N°. 712. Pl. XXV, fig. 11. 1/6. *Suān;* Kajó Entsáu; piece of heavy, dark brown wood, *suān;* grip-end narrow, from there broadening towards the front; one of the sides flat, the other transversely convex; on this a carved cuscus figure, head (with two eye ornaments) and body oblong oval; the latter with 10 transverse carvings, to which short, longitudinal carvings; left fore paw with 5 claws, some of them curled, the right with 4 short and slightly curled claws, left hind paw with 4 longer, and sharper bent, the right hind paw without claws. On the left of body a longitudinal lineal carving, inside an oval (young one in pouch?). On the right, connected with the narrowing near the legs a bolt-like figure, at both ends button-shaped (indication of sexual organs?). Weight 500 grams. Used on its side for beating bark.

N°. 713. *Khĕrâ.* Kajó Entsáu; yellow brown clay (sample) used for manufacturing earthenware pots, *úde.* Obtained from neighbourhood, on western shores of Humboldt Bay.

N°. 714. Pl. XXV, fig. 2. 1/4. Abār; flat, oval stone, 3 c.m. thick, rounded-off edges; of micaceous sandstone; weight 630 gram. Used in shaping clay pots.

N°. 715. Pl. XXV, fig. 10. $^{2}/_{11}$. Abār; spatula-shaped piece of fairly heavy, yellowish brown wood; handle marked off by an encircling carving; thickness in the middle 2 c.m., thinner towards the rounded-off edges. Weight 256 gr. Used together with N°. 714, in shaping clay pots.

N°. 716. Pl. XXV, fig. 1. $^{2}/_{11}$. *Mākpātār*. Tarfia; weaving frame out of two pieces of sago leaf stalk and two transverse, sharp-pointed, cylindrical pins; round these two pins a light brown, two-stranded cord, *wār*, out of bark strips is wound, somewhat stretched, running spirally 17 times round both, producing 17 upper and 17 lower cords (warp), separated by the thickness of the pins; with the continuation of the cord, beginning alongside one of the pins, each of the upper cords is at first squeezed together with the corresponding lower one, after the 17th pair the same thing repeated in the opposite direction, and after this it moves from side to side as a weft-thread between the 17 double warp threads, all 34 lying in one plane, producing a rib weave, in warp effect. Girdle in course of manufacture; the cord attached, 3.15 m. in length.

CHAPTER IX.

ARMS.

The conditions existing amongst the Papuans necessitate the possession of arms for securing the safety of persons and property as well as for fishing and hunting. "The women of the Dembebi tribe (ANNUAL REPORT [1901—02, 16]) are as ready and expert with the bow as the men", and the occurrence of palmwood swords for women is known of Tumleo (ERDWEG [1902, 328, figs. 228—230]), but otherwise the carrying of arms is limited to the male inhabitants; these are seldom seen without arms, which has often unjustly been taken by visitors as a proof of an unfriendly disposition, and has sometimes even without further cause led to aggressive action.

Amongst the weapons intended for fighting at close quarters, the dagger is intended for the actual hand-to-hand fight, and in order to finish a wounded enemy; consequently the most general distribution occurs where swords or clubs and short spears, intended for the same purpose, are either wanting or scarce. Only occurring on the north coast, the western limit of its area lies near Pt. D'Urville, whilst to the eastward it was not met with any further than Hatzfeldt Harbour (FINSCH [1888—93, 215]). According to VAN DER GOES [1858, 173], daggers are made of pig's bone or, as also stated by VAN DER CHYS [1885, 192, N°. 3240], of the human thighbone. As far as I am aware, however, the tibia of the cassowary is always made use of, not the femur, as PARKINSON [1900, 29] writes of the Berlin Harbour section. Generally the handle is formed by the lower joint; ERDWEG [1902, 327], no doubt by mistake, writes "the proximal joint". Usually the head of the joint is ground down lateral and medial, to such an extent, that the breadth here corresponds almost with that of the shaft, but the saddle-shaped part of the surface of the joint is retained. For in this, the thumb of the person who carries the weapon, must rest, the thenar against the back surface of the tibia and the four fingers grasping round the adjoining part of the shaft, which, for this purpose, is left cylindrical exactly over the necessary length. Of the remaining part the bony substance has been obliquely ground down, from the front towards the back, the hollow of the bone being thus opened, the blade and point of the dagger formed by the back lamella of the tibia. The edges of the blade, are generally only slightly

sharpened, but the point very much so. The outer surface of the bone is always nicely polished, the inner one less. According to the value attached to the weapon, it is more or less ornamented, in Humboldt Bay and on Lake Sentáni with loop coils, usually applied on carved fish figures; not unfrequently also the crocodile occurs, also noticed by FINSCH [l. c.]. The spirals and the fish tail ornament are always wanting on the daggers of more eastern territory (PARKINSON [1900, Pl. 19, figs. 13 and 14], ERDWEG [1902, fig. 227]), whilst on the other hand the human face, which occurs here, is not met with in Papua Tălandjang. In more western parts only the anterior lamella of the shaft (N^{os}. 733—35 and 737) and the anterior part of the head of the joint are retained, and in exceptional cases (N°. 720) the dagger consists only of the lateral lamella and the lateral condyle.

The tarsometatarsus is also used for making a dagger, sometimes with part of the distal condyle as a handle (N^{os}. 717 and 730), and at other times the proximal end of the bone (N°. 736). Especially with old daggers, blackened by smoke, the beauty of the ornaments is not a little increased by the lime applied in the carvings.

When not in use, the dagger is sometimes put in the bag, but generally it is stuck into the left upper armlet with the point downwards, somewhat forward (fig. 124), the head of the joint preventing it from slipping through; sometimes, however, the point is turned upwards (Pl. XXXVIII, fig. 2). In K. W. Land, according to FINSCH [l. c.], the dagger is carried in the right armlet, which in exceptional instances also happens on Netherlands territory (Pl. XXXVII, fig. 2). PARKINSON [1900, 29], however, also mentions, for the Berlin Harbour district, the left armlet, and carried in this manner the dagger is, no doubt, better placed for immediate use with right-handed people. I have never noticed the carrying of two daggers at a time as reported by FINSCH [l. c.]. In Papua Tălandjang the dagger is not uncommonly suspended round the neck or from the left shoulder in short scabbards (N^{os}. 720, 727, 728, 732, Pl. XXVI, figs. 7 and 8), made of cord, with the stitch of fig. 117, with a border as per fig. 43, and suspended by a carrying sling of the same pattern. These scabbards, into which the cylindrical grip-end of the dagger fits exactly, and which are often ornamented with Coix, cord fringe, feathers, etc. have not been mentioned before now, and prove, that the dagger is highly esteemed in those parts, and by no means serves for the profane use of a breaker or bodkin, as indicated by FINSCH [1888—93, 60] and BIRO [1899, 38, fig. 5] of K. W. Land.

Clubs, loaded with stones, as used in British New Guinea (THOMSON [1892, 175], many-pointed star clubs of astonishing geometrical exactitude (D'ALBERTIS [1880, II, 86], ANNUAL REPORT [1903—4, 21]), become more scarce on the north coast and towards the west (HAGEN [1899, 178]); in the western part of K. W. Land they only occur amongst the mountaineers (PREUSS [1897, 102]), whilst they are not mentioned at all by PARKINSON [1900, 29] of the Berlin Harbour district. On the Netherl. north coast they are wanting, as well as the wooden clubs or swords, mentioned by FINSCH [1888—93, 215], HAGEN [1899, 173] and PARKINSON [1900, 29], of the above parts. When the expedition arrived quite unexpectedly on Lake Jamur, I noticed in the settlement of Angádi, however, a complete club (N°. 738, Pl. XXVI, fig. 9), of which the pierced stone, made of quartzite (which mineral, however, does not occur on Lake Jamūr itself), and provided with numerous spikes, was slipped on to a strong handle and retained by the thickened end. A similar club was standing against a

tree on a grave, but both objects shortly afterwards disappeared and were only reproduced from the high grass after pressing inquiries. It now turned out that these objects had been captured on robbing and murdering expeditions to the south-west coast, and, as silent witnesses of these crimes, were concealed. They therefore belong to the culture of the said coast and are possibly used in the same manner as communicated of the Tugeri (SCHMELTZ [1904, 205]), namely, that at the beginning of the blow the stone is close to the hands, and only by the sway moves on towards the thickened end, which highly increases the impetus of the blow. To prevent the disk-shaped stone-head slipping back, on these clubs a plaited band is attached to the handle (see also ANNUAL REPORT [1897—98, Pl. 6]).

Wooden swords, with which the Tugeri cut off the heads of their slain enemies (PRATT [1906, 44]), are not to be found on the north coast of Netherl. N. G., and the common spear to the length of 8—12 feet, known of Eastern K. W. Land (HAGEN [1899, 173]), becomes more scarce towards the Berlin Harbour district (PARKINSON [1900, 29]). In Humboldt Bay they are lacking; VAN DER GOES [1858, 173] says only they are very rare in H. B., the object he describes, however, corresponds with the boar lance, which is a hunting-weapon (see Chapter V, p. 155).

Towards Geelvink Bay the lance again occurs more frequently, and thus the collection contains some lances (N^os^. 740—743) of Wári of heavy palm wood, and beautifully carved, like those mentioned by DE CLERCQ and SCHMELTZ [1893, 144, 145] of Korido, Abéré and Wosnik. They were much prized by the inhabitants; who would not part with the finest specimens. It was said that the iron head was the work of the Wári people themselves. Barbs made in the wood of the lance, close to the iron head, prevent the attacked person from catching hold of the weapon; otherwise the lance is octagonal or round, and generally ribbed lengthways. The figures on N°. 741, have entirely the Geelvink Bay type. The lance of Inagói (N°. 744, Pl. XXVII, fig. 42) has a striking resemblance to the one of Ansus [l. c., 145, N°. 650, Pl. XXVII, fig. 11]. Ceremonial lances, like those of the S. W. coast (SCHMELTZ [1904, Pl. V, figs. 1 and 4], VAN HERWERDEN [1906, Pl. X, *d*]), I have nowhere met with.

The so-called man-catcher is not used, neither in K. W. Land (NACHRICHTEN [1888, 225]), nor in Netherl. N. G., and the stone hatchet placed by VAN DER CHYS [1884, 192, N°. 3241] amongst the weapons of H. B. is not intended here for use in war.

Bow and arrow in H. B., exactly as reported by ERDWEG [1902, 324] of Tumleo, form the real weapon for fighting at a distance.

As far as the arrows are concerned, a system was at the time devised by SERRURIER [1888, 1], based upon the shape and material of the arrow heads, and this is correct so far as both, material and shape, are selected for its special purpose. Taught by experience, I would, however, like to see such a system only used for museums, after the manner of BIRO, and further recommend for every place a natural (Papuan!) classification, of which SERRURIER also felt the want (see his second system). It moreover appears that there is no such thing as a single Humboldt Bay type (SERRURIER [l. c., 13, Pl. I, figs. 61 and 62]), or any other exclusively local type, but that each place possesses as many kinds of arrow heads as necessitated by the practical needs of warfare, chase or play. FINSCH [1888—93, 214], who collected 16 kinds of arrows of Attack Harbour, already laid stress on this, and merely recommended illustrations to be made of all the arrows of each place. Still peculiarities of technique and ornament may

be characteristic of one territory or tribe, forming a "Stammeszeichen" (SCHMELTZ [1904, 222]). So, for instance, it is a characteristic of the H. B. arrows, that both lower end of head and upper part of shaft are covered by one and the same lashing, formed by a continuous twine (liana?), whilst more to the west the lashing only surrounds the upper part of the shaft, deprived beforehand of its epidermis. The seven members of the Papuan committee, who composed my arrow classification of H. B., by such peculiarities of the lashings, the ornaments, etc., picked out at first sight the foreign arrows, and further, barring differences in knowledge or memory, were of one opinion as to the name and object of each arrow. I am giving of the H. B. arrows a series of illustrations (Pl. XXVII, figs. 1—39), and a detailed description, limiting myself as to the other places to a superficial review. It often turns out that arrows with the same shape of head have a common name; on the other hand, arrows with differently shaped heads are often designated by the same name, which furnishes another proof that the Papuan designates his arrows after principles differing from those of the museum system. The groups *pabu* and *watu watu* of Tobádi, furnish clear evidences of this.

I have not noticed in the territory visited, that arrows are traded away, as at Doré, which imports them from Wiak (DE CLERCQ and SCHMELTZ [1893, 114]), but I myself experienced the giving away of arrows as a token of friendship, notwithstanding I was willing to pay for all such ethnographica. HAGEN [1899, 176] mentions this giving away of arms to friends, as the principal cause for the "Verschleppungen".

The arrows consist generally of two component parts, the head of bamboo or palm wood, either hardened in the fire or not, and the shaft, made of cane. Not seldom however a foreshaft is introduced in between, and sometimes a special tip is fastened on to the arrow head.

One of the principles, according to which an arrow must be constructed, in order to dart through the air with the head foremost, is, that the centre of gravity must lie before the centre of air-resistance. Considering firstly the cane shaft, which of course is a little thicker at one end than at the other, it will be clear, that the centre of air-resistance is situated a little above the middle, towards the thicker end. The centre of gravity however, will be found still more towards the thicker end, because air-resistance increases proportionally the 2nd power, and weight proportionally the 3th power of the diameter. Therefore with all the arrows the thicker part of the shaft is foremost. For the same reason arrow heads are made of palm wood of a high spec. grav. If, however, for some reason or other, a lamella-shaped arrow head is wanted, for instance a bamboo head, which offers much resistance to the air, and when dry, is moreover of a low spec. grav., one is obliged to remove the centre of gravity artificially to the fore, by attaching a so-called foreshaft, of heavy wood, to which the arrow head is now fastened (see Pl. XXVII, fig. 1). The foreshaft, called by BIRO [1899, 80] "Balancirglied oder Beschwerglied", by SCHMELTZ [1904, 218] „Zwischenstück", along which the narrow stem of the bamboo head is fastened, moreover, by its stiffness prevents the brittle bamboo stem from breaking, whilst, lashed directly along the flexible cane shaft, it would soon break by an occasional bending of the latter.

Arrows for pig hunting are always provided with a bamboo head, making a large wound, causing by the quick and profuse loss of blood an easily detectable track and also preventing the wounded animal from escaping too far into the bush. Longitudinal

blood-groves, and sometimes also the strong gutter shape (N^os^. 934, 935, 1208, 1216 and 1217) facilitate still more the outflow of blood. Yet in H. B., boar arrows with palm wood heads were presented to me under the name *rugwè* (N°. 763, Pl. XXVII, fig. 4). For practical reasons bamboo heads are always lashed with the concave side of the narrow stem along and not in the shaft (foreshaft).

The palm wood arrow heads are always inserted inside the split shaft. The hardening of arrow heads in the fire, as described of Netherl. N. G. e. g. by VAN DER GOES [1858, 109, 120] and VAN HASSELT [1886, 580], is certainly not practised in H. B., as white points are here very often met with. The length of the heads, as well as that of the whole arrow, is, no doubt, also chosen according to practical principles, and it sounds somewhat strange when visitors like MOSELY [1879, 444] call the arrows of H. B. too long for their bows. A heavy arrow, although only useful at a short distance, gives with an equal speed, a higher power of penetration; the small ones, of which some weigh only 20 gram, are intended for a greater distance. Long bones, sharpened, loosely stuck on the arrow head, and often provided with jagged edges, can, with the effort to withdraw the arrow from the wound, remain in the same, and possibly through this, the arrows have obtained in H. B. the reputation of being deadly. HADDON [1894, 48], who was told the same thing in British N. G., thinks however that these bone tips are poisoned in advance, by inserting them into decomposing human corpses. The spine of the sting-ray has also a bad reputation, as the barbs may break off and would cause wounds difficult to cure (DE CLERCQ and SCHMELTZ [1893, 116]). Perhaps HORST [1889, 237] refers to these stings when he mentions arrow heads of fishbone of Japen, and his boars' hoofs are possibly cassowary claws, of which especially the inner one is powerful, straight and pointed, and which were also met with by HADDON [l. c.] and SCHMELTZ [1904, 219] on arrow heads of the Tugeri.

The cane shaft, is placed with the thicker end in front (see above); the after end as a rule not far behind a node, preventing the splitting-up, is never knobbed, as would be necessary for the primary release (MORSE [1885, 6]), and never notched. Seldom the shaft is left in a rough state, almost always the circular thickening at the nodes is cut away all round, in order to decrease the resistance of the air, but also to prevent the thickenings from striking against the bow. With each node a ring, deprived of the upper skin, has thus been produced, which has often been erroneously counted as an ornament. That a principle of suitability is above all the cause of these rings, is evident from the fact that the foremost node, which remains in front of the bow, is not ringed, and that with many ornamental arrows, with nicely carved and painted heads, with plaited work, Nassa, feathers, etc., but which are never used for actual shooting, all nodes have often been left quite un-ringed, a peculiarity which already struck SCHMELTZ [1896, 124]. Whether the painting in black of these ringed nodes, means a protection against insects (DE CLERCQ and SCHMELTZ [1893, 113]), I am unable to decide; but it is worthy of notice that with fish arrows, which are used in salt water, the rings are generally left white. Ring-shaped carvings, cut in close to the nodes, possibly serve as a distinctive mark of the owner.

The foremost of the internodes, is generally provided with scratched-in ornaments, often also the other ones, sometimes all except the back one. On a single occasion I saw all the internodes, except the front one ornamented. FINSCH [1888—93, 214] calls the orna-

ment of the shaft of arrows in Sĕkâ "burnt-in". At Asé, however, I did see a man, who was preparing arrow shafts, scraping off the upper skin lineally with the sharp edge of a knife, whilst he then pulled the shafts through the flames of a woodfire, in order to straighten out of them, during the heated stage, all the false bends, and in this way the scratched-in lines became somewhat dark. Very often, however, the ornament is smeared over with a separate, black pigment. The 1st internode is decorated in H. B. with very different ornaments, on the other internodes one meets with a great many lengthwise lines, which converge in pairs towards the front in a sharp angle, forming chevrons, as illustrated by ERDWEG [1902, 325, fig. 225b] of Tumleo, sometimes with a snake-like undulating line between both legs. Figs. 149—151 give illustrations of ornamentation of arrow shafts of Lake Sentáni.

The real ornamental arrows serve exclusively for feasts, and do not agree with

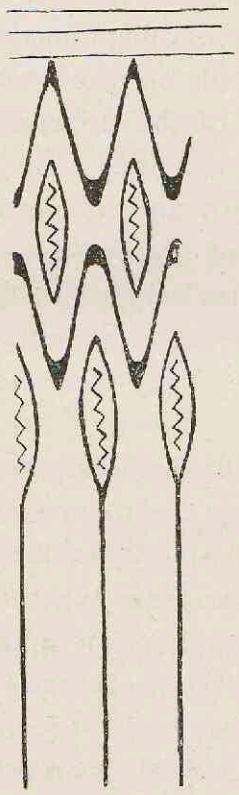


Fig. 149. 3/4. Ornament of the 2nd internode of N°. 939; Asé.



Fig. 150. 3/4. Ornament of the 1st internode of N°. 994; Asé.

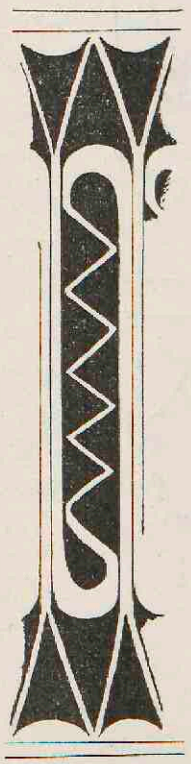


Fig. 151. 3/4. Ornament of the 1st internode of N°. 1022; Dójo.

any practical calculations; thus the point is often made of a light kind of wood, which can be easily worked in long and thin, fine barbs. The beautiful arrows, which UHLE [1886, 7, Pl. VI, figs. 2 and 3] illustrates of Kordo and of which the collection also contains several, are certainly not intended for ordinary use. The same holds good, when (as common in H. B.) many coronets of feathers and feather bunches are fastened at or near the head. Besides lime (this in the intaglio portions), soot, red and yellow clay are used to ornament the head, but also a reddish brown liquid, called tree-gum by DE CLERCQ and SCHMELTZ [1893, 115], mentioned by VON ROSENBERG [1875, 88] of the Arfak, as a kind of vegetable poison, of which they would not divulge the secret. That it serves as an ornament, is evident from the fact, that it does not occur on the most simple arrow heads (SCHMELTZ [1896, 115]), and also

because on a few arrow heads of the district of Sĕkâ special figures (figs. 152 and 153) had been made with this pigment. A similar shiny, dry, colouring matter, I saw on bamboo heads of boar arrows, and therefore certainly not to be looked upon as poisonous. Indeed, as yet, poisonous weapons have never been proved with certainty of N. G. The ornamental arrows, specially collected by some visitors on account of the outward appearance, give numerically a wrong representation of the armamentarium. Nevertheless, their frequency in H. B. is a proof that just here bow and arrow have reached the highest development. Towards the east (FINSCH [1888—93, 214]), as well as towards Pt. D'Urville, the bows and more especially the arrows are much more simple; e. g. the ringing of the nodes, although never omitted, is done much more carelessly.



Fig. 152. 3/4. Painted ornament on the head of N°. 1047; Thaë.



Fig. 153. 3/4. Painted ornament on the head of N°. 1062; Thaë.

Above a grave at Ibaiso an arrow was stuck into the ground, and on inquiry it was understood, that with this arrow the treacherous murder of the buried person had taken place. It is, however, nothing unusual that bow and arrows used by the deceased, are deposited on the grave. In the fence round a grave at Asé (fig. 166), the bow of the deceased is to be seen, stuck straight into the soil. Moreover, weapons are often treasured as mementoes: in the collection several specimens occur, and amongst them very elaborate ones, which are covered with a layer of greasy soot, having been kept for years in the smoke of the fire places, and in a house at Angádi, I saw, lying on the cross beams of the roof a long, wide, bamboo cylinder, containing a bundle of arrows of a deceased inhabitant. They were never to be used, but were preserved in this way.

The material of the bows is palm wood or bamboo. In Papua Tálandjang, as well as on the adjacent German territory the palm wood bow is solely used, towards the east it is met with exclusively as far as Pt. D'Urville; in Geelvink Bay the bamboo bow already appears together with it, and further towards the west the distribution of both kinds is apparently irregular, both kinds being collected in the villages on the south coast of the MacCluer Gulf by DE CLERCQ (DE CLERCQ and SCHMELTZ [1893, 136]). I found at Wári (N°. 1246) and on Mios Kórwār (N°. 1247) exclusively the bamboo bow, also with the tribe of the Maníkion (N°. 1248). At Angádi, however, so close to the south-west coast, where both kinds are met with (VAN DER GOES [1858, 109, 121]), the palm wood bow is used (N°. 1241).

Composite bows, of palm wood with a strengthening of bamboo fastened alongside, as reported by VON LUSCHAN (KRIEGER [1899, 456, fig. 6]) of Sekar, I have not seen anywhere.

According to DE CLERCQ *Arenga saccharifera* and *Areca Nibung* are used for the palm wood bow, according to HAGEN [1899, 61], a wild species of the last-named palm, characterised by a greyish brown bark. ERDWEG [1902, 325] speaks of a *Betle* species, with a soft core and describes the cutting of the bowstaffs out of the outer layers of the stem. The inside surface of the palm wood (the inner side of the bamboo with the bamboo bows) forms the front of the bowstaff and proves, as with most specimens of the collection, plainly to be concave, (ERDWEG [1902, 324, fig. 224] draws the transverse section biconvex), whilst the hard, outside part forms the back of the bowstaff. In many specimens

of the collection a lengthwise strip of the bark is retained, sometimes (N^{os}. 1227 and 1228) carved into a decorative snake figure (see also SCHMELTZ [1904, 220, fig. 1]). It is exclusively this side, turned towards the archer, which is provided (especially the upper half in Humboldt Bay) with carved ornaments, in the style of the illustrations given by DE CLERCQ and SCHMELTZ [1893, Pl. XXXI, fig. 16] and PARKINSON [1900, Pl. XXI, figs. 39 and 40]. The latter places them upside down; according to PREUSS [1899, 175] the eye and nose ornament are pre-eminent. I have nowhere seen a strengthening of weak or cracked bows with a lath tied alongside, as described by SCHMELTZ [1895, 238; 1904, 209, fig. 15]. It does not appear probable, that such a strengthening would be the object of the plaiting of reeds or rattan, because it occurs almost exclusively on the upper half of the bow and evidently as an ornament, just as the carved ornaments (which decrease the strength!), the suspended feathers and the ornamental Coix seeds and cord fringe, are also exclusively applied to this extremity. The bows of Lake Sentáni and more western parts do not possess the excessive decoration of some H. B. bows, nevertheless with all of them at least one small plaited band occurs at both ends, which must support the rattan rings, preventing the loops of the bowstring from shifting (SCHMELTZ [1896, Pl. IX, figs. 2 and 2*a*]).

Strictly speaking, all the bows are slightly asymmetrical, which neither PARKINSON nor ERDWEG report of the Berlin Harbour district, but which did not entirely escape the notice of SCHMELTZ (DE CLERCQ and SCHMELTZ [1893, 232]). The lower half is always somewhat thicker and heavier than the upper one, and besides of both the conical points, as far as they reach outside the bowstring, the lower is shorter and thicker than the slender upper one. The centre of gravity is therefore always somewhat below the middle of the bow and closer to the lower than to the upper end of the string. N°. 1229 has half-way its length, three small, plaited, rattan bands to facilitate the grasp of the left hand. Plaited work along the whole length of the bow (DE CLERCQ and SCHMELTZ [1893, N°. 609, Pl. XXX, fig. 9]), I have never seen.

Bowstrings of bamboo (?), as described by BIRO [1901, 116] of Astrolabe Bay, of Br. N. G. by THOMSON [1892, 118] and MACGREGOR [1897, 59], also those of twisted bark fibres of the Tugeri (?) (PRATT [1906, 46]), the Numfor (VAN HASSELT [1886, 579]) and in the extreme west (DE CLERCQ and SCHMELTZ [1893, 137—140]), do not occur in the collection; it only contains bowstrings made of a rattan strip, plaited at both ends into a loop in the way illustrated by DE CLERCQ [l. c., Pl. XXXI, figs. 7 and 16] and ERDWEG [1902, 324, fig. 224], by SCHMELTZ [1896, 119, Pl. IX, figs. 12 and 13] of Astrolabe Bay and of the Tugeri [1904, 207]; they are always turned with the smooth outside surface towards the bowman.

To string the bow, the lower loop is pushed beforehand over the lower point as far as the rattan ring, and then, as also described by ERDWEG [1902, 324] of Tumleo, and shown on fig. 154, the lower point supported on the ground, one of the knees placed against the middle of the bow, and whilst the left hand seizes the upper part of the bow, bending it towards the bowman, the right hand places the upper loop of the string over the top. It is necessary to take care that the lower point is not touching a stone or any other hard object, as (notwithstanding its being stronger than the upper point) it might break off. On board the boats the bow is bent between the carrying laths of the outriggers (MOSELY [1879, 443]).

Unstringing the bow the action is reversed. When not in use the bow is always unstrung, the bowstaff nearly being straight, and the string, suspended over the top end, is lower down, fixed by a hitch of rattan. With one bow of the collection (N°. 1247) the lower loop has another rattan strip, for the said purpose.

Spare strings, as carried to the number of one (N°. 1246) or two (N°. 1247), are also suspended with the upper loop over the top end, as shown in fig. 156; with N°. 1242 however, it is simply tied along the front side. A bowstring has always an unvarying length; an arrangement, as indicated by PARKINSON [1900, 28] of the Berlin Harbour district, where a strained string can be strained still further as may be desired and then simply remains caught between a ring, is unknown on Netherlands territory.



Fig. 154. Stringing the bows; Humboldt Bay.

The three bamboo bows (N°s. 1246—48) are all smaller (on an average 1.69 M.), than the smallest of the palm wood specimens. The front side is, by the natural shape of the bamboo, concave in the transverse; — VON LUSCHAN (KRIEGER [1899, 457, fig. 9]) gives of children's bamboo bows of Sekār a biconvex section. On the back the naturally smooth outside surface has been retained and on the frontside, parts of the partitions of the nodes, 4—6 in number, have been left. Both the conical extremities have a sudden broadening, against which the loops of the bowstring are supported. It is a rule (see also HADDON [1890, 330]), that the lower end of the bamboo forms the upper arm of the bow, and this part is generally more ornamented by superficial carvings than the lower arm. The cassowary claw, stuck loosely on to the upper end, according to DE CLERCQ and SCHMELTZ [1893, 137], produces a vibrating noise, pleasing to the Papuan ear, when the arrow is quitted.

The right to carry bow and arrow is only obtained when the young man is received amongst the fighting men; in H. B. after leaving the temple, at Tumleo (ERDWEG [1902, 326]) after the ceremony of putting on the stiff bark girdle. The bow is always carried un-bent and with it a bundle of 8—12 assorted arrows, kept together by a rattan or bark strip. When a Papuan happened to pay a visit to our camp, with his bow strung, Mr. DUMAS used at once to cut the string, and the visitor always understood the lesson in good-behaviour given in this manner.

Regarding the handling of bow and arrow, especially the so-called arrow-release, the opinions of different authors do not fully agree. According to my observations, the arrow is usually held between the thumb and (the 1st or 2nd phalange of) the forefinger, while this finger, bent below the arrow, draws the string, together with the other three. This position, to be

seen on fig. 155 and also on the original photos of Tugeri bowyers, reproduced by SCHMELTZ [1904, 207, fig. 13], is the "archaic release" of MORSE [1885, 37]. Sometimes the little finger does not reach the string, a position which represents a form of tertiary release [l. c., 50]. Cases in which the forefinger is bent above the arrow (HADDON [1890, Pl. IX, fig. 1]),

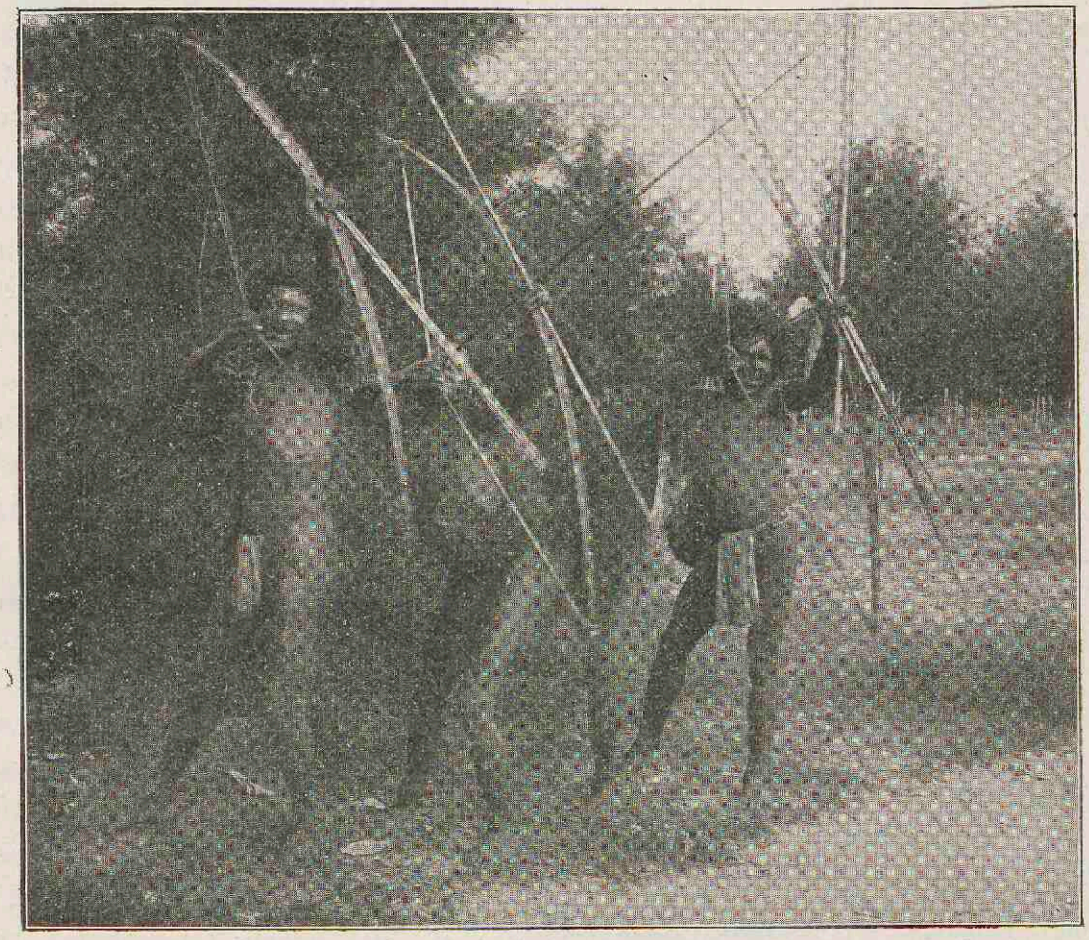


Fig. 155. Arrow-release; Humboldt Bay.

I never witnessed. Often, however, the forefinger is not bent round the string, but is held next it or slightly bent along and under the arrow, the string being drawn by the three remaining fingers, as fig. 156 shows. This is in British New Guinea the most usual position, figured (not quite clearly) by HADDON [l. c., fig. 2], so that this writer [l. c., 331], as well as SELIGMANN [1906, 228], rightly speaks of "secondary release" (MORSE [l. c., 8, figs. 4 and 5]).

That the forefinger is entirely inactive, stretched along the arrow as along the pen in writing (BIRO [1901, 106]), or merely serves as a support (HAGEN [1899, 117, Pl. 14 and 28]), the arrow being held between the thumb and the 2nd phalange of the middlefinger, I never saw on Netherl. territory. Both these writers compare this position with the Mediterranean release (MORSE [l. c., 13, figs. 8 and 9], a comparison which is not in accord with the illustrations of HAGEN, and incorrect in so far as, that by the Mediterranean release the thumb does no work at all, whilst the proximal end of the arrow must have a notch, which is missing in all New Guinea arrows. According to PLEYTE [1891, 278, fig. 4], the Papuans of Doré and adjacent villages use the primary release; in this, however, PLEYTE is wrong (see fig. 156), — the

primary release (MORSE [l. c., 6, figs. 1—3]) requires the use of knobbed arrows, such as are nowhere met with in N. G.. Moreover, all authors agree in this, that always two or more fingers cling to the string. In this respect the figs. 5 and 6 of PLEYTE, representing the arrow-release of a Papuan from North-West New Guinea and a Motu-warrior respect., are also incorrect, besides being wrongly compared by the author to the Mediterranean release. I am convinced that none of the three positions figured by PLEYTE are used by born Papuans. PRATT [1904, 4] represents his Tugeri bowman with such a peculiar grasp of the right hand (placing also the arrow to the right of the bow), that his drawing mystifies, rather than illustrates, the real operation.

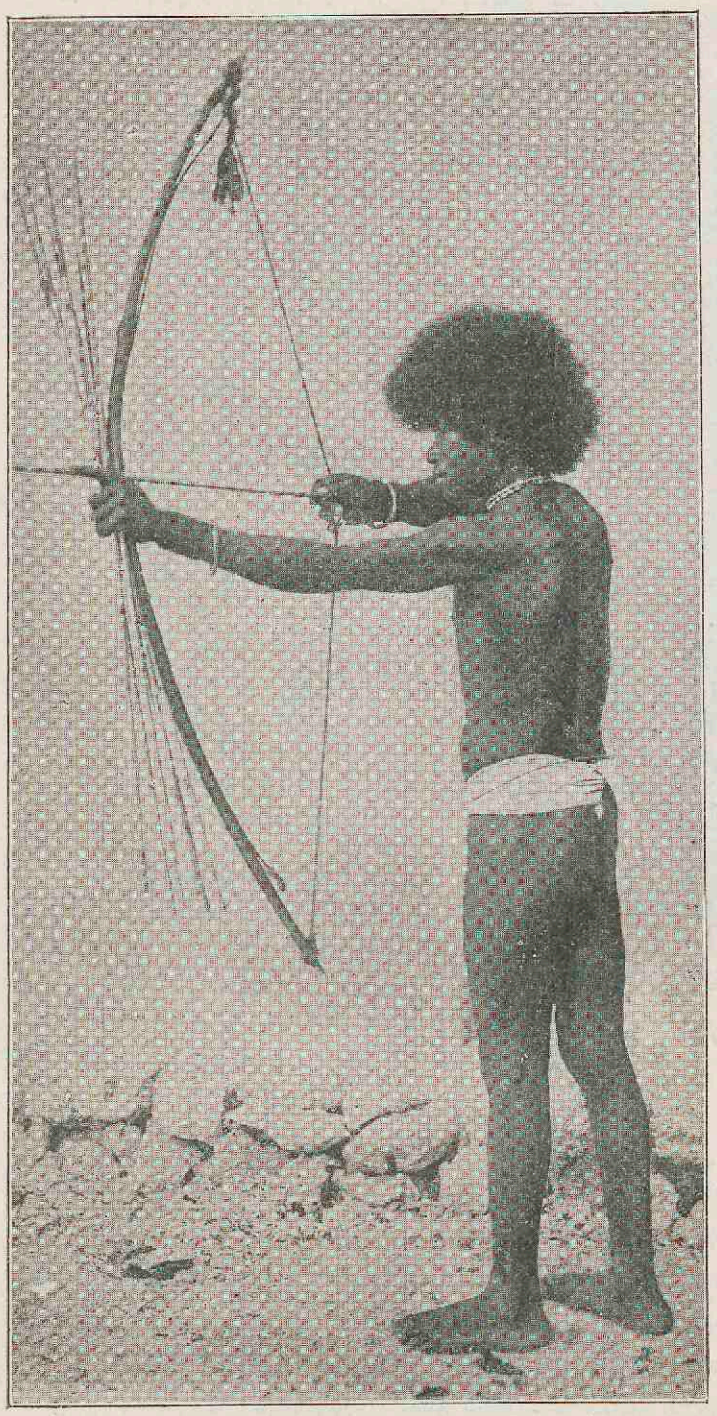


Fig. 156. Arrow-release; Doré.

The archaic release, according to my opinion, is the most effective, as four fingers act on the string. MORSE himself says: "In testing the stiffness of a bow, the string is grasped in this manner", but his opinion: "In the use of a bow of any strength, the attrition of the string on the fingers must be very severe; and only a hand as tough and as thoroughly calloused as the paw of an animal, could endure the friction of the string in such a release", does not hold good for the flat, nearly 1 c.m. broad, rattan string of Papua Tălandjang, as I found out by experience.

The position of the bowman, "ready for action", is with the arrow pointing downwards (fig. 157). Being asked to shoot without any aim, but as far as possible, the people of Tobádi assumed the position of fig. 155, also shown by SCHMELTZ [l. c.] of the Tugeri. MÜLLER [1857, 60] from the south coast, and HAGEN from the north coast, report that the bow is drawn above the head and then lowered. In the beginning the string is pulled in the direction of the right eye, which aims the arrow, the left eye, however, seldom being closed. In further drawing, the shaft-(right) hand is lowered towards the shoulder (see fig. 156), and the right eye only aims over the extreme end of the arrow head; — of course, as the

trajectory traversed by the missile is a curve, the line of aim does not lie along the axis of the arrow. With prize shooting, held at Metu Débi, the village chief of Tobádi, who is a very good shot, aiming at his leisure, gradually lowered the shaft-hand still further, till on a level with his nipples. By his training the man could evidently judge how the position of the arrow on the bow, together with the strength brought to bear on it, would carry the missile into the aim. For further particulars relating the technique of this shooting, I refer to MYLIUS [1905].



Fig. 157. Ready for action; Humboldt Bay.

The power of the shot as a rule exceeds the expectation of Europeans. PARKINSON [1900, 30] is much mistaken when he expresses the opinion that the bark girdles of Berlin Harbour district [l. c., Pl. XIX, fig. 16] protect the belly in an efficient manner and cannot be pierced by spear or arrow. ERDWEG [1902, 321], more cautious, merely states, that the penetrating power of the arrow is somewhat diminished by these girdles, and for the rest proves [l. c., 327], that an arrow passes to the breadth of several fingers through a shield. An instance is known (ANNUAL REPORT [1896—97, p. XV]) of an arrow having passed through a native house and then through the body of a man. The Tugeri are probably unsurpassed as regards the power of the shot. The people of Humboldt Bay have also a good reputation, and the shield N°. 1262 (Pl. XXVI, fig. 2) of the collection, has on the edge a broken arrow head, piercing a layer of wood, 5 c.m. thick. The weight of the arrows is from 19 to 140 grams.

The range of the Tugeri arrows is given by PRATT [1906, 46] as at least 300 yards, MACGREGOR [1897, 60] states in general 150—250 yards, which is also the range on the north coast.

The initial velocity may be judged by the indication of SELIGMANN [1906, 228], that the first 40 yards are traversed in 1 or $1^1/_5$ seconds.

The "probability of hitting" with the people of Tobádi, at a range of 40 yards, is less than with rifle shooting, but as good as with revolver shooting by an average shot. To have a proof of their practice, a target of 2 feet square was suspended at a distance of $\pm$ 40 yards; the people, however, did not like to shoot one after the other, but, standing in a semi-circle before the target, at a given sign they fired altogether, this method corresponding more with the nature of their sport. The first time, of $\pm$ 20 bowyers none hit the target, but after that generally one hit was scored. I think this result is a trifle better than that of SELIGMANN with the Toro.

With human beings the belly is aimed at; thus was the information HADDON [1894, 48] collected in South N. G. In H. B. also, in reply to the inquiry after this matter, the belly was repeatedly indicated, and it was further elucidated by gestures, how a person, so wounded,

sinks to the ground, Evidently the vulnerability of the organs of the belly to such a weapon is well known to all. Meanwhile MOSELY [1879, 441] relates also of H. B., that a similar imitation of being dangerously wounded, was given by a man who placed the head of the arrow on his throat. I never heard on the north coast that arrow heads are split before the fight, in order to leave splinters in the wound (HADDON [1894, 47]).

For the fight at a distance Netherlands New Guinea possesses no slings.

Javelins of palm wood, which from 6—8 feet (HAGEN [1899, 173]), or 7—10 feet (FINSCH [1888, 77]), in length, form the principal weapon for a great part of K. W. Land, become scarcer in this territory the more one proceeds to the west. Of the Berlin Harbour district PARKINSON [1900, 29] describes a heavy weapon 2.5—3 m. in length, taken by himself at first for a lance, of which the length in more eastern territory also amounts to the same, viz. 8—12 feet (HAGEN [l. c.]). ERDWEG [1902] is absolutely silent with regard to Tumleo and it is therefore not surprising that the javelin is entirely unknown in the adjacent Netherl. territory and even in the whole of Netherl. N. G. The long spears, which FINSCH [1888, 354] saw inside the temple of H. B., were probably only fish or turtle harpoons or staves with cassowary feathers, which are used for religious purposes (see Chapter XII).

The collection contains some short fishing spears (see also Chapter IV, p. 165), intended (KRAUSE [1904, 184]) to be thrown from a boat, or staging, at fishes swimming near the surface of the water. The weapons with the prey are afterwards fetched with the boat or by swimming. They have a length of 1.90—2.25 m. with cane shaft, of which the sharp-edged nodes have been somewhat smoothed; the foremost node, which comes but seldom into contact with the hand, is generally left untouched, and the colouring in black of the nodes occurs as seldom as with the fishing arrows. A single spear of Tobádi (N°. 1245) has only one prong, a smooth one, the others have from 3—6 prongs, kept together by plaited bands. This bundle is jammed into the shaft which is split open, and bound with rattan or other material. Prongs placed in a circle, are not only, as with the arrows, diverging, but also curved outwards. The prongs are three-sided; the sharp edge which is turned towards the common centre, is provided with barbs (N°. 1247) only in exceptional cases, whilst both the other sharp edges are provided with barbs in pairs or alternatively; sometimes however, for what reason I do not know, one of the prongs is left quite smooth (N°s. 1249—1250). I lay stress on the fact, that three-sided prongs of a bundle all have a flat plane turned towards the circumference, and that the comparatively small barbs are applied to the side-edges of this circumferential plane, therefore not pointing radially outwards, still less inwards. KRAUSE [1904, Pl. 9], who illustrates exclusively fishing spears with barbs or the inner edge of the prongs, has apparently overlooked the N. G. kind. N°. 1258 (Pl. XXVII, fig. 41) of the collection has its (blunt) barbs turned outwards; this object, however, with its wooden shaft and feathers glued on, is not intended for practical use, but for festivities, and reminds me of the glued fishing spears, which PARKINSON [1896, 198] mentions of the Matty and Durour Islands, and which fell to pieces with the rain. In the west the old muzzle-loaders, which were imported for shooting the bird of paradise, are also used as a weapon of attack and defence, and I thus saw at Horna (fig. 42) a young man, who accompanied the women to the gardens, armed with such a gun, which, it was said, represented half the prize of a woman.

Rattan armours for protection in war have, until now, only been met with on the

north coast by FINSCH in Attack Harbour [1888—93, 216, Pl. 16, fig. 7], and in British N. G. by D' ALBERTIS [1880, II, 125, 126].

Shields, apart from the ornamental breast shields (N^os. 388—391), have never been reported of Papua Tălandjang, and it is only by accident that some were met with in the village of Thaë, in the district of Sĕkå. This village had, about 1890, to endure an attack by people of the Arso tribe, who inhabit a more easterly district on German territory, and who succeeded in setting the temple on fire, but with the further attack on the village suffered the loss of some men and left here some shields, which I still found in 1903 preserved in the community house. As appears from Pl. XXVI, figs. 2 and 11—14, they exactly correspond, as to shape and size, to the shields mentioned by PARKINSON [1900, 29, Pl. XIX, figs. 17—19] of the adjoining Berlin Harbour district, also by ERDWEG [1902, 326, 327, fig. 226 *a—d*] of Tumleo, and by FINSCH [1888—93, 216, Pl. 17, fig. 1] and PREUSS [1899, 175, fig. 4] of Attack Harbour. According to FINSCH they are made out of the wall-like roots of large trees. The bulging out of the carved front surface, which PARKINSON mentions, would then be accidental, possibly caused by subsequent shrinking and, as a fact, with N°. 1265 of the collection (Pl. XXVI, fig. 11), the carved surface is strongly concave.

The shield is carried on a loop of bark, up to ± 30 c.m. in length, for which purpose, a little above the middle (in order to prevent its falling forward), two small, square holes have been made, far enough away from each other, to prevent the leaning over either to the left or to the right. When the left arm is passed through the loop and this is slipped over the left shoulder, the feet are left exposed, as with shields of British N. G. (ANNUAL REPORT [1896—97, 37]). The projection on the top still offers some shelter for the head, just the reverse as with the big shield illustrated by MACGREGOR [1897, 83]. Left to itself, the shield would now hang down along the left side of the body, if it were not for the right hole (supposing the shield being in use), which is usually placed a little higher, the right part thus being turned more against, and the shield therefore more in front of, the body. To make the handling of the shields more clear, I should mention the small, ridge-like projection, to be found on the back of the right hand upper corner. The above named ethnographers do not mention this projection, and yet it is an indispensable part of the shield. It is perforated, and through its opening a loop, made of a strip of bark, is fastened, that must be grasped by the left hand, which now governs the position of the shield. In fig. 2 of Pl. XXVI this bark loop is partly visible. When using bow and arrow, the lower arm is simply put through this loop, allowing the left hand to hold the bow. It goes without saying, that shields with the bark loop at the right hand upper corner, are only fit for people who use the left hand as bow-hand. Shield N°. 1264, however, has a perforated projection both at the right and at the left hand upper corner, a clear proof that this shield was to be used also by people who were left-handed. In this connection I quote ERDWEG [1902, 327], who mentions that some Tumleo people shoot with the right, others with the left hand; I myself never noticed the shooting with the right hand used as bow-hand. That the shields should not be carried flat against the body, as a powerful arrow sometimes passes two fingerbreadths through the plank (ERDWEG [l. c.]), even if it is from $1^1/_2$ to 3 c.m. thick, like the shields of the collection, is practically illustrated by the broken-off arrow head, in the front edge of shield N°. 1262.

The opinion of Finsch that such big shields, on account of their weight, (he found some weighing 10 K.G.; the shields of the collection are from 6—8 K.G.), are not intended to be carried in actual war, but only to serve in defending the village, as is also supposed (NACHRICHTEN [1889, 46]) of heavy, wooden shields of the size of a man, found in the village of Tamberro, has proved to be incorrect by the find in Thaë. It appears, that this form of shield occurs in K. W. Land especially in those parts, where bow and arrow form the principal weapons, whilst more to the east, where the javelin becomes more predominant, round shields (FINSCH [1888—93, Pl. 16], HAGEN [1899, 179], KRIEGER [1899, 464, 465], BIRO [1901, Pl. XV, XVI]) are used.

It appears incomprehensible that the use of shields suddenly ceases near the Netherl.-German boundary. It must, however, be admitted, that in villages, which are built in the water, shields are less necessary.

Of Western New Guinea high, narrow shields are known (DE CLERCQ and SCHMELTZ [1893, 146, Pl. XXVIII and XXIX]), shaped like those which occur on Halmahera, but there are also others, collected by DE CLERCQ [l. c., Pl. XXX, figs. 13 and 13*a*]) of Nambèr (Numfōr). Their model is indeed indigenous, as it is met with on Wári (see fig. 169) in exactly the same shape, and mounted in the same manner with rattan plaited work (N^os^. 1266 and 1267). They are of such a height, that a man standing entirely disappears behind them. There is no arrangement for suspending them on the body. A hollow is made in the back, corresponding to a thickening on the front, which leaves a small, lengthwise bar to carry the shield with the left hand; the warrior then has his right hand at his disposal, to use the here more common lance (N^os^. 740—743).

It can be stated of the manner of warfare, that sometimes the men of one village proceed in a body towards the hostile village, as illustrated by the story of the attack on the village of Thaë. The people of Jonsu, at the time of the visit of the expedition on the 10th of July 1903, were also expecting an attack on their village, and were here prepared to receive the enemy. Whether this had been preceded by a notice, as usual in Geelvink Bay (see also HADDON [1890, 433]), could not be ascertained. In Asé I collected N°. 1268 (Pl. XXVI, fig. 1), a split bamboo with a cocoa-nut inside, and mounted with strips of fibre, which, when attacking the enemy, was to be carried in front as a banner, or to intimidate the foe. It was said that the enemy would then run away, as the cocoa-nut indicates that one is determined to conquer at all hazards, in order afterwards to hold a banquet with plenty of these fruits. Slain enemies are not beheaded in Papua Tālandjang, and prisoners are not turned into slaves, but, as it appears, released against a heavy indemnity. The people of Angádi, a regular nest of robbers, had been out shortly before, as was formerly very common in Geelvink Bay, on a murder and pillage raid, and had captured, as a living booty, a little girl of about 9 years, who was being well treated, but was sent back to her parents, by the Governement Official accompanying us.

All sorts of events can be the cause of a formal war. Besides, for more or less important reasons jealousy or hostility exists between many villages. For such reasons arms are always carried when going outside the village, and even, as stated above, the women working in the gardens are accompanied by armed men. The entrances are by no means guarded in all the villages (see p. 142), still one seldom approaches unnoticed. It is, however, best to



Fig. 158. Pyramid-shaped watch-house; Asé.

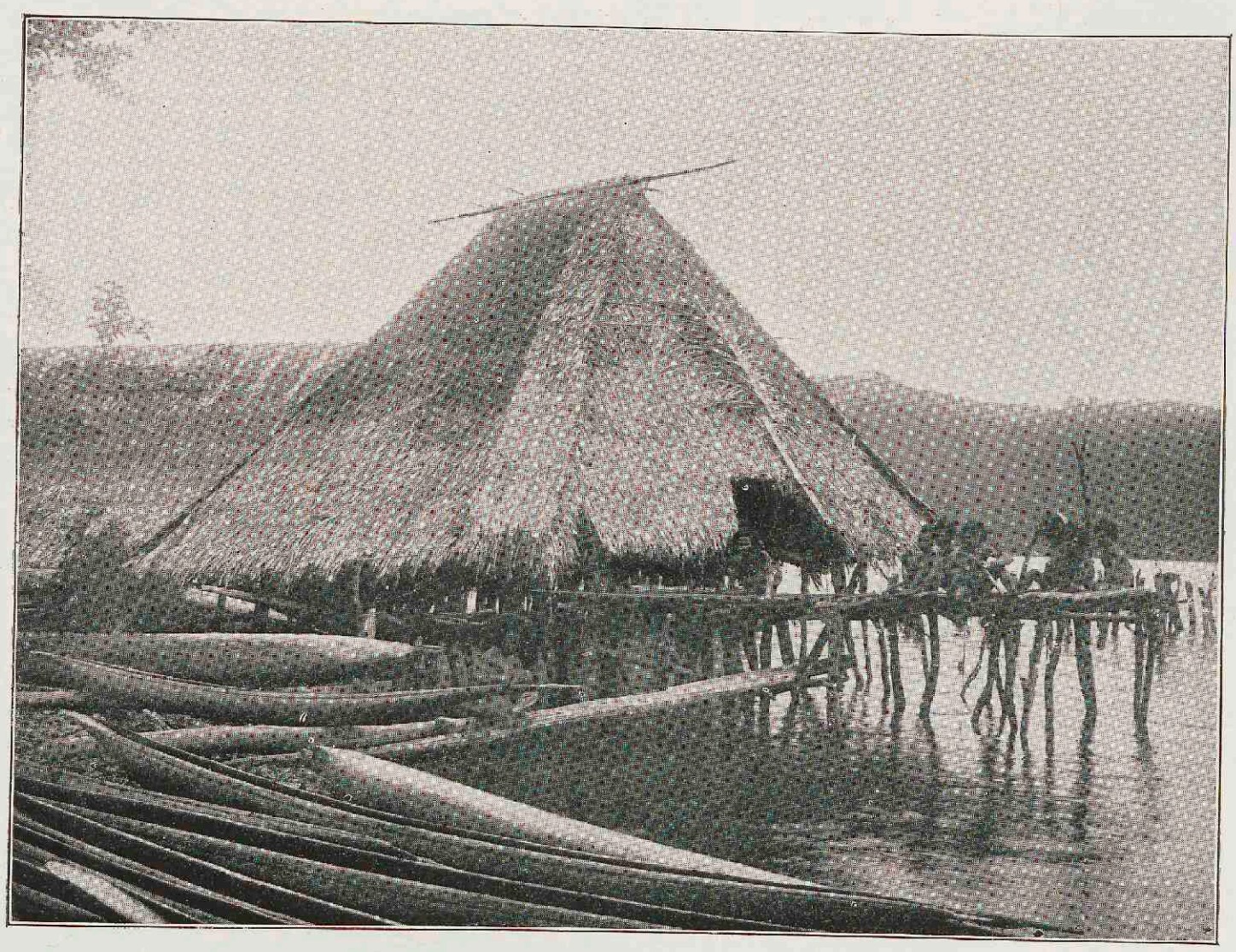


Fig. 159. Watch-house; Asé.

announce one's arrival by calling, to prevent sudden fright giving rise to active defence. In the temples and young men's houses, afterwards to be considered, watch is kept, and the sleeping together of many men in these houses, as well as the meeting of men in the community houses, is useful in the case of sudden attacks. — When the houses of the expedition, guarded by a single constable during the absence of the members, were endangered by the people of Waba, the village of Tobádi offered quite spontaneously a strong guard, which was, however, not accepted.



Fig. 160. Island with watch-house near Asé.

On Lake Sentáni watch-houses, *ŏbè*, are found, where boys and men do not only meet and sleep, but where also a regular watch is kept. In the village of Asé there are about five of these buildings, one octagonal, of a purely pyramid form (fig. 158), the others more four-sided, with a shorter or longer horizontal ridge pole (fig. 159). They are standing, like the other houses, more or less regularly distributed between these, in the shallow water round the island, but in such a way that the house of the village chief is flanked on both the sides by a watch-house. One of these is that of fig. 158, and appeared to be the principal one, and on the other side of it the house of the son of the village chief was in course of construction (see the poles to the right, and fig. 91, p. 139). Here also the large boar lances (see p. 155) are kept. The human image, *sŏsŏ*, on the top, was first said to be a male and afterwards a female. All these watch-houses have a more or less roomy platform, larger than possessed by any private house, and here one or more men are always found, employing their time in manufacturing armlets, lime gourds,

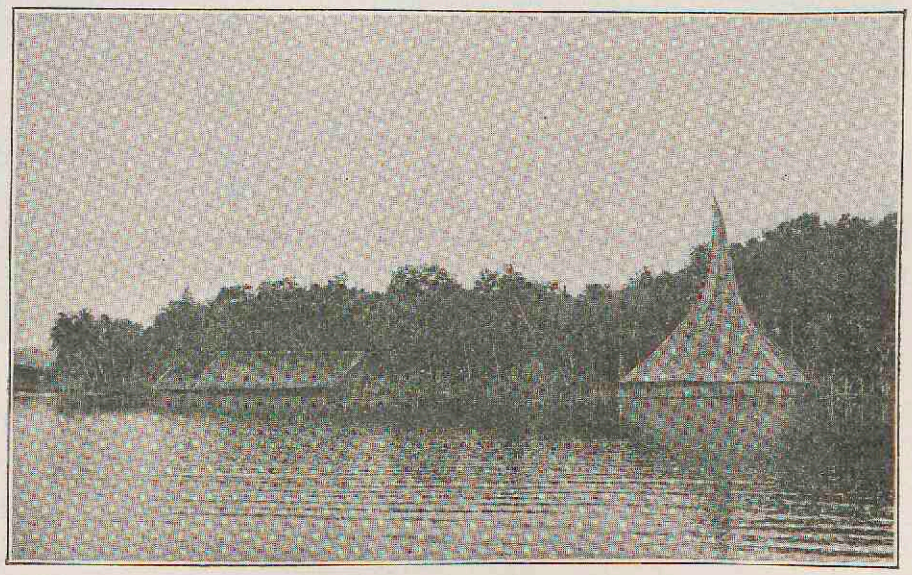


Fig. 161. Pyramid-shaped watch-house; Ifā r.

shell rings, etc.; here also the joint meals are taken. Inside are fireplaces, above which hang baskets with all sorts of things preserved in the smoke, also head supports, lances, arrows, bows and daggers. This pyramid-shaped house has no centre pole, and I have never seen there any drums or bamboo flutes, characteristic of the temples on the coast, nor did I ever notice any religious proceedings going on. A pig, shot during the hunt, was however brought to this watch-house with singing, and afterwards cut up inside. Quite close to Asé a small, rocky island is situated, near which, to the side of Asé, a pyramid-shaped watch-house (fig. 160) has also been placed, no doubt to prevent an enemy hiding there. On the ridge of the island is a path, and from there an unlimited view can be obtained towards the side of the hostile Ifār. Ajápo has also a few of such pyramid-shaped watch-houses, and Ifār possesses two octagonal ones. The one (fig. 161), built in the water, on the deserted eastern side of the island, was finished in April 1903, the top exceedingly pointed and somewhat oblique; it offers a good out-look in the direction of Asé. The other (fig. 162), provided on the outside with animal figures, is placed on the top of the island and is on fig. 161, to the left, just visible above the trees. In 1901 the officers of H. M. gunboat Ceram heard nightly, festive noises inside, and it is, therefore, not improbable, that the destination of this house corresponds partly to that of the temples along the coast, with which it has so much resemblance in shape and ornament. I have no personal experience in this matter, as my hasty visit to Ifār did not extend any further than the community house, visible in the foreground, where the village chief was joined by a large quantity of men and where almost the entire population of the village had gathered. It is, therefore, all the more remarkable that, during that visit, still a number of men, also to be distinguished in the illustration, remained in the immediate vicinity of the watch-house.

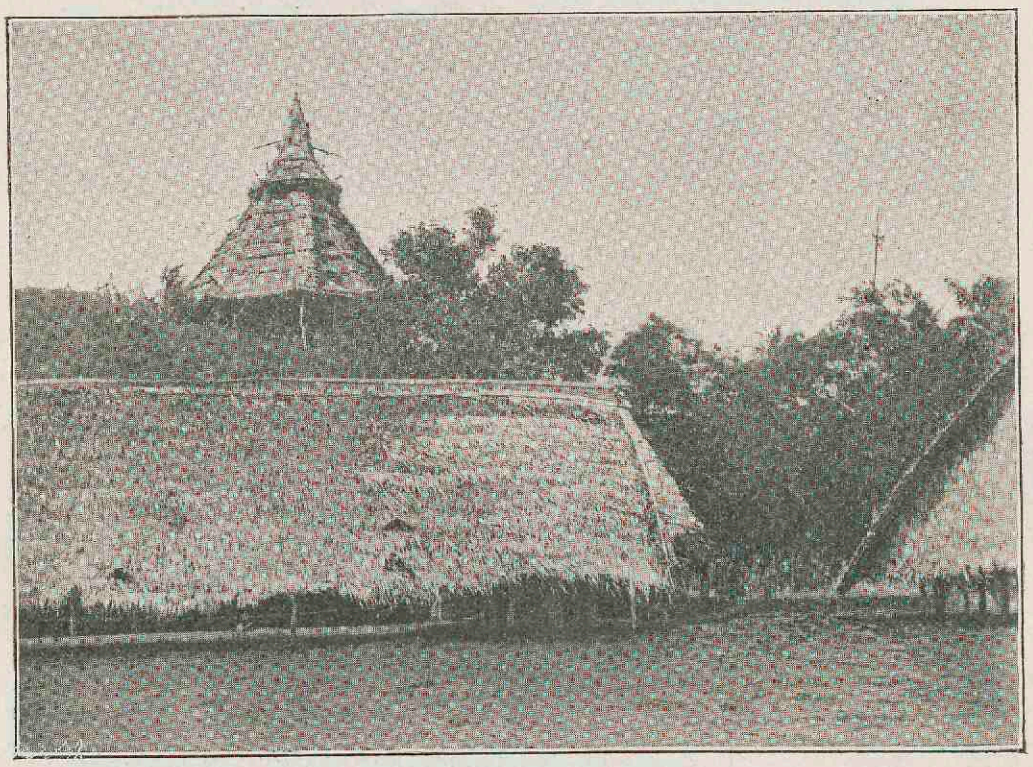


Fig. 162. Pyramid-shaped watch-house; Ifār.

There is a form of making peace by breaking the weapons (ANNUAL REPORT [1894—95, 43]), also by shooting arrows into the air (MACGREGOR [1897, 66]), or towards a person, before his feet (see also p. 276).

DAGGERS.

N°. 717. *Hälö.* Sčkâ; distal part of tarsometatarsus of cassowary, *tärö*; only prong for 3rd toe retained, blade and point formed by lateral lamella of shaft; length 27 c.m.

N°. 718. Kajó Entsáu; distal part of right tibia of cassowary, condyles ground down, lateral and medial; at a height of 7 c.m. the shaft obliquely cut away, blade and point formed by posterior lamella; carved with crocodile figure, head towards handle; length 32 c.m.

N°s. 719—721. Pl. XXVI, fig. 5. 2/9. *Chämau.* Tobádi; like N°. 718, N°. 721 only ornamented; N°. 720 in a scabbard, 4 c.m. long, made of cord, with stitch of fig. 117 and "taking-ins" (fig. 117 *b*); border and carrying sling, 75 c.m. in length, as per fig. 43. Carried over left shoulder or round neck.

N°s. 722—723. *Chämau.* Ingrâs; like N°. 718, of left tibia; N°. 722 carved and intaglio parts whitened with lime; length 32—36 c.m.

N°. 724. Waba; of lateral condyle and lamella of lower part of right tibia; spiral carvings; length 29 c.m.

N°s. 725—726. Pl. XXVI, figs. 3 and 4. 2/9. *Chämau.* Asé; like N°. 718, of right and left tibia resp. of cassowary, *abwache*; carved ornament, *sëmâ*, also between head of joint, *ju*, and opening, *puru*; towards the point, *jömö*, in fish tail shape.

N°. 727. Pl. XXVI, fig. 7. 2/9. *Soi soi.* Asé; scabbard as in N°. 720; carrying sling, *ëbúi*, originally 92 c.m. long, shortened by a knot to 48 c.m.; vertical rows of Coix, *kèmbëri*, and cord fringe, *putai*, depending strings, tail feathers of *Goura Beccarii* Salv. and black and brown striped feathers, *ibi*.

N°s. 728—729. Pl. XXVI, figs. 8 and 6. 2/9. *Kämau.* Ajápo; like N°. 726; N°. 728 with scabbard as above.

N°. 730. *Kämau.* Ajápo; like N°. 717, some chevron carvings.

N°. 731. Pujo; of right tibia, carved like N°. 726; edges of condyles jagged.

N°. 732. *Simära.* Sägeisârâ; like N°. 731, carvings whitened; in scabbard (5 c.m. long), *simära cha*, with Coix, *kankámè*, like N°. 727, no feathers; carrying sling, *simära watmöja*, 46 c.m. long.

N°s. 733—735. *Mämdân.* Nimbúran; anterior part of distal articular surface and adjoining lamella of cassowary tibia, pointed towards top; length 28—34 c.m.

N°. 736. *A° dim.* Kaptiau; proximal part of tarsometatarsus of cassowary; of articular surface only one concavity retained; length 22 c.m.

N°. 737. Sáwé; like N°. 735, alongside condyles pieces of blue glass beads glued in.

CLUBS.

N°. 738. Pl. XXVI, fig. 9. 1/7. *Ománi.* Angádi; disk-shaped, centrally pierced piece of sand-stone, along circumference with 2 rows, each with 16 spikes, slipped on to wooden stick, up to thickened end.

N°. 739. Pl. XXVI, fig. 10. 1/7. *Ománi.* Angádi; as above, without handle; with only 2 opposite spikes.

LANCES (see Chapter IV, N°s. 574—576).

N°. 740. *Frei.* Wári; iron head, *böme*, stuck with socket on shaft of dark brown, heavy wood; upper part square, barbed edges, otherwise round, ribbed lengthways, except octagonal grip between foremost and middle third; below 4 turns of iron wire; length 2.50 m., thickness 2 c.m.

N°. 741. *Frei.* Wári; like N°. 740, upper part with 2 circles of 4 lengthwise, snake-like (zigzag) ornaments, below which squatting human figures; otherwise ribbed, grip smooth; length 2.40 m.

N°. 742. *Frei.* Wári; like N°. 741, no human figures; octagonal, unribbed. No iron fastening; a lengthwise crack, bound with rattan plaitings; length 2.25 m.

N°. 743. *Frei.* Wári; shaft cylindric and smooth, without ornament; length 2 m.

N°. 744. Pl. XXVII, fig. 42. 1/6. Inagói; cylindric shaft of dark brown wood, thickness 1.5 c.m., length 1.34 m., pointed top end square and along this the stem of broad, sharp, bamboo blade fastened with strips of rattan; edges of blade lengthened downwards, and decorated with strips of red and white calico; shaft near head carved with squatting human figures; weight 360 gram.

ARROWS FOR LAND GAME.

Nos. 745—746. *Nŏ.* Tobádi; for small game: *Phalanger*, *ème*, *pónte* (?), *sĕmoi* (?) and mice; of pointed mid rib of sago leaf, 58 c.m. long, somewhat three-sided, broadest (± 7 m.m.) before the middle. Used with a small bow (N°. 1245) by youngsters in the temple.

Nos. 747—753. Pl. XXVII, fig. 1. 1/6. *Ubrè*, *ubrèrè*, *brèrè*. Tobádi and Ingrâs; for pigs; flat, bamboo head, no barbs or along one edge only, and carved on inside; with N°. 748 (fig. 1) of Ingrâs, connected by foreshaft of heavy, dark wood (carved like Nos. 580—582), with the 1.40 m. long shaft; ringed nodes, internodes with carved spirals, weight 140 gr. Nos. 749—753 are children's toys, heads 9—23 c.m. long, either barbed or not, shaft 80—86 c.m.; N°. 753 with 14 c.m. long foreshaft.

N°. 754. Pl. XXVII, fig. 2. 1/6 and N°. 755. *Mankaini.* Tobádi; for pigs, bamboo head, no barbs, painted red inside or carved; shaft 1.30 m., upper node unringed, the others either ringed or not, some internodes carved; N°. 755 with bunches of yellow feathers, *jabe*. Used in dancing.

N°. 756—765. Pl. XXVII, figs. 3 and 4. 1/6. *Jèdri.* Tobádi; for pigs, N°. 756—759 (De Clercq and Schmeltz [1893, Pl. XXXI, fig. 12]) head, *jèdri*, of bamboo, *fonze*, one or both edges with barbs, *ŏ jèdri*, lashed with concavity against barbed foreshaft, sometimes (Nos. 758—759)carved and painted. With N°. 759 (fig 3), carved on inside, both sides painted red, black and white; 2 bunches of bird of paradise feathers, *tiare*, or of cord fringe, suspended by a cord plaiting with Nassa and coronet of yellow feathers, *jabe*, at top of 1.15 m. long shaft; this unringed, internodes with scratched-in chevrons. Nos. 760—763 (fig. 4) and 764, *rugwè*, with wooden head, 50 c.m. long; N°. 760 (see De Clercq and Schmeltz [l. c., fig. 6]), with 4 barbed edges, the barbs of 2 opposite edges at equal heights and alternating with those of the other 2, shaft 1 m.; or round head (Nos. 761—764), up to a length of 62 c.m., with row of small barbs and lower down carved with painted spiral or jagged ornaments; on lashing of shaft a coronet of *tiare*. Used in dancing. N°. 765 with wooden, 30 c.m. long, painted head, section rhombic, one sharp edge with row of large hooks, opposite edge with groups of notches; shaft 1.30 c.m., ringed; with the others unringed, internodes with crossing or waving carved lines.

FISHING ARROWS.

Nos. 766—767. Pl. XXVII, fig. 5. 1/6. *Suse.* Tobádi; head triangular (N°. 766) or round, one row of grouped barbs; shaft 1.25 m., unornamented (N°. 766), or all internodes with chevrons and waving lines.

N°. 768. Pl. XXVII, fig. 6. 1/6. *Suse chărĭm.* Tobádi; head round, 2 rows of alternating barbs; shaft 1.25 m., carelessly ringed (white), all internodes with lengthwise and zigzag scratches (white).

Nos. 769—771. *Sĕndom.* Tobádi; head consisting of 5 smooth, round prongs, 13—16 c.m. long, in a circle round a sixth, ± 2 c.m. shorter, kept together by 3 bands, plaited of rattan; shaft 1.13—1.30 m. white ringed, first 2 or more internodes carved.

Nos. 772—773. Pl. XXVII, fig. 7. 1/6. *Sĕndom mŏnīt.* Tobádi; as before, prongs equally long, or central one 3 c.m. shorter; 4 plaited bands; shaft ± 1.50 m., white ringed, internodes none, or all, with carved chevrons. Said also to be thrown.

N°. 774. Pl. XXVII, fig. 8. 1/6. *Sĕndom chărĭm.* Tobádi; as before, central prong 1.5 c.m. shorter, 4 of the others with 2 rows of alternating barbs; 2 plaited bands; shaft 1.40 m., white ringed.

WAR ARROWS.

Nos. 775—779. Pl. XXVII, fig. 9. 1/6. *Pīsjère.* Tobádi; wooden head, white, cylindrical; shaft 1.10 m., 1st node white ringed, 1st internode with carved chevron, inside which zigzag line.

Nos. 780—781. Pl. XXVII, fig. 10. 1/6. *Brasrè*, *brăsĕrè.* Tobádi; head oval in section, with square top; unbarbed or with one row of blunt barbs, below which encircling carving; shaft 1.33 m., ringed, 1st internode with rings or spirals, the others either with or without lengthwise lines.

N°. 782. Pl. XXVII, fig. 11. 1/6. *Suám brarí.* Tobádi; head round (shape A of SERRURIER [1888, 3]), shaft 1.35 m. with waving lines on all internodes except the first.

Nos. 783—784. Pl. XXVII, fig. 12. 1/6. *Suám rarike.* Tobádi; head round, with 2 diametrical rows of partly alternating barbs; nodes ringed, 1st internode only ornamented, or (N°. 784) 1st internode only unornamented.

Nos. 785—795. Pl. XXVII, figs. 13—15. 1/6. *Pabu.* Ingrâs; head, 60 c.m., round (Nos. 785 and 786), smooth or 2 pairs of barbs near top, shaft 1 m., unornamented; or head, 50 c.m., oval (N°. 787), with 2 rows of alternating barbs on the sharp curves; — or (N°. 788, fig. 13) square, with 4 rows of barbs; also with 2 or 3 rows of barbs, with encircling carving below (N°. 791, fig. 14); — or rhombic (N°. 794, fig. 15, and N°. 795), sharp edges barbed, broadening lower down with jagged sides; shaft 1.30 m., all nodes, or the 1st only, black; internodes all, or none, carved.

Nos. 796—807. Pl. XXVII, fig. 16. 1/6. *Pabu.* Jótĕfa Bay; head elliptical in section, sharp curves barbed; lower down jagged, or (Nos. 804—807) with circular carvings; N°. 807 (fig. 16) with 2 double rows; shaft 1.20 m., all nodes black ringed, or the 1st only; all internodes, or the 1st only, carved.

Nos. 808—829. Pl. XXVII, figs. 17 and 18. 1/6. *Pabu.* Tobádi; head 35—50 c.m., flat or three-sided, 2 edges barbed, some with jagged broadening of fig. 15 and lower part bound with reeds. N°. 823 rhombic, Nos. 824—825 square in section, with 2 or 4 rows of barbs; N°. 827 (fig. 17, at *a*) with jagging, *tripĕtau*; with Nos. 826 and 828 (fig. 18) in each row one larger barb, lower down with plaitings of reed and rattan; once called *sĕmai sĕmai*; shaft 1.10—1.30 m., all, or 1st node only, black ringed; all internodes, or first 2 only, or top and bottom one, carved.

Nos. 830—852. Pl. XXVII, figs. 19 and 20. 1/6. *Watu watu; ănárchiwai(-tjĕ).* Ingrâs and Tobádi; head square, no barbs, or only one (N°. 834), or at top with 4 (barbed like N°. 760) rows (N°. 835, fig. 19 and N°. 836), lower down telescopic (fig. 28 of SERRURIER); or round, and at top with one or two sets of opposed barbs (Nos. 837—850), lower down circular carvings; or round and (Nos. 851—852) with 5 barbs; entirely black (N°. 842, fig. 20) or with some red spaces; shaft 1—1.30 m., nodes ringed, 1st internode or all ornamented.

Nos. 853—861. Pl. XXVII, fig. 21. 1/6. *Watĕrori, ănárchiwai.* Tobádi; head three-sided, Nos. 853 (fig. 21)—859 with 2 edges barbed with 4 or (Nos. 860—861) more alternating barbs, lower down flat and broadened, the edges jagged, below this wound round with reeds; shaft 1.30 m., nodes ringed, except 1st, all internodes unornamented. Covered with layer of soot.

N°. 862. Pl. XXVII, fig. 22. 1/6. *Mĕrŏrike.* Jótĕfa Bay; head elliptical in section, one row of 6 barbs; shaft 1.40 m., 1st node unringed, internodes with chevrons, inside which waving lines.

Nos. 863—866. Pl. XXVII, fig. 23. 1/6. *Sĕmai sĕmai.* Tobádi; head round and with 2 not diametrically placed rows of barbs (N°. 863) or of groups of 2 barbs (N°. 864, fig. 23); lower down sets of 2 circular carvings; some with black and red rings (Nos. 865 and 866); shaft 1.35 m., nodes either ringed or not, first internode with waving line or other carving.

Nos. 867—881. Pl. XXVII, figs. 24 and 25. 1/6. *Sicháre.* Tobádi; head rectangular in section; with Nos. 867—872 (fig. 24) upper part black, 4 barbed edges; middle part white, with red and black figures (like fig. 152 in text), N°. 881 (fig. 25, at *a*) with jagging, *pau*; shaft 1.25—1.38 m., all nodes ringed, 1st internode carved.

N°. 882. Pl. XXVII, fig. 26. 1/6. *Nuchèdĕri.* Ingrâs; head at top with 3 sets of barbs, lower down flat and broader and one row of 3 large, red hooks, opposite to groups of 4—5 small, black ones; shaft 1.10 m., all internodes with chevrons. For long distances.

Nos. 883—885. Pl. XXVII, fig. 27. 1/6. *Dugĕri liböam.* Tobádi; head planoconvex; barbs at edges, alternating at top, lower down paired; below oval broadening, inside which 2 crescent-shaped openings, separated by vertical bar; shaft 1.15 m., ringed, 1st internode with spiral carvings.

Nos. 886—891. Pl. XXVII, fig. 28. 1/6. *Atětáwi, ătauwi, chětauwi, tětauwi.* Tobádi; head square, with 4 rows of variously shaped barbs, lower down jaggings with 3, *pau*, or 4 barbs, *tripětau*, (*a*), and bulky part with jagged edges, *pau*, (*b*); below square and jagged, *chĭmērère*, (*c*), bottom with cord plaiting; shaft 1.20—1.40 m., nodes ringed; 1st internode with waving carvings, the others with chevrons. (Serrurier [1888, Pl. II, fig. 76], De Clercq and Schmeltz [1893, Pl. XXXI, fig. 9]).

Nos. 892—895. Pl. XXVII, figs. 29 and 30. 1/6. *Pŏ* or *fŏ*. Tobádi; Nos. 892 (fig. 29)—893 head square, 4 rows of barbs, in groups, below this a jagged, bulky part, *pau*; or here, on a plaiting of cord a coronet of feathers of bird of paradise, *tiare*; Nos. 894 and 895 (fig. 30) top sword-shaped with barbed edges and in the middle a furrow, *âne*, ending below in carved broadening, *pau*, (*a*); coloured black, red and white; shaft 1.25 m., 1st node unringed, internodes unornamented.

N°. 896. Pl. XXVII, fig. 31. 1/6. *Pŏhu.* Tobádi; point flat, 2 rows of barbs; lower down round, wound round with reeds; coloured red and white; shaft 1.16 m., top with coronet of feathers of bird of paradise; 1st node unringed, internodes unornamented. For festivities.

N°. 897. Pl. XXVII, fig. 32. 1/6. *Pŏru.* Tobádi; like N°. 893, 1st node unringed.

Nos. 898—899. Pl. XXVII, fig. 33. 1/6. *Chusĕru, chĕbúri.* Tobádi; head flat, edges with opposed barbs, *chĕburi*, waving middle ridge descending to a broadening; carvings white; shaft 1.30 m., nodes ringed, 1st internode with waving carvings, shaft of N°. 899 with feathers, head with Nassa; called *chi fāb.* (De Clercq and Schmeltz [1893, Pl. XXIX, fig. 10]).

Nos. 900—907. Pl. XXVII, fig. 34. 1/6. *Sĭmĕsère.* Tobádi; upper part of head, *mĕsjărĭk*, sword-shaped, one of two edges with large hooks, *sĭmĕsère chărim*, carved, painted red, black and white; below cylindrical, carved, or fastened along cylindrical foreshaft (Nos. 904—907) by cord plaiting (*b*), with Nassa, cord fringe and small, yellow feathers, *jabe*; N°. 903 (fig. 34) with one middle row of small barbs, descending towards oval broadening, *mĕsoi*, (*a*).

Nos. 908—910. Pl. XXVII, figs. 35 and 36. 1/6. *Umrŏ.* Tobádi; Nos. 908 (fig. 35) and 909 with carved, bone tip on square head, lower down round, carved squares and spirals, coloured red and white; cord plaitings with Nassa, fringe and feathers; N°. 910 (fig. 36) rectangular, 4 rows of barbs (Serrurier [1888, 9, P.]); shaft 1.10—1.25 m., nodes ringed; 1st internode either ornamented or not.

N°. 911. Pl. XXVII, fig. 37. 1/6. *Ūmrŏ charītje.* Tobádi; head flat, one edge barbed, one flat surface with middle row of barbs; other flat surface fastened with plaited rattan along the smooth side of another similar arrow head, the whole coloured; shaft 1.35 m., nodes ringed, internodes carved.

Nos. 912—914. Pl. XXVII, fig. 38. 1/6. *Chontjuwi, dăchontjuwi.* Ingrâs and Tobádi; bone tip, *chontjuwi*, either or not jagged, N°. 912 with square, telescopic head, Nos. 913 (fig. 38) and 914 with 4 rows of hooks, placed as in N°. 760; lower down a bulky part, *mĕsoi*, (*a*). Carved with spirals (for this, the arrow called *chi fāb*); N°. 914 of Tobádi also called *chĕbure*; shaft 1.35 m., all nodes ringed, 1st internode with spirals, some of the others with chevrons.

N°. 915. Pl. XXVII, fig. 39. 1/6. *Chi fāb.* Tobádi; head sword-shaped, edges with barbs in pairs, flat sides in the middle jagged and with vertical slit; below triangular, sides concave, barbed ribs, lowest part round; shaft 1.33 m., 1st node unringed, internodes unornamented.

N°. 916. *Sămĕrarĭke.* Tobádi; 15 pieces, 50—100 c.m. long, small, un-bifurcated twigs, bark rings retained at thickest (front) end, otherwise white; children's toys; one pointed in front.

Nos. 917—918. *Hautútè.* Waba; bamboo head, foreshaft carved like N°. 748 (Pl. XXVII, fig. 1). Boar arrow.

Nos. 919—933. Waba; heads like on Nos. 788, 842, 860 and 891. War arrow.

Nos. 934—938. *Nöwjä.* Asé; bamboo head, *inè*, carved inside or outside; its stem, *ötö*, *kobă*, fastened by rattan plaited work, *soitjoi*, or cord lashing to foreshaft, *soām*, and this with other lashing, *koisja*, *ukoi*, to the shaft; foreshaft carved with spirals or with ornament of N°. 748, *ötömari*. Boar arrow.

N°. 939. *Abwăche.* Asé; head, shaped like cassowary claw; 2nd internode carved (fig. 149 in text).

Nos. 940—942. *Söchă, söchai.* Asé; 3—4 prongs, *söchai ötö*, smooth or barbed, bound or fastened with plaited, *sari*, lashings into shaft; nodes, *painkă ji*, ringed, uncoloured. To shoot fish, *kate.*

Nos. 943—957. *Fabu.* Asé; like *pabu* of Tobádi, head flat, 2 rows of barbs, *kara*, either or not with lineal, *fĕroi*, or circular carvings, *föri*; lashing, *koisjă, ukoisjă*, at shaft, *painkă.* War arrow.

N°. 958. *Fĕră.* Asé; head flat, one edge sharp, one barbed.

N°. 959. *Fĕră hĕra.* Asé; head rhombic in section, smooth. Fishing arrow.

Nos. 960— 961. *Fĕră jöchu.* Asé; head square, notched, the tip a jagged bone of dog, *jöchu.*

Nos. 962—967. *Fĕră nĕgö.* Asé; head square, barbed like N°. 760; few with plaited cordage, *chanke.*

Nos. 968—970. *Fĕre chanki, fĕrankim, farangè.* Asé; flat, broad head, carved ornament, *sĕmă*, sometimes open-worked, *ĕbā puru*, edges, sometimes also flat sides, barbed.

Nos. 971—972. *Fĕgĕre, fĕgrĕsi.* Asé; head broad, edges barbed; with or without lengthwise slit, *nö*; N°. 972 with foreshaft.

N°. 973. *Kombèw.* Asé; head flat, carved, one edge barbed, fastened with plaited, rattan band, *sari*, on carved foreshaft, *soām.*

N°. 974. *Pikö.* Asé; thin, 4-sided head, 4 rows of small barbs; fastened with liana, *ökoisja*, on shaft.

N°. 975. *Pöru, öjă pöru.* Asé; head square, 4 rows of barbs, below forming a flat, vertical oval, *fötö*, and under 90° to this, 2 vertical semi-circles, *ïnè*, coloured red and black, *èbè*; plaited cordage, *chanke*, and yellow feathers of bird of paradise, *siäre.*

Nos. 976—978. *Pötum, fötum.* Asé; head flat, below with carved, oval broadening, above with lengthwise, red coloured furrows, *fĕrö*, and 2 rows of barbs.

Nos. 979—980. *Putu(m).* Asé; as before, less broad.

Nos. 981—982. *Sabĕroi.* Asé; head square; parts fitted telescopically to each other.

Nos. 983—986. *Sĕtume, sutume.* Asé; head, *nö*, two- or three-sided, but only two rows of barbs.

N°. 987. *Tum.* Asé; head gutter-shaped with 2 rows of barbs; tied along shaft, lashing smeared with dark red, sticky substance.

N°. 988. *Uburi.* Asé; head square, edges, with groups of variously shaped barbs, below, under 2 circular ridges, a plaited cordage.

Nos. 989—991. *Warimanda.* Asé; head triangular with 3, or round with 4 rows of barbs; sometimes coloured red and black; cord lashing with Coix.

Nos. 992—994. *Wèndum.* Asé; head flat, edges barbed, lower part oval, sometimes open-worked, *kĕmä*, from where issuing a middle slit; first internode carved as per fig. 150 in text.

N°. 995. Dójo; bamboo head, gutter-shaped, inside carved; tied along shaft. Boar arrow.

Nos. 996—999. Gègi, western part of Lake Sentáni; with 2 or 4 smooth prongs; or with 3, each with two rows of barbs; or with 4, each with one row of barbs. Fishing arrow.

N°. 1000. Gègi; head triangular, with bone tip.

N°. 1001. Ajápo; head square, edges barbed.

Nos. 1002—12. Seisără; ornamental cord plaiting and Nassa, 1st internode often carved with spirals.

Nos. 1013—25. Dójo; heads round, three- or four-sided, bone tips; ornamental cord plaiting and small, rattan bands; 1st internode of N°. 1022 carved as per fig. 151 in text.

Nos. 1026—42. Kaiwăre; heads as before, some with cassowary claw; bamboo heads, foreshaft, Nassa and cassowary feathers. Ornamental arrows.

Nos. 1043—54. *Pli.* Thaë; heads like N°. 872, flat sides painted as per fig. 152 in text; shaft called *mö.*

Nos. 1055—66. *Năkai.* Thaë; as before, but bone tips, and painted ornaments as per fig. 153 in text.

N°. 1067. *Finjè tugè.* Kajó Entsáu; head with 4 rows of barbs, placed on the same height, coloured red and black; 1st internode ornamented as per fig. 151 in text.

Nos. 1068—69. *Undong.* Tanah Merah; bamboo head, fastened directly along shaft. Boar arrows.

Nos. 1070—72. *Suru.* Tanah Merah; as before, but with a foreshaft, pointed at the top.

N°. 1073. Pl. XXVII, fig. 40. 1/6. *Bongata.* Tanah Merah; 3 prongs, each with one row of long barbs along one edge of circumferential plane; nodes ringed and coloured. Used in dancing.

Nos. 1074—85. *Sagwéti.* Tanah Merah; heads round or three-sided, mostly with 2 rows of barbs (N°. 1085 like *pli* of Thaë); 2nd internode mostly ornamented.

Nos. 1086—89. *Măkandáni.* Tanah Merah; heads square, 4 interrupted rows of barbs; coloured with reddish brown, shining material.

Nos. 1090—91. *Dungata.* Tanah Merah; carved bamboo heads with 2 rows of barbs; uncarved foreshaft.

Nos. 1092—93. *Arĕbusu.* Tanah Merah; heads with carved bone tips.

Nos. 1094—95. *Suru.* Jakari; like Nos. 1070—72; one carved outside and blackened.

N°. 1096. *Sâwâ.* Jakari; circle of 6 prongs round a central one, all smooth. Fishing arrow.

Nos. 1097—98. *Săgĕweiti.* Jakari; heads square, with opposed groups of barbs.

N°. 1099. *Mangĕtaine.* Jakari; like Nos. 1086—89.

N°. 1100. *Arĕbusu.* Jakari; like Nos. 1092—93.

Nos. 1101—05. *Sinĕkŏ.* Jakari; head three-sided, with 2 rows of barbs; short and light (46 gr.).

Nos. 1106—07. Tarfia; head round, with 2 rows of barbs, 1st node broadly ringed.

N°. 1108. Nimbúran; head round, carved like fig. 3 of De Clercq and Schmeltz [1893, Pl. XXXI] of Wandisiau.

N°. 1109. *Gadu, geidu.* Nimbúran; head round with 2 diametrically placed, interrupted rows of barbs.

Nos. 1110—11. *Hĕrudi.* Nimbúran; head round, with nicely carved bone tips.

N°. 1112. *Tarfiāp.* Nimbúran; bamboo head, carved on outside, 2 rows of barbs, a foreshaft with feathers of bird of paradise.

Nos. 1113—18. *Nĕkutim, nukutra.* Kaptiau; bamboo head, of one or two internodes; outside carved, fastened along foreshaft. Boar arrows.

N°. 1119. *Pádĕmŏ.* Kaptiau; 4 prongs, each with 2 rows of barbs; held together by small, rattan bands. Fishing arrow.

N°. 1120. *Bof.* Kaptiau; barbed bamboo head, carved on outside; foreshaft with cassowary feathers.

Nos. 1121—31. *Kanté;* Kaptiau; head square, 4 rows of barbs in opposite groups; partly coloured.

Nos. 1132—34. *Maigionga.* Kaptiau; head round with 4 interrupted rows of barbs; N°. 1134 as with De Clercq and Schmeltz [1893, Pl. XXXI, fig. 18] of Jamna.

N°. 1135. *Jari.* Kaptiau; a row of large hooks, opposite to 2 rows of small barbs.

Nos. 1136—41. *Munsĕfār.* Kaptiau; head with bone tips; either jagged or not; one specimen with beads, Nassa and cuscus skin ornament is called *nĕbusaima.*

Nos. 1142—53. *Tarsĕwèr.* Kaptiau; head round or three-sided; 2 interrupted rows of barbs.

Nos. 1154—56. *Nukwâ* and *Kwâtĕran.* Sáwé; bamboo head, fastened on foreshaft; *kwâtĕran* ornamented on convex side.

Nos. 1157—58. *Kwârīk.* Sáwé; head with bone tip. War arrows.

Nos. 1159—60. *Kantīn.* Sáwé; like Nos. 1121—31, *kanté,* of Kaptiau.

N°. 1161. *Sjanagid.* Sáwé; like N°. 1134.

N°. 1162. *Tīmbrom.* Sáwé; head round with 4 rows of barbs, arranged in groups.

Nos. 1163—69. *Ikoi.* Mios Kórwār; barbed like N°. 760; circular carvings, *ādumek,* on 1st internode; N°. 1169 with carved human face, a tip of ray spine, *babe;* weight 29 gram, length 1.25 m.

Nos. 1170—1207. *Ikoi.* Wári; head, *koi dèn,* often smeared with brown colouring, *ansān;* round, top with a few barbs, *kèkèr,* and bone tip, *kăpai kŏre;* upper part of unornamented shaft, *adjumèk,* wound round with lashing, *abrāi,* smeared black; weight 20—30 gram, length 1.10 m. War arrow.

N°. 1208. *Arèè.* Angádi; arrow, *kătiarŏ*, for hunting, *màhimèri*, pigs; head of bamboo, *ărèè*, very sharp, *mèrè*, lower end with carved ornament, *tipuratè*; here round and stuck on to a carved foreshaft, *hanamŏ*, inserted into unornamented shaft, *hiramè*, bound with lashing, *puama*.

N°. 1209. *Tăwāi.* Angádi; to shoot fishes, *èrèă*, 2 diverging prongs, *tăwāi*, bound by plaited rattan band, *kèma*; on inner and side edges rows of barbs, *tètè*, circumferential surface smooth.

Nos. 1210—11. *Towarè.* Angádi; short, round head, *towarè*, with 3 rows of barbs, lashing *puama*, and shaft, *hiramè*, as above; weight 32 gram, length 1.38 m.

Nos. 1212—13. *Tŏnèhè.* Angádi; bone tip, *tŏnèhè*, either with or without barbs, *tètè*, on wooden head, *hanamŏ*, fastened with cord lashing, *tèmani*, in shaft.

Nos. 1214—17. Inagói; bamboo head, gutter-shaped, fastened along, or stuck into carved foreshaft.

N°. 1218. Inagói; lancet-shaped, iron head, fastened with small stem into lengthwise split foreshaft, bound with plaited reeds. Boar arrow.

Nos. 1219—24. Inagói; heads three- or four-sided, edges barbed; shortest arrow 1.12 m., weight 22 gram.

Bows.

Nos. 1225—27. *Pembi.* Tobádi; bowshaft, *pembi tĕni*, of palm wood, in front concave, the back convex, both extremities, round and pointed, bear a twisted rattan ring, *pembi onte*, at top 14, below 8 c.m. from the end, and jammed against 3 flat, plaited, rattan bands, *pembi ide*; at upper arm rattan and reed plaitings, *pabe*, between which, on back surface, carved ornament, *pembi âne*; rattan string, *pembi chi*, 1 c.m. broad, each end forming a loop, *pembi chi dibŏ*; with N°. 1227 at the back, the natural bark carved into snake figure; length ± 190, max. breadth 4.2, thickness 1.8 c.m.

Nos. 1228—30. *Pembi făb.* Tobádi; as before, feathers of *Cacatua Triton* Temm., *jabe*, cut into fish figures, bunches of side feathers of *Paradisea minor* Shaw., *tiare*, and small, red feathers, *mamĭsi*, cord bunches, *wār urau*, either with or without threaded Coix, *uruār*, fastened to reed plaitings, *pembi fabe*, and strips of red calico. With N°. 1228 snake figure, as with N°. 1227, each end with a head (?). With N°. 1229, at the grip, 3 plaited, rattan bands; average length 2.01 m.

N°. 1231. *Pembi făb.* Ingrâs; like N°. 1230, white tailfeathers of *Myrissticivora spilorrhoa* and *tiare* (see above), also black and white feathers; length 188, max. breadth 3.1, thickness, 1.7 c.m.

N°. 1232. *Tja.* Thaë; no ornament; length 188, max. breadth 3.7, thickness 1.3 c.m.

Nos. 1233—38. *Fra.* Waba, Asé, Ajápo, Dójo; only ornamented with a few small, rattan bands; N°. 1236 near the rattan rings wound round spirally with bark strip; average length 1.94 m.

N°. 1239. *Nānjang.* Tanah Merah; as before, string of rattan, *nānjang kè*; length 180, max. breadth 3.5, thickness 1.3 cm.

N°. 1240. *Părâ.* Nimbúran; no ornament; length 198, max. breadth 3.2, thickness 1.6 c.m.

N°. 1241. *Amărè.* Angádi; lower conical end 3, upper 9 c.m., inside this, knobbed to retain loop of bowstring, *kèma*, *amârè èmè*; each arm with 5 encircling ridges, *èè*; on top a claw, *amârè hi*, of cassowary, *mŏrăŏ*, fastened to cord with strips of calico; length 180, max. breadth 3.7, thickness 1.4 c.m.

Nos. 1242—45. *Pembi.* Tobádi; as before, either with or without bark at back side, no ornament; length 58—120 c.m. Used by children; also for shooting mice.

N°. 1246. *Măriă.* Wári; of bamboo, with 6 nodes; extreme end of both arms conical, upper one over 12, lower one over 5 c.m.; at these spots, knobbed to retain loop of rattan bowstring, *wansnè*; back of both arms carved with circular scallopings, below also with snake-like ridge, at top with palm leaf figure; spare string, *wăpar wansnè*; on top cassowary claw, *songèr*, fastened to cord with strips of red calico *kăsumba*; length 172, max. breadth 3.7, thickness 1.3 c.m.

N°. 1247. *Dŏkir.* Mios Kórwār; as N°. 1246, ornamented only with scallopings; rattan bowstring, *kăbrai*, and 2 spare strings, *kăbrai kaïm*; thickness 1.5 c.m.

N°. 1248. Inagói; as before, with 4 nodes; length 170, max. breadth 3, thickness 1.4 c.m.

JAVELINS (for fishing; see Chapter IV, Nos. 590—592).

N°. 1249. *Sus*, (*uruār*?) Tobádi; round, smooth, palm wood head, in cane shaft, bound with reed; nodes, except 1st, ringed; length of head 33, shaft 180 c.m.

N°. 1250. *Sendom*. Tobádi; circle of 5 smooth prongs, round a central shorter one, held together by 4 plaited, rattan bands, fitted into shaft as above; length of prongs ± 36, shaft 160 c.m.

N°. 1251. *Sendom chărim*. Tobádi; 3 triangular prongs, edges barbed, inner edge of one prong unbarbed; bound by 6 bands; shaft as above, wound round with rattan; length of prongs 46, shaft 146 c.m.

Nos. 1252—57. *Sendom chărim*. Tobádi; circle of 4 or 5 prongs, all, or except one, barbed along edges of circumferential surface and diverging by plug of vegetable material or by shorter, smooth, central prong (with N°. 1257 also with 2 rows of barbs); 4—7 bands; fitted in shaft with rattan or reed; prongs 38—45, shaft 153—180 c.m.

N°. 1258. Pl. XXVII, fig. 41. 1/6. *Sendom chărim*. Tobádi; circle of 3 prongs, notched on circumferential surfaces; fastened by rattan along cylindric, wooden shaft, tassels of cockatoo feathers, *jāb abrö*, coronet of side feathers of bird of paradise, *tiare*, and red and green calico, glued on; shaft 146 c.m. long, black, with white circles; prongs 36 c.m. Exclusively for festivities.

Nos. 1259—60. *Sâwâ*. Jakari; like Nos. 1250 and 1251 respect.

SHIELDS.

N°. 1261. Pl. XXVI, fig. 14. 1/18. *Tarí*. Thaë; of 1.5—2 c.m. thick wood, rectangular (middle of top with projection, like reversed frustum), almost flat, somewhat above the middle with 2 holes (for carrying-loop), in left top corner a hole; 5 horizontal rows of carved eye ornaments and dancing human figures (?). Left behind by Arâ people in the attack on Thaë.

N°. 1262. Pl. XXVI, fig. 2. 1/18. *Tarí*. Thaë; as last, thickness 2—3 c.m., 2 holes near the middle (left one highest) with loop of bark 42 c.m. long; at the back of left top corner a pierced ridge with bark loop, to admit 4 fingers; along borders eye ornaments, dancing human figures and triangles with curved tops; in the middle 2 systems of concentrical semi-circles and 12 triangles as above. At left top corner a broken-off arrow head has pierced through 5 c.m.

N°. 1263. Pl. XXVI, fig. 13. 1/18. *Tarí*. Thaë; as last, thickness 2 c.m.; holes like N°. 1262, loop ± 30 c.m., at the back of left top corner pierced ridge as above, without loop; carved with 2 sets of 4 loop-shaped figures along a central band of jagged ovals, and with 2 crocodile figures and one snake.

N°. 1264. Pl. XXVI, fig. 12. 1/18. *Tarí*. Thaë; as last (projection broken off), pierced ridge at both top corners; ornamented like N°. 1263, no snake but with hourglass-shaped figure.

N°. 1265. Pl. XXVI, fig. 11. 1/18. *Tarí*. Thaë; thickn. 1.5 c.m., pierced ridge at left top corner; front concave; carved with 3 large eye ornaments, partly jagged; relief parts coloured red and black.

N°. 1266 (see fig. 169). *Adai*. Wári; flat, oblong square, of light wood; middle of front surface with elliptical (13 × 8 c.m.) projection, 9 c.m. high, hollow at the back, a vertical bar being retained as handle; 16 horizontal, rattan plaitings, and 3 vertical ones; 176 × 36 × 1—2 c.m.

N°. 1267. *Adai*. Wári; like N°. 1266, near projection coloured black, along this and along top and bottom edges horizontal bands of dark red zigzag lines; length 164, breadth 30, thickness 1—2 c.m.

N°. 1268. Pl. XXVI, fig. 1. 1/10. *Kö nöjä*. Asé; bamboo, *nöjä*, split between 2 nodes, *i*, in 6 longitudinal strips, bulged out and containing an empty cocoa-nut, *kö*, fastened by strips of fibre, *sä*; at each node (one broken) a bundle of leaf strips, *nai*. Found in community house; used as war banner.

CHAPTER X.

CUSTOMS AND GOVERNMENT.

It will be easily understood that in short visits and with scanty knowledge of the language, little information can be obtained with regard to the life of the Papuan as an individual, as a member of the family or as a member of the community, village or tribe. Thus I have been unable to ascertain anything about the customs at births, during the first stages of life, or the naming of children. I saw, however, young children, already at an early age, given in charge of elder sisters; afterwards the education takes place in the school of practice, the boys participating in the work of the father, the daughters in the more numerous occupations of the mother. By this, children very early become as clever as the parents.

The youth of the Papuans is by no means joyless. The older people sometimes make toys, e.g. small boats (N^{os}. 654 and 655) for them, but never did I see a father or a mother playing with the children. On the contrary, these are in this respect entirely left to themselves. At Asé I saw children, 4—5 years old, struggling in fairly deep water on small, immersed models of the "*īsja*" (see p. 195), specially intended for such exercise. At Năcheibe, girls and boys, the latter most pluckily, jumped and tumbled about in the heavy surf rollers, and the shooting with bow (N^{os}. 1242—45) and arrows (N°. 916) is a favourite sport of the boys (see also MACGREGOR [1897, 43]). A pretty game I witnessed at Siarí, where young men and boys with hand tops, like N°. 1269 (Pl. XXIX, fig. 25), were playing at low water on the shore behind the village. The cord, ± 1 meter in length, was wound in the furrow round the top, and every one now tried to throw his top against that of another, in such a way that it fell over and his own top kept on spinning. The young girls often have to suffer from the impudence of the boys, and on the visits of strangers they usually keep in the background, even more than the elder women. In their turn, the boys are kept in their places by the youths and grown-up men, who are soon ready with a cuff or a blow when the boys displease them; this is then to be taken more as a sign of displeasure than as a further moral education: "to do good and leave evil alone". — Imperfect also is my knowledge of the exact contents of the educational lessons, which are given in the *rum sĕrams* (see Chapter XII).

On Netherlands territory circumcision of Papuan boys does not appear to exist. This is neither the case, according to NACHRICHTEN [1888, 224], in several parts of K. W. Land e. g. on the Augusta River, in other parts it is, however, the custom, but it is impossible to make out whether the usual feast on this occasion, the Barlum feast (SCHELLONG [1889, 116]), really means a "Legimitation zur Heirath". Of an isolation of the girls during a longer or shorter period, as mentioned by CHALMERS [1885, 159] of British N. G., and as met with in Torres Straits (REPORTS [V, 201], HADDON [1900, 421]), nothing is known regarding the Tugeri, except by hearsay. The woman-house, erroneously reported by KONING [1903, 275] of Ajápo, is the house of the village chief, visible, in fig. 89, in its entire length; MACGREGOR [1897, 44, 45] also speaks of "woman-houses" and VAN HERWERDEN [1906, 923] on the S. W. coast, saw a settlement, consisting of three houses, of which the middle one was occupied by the women and children, whilst the men lived in the outer ones.

The initial ceremonies at the age of puberty in Geelvink Bay consist of the festive dressing with the perineal band (VAN HASSELT [1886, 588]), but festivities, although on a smaller scale, also take place when the girls have reached the age of puberty; the latter is also the case on Tumleo (ERDWEG [1902, 299]); here the dressing with the hard bark girdles of the boys who become men [l. c., 308] is accompanied with ceremonies, as isolation, the talking in whispers, and concealment from women; these ceremonies bear a decidedly religious character. In H.B. the so-called cock's comb, (see p. 57) is shaved, the hair being henceforth allowed to grow to its full length. To become a man, the youth must now still undergo an isolation in the temple, where he is also initiated into the practices of the religion (see Chapter XII).

It appears that before marriage absolute chastity of both sexes is the rule in H. B. and on Lake Sentáni. Whether the individuals of both sexes show preference for each other, as elsewhere by the offer of presents or by concealed sexual connection, and whether marriages take place in consequence, appears to me very doubtful. Engagements and marriages between children appear only to occur on the S. W. coast of the Netherl. territory (VAN DER GOES [1858, 161]).

The man obtains a wife, as is known of elsewhere, by purchase or capture. Thus the chief of Tobádi has carried off his second wife from a passing boat, quite unexpectedly. The plan had not been arranged beforehand between the two parties, and the first wife was sent away. The desire to be married is universal and it was recommended to the unmarried members of the expedition with the argument that a married man lives longer than an unmarried one. Meanwhile, on account of the scarcity of the currency beads, which form to a great extent the purchase price, the number of marriages in H. B. is falling off, and of late more women are being taken from Lake Sentáni, because cheaper; these women, moreover, are actually more valuable, because they understand fishing, which is not part of the occupation of the H. B. woman. By far the greater number of the older men are married to women of their own village; but there are already some old spinsters in Tobádi. According to PARKINSON [1900, 23], the young man in Berlin Harbour prefers to remain a bachelor rather than marry a woman of another village. The Tumleo man, according to ERDWEG [1902, 279], is also guided by practical considerations, preferring to marry a woman of his own tribe, because she understands the art of making pots. On the north coast it is a general rule that the



Fig. 163. Village chief of Asé (3rd from the left) receives the visit of village chief of Poë (3rd from the right).



Fig. 164. Tombs at Pujo.

girls of the coast villages are never given in marriage to men of the interior, because the latter are considered too uncivilised for this; — the insult to the family of a young girl and her tribe by such a marriage, was (MOOLENBURGH [1903, 2]) the cause of a war between the peoples of Wendèsi and Karwan. The men of the inland Sĕkánto tribe marry girls of other inland tribes: Toba, Djangu and Djangusu (MOOLENBURGH [1904, 186]).

At Angádi I was told that no purchase money is paid, but that, with exogamous marriages, as are apparently the rule here, a girl from one village is ceded to a man from the other village, which is therefore the same institution as mentioned by HADDON [1901, 103] of Kiwai Island. In British N. G. ([l. c. 111], MACGREGOR [1897, 44]), and also, according to ERDWEG [1902, 279], very often on the island of Tumleo, the bridegroom cedes his sister to the brother of his bride. With other marriages, there is on Tumleo no question of a forced payment, although possibly the young man may now and then make small presents to the parents of his wife. It is also a rule for the married couple to fix their residence in the village of the husband. The son-in-law of the village chief of Angádi had taken up his residence here, otherwise it is here also the rule that the wife follows the husband. Where the purchase money for a woman must be paid, this, as far as I am aware, takes place in one payment and not by instalments. At Asé, where the son of the village chief was to be married to the daughter of the village chief of Poë, the dowry, consisting of currency beads and stone hatchets, was exhibited for some days, and on the wedding day the whole of it was handed over to the father of the bride. The father of the bridegroom had to work for a long time on these stone hatchets (on fig. 163 such a hatchet lies under his right hand), and no doubt the bridegroom did not contribute the whole of the numerous beads himself. Indeed it appeared that part of the family possessions, belonging to the relatives of the husband, were used to pay the purchase money, and this explains not only that these relatives have a right, later on, to a share of the amount obtained for the daughters born of the marriage, as is the case in West N. G. (VAN DISSEL [1904a, 639]), but also that at the death of the husband, his brother takes the widow to himself.

On Lake Sentáni, as well as in Humboldt Bay, it is the custom, that the young man, by way of receipt, receives an abacus, a stalk of a sago leaf, into which a certain number of pegs have been stuck, indicating by their length and number the quality and quantity of the valuables paid. Judging by the greasy dirt which adheres to both objects (N°. 1270, Pl. XXIX, fig. 23, and N°. 1271), these receipts are preserved for a long time, probably to be used afterwards, should the wife die early, as documents for a claim of restitution.

The wedding ceremony at Asé began by the weeping of women being heard on a certain evening in one of the houses. These women had arrived from Poë in the course of the day with the bride, and were now, as the interpreter said, venting their sorrow at the approaching loss of the bride, who, in future, would have to live in her husband's village. The nature of the lamentations was like a song of despair, as SCHELLONG [1889, 22] describes of the mourning for deceased persons, namely, that every verse was started loudly and in a high key and, gradually decreasing in strength, ended in low, suppressed tones. The number of voices increased gradually during the night, and at 3 o'clock the screams quite filled the air and I could not sleep at all. By the end of the night, when the bride had to prepare herself to proceed to her bridegroom, the noise was terrible. The sun had scarcely risen, when a great

number of the women of Asé collected in front of the residence of the bride, to join the bridal procession, which now emerged from the said house and crossed the platform to the shore. The bride was walking in front with some flowers in her hair and a few ornaments, but with a very long, white bark petticoat, her eyes closed, her arms opened, extended upward and a little forward; and on either side walked an old man of Asé, holding her by the upper arm, evidently in order to guide her. Behind this, the women of Poë followed, presumably amongst them also the mother of the bride, all lamenting, and further on the women of Asé, some with a child on the hip, and thus they proceeded along the short road ± 70 paces, to the house of the village chief, whose son lived there; the house of the young couple was still in course of construction. The road led through the community house, built across the front of, and adjoining, the chief's house, the floor ± 3 feet above the ground, the bride was obliged to feel her way in walking up an inclined beam. This moment is represented on fig. 128, p. 198, where it can be seen, that she is followed solely by women, and that the male villagers are squatting down, paying but little attention to the proceedings. The bride was scarcely inside the house, when the procession broke up, and I saw no further festivities. Later on in the day the parents of the young wife were presented to me, both in very good humour, anxious to see the Mauser revolver, the medical instruments, etc. A few days afterwards the young husband showed himself and appeared to expect a present from me. He had, however, not yet obtained a share in the government of the village, nor did I notice any sign indicating his married state.

On a far more extensive scale were the festivities on the occasion of a marriage which took place on the 14th of May in the coast village of Jambuë, through which a part of the expedition accidentally passed. A great number of boats, pulled up on the shore, proved that visitors had come from afar, and in fact, I met in the village men from Kajó, Ingrås, and Tobádi, elaborately dressed, and with their most beautiful ornamental bows, even people from Lake Sentáni, and amongst them a widow of a Tobádi man. This woman was continually seen in different places; possibly she acted the part of weeper. Many of the male visitors, awaiting the further course of events, were sitting or lying in the community house, where a large ray already promised a good meal. On a spot covered with clear coral sand, in the shade of an upheld foliage branch, in the middle of a sunny square, in front of the house, in which, I suppose, the bridegroom resided, stood the bride herself, ornamented with an enormous quantity of tortoise ear rings, with strings of beads and numerous armlets of Trochus niloticus (see Nos. 480—482), with her face turned towards the house, and surrounded by about ten other women, amongst whom was the above mentioned widow. The same as at Asé, the head of the bride was not shorn, as is the custom in British N. G. (MACGREGOR [1897, 30]). As the expedition had to continue its journey, I do not know what followed; but it appears that here also the marriage itself has to take place in the house of the bridegroom, in opposition to the custom in Geelvink Bay, where it takes place in the house of the bride (VAN DER GOES [1858, 161]).

At Mapār they complained of the high price of women, for whom 200 objects had to be paid; a gun however counted for 100, and the most valuable object known here, the above (p. 215) mentioned "*kain timor*" (Malay), is, without anything more, already sufficient. At the marriage, which is accompanied by festivities, the bride wears this kain

timor, folded along a diagonal, a rectangular triangle being thus formed on her back, the right angled corner hanging down on a level with the right buttock, whilst of the other two corners one reaches over the left shoulder and the other under the right armpit, both being tied together in front. The chief of Mapār, called: "*Majōr*", had four wives; this was partly because his wealth allowed him to do so, and, because his first three wives had failed to present him with any children, he had kept on marrying until the fourth one made him a father. This was evidently the real reason, for the child was already $2^1/_2$ years old, and the *Majōr* had not yet taken a fifth wife.

Remedies for preventing or interrupting pregnancy are unknown amongst the Maníkion, they said. Generally speaking children are desired everywhere. At Asé, which approximately numbers sixty married couples, five were without children; during the inquiry into this, some of these childless men came very seriously asking for advice. I have not been able to find out, whether sterility leads to separation, as reported of Torres Straits (REPORTS [V, 246]). SCHELLONG [1889, 18] states of Finsch Harbour that the coition takes place during the night inside the houses, and that the woods and gardens are only used for illegitemate purposes. HORST [1889, 229], however, heard on Biak that the coition never takes place inside the houses, but that the married people meet each other in the gardens. I was told the same thing everywhere in Papua Tälandjang. Still, the same as already reported of Doré (VAN DER GOES [1858, 147]), a numerous family is not desired here, and I heard it rumoured in Humboldt Bay that measures were taken against this before, or after, the birth of the undesired offspring. ERDWEG [1902, 383] mentions some four herbs which cause sterility and even the decease of the fetus, and also states that newly born children are thrown into the sea or buried alive. That scarcity of food is the only reason for limiting the number of children, as explained by REPORTS [V, 198], cannot be accepted for Netherl. North N. G.. It appears that the women consider themselves too much embarrassed in their work in the gardens by a large number of children. The women of Doré do not desire more than two children and of the Karōn it is even related (ROBIDÉ VAN DER AA [1879, 59]), that when slaves or prisoners are wanting, the children of the households which possess more than two, are eaten. In Geelvink Bay the child, whose mother dies in giving birth to it, is buried alive (HAGA [1884, 363]).

The married women of Humboldt Bay have (see p. 88), their own property, to which the husband has no right. PFEIL [1899, 33] thinks that only the fruits of the garden are the common property of the married couple, on the other hand NACHRICHTEN [1898, 21, 22] report, that women with their own cocoa-nuts bought beads, which they kept for themselves. The fate of the married woman has not satisfied most of the Europeans, although HAGEN [1899, 244] of the Jabim and ERDWEG [1902, 381] of the Tumleo, paint idyllic scenes. PARKINSON [1890, 21] considers her condition satisfactory, HADDON [1904, 274] never witnessed ill-treatment, whilst PRATT [1906, 325] considers she is regarded with affection. I myself only witnessed one case of ill-treatment: a man at Seisårå, wishing to induce his wife to withdraw, threw a large piece of wood at her and hit her. — The women, it is true, have a life of continual labour; one must remember, however, that to the men falls the task of protecting them, c. q. to defend the community with their lives. In some cases I witnessed affection between husband and wife. THOMSON [1892, 121] says of the Kiwai people "women are truly

slaves". The great many separations must not be put down to the heavy work, 1st, because many separated wives remarry, and 2nd, because the woman, having returned to her parents, has to work equally hard. Nowhere did I notice special days of rest, as reported by CHALMERS [1885, 41] and MACGREGOR [1897, 44] of British N.G. — Incompatibility of temper is sufficient reason to part from each other. A woman from Asé, married to, but run away from, a man of Ajápo, was, evidently with the consent of her relations, one day just after sunset, seized and forcibly carried back in a boat to her lord and master, to the great hilarity of the boys and men, but under loud lamentations on her part. Nothing has become known to me, with regard to the dissolution of marriage and the questions then cropping up as to the restitution of the dowry, or the allotment of all the children to the father, or the boys going with the father, the girls with the mother, as it is the custom on the S. W. coast (VAN DER GOES [1858, 126]), or the remarrying, etc. It does, however, appear that further intimate or even friendly intercourse between the separated persons and their relations is no longer possible; the village chief of Tobádi, whose first wife now lives at Asé, declared that, if he ate of the fruits provided to the expedition by that woman, he would certainly die.

No case of death was witnessed, and possibly the expedition may be glad of this; for the opinion is generally held that death is always caused by the evil desire of other persons and by means of an atmospherical poison. This is also mentioned by D'ALBERTIS [1880, I, 122], CHALMERS [1903, 119] and PRATT [1906, 312], as the Papuan does not believe in a natural death. Even at the beginning of illness, somebody is considered to be the cause of this. Thus the chief of Nimbúran was very anxious to see the expedition leave his village, because one of our Tarfia carriers had grown ill. In different ways they try to discover the guilty person. SCHELLONG [1889, 19] heard the same from people of Finsch Harbour, and HAGEN [1899, 254, 256] from the Jabim, and how the flickering of the fire at the mentioning of a name indicates the culprit. On the island of Rōn the hair, cut off from the mourners, is used to detect the guilty person (VAN BALEN [1886, 559]). From this, murders and even wars arise. Thus the people of Mapar stated that only two years ago they were still living at another place, called Moráu, situated in a north-westerly direction, at a distance of a good hour's walk, in the neighbourhood of another house: Dudubái, and how one of the inmates of the same had died and the present *Majōr* of Mapār had then been accused of it. Dudubái only amounted to ten heads, it would, however, have received assistance from other settlements and thus have been stronger. For this reason and no other, the large house and the gardens belonging to it, were then abandoned; a new building had to be constructed on the hill Worówi, which had to be cleared of the trees, and new gardens had to be laid out! — The people of Mapār have the same superstitions about the cause of death.

With them only children below three years are buried in the soil. When an older person dies, *matési*, the body is dried above a moderate fire; but the moisture which drips out during the first days is collected and preserved in order to be placed before visitors, and if these begin to vomit in consequence, their guilt is considered proved and they are put to death. THOMSON [1892, 53] also reports, of the district to the south of Port Moresby, the collection of this moisture, but states, that it is only used here as a stimulant. On Dampier Island, the skin is rubbed in with this moisture, as a preventative of dangers. At Mapār a part of the bones is also taken out of the body and crushed into powder;

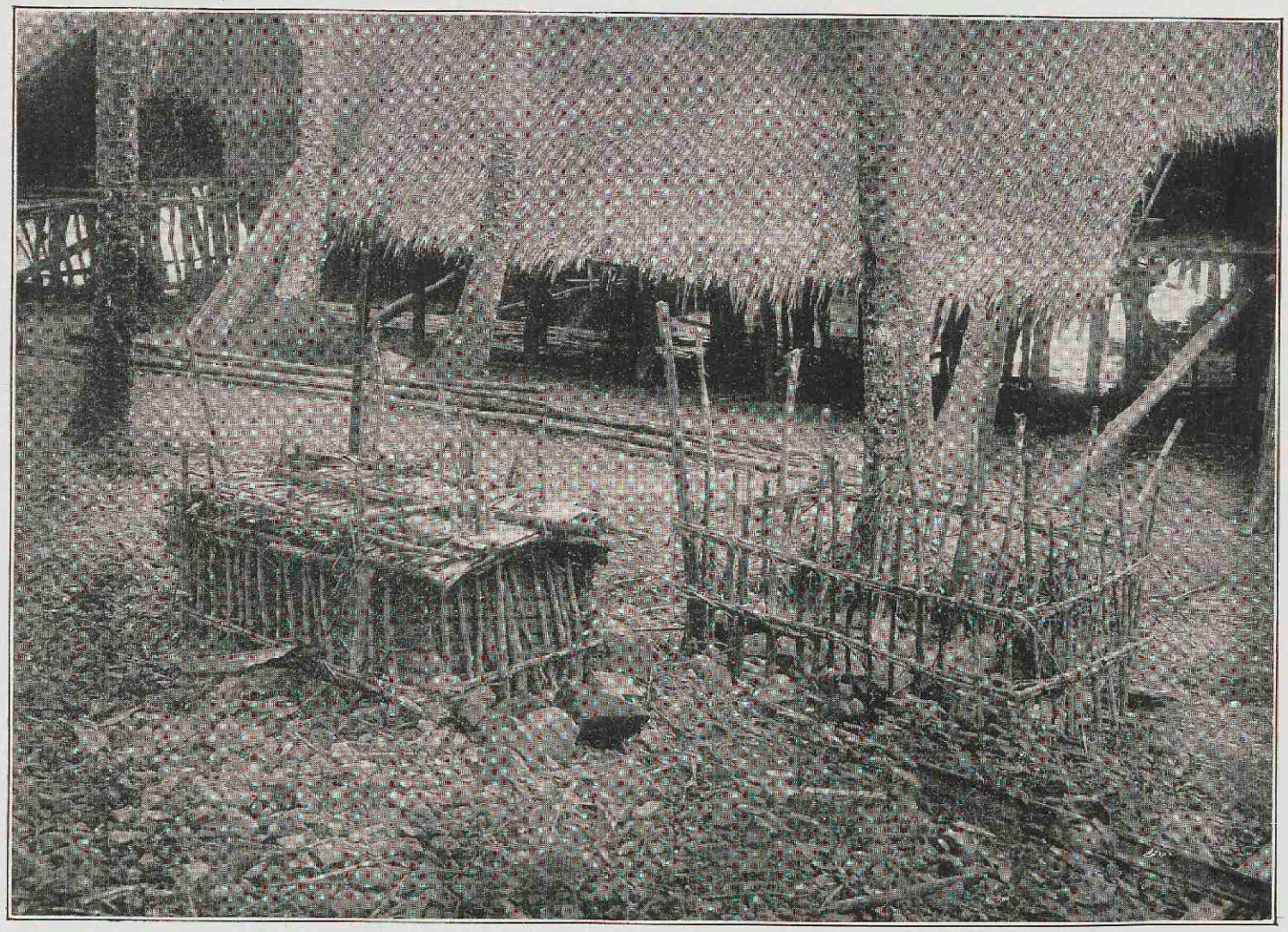


Fig. 165. Graves at Asé.

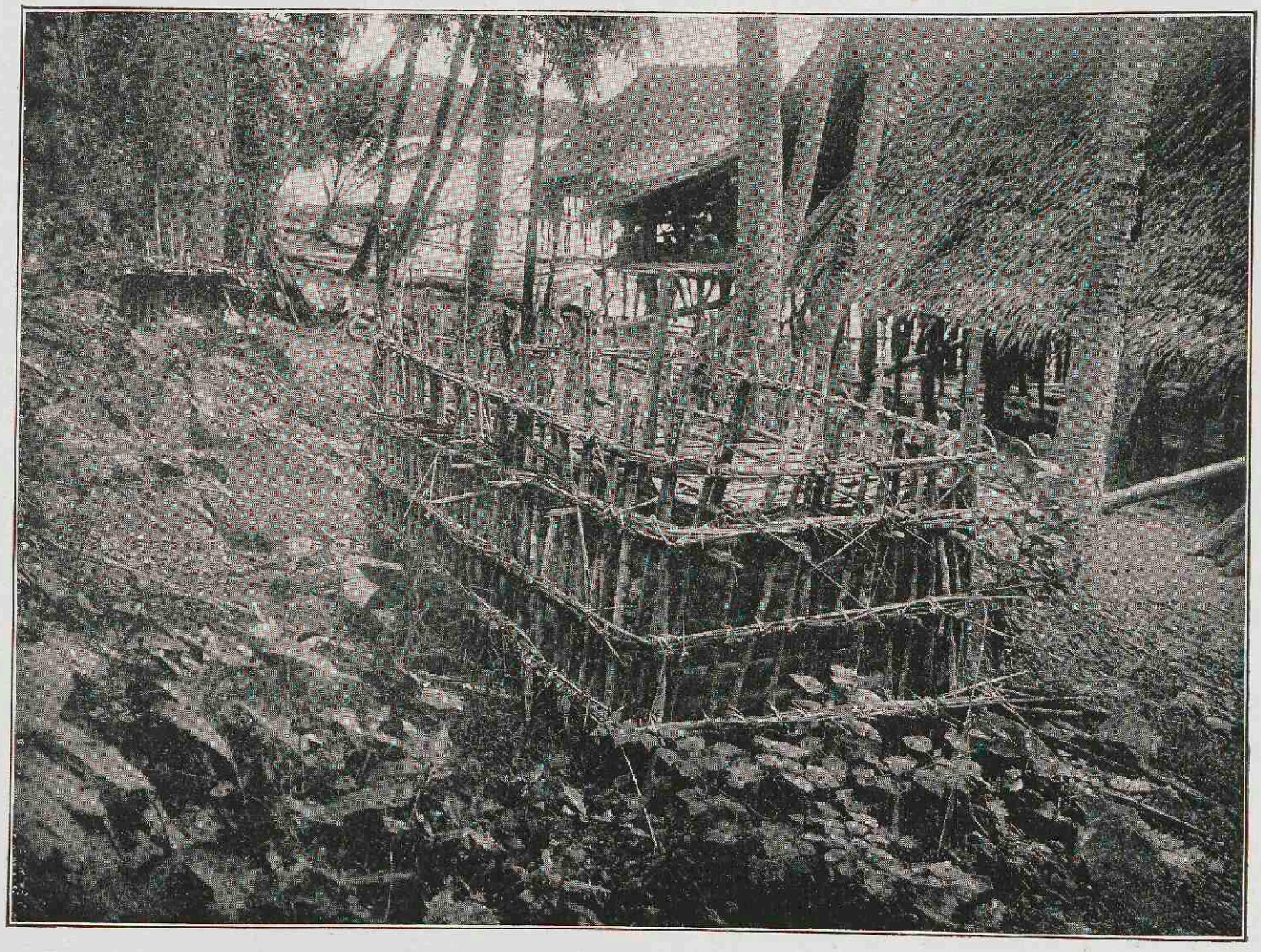


Fig. 166. Graves at Asé.

guests who cannot swallow it, are killed. When the body is dried, which takes about a month, in a position with the knees tightly drawn-up and the head pressed down on the chest, a basket of palm leaves is plaited closely round it, and the body thus packed up, *biata sidugè*, is suspended inside the house on the wall. In the house at Mapar (fig. 73) two such packages were hanging breast high on the inside of the wall, immediately to the left, near the front door (the side towards the top of the hill), and one to the right when entering by the back door, all of them therefore in the part of the house where the unmarried men live. They were ± 90 c.m. in length, and 45 c.m. thick, and absolutely without smell. In the house at Inagói such packages were suspended in corresponding places. It is characteristic that the mode of matting the bodies of the dead in this squatting position, has become known of so many places in New Guinea, situated far from each other; e.g. with regard to K. W. Land (NACHRICHTEN [1889, 8]), of a village situated on the slopes of the Finisterre Mountains, where the bodies were carefully placed in safety from the Europeans, who came to pass the night in the houses. SCHELLONG [1889, 22] also refers to the sewing up of bodies in mats. HORST [1889, 232] saw at Ansus, on Jäpen, hanging inside the house, the dried body, wrapped up in pieces of cloth, of the father of the village chief, probably the same, which was already reported a good many years ago by ROBIDÉ VAN DER AA [1879, 234]. In British N. G., D'ALBERTIS [1880, II, 101] found the body of a man being matted in a stretched position, a woman squatting, like the bodies in the small cages, ($2^1/_2 \times 3 \times {}^1/_2$ feet), mentioned in ANNUAL REPORT [1897—98, 22, Pl. 14].

Burying in the ground is also often done with the body in a squatting position, as with the Ajambori (VAN DER GOES [1858, 147]), wrapped up in a mat; WILKEN [1887, 619—621] supposes a connection between this position and the squatting position of the human figure represented on the *korwärs*.

Between Pt. D'Urville and the Netherl. German boundary this position is, I think, unknown. Concerning Humboldt Bay, I quote that the people of Ingrau put their dead in a stretched, horizontal position in cages of interwoven branches, erected on piles, on the shore behind the village. Most of the cages are in a bad state, parts of the skeletons having fallen out and scattered (by the hogs!). People allowed me to take away some bones. The inhabitants of Tobádi put their dead on the small island of Entjemåg, simply on the earth, because there are no hogs. As far as I could ascertain no corpses are buried on the hills, as VAN DER GOES [1858, 182] thinks, taking for grave ornaments the ornamental poles which have a religious meaning (Chapter XII). At Asé in the stony soil a shallow pit is dug, into which the body is deposited, whilst a heavy weight in stones and a fence of horizontal sago leaf stalks, inside another of strong vertical branches, keep off the hogs. The spade (fig. 166) or spades (fig. 165) with which the grave has been dug, also are placed in the fence, also sometimes the bow of the deceased (fig. 166). These graves are called: *färe*, the same name which was given to the small pig-sty, which was intended for the sow with her young ones. In the western villages like Pujo (fig. 164) the fence is quite close and covered with a roof of palmleaves, small houses being thus the result, which are sometimes beautifully ornamented, and against which handsome fishing spears are placed. The same thing happened at Sägeisårå (fig. 167) near a tomb *budè já*, erected in the immediate vicinity of the temple; here a dog on the back of a Varanus (?) and a sawfish, and other, smaller fish figures made of wood, beautifully carved,

and coloured red, white and black, were noticeable, cocoa-nut shells had been suspended in garlands along the vertical walls, and at the roof empty turtle eggs had been stuck on midribs of sago leaves. A similar hut-like tomb, *burèjă*, still more richly ornamented, was standing in Năcheibe between the houses; amongst the coloured wooden figures a hammerhead, *tsijă*, could clearly be recognised, and another large fish, *ărèbŏ*, *ălèbŏ*, which had a quadruped, *waună*, stuck on to the pointed snout. A very peculiar tomb, a hollow tree trunk (fig. 168), about a man's height, is standing in front of a house at Săgeisårå, and covered with a couple of water-buckets, like N°. 93, turned upside down, probably to prevent the rain from entering. Two saplings are bound against it, on one of which a turned-up cocoa-nut shell is fastened. It contains the body of a child and is called, "*tabu*". The man standing near this tomb is the father of the deceased child. THOMSON [1892, 67] reports a similar tomb, consisting of a hollow trunk, but only for the skeleton of a corpse of which the flesh has been previously removed. What I have never seen anywhere in H.B. and on Lake Sentáni, namely the ornamenting of a grave with skulls of pigs, presumably intended as a hunting trophy, has been met with amongst the Nimbúran (fig. 171). On Wiak, four-sided wooden tombs are made, shaped like a small house, covered with a roof, carved and painted, and placed on one or more poles, sometimes large (fig. 169),

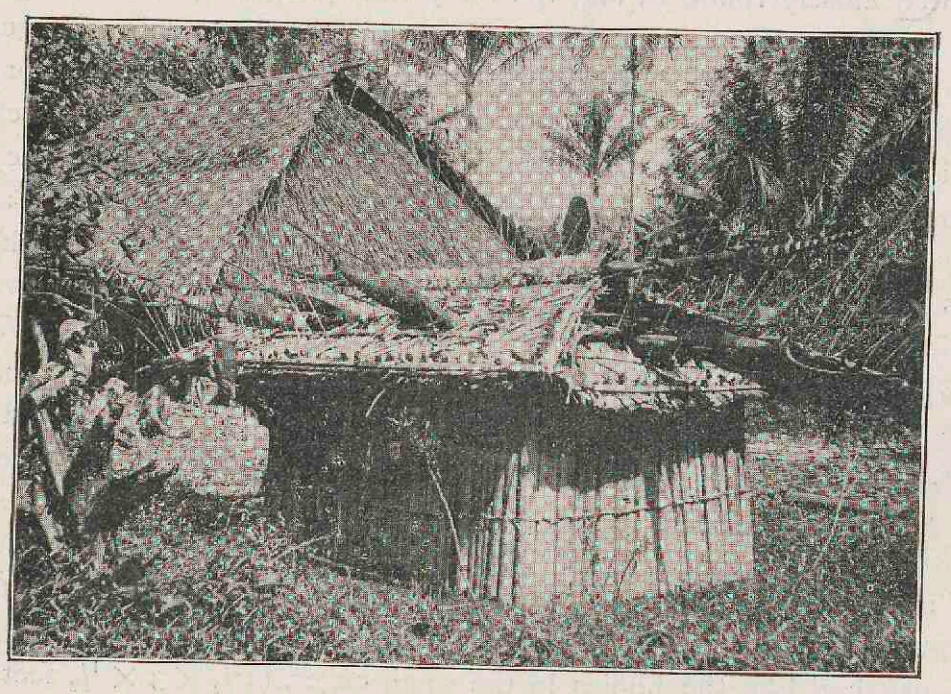


Fig. 167. Tomb; Săgeisårå.

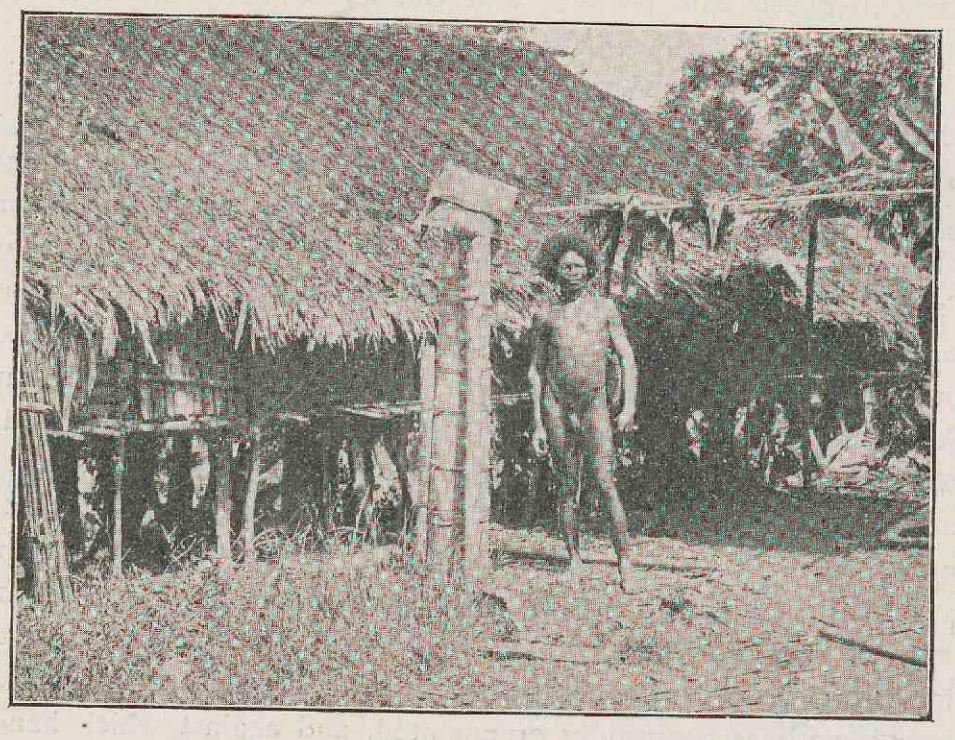


Fig. 168. Child's tomb (hollow trunk); Săgeisårå.

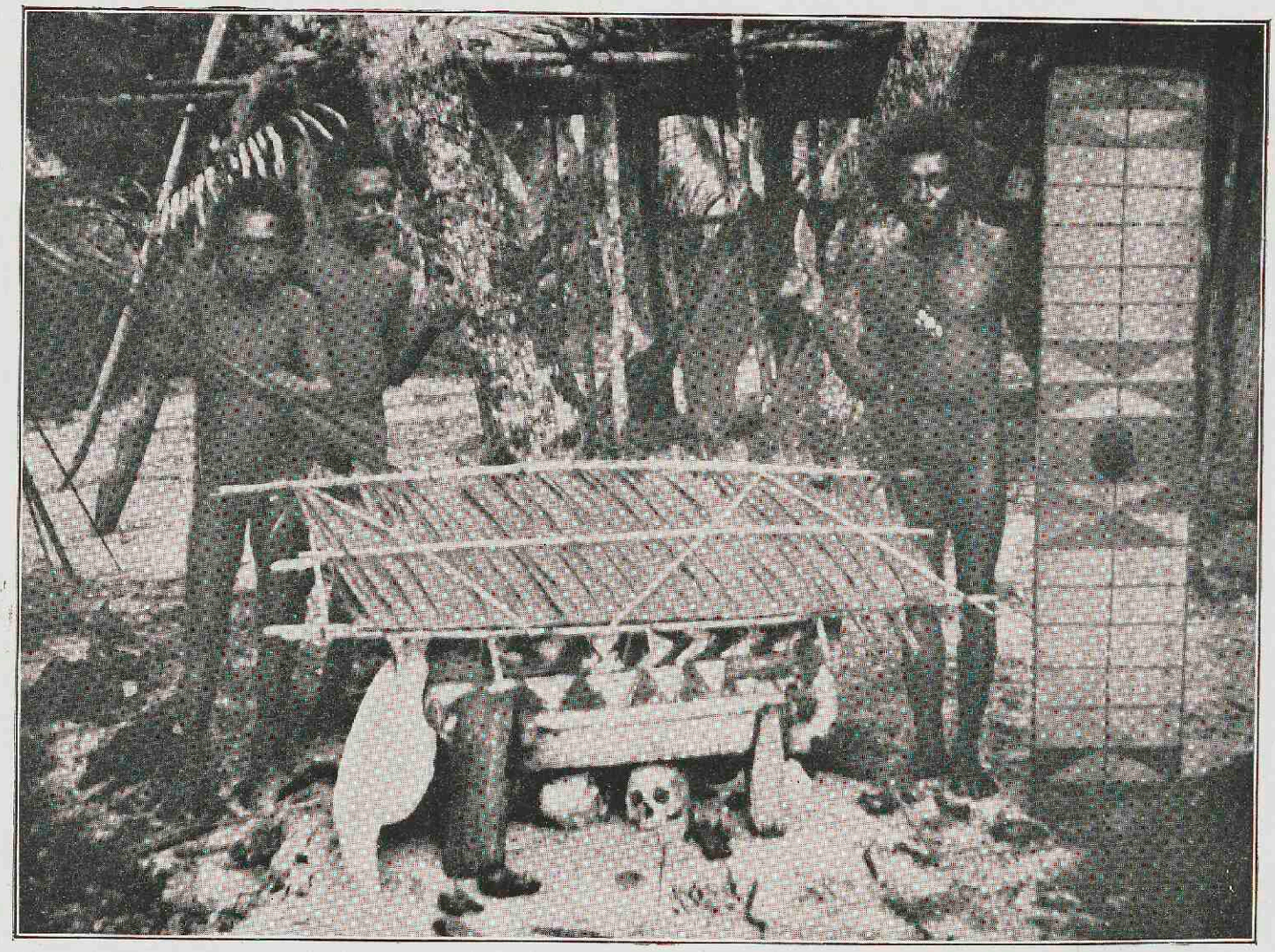


Fig. 169. Tomb at Wári.



Fig. 170. Mourning widow squatting near a tomb; Wári.

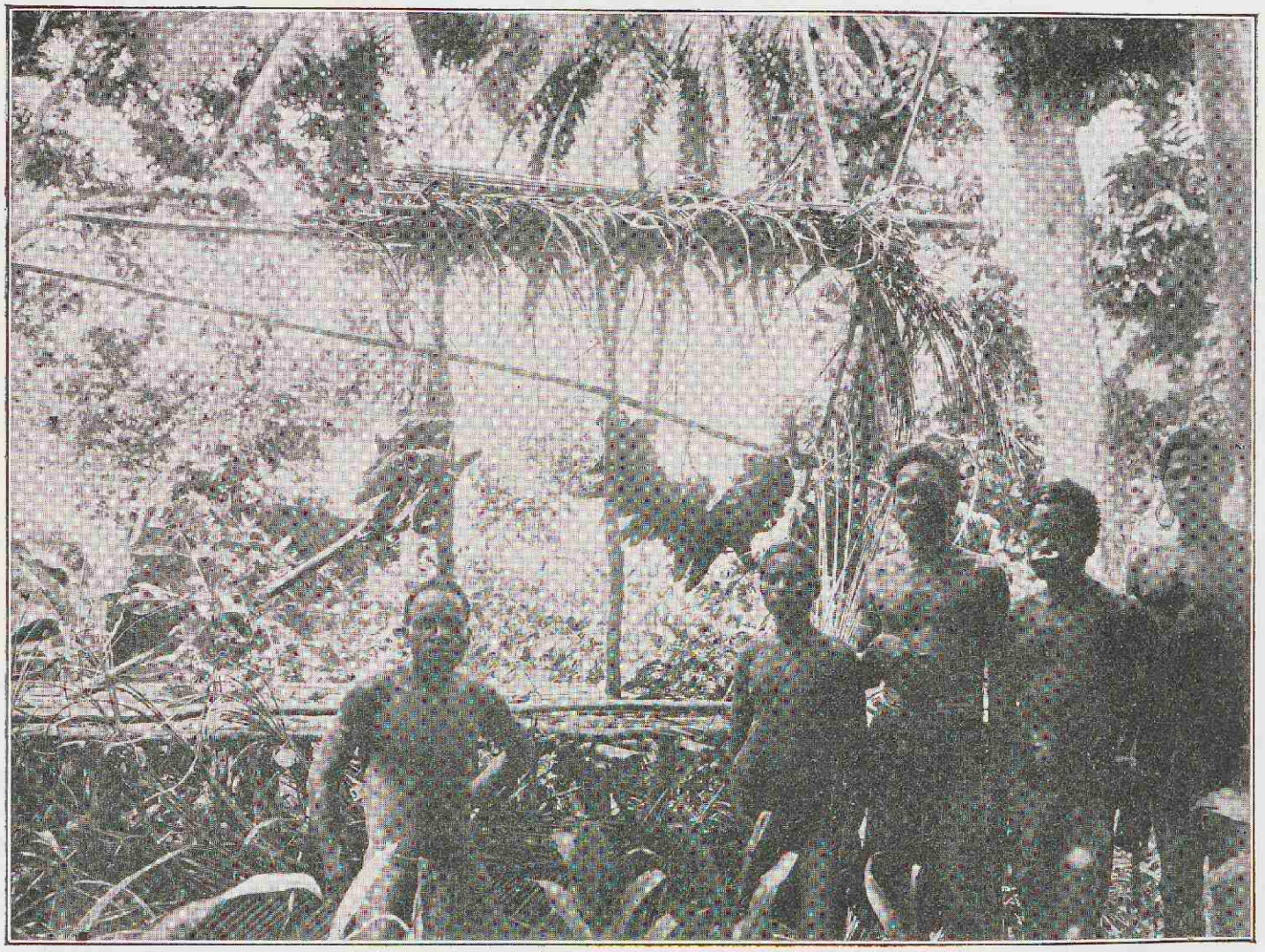


Fig. 171. Grave at Nimbúran.



Fig. 172. Graves on Mios Kórwār.

but sometimes so small (fig. 170), that only the bones could be kept in them. Near the small tomb, a round, shallow, glazed dish is standing, apparently of Chinese make, and the widow of the deceased is seated near, lamenting her loss. In fig. 169 only a piece of such a dish is to be seen, and under the tomb a couple of skulls. Quite different are the graves, which I saw on Mios Kórwār, although the present inhabitants of this island originally came from the now abandoned village of Maudor on the island of Supióri, which is situated close to Wiak. Here the bodies are buried in the ground, and the four-sided space is surrounded by planks, standing on edge, and a small roof is made over it (fig. 172); outside the planks are small dishes and pieces of larger ones. On Rōn, according to VAN BALEN [1886, 560], a broken pot (also a netted bag) is found only on the graves of women, whereas on the men's graves a broken bow and arrow are found. A decoration of red calico over graves, mentioned by VAN BALEN, is also very common at Wendèsi. The inhabitants of the Jakati delta (MOOLENBURGH [1903, 215]) place the skull of the deceased inside the house on a large dish. The people of Wendèsi deposit their dead, either on a mat or not, on some of the neighbouring, rocky islands and suspend pieces of red calico from the branches of the shrubs; I also saw near a body, which had been lying there only a few days, quite uncovered on a mat, a closed wooden box, containing some valuables. Sometimes, however, graves are also met with in this neighbourhood, like in fig. 173, with a covering on the top of ornamented poles. SNELLEMAN [1906, 115, 116] gives illustrations of the way in which the dead body is transported, and a large quantity of valuables, among which Chinese dishes, deposited on the grave. More to the south, near Siarí, at a short distance from the house illustrated in fig. 80, I saw inside a circular fence of sticks and thin bamboo, round which strips of checked calico had been fastened, cases and baskets and two reddish brown pots, the whole of native make, but also a shallow, round dish, 45 c.m. in diameter, of glazed earthenware, ornamented with blue, red, yellow and green figures of Chinese character, and a tall jar, ± 45 c.m. high, with a bell-shaped lid, ornamented with snakes and dragons in blue colours. I do not remember whether on this grave garden plants occurred as a delicacy for the deceased, as is reported of Ajambori (VAN DER GOES [1858, 161]); fruits on graves are also reported of British N. G. (D'ALBERTIS [1880, II, 12], CHALMERS [1903, 120]). Nearer Siarí there was a grave, surrounded by a border of red stones, inside which a small, triangular plank was standing in the ground, as well at the head as at the foot. Near Wendèsi there



Fig. 173. Grave near Wendèsi.

is also, high up in the mountains, almost inaccessible to Europeans, a cave, where, according to the missionary, many skeletons are lying; this is also reported of Rōn (ELLIS [1888, 31]). On Lake Jamūr, the dead are laid in a tree trunk, hollowed-out in the shape of a boat, which after a certain time is brought into the house; I, however, found none. Of Scrué, ROBIDÉ VAN DER AA [1879, 261] mentions a similar arrangement after the smoking of the dead, but the boat is here laid on the shore, or up a tree.

Of the mourning ceremonies of Humboldt Bay I only know, that some considerable time after the death, the relatives have to give a feast, like that celebrated in the temple during the stay of the expedition. A requiem is then sung, called: *utia*, the religious character of the feast being pre-eminent (Chapter XII).

The weeping over the deceased, I heard only at Asé, where, on the occasion of a visit to the house of the village chief, most of the women hid themselves, but one old woman, busily repairing fishing nets, evidently in her devotion found the necessary courage to remain quietly seated, moaning verses in a high toned voice the while. My Papuan interpreter whispered to me that she had received news of the death of a friend in another village. In Geelvink Bay, on the occasion of a death, old women are hired to weep as loudly as possible (VAN HASSELT [1886, 589]).

Above (p. 64), I have demonstrated how the use of hair tresses like N^os^. 221—222 of the collection, and caps of hair (the term "cap-shaped wigs" is confusing) like N°. 223, less used in H. B. than in the more western coast villages, is to be taken as a mourning dress. In the Huon Gulf the widow (HAGEN [1899, 263]) also often wears bundles of hair. Of British N. G., MACGREGOR [1897, 30] mentions the shaving of the head in mourning; in Geelvink Bay the head of the widow must be shaved (VAN HASSELT [1886, 592]). At Wári I saw a number of men and women, who, as can also be seen on fig. 169, had strung large beads, mostly white, on a tress of hair on the right or on the left temple, or on both sides; sometimes the tress was divided at the bottom into two parts as with N°. 212 (Pl. VII, fig. 12). A similar head dress, used, however, only by the men, VAN BALEN [1886, 557] mentions of Rōn; — at the death of a relative they shave off the hair, with the exception of a lock above the forehead, to which beads are fastened, the lock (ringlet) hanging down along the back of the ear, as far as the breast. According to VAN HASSELT [1886, 591] the Numfōr prefer, for this purpose, dark blue beads. The woman, who is squatting near the grave on fig. 170, was more ornamented than the other women, and was certainly sitting there dutifully lamenting, for, whilst the whole population was more or less occupied with the visit of the expedition, she faithfully maintained her crouching position. The ornaments of this woman may be looked upon as a mourning dress. In K. W. Land (KRIEGER [1899, 180]) the widow must for some months, both morning and evening, sit and mourn on the grave, while on the contrary the Numfōr widow must stay indoors for some months (VAN HASSELT [1886, 592]). In mourning for parents, husband or wife, VAN DER GOES [1858, 147] mentions rattan neck bands; for a child, brother or sister, armlets, which on Rōn (VAN BALEN [l. c., 562]) are ornamented with strips of calico.

The wearing of parts of the skeleton of a deceased by the relatives, customary in British N. G. and in K. W. Land, e. g. the coccyx (D'ALBERTIS [1880, II, 97]), the lower jaw as an armlet (FINSCH [1888, 132]), or a couple of ribs as a neck ring (MEYER and

PARKINSON [1900, Pl. 17, 19 and 20]), never yet reported of Papua Tălandjang, is again coming to the fore in Geelvink Bay. On the island of Rōn the mother wears the breastbone and the first cervical vertebra of her dead child. The same thing holds good for the skulls: as well in K. W. Land (ERDWEG [1902, 292]) as in Geelvink Bay they are placed inside the house (sometimes in a *korwār*), but in Papua Tălandjang I have never noticed anything of this. The small pieces of wood, sometimes carved with a human figure, which in Geelvink Bay are at times worn on a cord round the neck, in memory of the deceased, were met with on Lake Jamūr, which is not surprising, as on the adjacent south-west coast (Lakahia) they were seen by VAN DER GOES [1858, Pl. TT, fig. 16] in a similar shape (see Chapter XII).

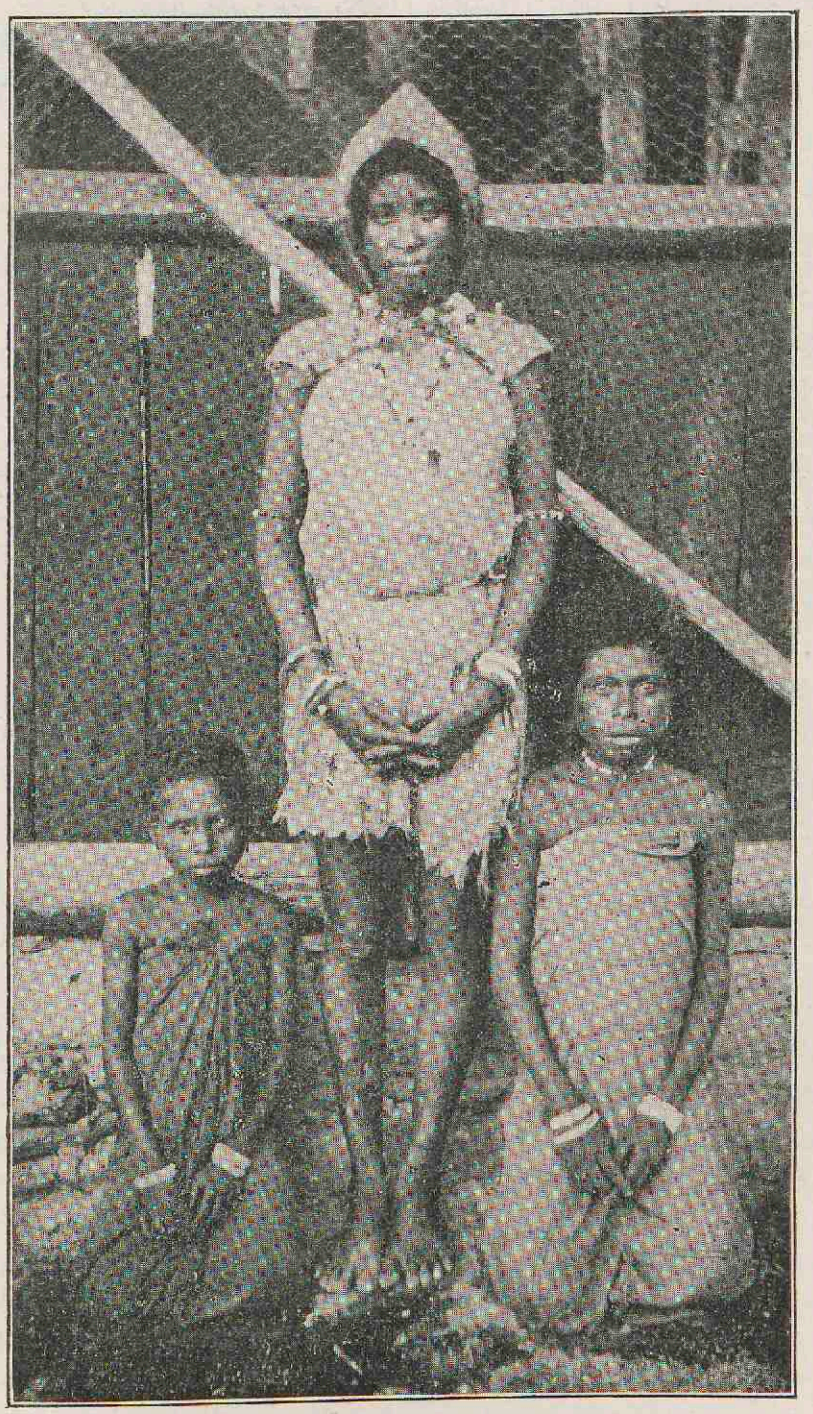


Fig. 174. Mourning dress, Wendèsi.

Mourning is also indicated by tattooing; sometimes the image of the deceased is tattooed on the back (VAN HASSELT [1886, 592]).

On the north coast (see p. 52) the colour of mourning is yellow, in British N. G., according to D'ALBERTIS [1880, II, 9], yellow and white are used for the purpose. Other authors mention black as the colour of mourning; — thus PRATT [1906, 311] writes: "the chief mourner is invariably blackened all over with charcoal", some instances are known, however, of black here being used also as the colour of war (D'ALBERTIS [1880, II, 196]).

Mutilation of the body, disjoining fingers of the left hand, in mourning (ANNUAL REPORT [1897—98, 97; 1899—1900, 73]), as far as I know is mentioned only of British N. G.

A regular mourning dress, exclusively for women, is in Geelvink Bay, as with the standing person of fig. 174, in the shape of a shirt without sleeves, fitted with a hood for the head, the whole made of bark and provided with a number of strips of red calico, which gives a gay impression. This dress, also illustrated by SNELLEMAN [1906, 126], is worn till it is entirely worn out. In the district opposite Yule Island a similar custom exists, for widows only

(MURPHY [1904, 330]), the wrapping up in pieces of bark leaving only the face visible. The women of Mowat use a kind of scarf, made of cord, but the head is left uncovered (D'ALBERTIS [l. c., 9]). The widow's cap manufactured of cord, with the "figure eight" stitch (fig. 9, p. 37), customary in K. W. Land, has not been found on Netherl. territory. ERDWEG [1902, 303] speaks of a fishing net, which old women hang over their heads, but it probably escaped the notice of this author that the fabric was not like that of fishing nets; — the widow's cap must (HAGEN [1899, 261]) be worn by the widow for the rest of her life, even if she remarries. That the remembrance of the dead is of a sad nature, was proved to HADDON [1901, 10], when people of Murray Island shed tears, on being shown photos of fellow villagers since deceased.

The family life can be described in a few words, because it exists only to a very slight degree. Where man-houses exist, there can of course be no question of a family circle in our sense of the word, and where, as with the Maníkion, all the people of a settlement live in one house, the communal life replaces for the greater part family life. Father, mother and child are thus seldom seen together. This explains why, as it seemed to me, the ties between parents and their children on Netherlands territory, are less tender than e. g. in K. W. Land, from where touching examples are given. Very young children, in want of medical help, were generally brought to me by the mothers, and only in a single instance the father came too. Boys and girls 6 years old, and older, usually came by themselves to the daily polyclinic, no parent coming to their assistance, when they were crying with pain. Still I once witnessed a mother who pressed the cheek of her child, crying partly from fear and partly from pain, against her face and tried to soothe it with tender words, exactly like a loving European mother would have done. Now and then my medical practice presented an opportunity of witnessing such a scene. When the expedition had hired 14 Tobádi youths as carriers and left H. B. by ship, in the numerous boats which formed the escort there were many women who wept, and amongst the young men, there were also some who could not restrain their tears. One of the women gave her ear rings to her son.

With a few words I must describe how strangers are treated. In former times the visitor who came to Humboldt Bay was (also at Waba) offered some water. The native who offered it, first took a draught of it himself, according to VAN DER GOES [1858, 92], to give a proof that it contained no poisonous matter; HORST [1889, 250] was informed of the same thing happening in Tobádi, ROBIDÉ VAN DER AA [1879, 279] in Tanah Merah Bay. FINSCH [1888—93, 185] mentions hot yams also (Humboldt Bay). From K. W. Land comes the report of the placing of a sago-cake, filled with grated cocoa-nut kernel (NACHRICHTEN [1888, 32]), in the mouth, whilst the bystanders sing a song. The offering of tobacco and siri to visitors is very general, the offering of women is reported of the S. W. coast. In Toronta, HORST [1889, 246] was saluted by the singing of the women, who were hidden inside a house. Waving a green branch means peace and friendly intercourse (D'ALBERTIS [1880, II, 43], MACGREGOR [1897, 44]). On the S. W. coast, on the approach of a vessel, according to MODERA [1830, 25, 69] and others, some men, but principally women and children, dressed up with leaves, dance in the sea near the shore. On the Fly River, D'ALBERTIS [1880, II, 273] saw "women jumping and gesticulating as if they were mad, twisting their bodies into horrible contortions", and as the men waved their weapons, the writer took all this for a war-dance (!) and a fight followed. As a sign of pleasure when meeting, Sentáni people sometimes shoot arrows over the water, and I agree with the remark of FINSCH [1888, 335], that the name of Attack Harbour was probably given unjustly by Dumont D'Urville; it deserves rather the name of Peace Harbour (see p. 256, below). The Tugeri (THOMSON [1892, 169]) touch the navel; more to the east, the hand or a finger is hooked (BEARDMORE [1890, 463]), nose and stomach are pointed to (CHALMERS [1885, 92]), or the abdomen is touched (ANNUAL REPORT [1899—1900, 67]). Two natives meeting again after an

absence of some time, walk together for a moment, the hands of the inner arms placed together; similar is mentioned by COMRIE [1877, 108]. He who rejoices most, not seldom places one arm on the back or shoulder of the other, and gives him, laughingly, friendly cuffs (VAN DISSEL [1904a, 643]). Of the shaking of hands in a European fashion, as described by STRACHAN [1888, 87], ANNUAL REPORT [1898—99, 21], PRATT [1906, 159], HAGEN [1899, 253], etc., no instances are found in Netherl. N. G.

After the first contact, an invitation to squat down is to be considered in Papua Tálandjang as a proof that you are trusted, and if you squat down voluntarily this is appreciated on your part as a proof of friendly confidence. On Lake Sentáni they appeared to appreciate this highly, and then all squatted down around me with a contented: "*angĕn numbŏ*" (to squat). VAN DER GOES [1858, 92] already reports how, on the occasion of a visit to Waba, and not being on friendly terms with the natives, one of the members of his company happened to squat down and all the Papuans, now in good humour, immediately did the same. VAN DER GOES thought that the squatting was considered as kneeling before the deity of the temple. NACHRICHTEN [1891, 50] also report, with regard to the hinterland of Astrolabe Bay, that visitors are invited to squat down.

When VAN DER GOES [1858, 101] left Tobádi, a narrow strip of sweet scented leaf was placed round his right wrist as a proof of friendship and brotherhood. Sometimes (FINSCH [1888—93, 185]) two strips are used, of which one is tied round the mast of the canoe. On Lake Sentáni, and also amongst the Nimbúran, the members of the expedition were invited to stand up against a tree, when with a chopper the length of their bodies was indicated on the same. Very peculiar also is the bidding good-bye after leave taking; the people of Tobádi then thrust forward the right arm, the hand hyper-extended, as if pushing away something with the palm.

What is wanting in the home life comes to the good of the village community. A more extensive feeling of "Zusammengehörigkeit" of different villages or tribes, is, in Netherl. N. G., like elsewhere, the exception. I count amongst this the joining together of the villages of Tobádi, Ingrås and Ingrau in Jótĕfa Bay, on the basis of descent and language; but at the same time a common interest exists, which must be maintained against the village of Waba. BINK [1897, 153] erroneously mentions the four villages, therefore also Waba, as being joined together. This "Gauverband" between villages, the same as reported of K. W. Land (NACHRICHTEN [1888, 229]), comes most prominently to the fore on the occasion of joint festivals. The people of Hiri, Mapār and Horna, however, who state that they all belong to the Maníkion tribe, are nevertheless badly disposed towards each other.

The mutual attachment of the inhabitants of one village appeared to be very strong in all the places visited by the expedition. Everywhere, as reported by HADDON of Torres Straits (REPORTS [V, 276]) "the communal life predominates over the individual life". The reason of this lies in the common danger to which the inhabitants of one settlement are always exposed from other villages. This danger, which can only be averted by a united defence, consequently leads to great unity, and thus the offence, committed on a single individual is considered to have been made on the whole of the village (see ANNUAL REPORT [1894—95, 39]). It is necessary for people, living under the rules of Western society, to realise what it means when the women can go to, and return from, the gardens only under an armed escort. One would suppose that those "children of nature", have a life without

sorrow; — on the contrary they have, as it is expressed in ANNUAL REPORT [1894—95]: "a miserable life of continual anxiety"; fear, according to MACGREGOR [1897, 41], being the only restraint on absolute freedom. When settling at Asé in June 1903, I expected to see a large quantity of patients turning up for medical help from the neighbouring villages; but, what I had not foreseen, not a single stranger would risk himself in this village. BINK [1897, 203], travelling on Lake Sentáni, experienced that the women of Ajápo did not dare to row him any further because they saw boats of Asé in the distance; — both these villages (see fig. 94, Ajápo visible at the right) are situated on the same lake, at a distance of not more than half a mile, and were not at war with each other. Each member of the community, who endangers by his actions the peace of the village, finds all the other members against him, or, as it is expressed in REPORTS [V, 276]: "any infringement of the rules of the community is regarded as an offence against the society". I do not understand how MACGREGOR [1897, 48] could write that the rights of the individual, not of the community, form the basis of the Papuan law of custom. The good order in Papuan society is generally sufficiently protected by the belief of each individual that he bears part of the collective responsability. Therefore the visitor from the West usually notices nothing of a central government. Thus HADDON [1894, 255] arrived at the conclusion that "chieftainship in the true sense of the term is entirely wanting in British N. G."; the same conclusion is formed by MAC FARLANE [1888, 111], on this ground, that the chiefs "cannot impose a tax of any kind". In British N. G. there is invariably a chief in each village (COMRIE [1877, 106], PRATT [1906, 301]), or to each tribe (BEARDMORE [1890, 459]).

HAGEN [1899, 278], regarding K. W. Land, speaks of an organisation without any authority, VAN DER GOES [1858, 167] writes of the inhabitants of the Arfak Mountains: "the chiefs without authority and the right of the strongest the law"; but we should admit that under these conditions no society could continue to exist, even amongst the Papuans. It was also thought formerly of Humboldt Bay (ROBIDÉ VAN DER AA [1879, 116, 268], FINSCH [1888, 360]) that the most impudent or strongest assumed the lead. That on the contrary an actual government does exist, as, indeed, had already been noticed by VAN DER GOES [1858, 182], has since been proved most clearly.

The supreme chief, called *Kărĕsŏri*, lives at Tobádi, and has in each of the three villages, Tobádi, Ingrâs and Ingrau, a *jente kărĕsŏri* under him. The house of the *kărĕsŏri* is built by the three villages together; BINK [1897, 153] learned when he tried to buy some of the decorations, which were being manufactured for the said house, that nobody dared to part with anything. This house is the largest of all the private houses, just as his boat is bigger than any other. The *kărĕsŏri* orders or forbids the collection and the sale of fruit. He gives his consent to, and regulates, joint hunting parties, and, as it appeared to me (see p. 163), also the joint fishing. As an apparently unsound excrescence of his authority I mention that with shooting, races in rowing, etc., organised by KONING [1903, 266], the *kărĕsŏri* exacted the first prizes for his boats and people. He indicated as carriers for the expedition, the young men of the temple, amongst whom, as will appear later on, he exercises special authority. Finally under his care a kind of Public Exchequer exists, out of which, he pays food in times of scarcity, the ransom of prisoners and the indemnification of wounded or killed. Part of the fish, which after each catch are handed to the chief, was also intended for this

fund. The dignitary, called *Hămadi*, is, it is true, a strongly built man, who also obtained a higher number with the dynamometer, and played the flutes in the temple with less effort than any other, and he is also an extremely good shot; but all this we learned casually, and not by these means did he obtain or maintain his position in our eyes. On the contrary he belongs to that class of diplomats, who, in a friendly manner, demand everything for themselves, working at the same time with delay; the word "nanti" (Malay = wait) being constantly in his mouth. When once I ridiculed him about this eternal "nanti", the diplomat himself laughed and all his surrounding villagers joined. The eldest son of the *kărĕsŏri* was pointed out to us with some respect, whether the dignity is, however, hereditary, and the exact relative position to the *jente kărĕsŏri*, I do not know. Bowing before their chiefs is no genuine Papuan custom (see however VAN HASSELT [1876, 196]).

On Lake Sentáni each village has its head, *ondŏfrå*. At Asé this was an old man (fig. 163), completely blind from cataract in both eyes. Strangers, visiting the village were usually brought to him, for which purpose he sat in the community house. Possibly his condition was the reason why I noticed but little of his authority in deeds. According to the interpreter, however, he could in certain cases of misdemeanours amongst the population of the village, command some of the older men to force the miscreant to remediate the damage caused, as all the intra-tribal crimes in fact are redeemable. To such older men a large influence is also owing in Torres Straits (REPORTS [V, 263—265]).

On the S. W. coast, on Adi and Kaimani the chief very actively assists himself when harmony is disturbed (VAN DER GOES [1858, 113, 127]). On the occasion of a visit to Ifâr, Mr. DUMAS and myself were received by the village chief who awaited us with a large number of men in the community house. After we had all squatted down, only some of the elder ones joined in the conversation with the *ondŏfrå* and us. When we intimated our intention to return for a longer visit, the chief, with an air of decided authority, gave the assurance that the whole expedition could come and that he would hold himself responsible for our safety.

Community houses, houses of assembly, to which women are by no means forbidden, but which are, as a rule, only visited by the men, have in Papua Tălandjang always a four-sided roof, with horizontal ridge pole. On one or more sides the vertical wall is wanting. On Lake Sentáni it is generally attached to the house of the chief. At Asé the tree trunks, which supported the roof, were placed upside down, and the enlargement of the roots had been beautifully carved à jour, whilst on the stem itself crocodile and human figures had been cut out. Large drums like N°. 1277 (Pl. XXVIII, fig. 4) were suspended above a fireplace behind a screen; between the rafters of the roof, arms, taken in war, were stuck, the war banner N°. 1268 and the brass objects N^{os}. 694—696. Fishing gear of all sorts was stowed inside, and large rolls of prepared bark, whilst here also the dowry (see p. 267) was exposed. The community house of Tobádi has an elevation on the roof like the Mohammedan missigits, the ridge pole continued at both ends into ornaments. It stands exactly between the house of the village chief and the temple, near the corner of the large platform, where a horizontal beam has been carved into the figure of a woman in child-birth. On Pl. I of MEYER and PARKINSON [1900], who call it *jainpa*, it is seen from the western side; in fig. 194 (p. 301) it is seen from the south-east. During the visit of BINK [1897, 152], who heard

the building, as well as the temple, called *kărĕvări*, it was used as an abode for the night by the same young men, who were seen working in it during the day. In 1903 it was sadly in want of repairs (see fig. 194). Some large nets, *jane*, and also the Netherl. coat-of-arms, were still to be found, but seldom was anybody seen there. The community house of Thaë, represented in figs. 175 and 176, is of the same shape as the one of Asé. It is built at the eastern end of the village near the temple, which stands quite by itself, still more to the east, and separated from it by a fence; on this side it is also closed by a vertical wall, whilst the other sides, turned towards the village, are entirely open (fig. 176). The ridge pole is, at each of the ends, continued into a crocodile, which, with its mouth open, seizes the partes posteriores of a human figure. Inside I found some men, also the shields (N^{os}. 1261—65, Pl. XXVI, figs. 2, 11—14), captured on the occasion of an attack by the Arso people, whilst wooden birds like N°. 565 (Pl. XIX, fig. 8), were hanging, suspended by cords, from the beams. The community house at Jambuë is of the same shape and was harbouring at the time of my visit, a large number of male guests from other villages, congregated for a wedding feast.

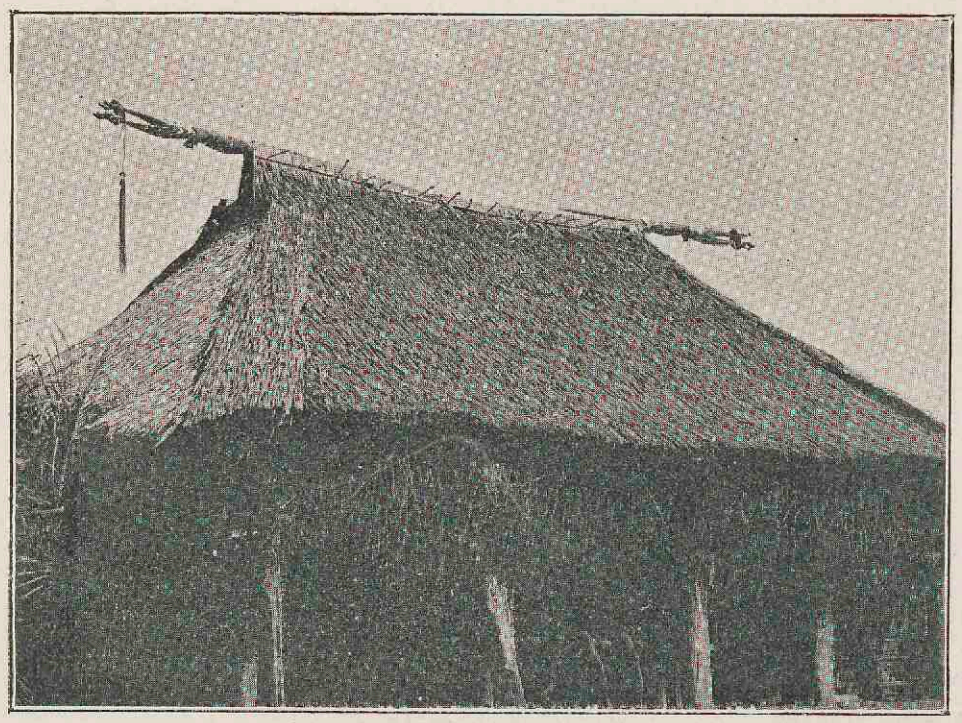


Fig. 175. Community house; Thaë.



Fig. 176. Community house and temple; Thaë.

That the community houses, which also occur elsewhere, but in other shapes, as the "alol" of K. W. Land (MEYER and PARKINSON [1894, Pl. 43], PARKINSON [1900, 35]), the "kwod" of Torres Straits (REPORTS [V, 173]), the "marea" of British N. G. (D'ALBERTIS [1880, I, 319]), have any religious meaning,, one may assume e. g. from the nature of the ornament, in which the crocodile often occurs. HADDON [1900, 276] calls the club houses of British N. G. "the centre of the social, political and religious life of the men". In Papua Tălandjang, they have, no doubt, less to do with religion and on Lake Sentáni I have often met women inside, which in this case, excludes a religious meaning.

Of Geelvink Bay no community houses are known, the front platforms (pag. 132) of the common turtle-shaped dwelling houses serving as meeting places for the men, as is also reported by HADDON [1900, 421] of the long houses on the Fly River.

In the settlements of the Manĭkion, which always consist of one building, one of the men, by no means always the oldest, is called "*majōr*" and armed with the authority; with these governors the expedition conducted the negociations concerning guides, carriers, etc.

On Lake Jamūr, at Angádi, the expedition was received by two chiefs in European dress, who had hoisted the Netherlands flag, whilst the greater part of the population had fled. With their help we got the necessary boats and guides, but I have not been able to ascertain how far the authority of these leading men extends.

It is the general opinion of travellers in New Guinea, that the Papuan is very fond of feasts, the noise of which only too often disturbs the night's rest. But I must at the same time observe that the inland tribes generally have much fewer feasts and that at Asć during the 15 days of my stay, not a single nightly feast took place.

In these feasts also the intimate social life of the villagers shows itself, in so far as small feasts limited to one family, or to the inhabitants of one house, do not occur; whatever may be the occasion, it is always kept up by the whole community. The catching of a big sea turtle by men of Ingrâs was the occasion for such a feast, held in Tobádi together with the other villages. After the shot boar (see p. 157), had been brought into the temple, a similar feast took place, and each of the invited guests, including the members of the expedition, received a small piece to take home. For so far as that day's feast (8th of July) took place on the platform, it was in no way connected with boar hunting, but, according to the people, it was now the time for this feast, for this dance. It meant a New Year's feast (see also ANNUAL REPORT [1902—03, 23]) and I got the impression, that since the 15th of June, when the ornamental staves (see p. *298*) had been placed, a period of festivities had begun, probably on account of the beginning of the east monsoon.

At Tobádi the feasts were celebrated either in the temple or on the large platform situated in front. In the latter case, the young men of the temple, who must remain hidden from the women, may never take any part in it. The oldest men generally limit themselves to looking on, but otherwise there are feasts in which both sexes participate and others from which the women are excluded. As to most feasts, if not to all, a religious character must be granted, the further consideration of them finds a place under Chapter XII.

N°. 1269. Pl. XXIX, fig. 25. $^1/_3$. Siarí; top, of conical piece of reddish brown wood, with lengthwise run of fibres, horizontal section somewhat elliptic, flat point; at $^1/_4$ of the height a broad, circular notch for the string. Toy for men and boys.

N°. 1270. Pl. XXIX, fig. 23. $^1/_{13}$. *Ojè*. Asé; piece of a sago leaf stalk, *simbèri*, mounted on convex side with 119 flat pegs, *öjè*, of same material, all fixed between two lengthwise strips, *kětjömbi*, bound with bark fibre, *sa*. Abacus for the beads of a dowry.

N°. 1271. *Nökäwi*. Ingrås; like N°. 1270, in the stalk, *arfan*, 96 pegs, *känöan*, between lengthwise strips, *känöan*, of same material, wound round with vegetable fibre, *wār*.

CHAPTER XI.

ART.

Every Papuan possesses a certain artistic sense, and all are accustomed to apply it. It is for this reason that no member of Papuan society makes art his sole means of existence. But it has already been pointed out above, that entire villages may possess a kind of monopoly of producing articles of native, technical art. Music, singing and dancing are dealt with in Chapter XII, consequently only a few remarks find their place here, regarding plastic art.

A thorough knowledge can, after all, only be obtained, as remarked by VON LUSCHAN [1897, 76, 81], after prolonged residence and by a complete mastery of the language. UHLE [1886, 5], HADDON [1894, 250], PREUSS [1897, 81] and others are of the same opinion with regard to the often mythological meaning of the ornaments, which have, moreover, a definitive relation to the flora, and especially to the fauna of the country. With the ornaments of primitive races even the most simple form has its special meaning (VON DEN STEINEN [1904, 126]); this has been proved conclusively with the tattooing in H. B. (see p. 46), and one may therefore call it a kind of writing (PREUSS [1897, 83]), though difficult to translate, firstly because the figure generally deviates much from the natural form of the subject it represents, whilst another difficulty is to find out what mental ideas are hidden in the illustration. Not the form, but the meaning is the most interesting part (HADDON [1894, 271], PREUSS [1897, 82]). A thorough knowledge is necessary in order to understand why certain figures constantly recur on certain objects. The difficulty is only evaded by talking of an ornamental „adat" (LOEBER [1903, 69]).

That the Papuan is quite familiar with the idea of writing became evident to me, when, writing a letter on a certain evening at Asé, I had explained to an enquiring Papuan, who was looking on, that distant relations would be able to make out from my scribbling, that I was at Asé and how I was getting on. From the animated explanation which the man at once gave to his companions, I heard how he indicated my writing with the word "*åne*", which was always used for o r n a m e n t, also for the carved or painted ornament. The con-

viction that the ornament of the Papuan represents a kind of writing, expressing ideas, and giving a legible form to thought, was then brought home to me for good.

Lines, apparently of an arbitrary shape, turn out, on closer inspection, to occur in exactly the same manner on objects obtained from different places. The art of Papua Tälandjang, which, as far west as Tanah Merah, is counted by PREUSS [1897, 85] to belong to that of the German-Netherlands' frontier territory, is rich in similar examples, proving that not the personal artistic ideas, but the mental conceptions of the tribe guide the hand.

As an often occurring illustration I mention the complex of zigzag lines on the tobacco cylinder N°. 153, Pl. V, fig. 3, on the handles of the lime calabashes N^os^. 185 and 186, Pl. VI, fig. 4^a^, and on the boar lance N°. 575, fig. 100^b^.

Another illustration is the composition of circles and triangles on the handle of the lime calabash N°. 179, Pl. VI, figs. 3 and 3^a^, on the boar lance N°. 574, fig. 100^a^, on the hackling sticks N^os^. 580—583, Pl. XX, fig. 16, on the chisel N°. 703, Pl. XXIV, fig. 11 and on the arrow N°. 748, Pl. XXVII, fig. 1.

They belong to the tribal ornament described of these parts by the original studies of PREUSS. His figure of the flying *Pteropus* [1898, 102, fig. 143], taken by BIRO [1899, 62] for a human figure of which the limbs have been changed into spirals, has since been explained by SCHMIDT [1903, 77, 78, fig. 1] and PÖCH [1905, 445] as representing a butterfly. It occurs on the shields N^os^. 1263—64, Pl. XXVI, figs. 13 and 12.

The linked ornament taken by PREUSS [1897, 95, 105, figs. 2—10; 1898, 104 figs. 148—150] for a row of dancers, or *Pteropus*, also illustrated by FINSCH [1888—93, Pl. 9, fig. 6], BIRO [1899, 61, Pl. XIII, fig. 1; 1901, 38, fig. 10, N°. 3], ERDWEG [1902, 369, fig. 255] and GRAEBNER [1902, 301, 302, figs. 6—14] also occurs on the shields N^os^. 1261—62, Pl. XXVI, figs. 14 and 2. The objection advanced by PREUSS himself [1897, 104] against his view, namely, that such an arrangement of dancers does not occur with the dances known, may be considered as removed by the descriptions of dances by ERDWEG [1902, 304] and those treated in Chapter XII (see figs. 198—199).

PREUSS [1898, 87, 88, fig. 55] and PARKINSON [1900, Pl. XXI, figs. 39—40] mention ornamented lower arms of bows, while in my opinion these are the upper arms, and the ornament should be looked at from the opposite direction.

On page 197 I already stated that the ornament of the oar, taken by PREUSS [1899, 174, Pl. V, fig. 27] as originating from snake figures, is on the contrary a conventionalized fish figure, very common on Lake Sentáni, to be found on the oars N^os^. 670—672, Pl. XXII, figs. 1—2. Also on Pl. I, figs. 11—13 and 17; Pl. II; Pl. III, figs. 14—15; Pl. IV, figs. 11 and 21; Pl. V, fig. 4; Pl. XII, fig. 4; Pl. XVIII, figs. 2 and 11; Pl. XXII, fig. 6; Pl. XXIII, figs. 1—4; Pl. XXV, fig. 4; Pl. XXVI, fig. 3—6 and 8.

The loop coil is, to a high degree, characteristic of Lake Sentáni and neighbourhood, and startling is also the frequent use of the eye ornament, sometimes by a high number covering a whole surface; — see Pl. XVII, figs. 11, 13 and 14; Pl. XVIII, fig. 11; Pl. XXV, figs. 5—7; Pl. XXVI, figs. 11 and 14. — I found it confirmed that the eye is also drawn in the form of a spiral (PREUSS [1898, 90]); see fig. 150 in text.

The plastic representation of man is characterised in H. B. and neighbourhood by the upper part of the head being disproportionately large compared to the often triangular

face; it represents the mop of hair (see Pl. III, figs. 7, 7a and 8; Pl. IV, fig. 35; Pl. V, fig 6a; Pl. XVIII, figs. 3a, 4, 5, 6a and 9; Pl. XIX, figs. 1—2 and 7; Pl. XX, fig. 16). PREUSS [1899, 165] thought it represented a wig. The lengthened, pointed shape of the nose, known of the ornaments of K. W. Land, is very seldom met with on Netherlands territory (SCHMELTZ [1896, 114]). The regions of the shoulderblades, hips or trochanters are often in relief; the same with the knees, as also reported of British N. G. (HADDON [1894, 52]). The placing of the toes in a vertical row, as SCHMELTZ already pointed out [1896, Pl. IX, figs. 15 and 17], only takes place for technical reasons (see Pl. XVIII, fig. 4). Generally the sex is indicated, which is not to be wondered at. With dog figures (see p. 148) the genitals are never wanting (see also HADDON [1904, figs. 15 and 19]); the crocodile is characterised by the prominent nostrils (see also HADDON [1894, 53]); see Pl. IV, fig. 23; Pl. XVIII, fig. 6b; Pl. XIX, fig. 9. It must not be confused with the circular front of the pig's snout.

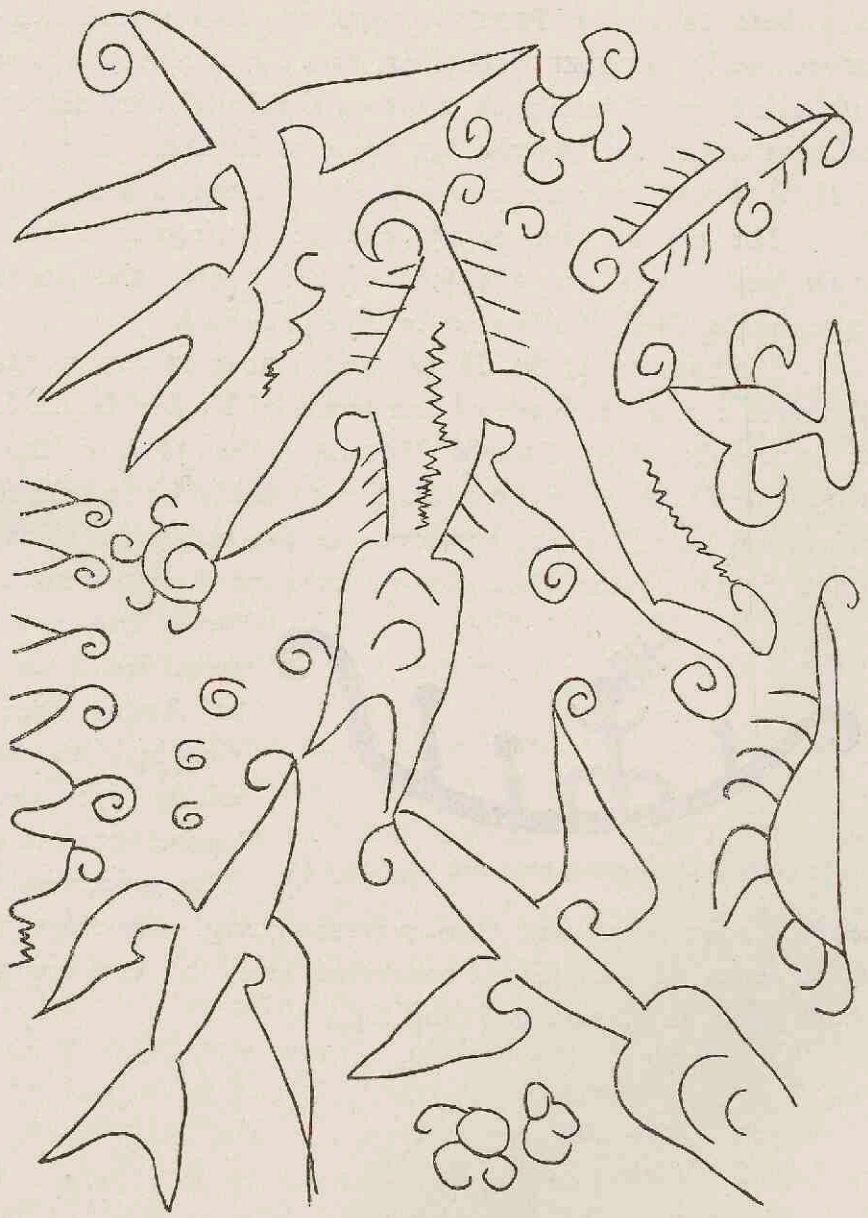


Fig. 177. 3/4. Pencil drawing on paper by a Tobádi youth.

Birds flying are sometimes drawn in the phase of the forward position of the wings; Pl. XXII, fig. 11 gives some illustrations of this, and VON LUSCHAN [1897, Pl. XLVII, fig. 4] represents of New Mecklenburg a hornbill, with the wings in this position. On fig. 177, a number of drawings, made with coloured pencil on paper by a Tobádi youth, entirely from his own inspiration, this peculiarity can also be noticed, to the right below. The head end has generally a curl, the tail or wing less often. The zigzag lines to be found in this drawing, according to SCHELLONG [1895, 58, Pl. IX, fig. 19] represent snakes. That all drawings on the penis calabashes represent birds, I am unwilling to take for granted. In the drawing on N°. 436, Pl. XVI, fig. 12, a broadening can be noticed at both sides, which very possibly may be intended for the patagia, the extensible folds of skin, which with flying marsupial animals are stretched from the fore to the hind limbs, and act as a parachute. Probably Petaurus is meant.

Echidna (SCHMELTZ [1895, 165, Pl. XV, figs. 1 and 2], PREUSS [1897, 93]) does not occur in K. W. Land (PÖCH [1905, 450]) nor in the neighbourhood of H. B.; Tobádi people did not recognise the illustration shown to them.

On the left of fig. 177 triangular figures occur, with a curl on the top. Such figures with a shorter, hook-shaped curl also occur on the bark girdle N°. 407, on the object N°. 572, Pl. XV, figs. 1 and 2, and on shield N°. 1262, Pl. XXVI, fig. 2, and can also be seen as an ornament on the "alol" of Tumleo (MEYER and PARKINSON [1900, Pl. 16]). They have been taken by PREUSS [1899, 174 and 175, figs. 4—5] for birds' heads with strongly curved beaks. LOEBER [1903, 47, figs. *b b*, 4 and 5], however, looks upon them as volcanos with a column of smoke at the top. Girdle N°. 407 shows triangles with two hooks, bent in different directions like the fig. *b b*, 4 of LOEBER. I, however, do not believe that the people of H. B. would use volcanos in their ornamental art.

The *aběkwe* (see p. 45) can be distinguished in the left part of fig. 177, also the crab (see p. 44), at the foot of the figure; the barbed drawing at the right, I guess, represents a shell of *Murex* or *Pteroceras*.

D'ALBERTIS [1880, II, 66] and THOMSON [1892, 154] give of the Fly River specimens of figures cut in the bark of live trees; of Netherl N. G., LEON [1884, 584] mentions imprints on rocks, also VAN BRAAM MORRIS [1884, 588], ELLIS [1888, 19, fig. 1] and DE CLERCQ [1889b, 1676]; some of them (hands!) probably belonged to Mohammedan graves. By the present expedition, spiral figures, scratched in the sandstone, were seen on the small island of Sösena (Lake Sentáni, near Poë). On rocks, near the gardens of Tobádi, crocodile-like figures had been drawn with red clay. Drawings with lime were found on the back wall of the chief's house at Angádi (see fig. 80, p. 134); amongst these drawings (see background of fig. 201) occurred that of fig. 178, presumably the illustration of a war canoe, containing one headman with three others. This is certainly intended as a memento of a successful excursion of war. Real picture-writing — pictography — recording events, and giving by a series of pictures a connected story of the course of an event, does not appear to occur on N. G. (HADDON [1894, 65]).

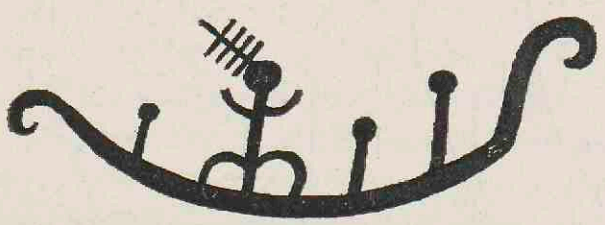


Fig. 178. 1/12. Drawing on a wall at Angádi.

CHAPTER XII.

RELIGION.

However difficult it may be to obtain correct information regarding the social life of the Papuans, it is much more difficult to form an idea of the nature of their religious convictions. The experience, already gained before, and recently confirmed by VAN DISSEL [1904a, 942] with regard to the western parts, was also gained by the expedition, that the Papuan, in sharp contrast with the propagandism and proselytism of other cults, is not inclined to talk to strangers about his religious sentiments. Temporary visitors very seldom get to know anything about them, and even most missionaries are unable to form a fairly clear opinion.

I must therefore limit myself to the statement of acts, which bore the character of a religious service. It will then appear that in a good many respects, there exists a similitude with the rites of Tumleo Island, situated near Berlin Harbour, and that the large pyramidical buildings, which occur in Humboldt Bay and neighbourhood, take the place of the "Geisterhäuser", parák, reported of the Berlin Harbour district. Both kinds of buildings differ much in construction, and PARKINSON [1900, 33] is justified in writing that the parák is not met with outside the said district; still the nature of the religious rites and ceremonies employed resembles closely those of H. B.. MEYER and PARKINSON use the term *karawari* for the community houses [1894, 12, Pl. 43] as well as for the sacred houses [l. c., 13, Pl. 49] of K. W. Land. BIRO calls the "Geisterhäuser": churches, giving the native names of *karowara* [1899, 45] and *karowari* [l. c., 51]. In H. B. the Jótĕfa people generally indicated the building by the name *kărĕwări* (probably the name of the principal spirit worshipped inside), the name of the building proper being *uhåb*, given by DE CLERCQ [1889, 1266] as *onggi*, by MEYER and PARKINSON [1900, 1, Pl. 1] as well as by KONING [1903, 258] as *mau*.

I will call these buildings "temples", evading the names, rum sĕram, missigit, tabu-house, which are all connected with representations, which stand in the way of a correct judgment. However, inside these temples, some things are found and ceremonies take place, of which I cannot indicate the connection with religion. This has evidently induced FINSCH [1888, 356] to deny to the *kărĕwări* every religious meaning, assuring [1903, 133] that these

temples are merely man-houses for bachelors. The authority which, in matters, concerning New Guinea, must be granted to Finsch, makes it necessary to explain how Finsch on the occasion of his short visit on the 17th of May 1885, no interpreters being present, most probably by his energetic demeanour, without noticing this himself, intruded upon the ceremonial, which is always more or less maintained inside the temples, the inhabitants being so much taken aback, that they even allowed him to touch the sacred flutes. But before this, VAN DER GOES [1858, 92, 99, 177] as well as ROBIDÉ VAN DER AA [1879, 272], had learned by visits to the temples of Tobádi, Kajó and Waba, the particular meaning of these buildings and of several objects found inside. The same experience was made by HORST [1889, 250], BINK [1897, 168—174] and KONING [1903, 258], and it has also been confirmed by the members of the expedition, who, in the course of several months, paid numerous visits to the temples. In the following pages the reader will find many proofs from which it cannot be doubted (ATLEE HUNT [1905, 8] regarding British N. G.) that the natives have any religion, or as HAGEN [1899, 278] wrote of Bogadjim, only possess a germ of the same, but that the Papuan society of these parts is entirely impregnated by it.

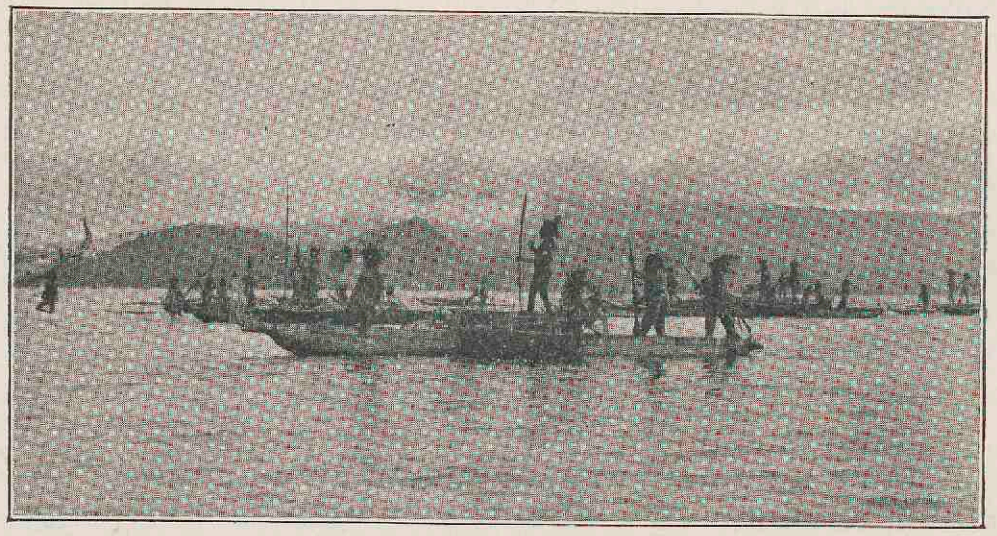


Fig. 179. Satan feast of Waba people.



Fig. 180. Entrance during the Satan feast; Waba.

Only twice I noticed religious acts performed outside the temples, and not connected with them. If I mention a few dates, this is done because certain religious acts, as also learned by ERDWEG at Tumleo, are connected with the monsoons, and therefore with the harvest, navigation, fishing, etc.

On the 20th of March 1903, when the expedition left by boat for Waba, the greater part of the male population in canoes was seen at a distance, in the south western corner of the inner bay; it was impossible to find out what they were doing there, but loud singing could be heard, and, judging by the sound and the rythmus, entirely in the style of the temple songs of Tobádi. Shortly after our arrival in the village, the whole of this fleet, the men singing all the time, also returned there, the different crafts being decorated with foliage, and the men, some armed with bow and arrow, elaborately got up. They were in a state of great mental excitement, swinging their bodies and moving their heads and arms backwards and forwards, whilst shaking on their legs; — some placed arrows on their bows (see fig. 179). When they had reached the shallow water near the shore, they jumped out of their boats and continuing these excessive movements (fig. 180) some threw themselves down in the water, to jump up again immediately and at last run to the shore. Many were gasping for breath, partly from fatigue, and shouting at the same time, whilst some performed with their arms strong vibrations and movements of the muscles, the weapons in their hands shaking violently in consequence. Thus most of them ran past the visitors into the village, where we met them a few moments later on, near their houses and without their ornaments, now in the most peaceful state of mind. Interpreters of Tobádi said that this had been a Satan feast, but I could not understand what it meant. I only remark that the fleet went, to hold the feast, to that part of the inner bay where Waba has its fishing rights.

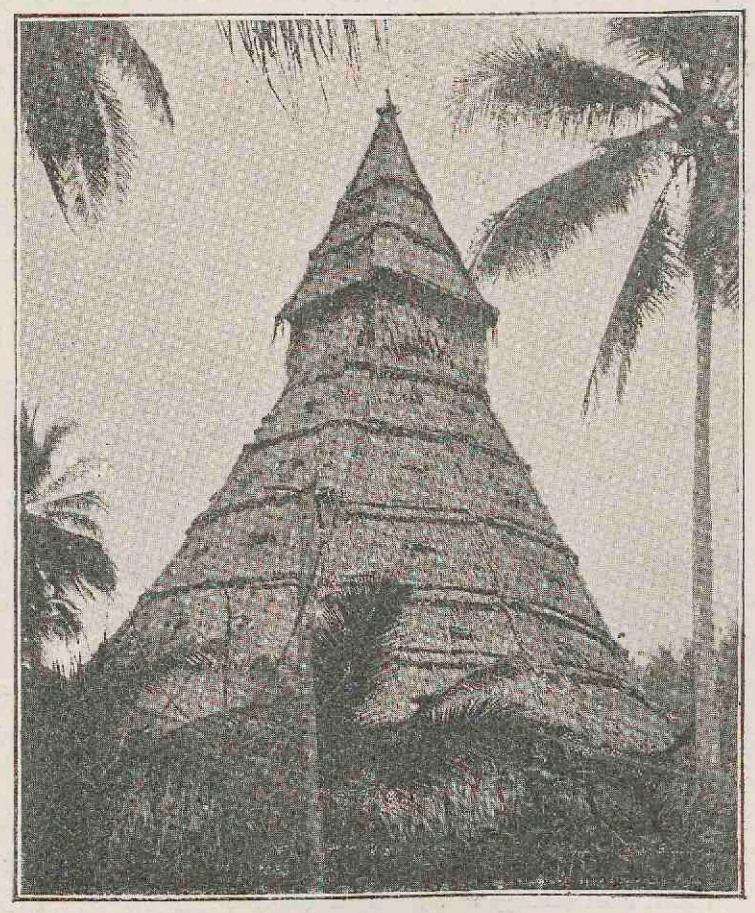


Fig. 181. Temple at Jambué.

At another time, about the 7th of June, something similar happened with some unarmed men of Ingrås. On the shore of the peninsula opposite their village, they were running to and fro in all directions, staggering as if strength failed them to walk properly, throwing backwards and forwards their bodies and heads, now moving their arms with great strength and then again letting them hang by their sides like lamed; at the same time booming sounds were raised, the meaning of which remained unknown to me. After moving from 30—50 paces in one direction, they threw back their bodies as if being pushed back by an invisible power and then retreated along a somewhat different line. The whole did not last longer than ± 40 minutes; women and children paddling past this part of the shore in their boats, appeared to take no notice whatever of the proceedings. According to the interpreters this again was a Satan ceremony.

Some of the spirits in which the Humboldt Bay people believe, reside in lonely spots in the forest, like those which, according to the people of Tumleo (ERDWEG [1902, 297]), dwell on certain mountains and in the valleys. When the expedition was proceeding on the 5th of May 1903 along the two small, marshy lakes Brébia Nanaměsói and Brébia Nanamēm, situated inland of the rocky Cape Bonpland, the guides of Humboldt Bay who accompanied us, plainly showed their fear of the evil spirits residing there, and they tried to hasten us a little. At Nimbúran, people did not allow our coolies to scoop water from the river in the rice pots themselves but only in the lids, — otherwise the spirit of that river would grow angry.

But the principal spirits reside in the temples and here the religious life is concentrated and uttered in various forms.

The construction of the temples is, along a great part of the coast, pyramid-shaped, as e. g. at Oinåke, in the district of Sěkå (figs. 84, 176, 181 and 182), at Tobádi (figs. 183 and 194), at Kajó Entsáu (figs. 85 and 184) and at Sägeisårå (fig. 185). The temple at Năcheibe has a horizontal ridge pole, as well as the one at Tanah Merah and at Anus (HORST [1893, 147]). The original shape (see FINSCH [1888a, Pl. II, 1]) is four-sided (not six-sided; see MEYER and PARKINSON [1900, 1]), but by a ridge on each wall usually becomes octagonal. At the top the roof often has a continuation of a somewhat wider pyramid, generally kept four-sided. Otherwise the flooring, side walls and roof covering are like those of the ordinary houses of this type. With those built above the water only one door opening is met with, towards the side of the roomy platform, those on the shore have usually two, placed diametrically; four openings in the walls, as VAN DER GOES [1858, 177] reports, I have seen nowhere, — this must certainly be a mistake. Very often the walls bend inward near the doors, and, having passed below the edge of the roof, one first proceeds along a short passage before reaching the proper door opening. A fringe of leaf strips, depending from the edge of the roof, prevents looking inside; moreover the temples are usually situated at one of the ends of the villages separated by a palm leaf fence, as already noticed by VAN DER GOES [1858, 92], or more or less surrounded by such a fence (see figs. 176, 182, 198—200). When there is more than one door opening, there are no openings in the roof, otherwise a part of the roof covering opposite to the door, can be pushed up like a lid and supported in this position by a stick. None of the temples visited, had openings at the top to let out the smoke, as FINSCH [1888, 358] apparently wishes to indicate by the smoke issuing from the top of the Tobádi temple. The outside decoration is not omitted in the case of a single temple, but the one of Tobádi is the richest in carved, and other ornaments.

Special mention is still owing to the ornamental staves decorated with fruit shells and palm leaf fringe, which are applied to the number of eight to the temple of Sägeisårå (fig. 185), but which can also be plainly distinguished on the N. W. side of the *kărĕwări* of Tobádi, on a photo of MEYER and PARKINSON [1900, Pl. 2]. I have been unable to find out the meaning of these sticks, but it will appear hereafter that they have something to do with the religion. On the hills near Tobádi (see fig. 87) and Kajó a number of them are also met with, fastened in the trees and noticeable from afar by the waving of the leaf fringe; these were erroneously taken by DE CLERCQ ([1889, 1269], DE CLERCQ and SCHMELTZ [1893, 186]) for grave ornaments. On the margin of the forest opposite Ingrås they have also been placed

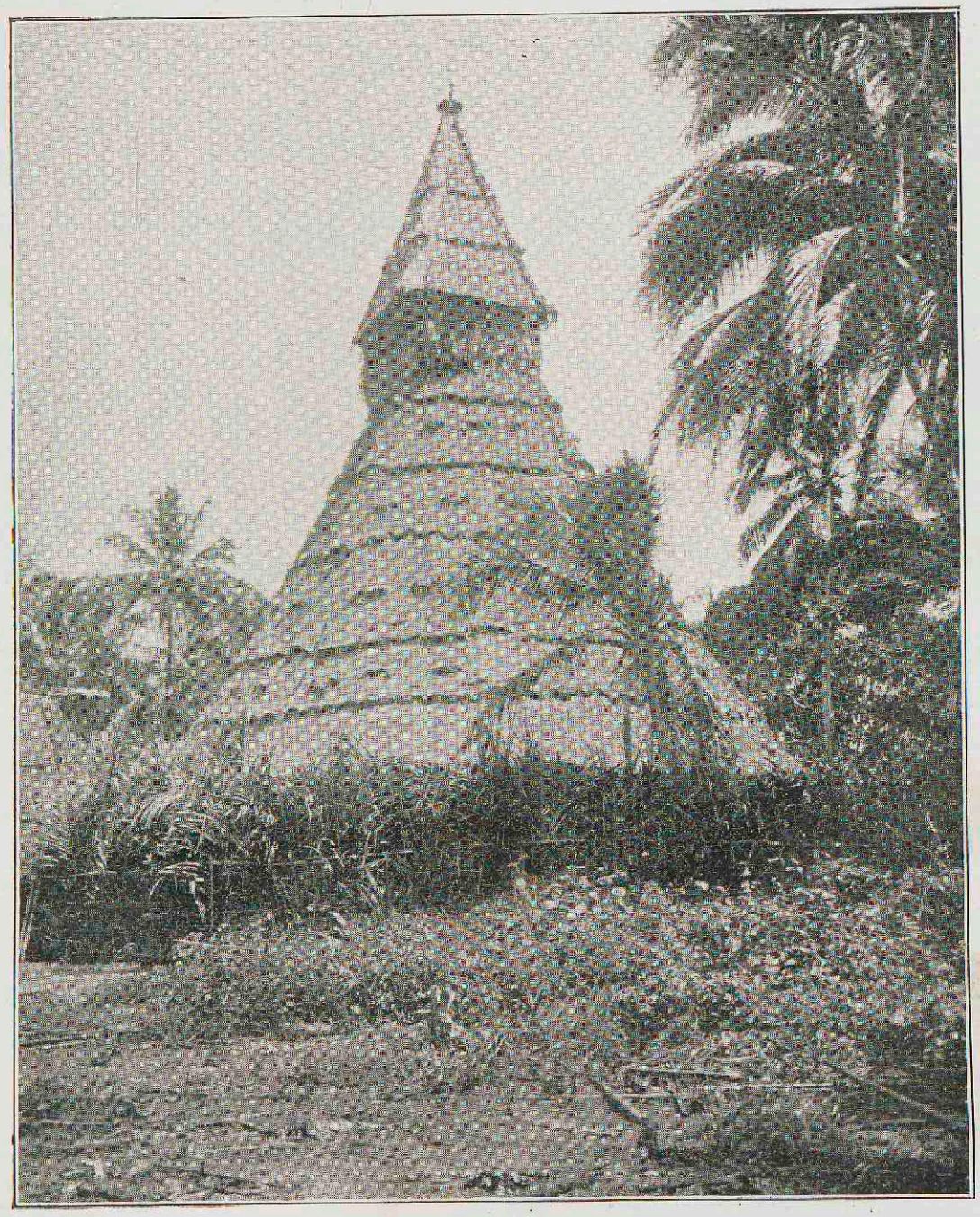


Fig. 182. Temple in the Sĕkâ district.



Fig. 183. Tempel at Tobádi.

and in 1903 one was standing even in a tree on the south shore of Metu Débi. But it is remarkable that also on Lake Sentáni, where I have never noticed anything connected with religious life, similar plumed sticks occur in the trees close to the village of Asé, (fig. 160) and near Ifār (fig. 162), where they are also standing on a pyramid-shaped watch-house. More towards the west than the village of Abār, also situated on Lake Sentáni, I did not see the ornamental staff. On the spire of every temple a wooden figure is to be seen, corresponding to that of the pyramid-shaped houses (see pp. 137 and 255). BINK brought home a specimen, which is at present in the Utrecht collection. According to KONING [1903, 258] it is called *korwar* or *karwari* and gives its name to the temple; BINK [1897, 170] writes *karakarau*, the same word which I put down for dolls and human images on lime spatulas, etc. and which shortened to *kārau*, *chārau* or *chare* means: human being (or frog, see p. 45). DE CLERCQ [1889, 1266] calls the figure, *tjèhè*; the sex I do not know. — For the rest I can refer to the description of FINSCH, adding a few interiors.

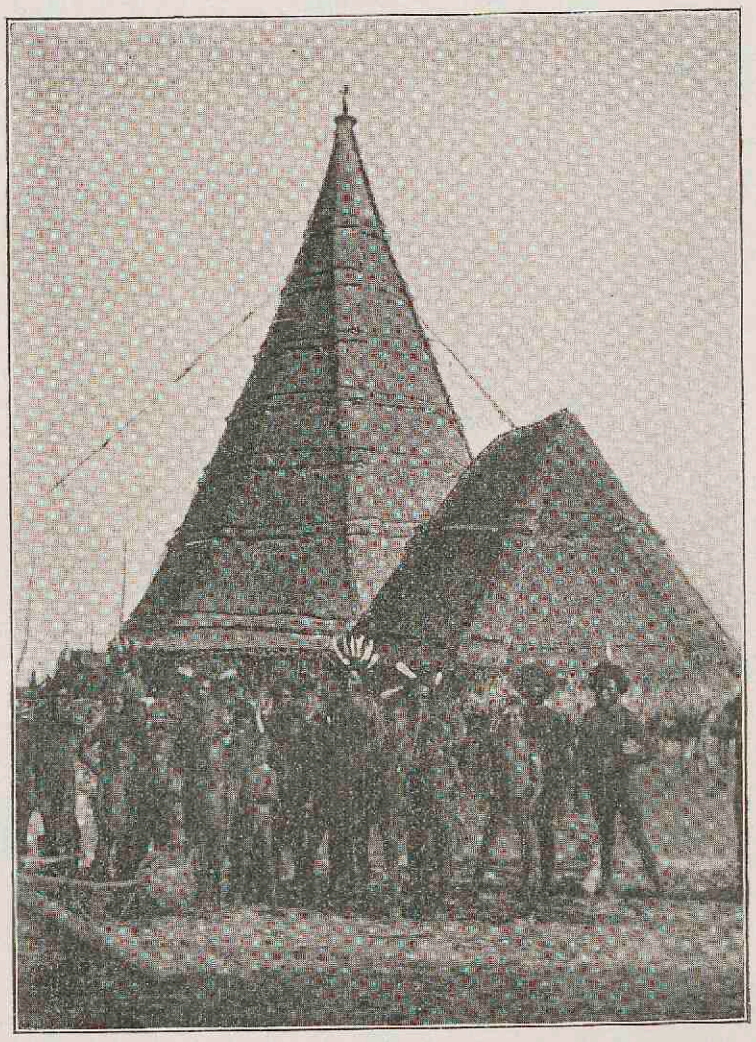


Fig. 184. Temple at Kajó Entsáu.

On fig. 186 of Kajó Entsáu, the nature of the flooring, the walls and the roof are to be seen, and a couple of fire places intended, according to HORST [1893, 128], for the sacrifice of turtles, sharks and fishes, more correctly, to prepare meat dishes, — for the partaking of meals sometimes takes place as a religious act. Still I must remark, as VAN DER GOES [1858, 178] already did, that during the visits paid to the temple in the daytime no fires were burning. Above the left fire place a large hook is hanging for suspending objects in the smoke, to protect them against vermin. On the floor, head supports are also standing, as already reported by FINSCH [1888, 354] of the Tobádi temple, and which prove that the place is also used for sleeping. A cloth of bark for sitting on, as the one which was supplied to FINSCH [1888, 356], I have never seen used, but the floor is always very clean, and the red saliva of the siri quid they spit through the seams of the flooring. Fig. 187 represents the temple of Tobádi and shows, to the right, one of the eight circumferential supporting poles, to which a couple of fishing nets (see p. 165 and N°. 589, Pl. XX, fig. 14) are suspended. In the foreground, the village chief *Hāmadi* is seated, dressed in a pair of trousers and a small jacket

such as are presented to native chiefs by the Government. Above the fire place, to the left, a number of the large, old, beautifully carved drums are suspended, also a couple of short bamboo flutes, whilst the baskets hanging higher up, again contain other objects to be preserved. At the top of fig. 188 a row of kangaroo skulls can also be noticed, remains of festive meals.

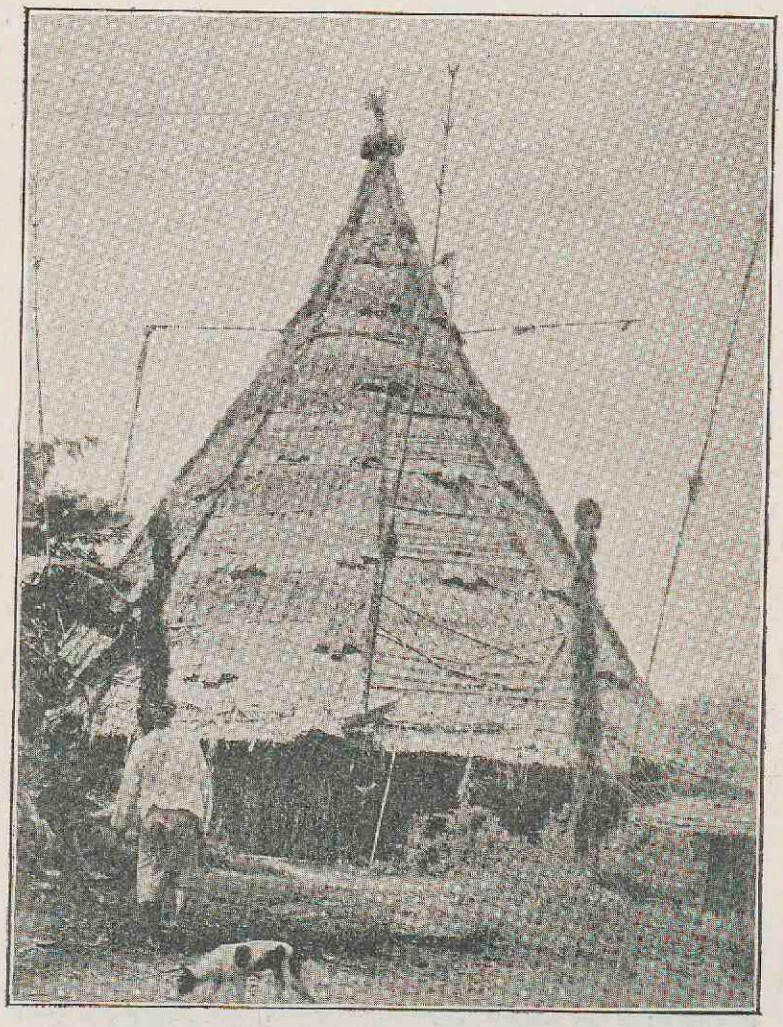


Fig. 185. Temple at Sägeisårå.

The centrepole of the temple of Tobádi does not rise out of the water, as HORST [1893, 127] states of such poles, but is hanging down under the top figure to ± 1.5 m. from the floor; it is carved and wound round with vegetable fibres, into which a number of bamboo flutes is stuck (fig. 189 and 190). Higher up shells of turtle-eggs are fastened and other objects, which I could not recognise in the darkness. Wherever this centre pole occurs, be it as in Jambuë, Thaë, Oinåke, Năcheibe or elsewhere, as a continuous supporting pillar, it is always used for holding the flutes. Fig. 190 gives a survey, from which the distance between side pole and centre pole can be judged. The temple of Kajó Jenbí has no centre pole at all and the peculiarity, that a very large, square shield is hanging at the top, horizontally like an inner ceiling, painted on the visible side in red, white and black; a similar shield is also reported by VAN DER GOES [1858, 178] without stating the place, but probably it is the same. I understood that this object came originally from more eastern parts. HORST [1893, 128] supposes it to be in connection with the Brahman belief.

What strikes one first on entering the temple, is, that the noisy behaviour, said to be characteristic of the inhabitant of Humboldt Bay, is not heard inside, and that, as a rule, the little that is spoken is soft, sometimes almost in a whisper. When something or somebody is laughed at, this always is done in a subdued manner. DE CLERCQ [1889, 1267] only observed that the natives did not like the visitors to speak loudly. — I have never noticed anything of a special costume or dress used inside the temple; — the kind of bandolier, which DE CLERCQ and SCHMELTZ [1893, N°. 202, Pl. XI, fig. 1] mention of Jamna as being exclusively worn at feasts in the temple, I saw several times in daily use (see p. 86, harness). Neither did I see at any time or on any occasion the kneeling or crouching down as an act of veneration in front of the temple or before the deities, worshipped inside, as

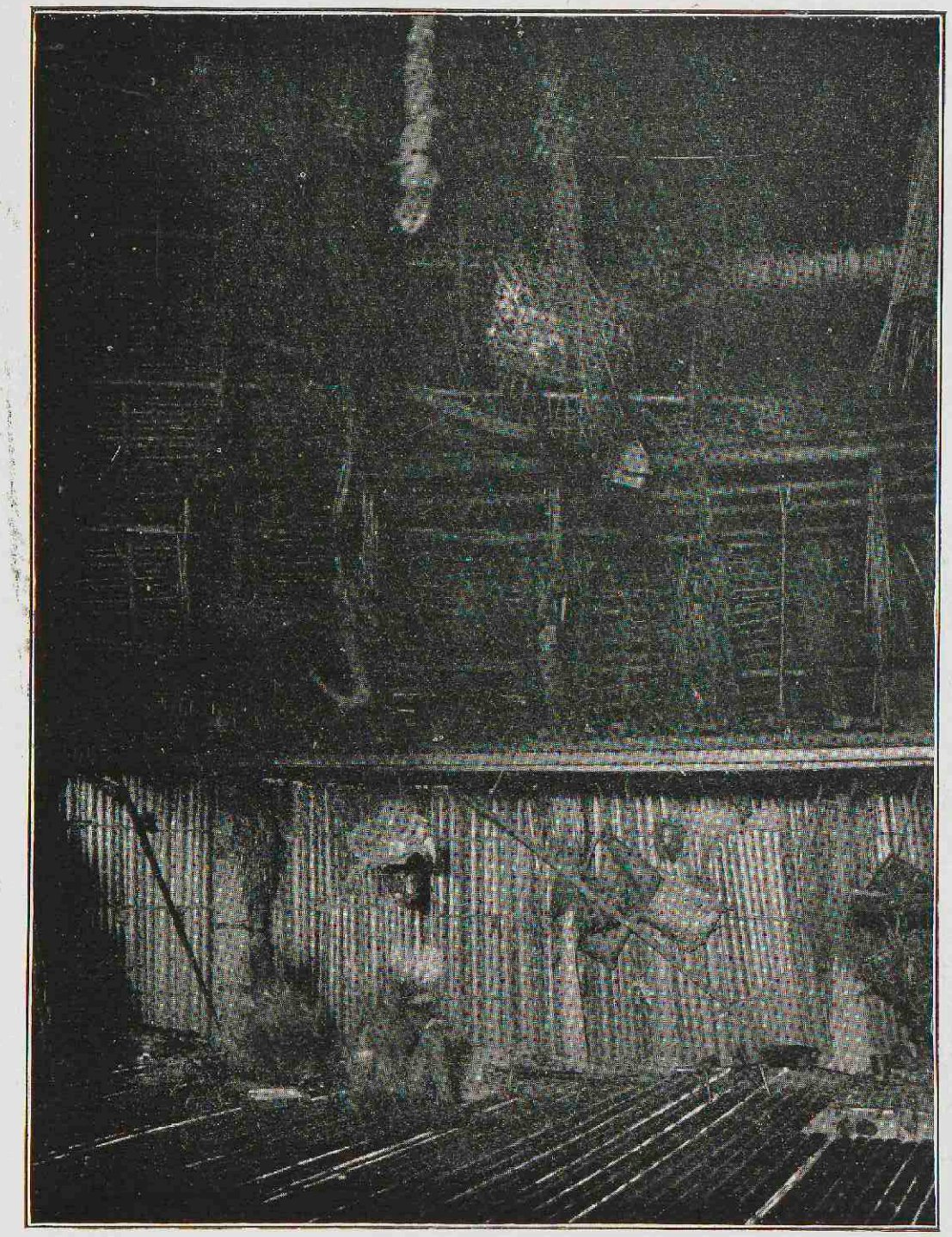


Fig. 186. Interior of the temple at Kajó Entsáu.

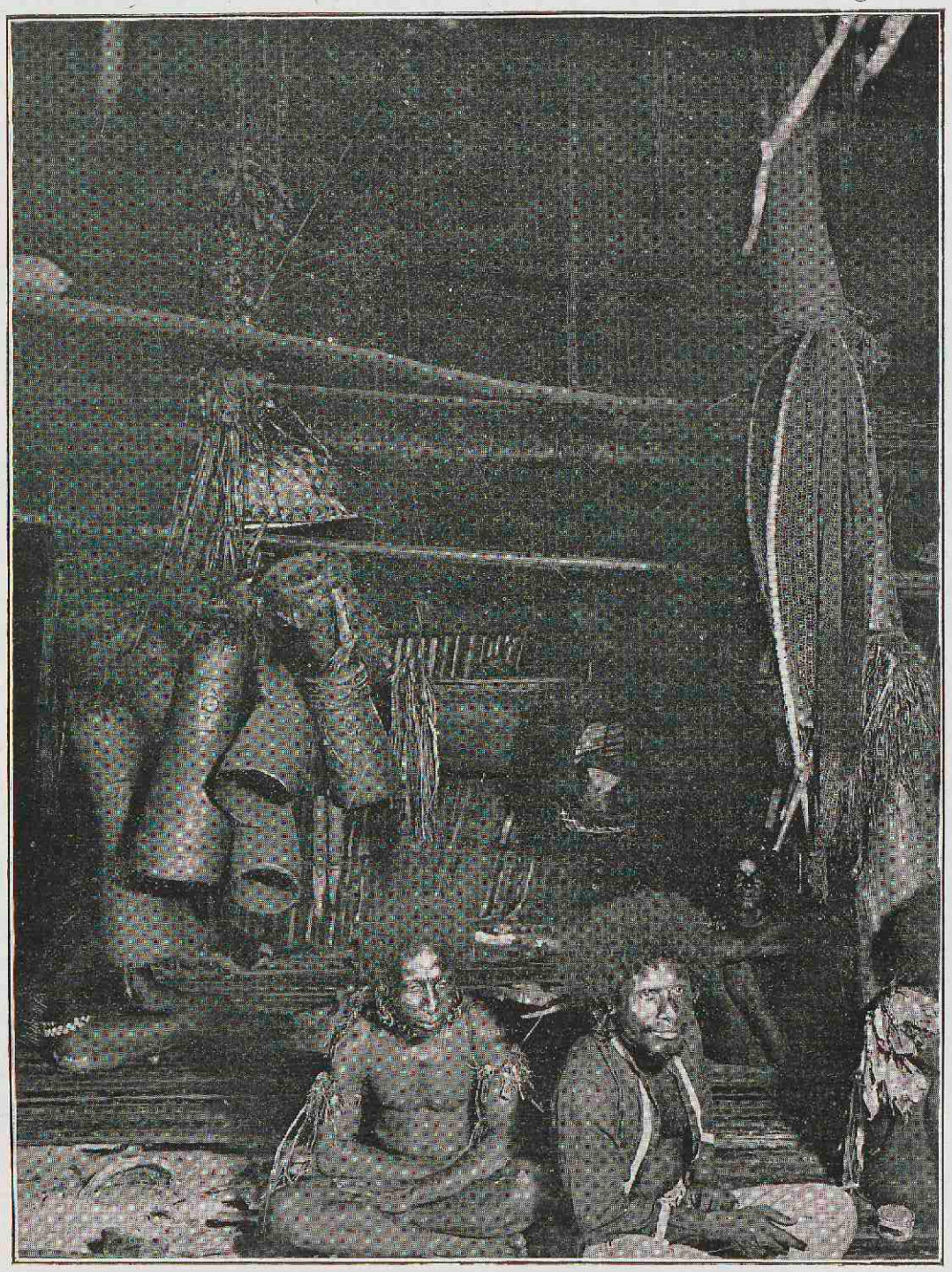


Fig. 187. Interior of the temple at Tobádi.

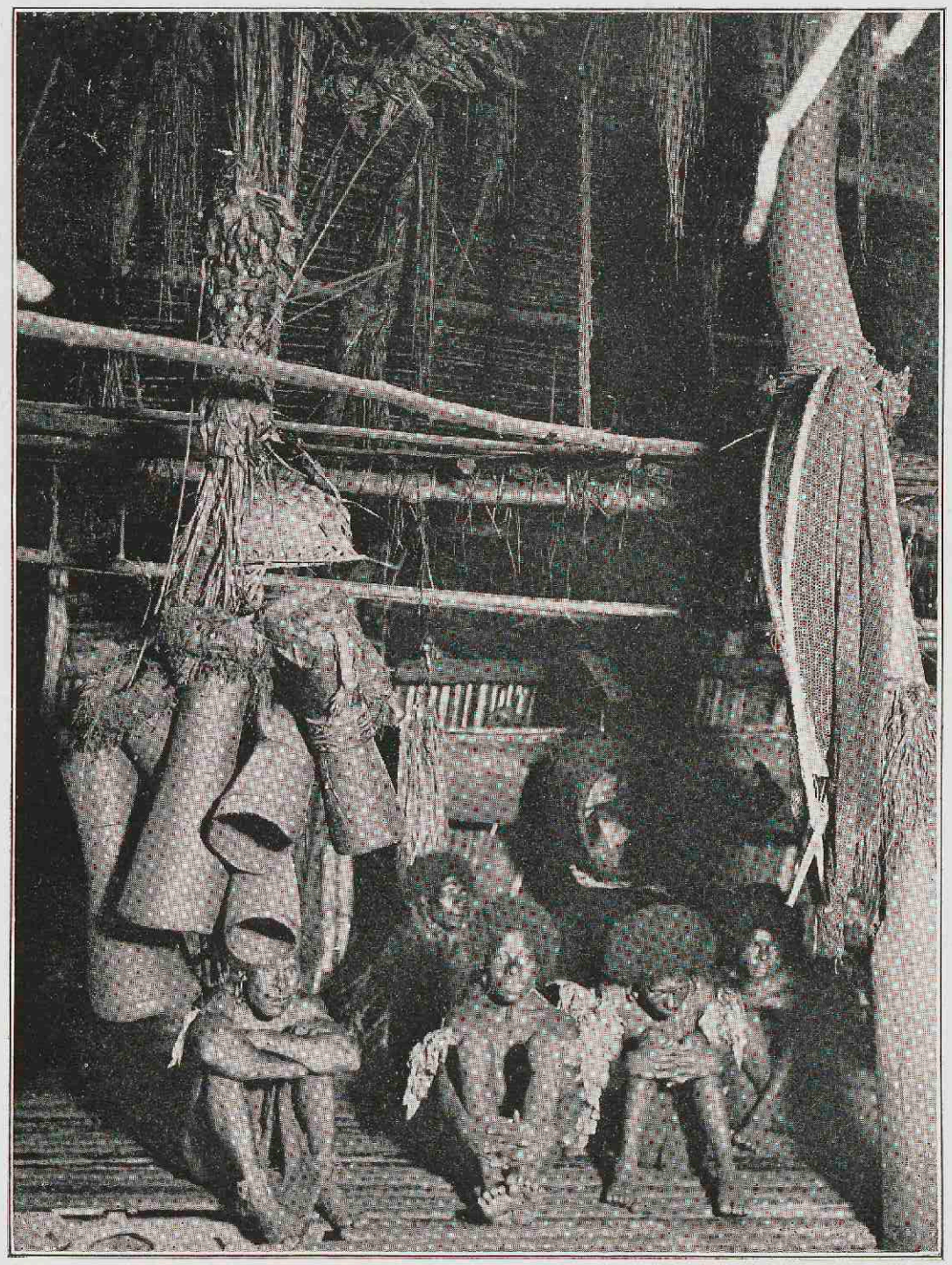


Fig. 188. Interior of the temple at Tobádi.



Fig. 189. Centre pole with flutes of the temple at Tobádi.

VAN DER GOES [1858, 92] understood it at Waba. What squatting means I have explained on page 276. The bending of the head as an act of devotion (CHALMERS [1885, 118]) is unknown in Papua Tălandjang.

It will strike everybody that the temple is never entirely deserted, and that inside or in front, behind the surrounding fence, young men especially are to be found. Actually the temple is inhabited by a number of these youths, novices, who also sleep there and who, during a longer or shorter period after the years of puberty, are not allowed to have any

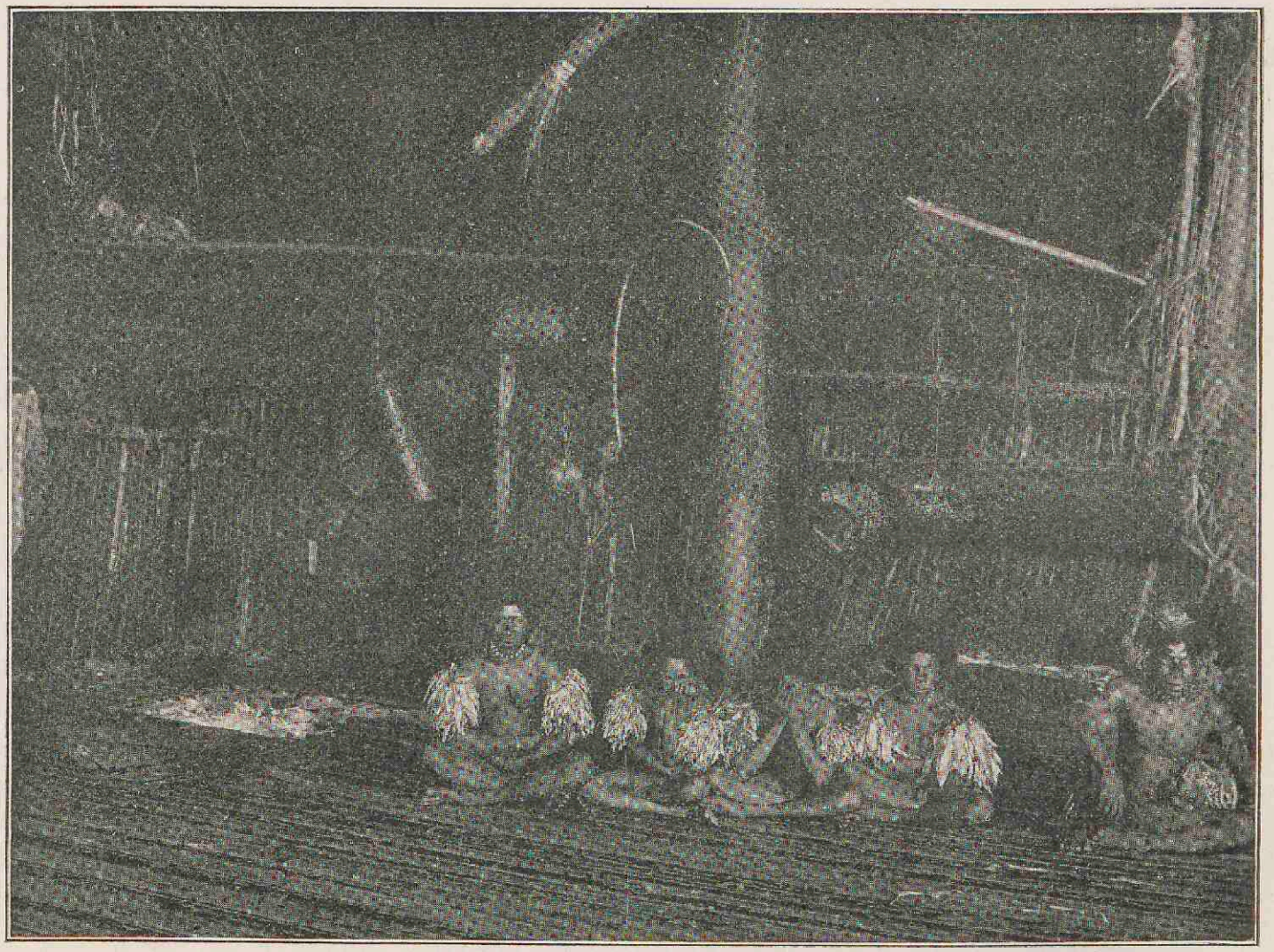


Fig. 190. Interior of the temple at Tobádi.

connection with the parental home. They may even not be seen closely by any female being. They told us most earnestly that the women would die in consequence; — from Tumleo, ERDWEG [1902, 296] mentions that a woman who enters the *parák* would be killed by the men. It has happened several times that young men from the temple who were visiting us, on hearing the voices of women who came to the dispensary for the treatment of wounds, ran away in great fear, in order not to be seen by them. I lay some stress on this institution of H. B., only referred to by others in passing, because I nowhere saw it kept up as strictly and as long as by the villages of the Jótĕfa tribe. Amongst the Tugeri the

young men are kept apart for some time under the care of an old man. They are then not yet allowed to wear any pubic covering, whilst women would die by looking at them; see also PÖCH [1906a, 901]. In the neighbourhood of Finsch Harbour (NACHRICHTEN [1888, 227]) the boys are locked up, but only for a short time, immediately after the circumcision; — circumcision appears through this quite clearly in a religious light. ERDWEG [1902, 308] reports of Tumleo a prohibition to see women for some days before the feast of putting on the bark girdle. In British N. G. seclusion is not compulsory (BEARDMORE [1890, 460]) or lasts only two days, before religious feasts (HADDON [1894, 105]). In Torres Straits (REPORTS [V, 208]) the sight of women, as well as being seen by them, is prohibited during the feast of initiation. The period, during which the novices are locked up in the temple of Tobádi, is very long, often more than a year. During this time the young men under the special superintendence of *Hămadi*, they do all sorts of work, manufacture string, nets, carve and paint ornaments and also participate in hunting and fishing. In order to enable the young men to perform their work unseen in the broad daylight, a fence of palm leaves (see the figs.) is placed outside at some distance, as already mentioned by VAN DER GOES [1858, 178]; the manufacture of twine, described on p. 164 (see fig. 102), also took place behind this screen. At Waba, at Oinăke, in the district of Sĕkă and at Năcheibe I also came across the fence, which screened the temple from the remainder of the village, and the door opening of which is generally hung with a curtain of strips of palm leaf, but it appeared to me that the separation was not so strictly maintained here.

Another peculiarity, which shows the equality of these temples with the *parák* of the Berlin Harbour district, is the fact that the so-called sacred bamboo flutes are kept inside. PARKINSON [1900, 35] and ERDWEG [1902, 295, fig. 201] state of these flutes that the performance thereon belongs to the adoration of the *tapum*. That in H. B. the production of sounds on these instruments is a religious act, was already stated by VAN DER GOES [1858, 178], and it struck all the visitors who came after him, that the Papuans disliked to see these flutes touched, and it was only after much trouble and on condition that they were kept hidden from the women, that it was possible to get hold of such a flute. FINSCH [1888, 357] states of the flutes: "ohne religiöse Bedeutung, sind aber wahrscheinlich wie manche andere Instrumente für die Frauen "tabu"". He was allowed at Tobádi to blow them, which, however, he was unable to do, and they would, he thinks, have willingly sold him such a flute. However F. did not attempt this decisive proof. I have myself been on a very confidential footing with the people of Tobádi, was invited like the other members of the expedition to the temple feasts, took interiors with flash-light, was allowed to join in the dancing and singing, but the permission to buy a flute and carry it away with me was the last thing permitted and only obtained after several months. It was principally the chief *Hămadi* who watched with great care over these articles. In Kajó they were less obstinate, but here, like everywhere else, the transport had to take place in such a way that the women could not see the objects. HORST [1889, 242] already learned this at Anus, and it was always explained to the members of the expedition at Tobádi that the sight of the flutes would cost the women their lives. It also appeared, but perhaps this statement was not correctly understood, that the people of Tanah Merah were not allowed to see the flutes of Tobádi. The long flutes are stuck, as stated above, in the material wound round the centre pole; the smaller

ones are placed in plaited baskets in the smoke of the fire place. HORST [1893, 146] has erroneously, and probably through ignorance of the objects themselves, classed these baskets with the figures of sun and moon, which VAN BALEN [1886a, 65] describes as a roof ornament of the *rum sĕram* of Jendé. In Humboldt Bay the flutes are never used outside the temple; more towards the west (HORST [1889, 247], SCHMELTZ [1903, 243, Pl. XIV]) this custom is not strictly adhered to; it is also principally at night that they are played on. KONING [1903, 260], however, thought wrongly that they were not used in the daytime; the members of the expedition have several times heard the flutes in the daytime. BINK [1897, 170] and KONING have already described how the long flutes with the opening at one end are played; I point to the fact that the opening is not placed in the mouth as HORST thought [1889, 243] and as MACLAY [1876, 321] reports of the Astrolabe Bay. The flute is grasped close to the opening between both hands, as can be seen on fig. 189, held in front of the mouth, the thumbs generally being stretched along the corners of the mouth and lying on the cheeks, in which way the current of air is directed inside the hollow of the hands against the edge of the bamboo opening. The opinion of BINK that a tone is produced as well with the inhaling as with the exhaling is incorrect; as a tone is only obtained with the exhaling. Young people like the novices cannot produce on these narrow flutes the desired high tones, they have not sufficient command of breath, and even older people bend forward somewhat at the production of each tone, in order to strengthen the current of air by the aid of the abdominal pressure; usually the body is then turned round a little, one of the shoulders coming down somewhat more. It appears that never one flute only is used at a time; two men, their faces turned towards each other, produce in turns a tone on their differently tuned flutes. With the legs somewhat spread out, they walk, one backwards and the other forwards, round the central pole, in the direction opposed to the hands of a clock. They take twice as many steps as the tones produced, one tone generally coinciding with the putting down of the right foot. Occasionally two or three pairs walk round, but always a number of men and youths join in the walking, in the same tempo, but in a wider circle, stamping on the rattling floor. The tempo is for both flutes from 40 to 60 notes to the minute, but accellerates towards the end. The playing on the narrow flutes is,



Fig. 191. Playing bamboo flutes: Nimbúran.

however, so tiring that it can only be kept up for a short time and the performers are even then covered with perspiration. Indeed, I have seldom seen a male Papuan exerting himself more than in producing this sacred music. HORST [1893, 149] creates a wrong impression when he writes that the loins are constantly kept in motion, as with the coitus [1889, 243], and that they get into such a state of excitement, that the perspiration breaks out. Not the excitement, but the bodily exertion (see page 307) causes the perspiration. Figs. 191 and 192 show the performance of a couple of men of Kaptiau; fig. 191 is the position at the beginning, and fig. 192 that when, to increase the abdominal pressure, the body is more bent.

The use of the flutes with side openings demands less strength and can be done, as in the case of the blowing on the water flutes of Tumleo (ERDWEG [1902, 295]), by the novices. In this case, according to BINK [1897, 174], no walking takes place, but I have never seen it done myself. Low tones from two very thick flutes, we heard on an evening before the departure of the visitors from Sĕkå.

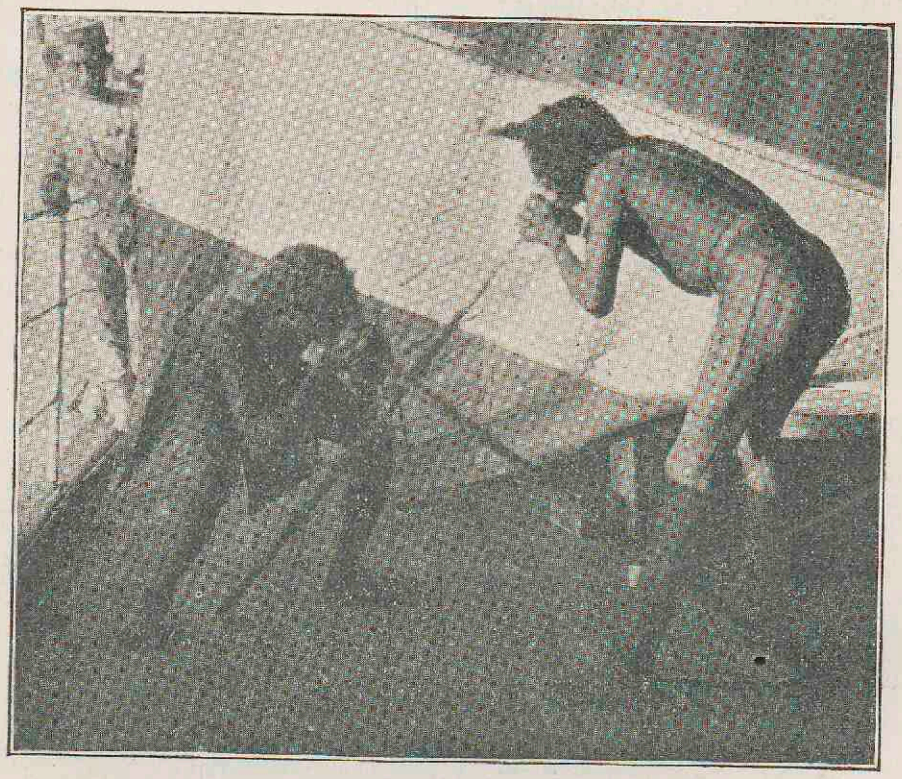


Fig. 192. Playing bamboo flutes; Nimbúran.

I am convinced, that the sacredness of the flutes does not originate in the adoration of bamboo, although that, in itself, is not improbable since it has become known that the Tugeri hold a kind of bamboo sacred, which may not be used in ordinary circumstances. I here recall an occurrence which happened in the temple of Nächeibe. Wishing to buy a sacred flute, I offered for it an ebonite holder of a clinical thermometer and demonstrated to the men how on this also a high tone could be produced. This sound, however, created great alarm amongst the men squatted round, and with frightened gesticulations I was told not to do this again, because the sound was not allowed to be heard by the women, or at all events not at that hour (it was 6 o'clock in the morning); — the exchange, however, was effected. It therefore appeared here that the sound of the flutes gives to these objects their meaning; this sound often imitates the singing of birds, after which, in the case of some specimens, the flutes were named, as far as could be judged with a faulty knowledge of the language, and it may therefore be imagined that these birds play a certain part in the religious ideas of these Papuans.

It can only be surmised for the present, with what object the flutes are played. — When the Netherlands flag of VAN DER GOES [1858, 100] was displayed, it was necessary first to blow four times on the flutes; on account of this D. W. HORST [1893, 127]

recalls the holy number 4 of the Brahmans. On the occasion of a service, or at feasts held in the temple of Tobádi, two men, who took their places near the door opening, at a given moment, blew on the flutes, amidst deep silence and attention on the part of the others; scarcely had the last note resounded when a number of men ran outside, fetched the baskets with sago which were standing ready, carried these inside the temple, and instantly the blowing of the flutes and the singing recommenced. When a pig is being cut up the flutes are also played. Several times also, when the double tones of the flutes inside the temple were heard as far as the house of the expedition, the answer to the question why they were blowing the flutes was, that the *kărĕwări* (the spirit) indicated in this way that he was hungry, that the men were not allowed to go out fishing and that the women had to prepare food for the inhabitants of the temple. Perhaps it must be concluded from this that the flutes are blown in order to obtain food or to show gratitude for having obtained it. Here again, there is a striking resemblance to the temple service in the *parák* of Tumleo, of which ERDWEG [1902, 297] also reports that the sound of the flutes indicates that the spirit is in the temple, and desires sago and fish to be prepared by the women and consumed by the men.

In the temple of Tobádi I found a couple of ceremonial staves (elsewhere they may have escaped my notice on account of the darkness), provided near one of the ends with a wreath of cassowary feathers, which I found only mentioned by ROBIDÉ VAN DER AA [1879, 272]. In order to show the object of the staves a couple of handfuls of fine ashes from one of the fire places was thrown out through the opening made in the roof at man's height on the north-west side (MEYER and PARKINSON [1900, Pl. I and II]), which caused in and near the opening a thick cloud of dust. Immediately afterwards one of the men caught with both hands one of the said staves, and pointing it towards the opening, and moving towards the wall with bent knees, stamping in a tempo of 120—140 per minute, he stuck the feathered end through the opening and moved the staff several times in and out. After this two of these staves were used, when two men, each carrying a staff, during the singing and rythmical stamping of others, thrust the sticks first parallel and then crossways backwards and forwards, through the cloud of dust, and far outside the opening. They laughed at the interest I took in this ceremony, and they also laughed when I tried to imitate it exactly, but I am certain that this also is a serious, religious act. Apparently it is intended to keep back imaginary enemies from this opening, or to chase them away or even by thrusting in all directions, to try and hit them outside.

Of the proceedings at a service inside the temple of Tobádi, witnessed on the 21 st of March 1903, I can report as follows. It was afternoon, and, whilst the sound of the flutes in the temple was already heard, the older men were sitting outside the fence, apparently indifferent to the feast, chewing their siri. Novices of the temple were sitting behind the fence, colouring each other's hair with red clay, and pulling it up into a very regular mop. Proceeding into the temple, to the left a number of young men were seen, who were busy dividing the meat of a pig, whilst round the centre pole a couple of men were walking round in the manner described on p. 295, playing the longest kind of flutes. This was repeated a few times, and in between all present stamped on the floor now and then without walking round, with somewhat bent knees, standing still on the same spot and keeping time in an ever increasing tempo, ending each time with two loud stamps. After this the act with the cere-

monial staves took place and after this again the walk round with flute music, but now only by the older people without the novices. These older people were, however, very numerous, composing a compact crowd of men, and walked round inside a circle of 4—5 m. in diameter. Then another stamp dance with flute accompaniment was executed by two rows of eight men placed opposite each other, after which most of them took up a position near the door opening, and hardly had a signal on two flutes been given (on another occasion this turned out to consist of 24 double notes), when some ten men, standing ready, rushed out of the temple, took on their shoulders the baskets of sago placed in readiness on the platform, and, hopping and dancing all the time, carried them inside the temple. The baskets were so numerous, that the men were obliged to go twice. Now inside, another circuit began, during which one of the older men, sitting near the entrance, sang a song of which the lines were each time answered by the dancers. Finally with this also the flutes were played, this time *Hămadi* himself being one of the performers, and I could observe how well and with how little effort (relatively) he could play the flute. Big drums were now also beaten, which were standing in the darkness, on a platform, 2.5 m. above the entrance. When this had been done a couple of times, a heavy, cylindrical piece of wood, carved with ornaments, was laid down near the opening, whilst a man, in a bent position, caught hold of both ends. Deep silence reigned, and *Hămadi*, who had taken up a position near the door opening, gave, after waiting a little while, a sign, when the piece of wood was raised high and suddenly thrown down with a heavy thump, immediately after which all, with the exception of the novices, rushed out. The service was now at an end.

The renewing or replacing of the ornamental staves (see p. 290) is another religious performance, originating with the inhabitants of the temple, and certainly executed by them in the service of the spirits. Already some days beforehand we were told that it would take place, and thus on the 15th of June 1903, about three o'clock in the afternoon, the deep tones of the large flutes resounded inside the temple; soon after this again other sounds, apparently produced on trumpet-shells, were heard at different places outside the villages of Tobádi, Ingrås and Ingrau, on the margins of the forests. At this signal the women and children were obliged to withdraw inside their houses. It was now the duty of part of the men to throw stones on the roofs and against the walls of the houses or to beat against them with sticks, all of which was accompanied by much noise and shouting. Others carried out of the temple, inside which the noise of the flutes continued, the ornamental staves, decorated with sago leaves and orange fruits, and proceeded with their boats in all directions to place the staves and to suspend here and there similar objects in the branches. It was said that the women and children were not allowed to see all these acts, which are reported to be performed by the spirits themselves, but remained inside the houses in great fear, at which the men laughed in the presence of the members of the expedition. They had promised also to place such an ornamental staff near the house of the expedition, but this did not happen, none being left. This action, however, clearly shows again a strong resemblance to certain feasts of Tumleo, when (ERDWEG [1902, 296]) the women and children are also locked up inside the houses. In May or June, at the beginning of the east monsoon [l. c., 295], when the temple has to be renewed, the women and children must even leave the village, as soon as the music is heard, and proceed to the forest, evidently also

because they are not allowed to see the actions of the men. Whether on the 15th of June 1903, repairs had also been done to the temple of Tobádi, I am unable to say, but a new young man-house (see fig. 195), at the north end of the village of Ingrås, was inaugurated about this time. During the afternoon there was much blowing of the flutes and when the members of the expedition went to pay a visit, it struck me that, on this occasion, the conversation took place in a specially subdued voice. Dancing again took place, that is to say, they walked stamping round the centre pole; after this, amidst great silence, the floor was struck heavily with the above described piece of wood, then several times all stamped on the floor in very quick tempo, each time ending with two heavy stamps and then the feast was over. They declared they had eaten nothing all the day and before doing so must first go to sleep.

I saw a specially ornamented pole placed outside the village of Thaë, on the side towards the shore, surrounded by a fence, inside which lay a number of empty cocoa-nut shells. A similar pole is standing at Waba (fig. 193), entirely by itself, carved and hung with empty turtle eggs, whilst numerous dry sago leaves are tied on to it obliquely, like on the centre pole of the temple of Tobádi. It is called *wărĕpú*, exactly the same as the paddle N°. 676, but it was impossible to find out its meaning. In front of the temple of Săgeisårå (fig. 185), two ornamented poles are also standing.

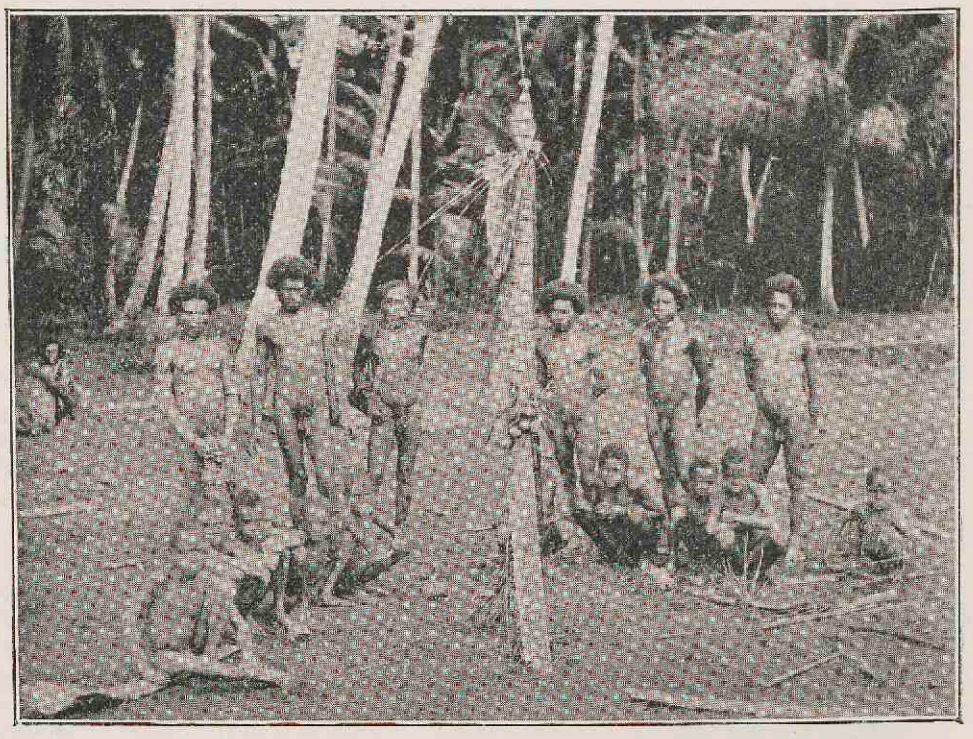


Fig. 193. *Wărĕpú*-pole; Waba.

The temple is the centre of feasts, which again proves how the religious idea pervades the daily life of these people and the question who or what is worshipped in the temple forces itself to the front. Unfortunately, a clear answer to this is wanting. Probably the different names given for the temple and the top figure (pp. 287 and 291) indicate different spirits, whilst another is called *kru* or *chru* (see p. 27 under N°. 79 and flute N°. 1299, p. 313). They appear to be goodnatured spirits, as ERDWEG [l. c.] reports of the *tapum* of Tumleo, but like the latter (a female one) they are at daggers drawn with the women.

The men were reproached by some members of the expedition, for having instituted religious ceremonies purely out of selfishness, where to themselves the part falls to eat much and enjoy themselves in the temple, whilst the women must prepare the dishes without being able to taste them themselves. For their egoism and the deception of the women, the

Tobádi men had to listen to many hard words, and when taken to task as to the fright which they caused to the women and children on the 15th of June (see p. 298), the men laughed heartily. Thus the impression was obtained that everything is really deception from beginning to end. ERDWEG [1902, 297] even obtained from the people of Tumleo the confession, that this is really the case, but still I cannot repress the conviction that the men are in dead earnest. For these Papuans can very well stand their religion being laughed or scoffed at; they join in the laughing, nodding "Yes" to all reproaches, but one does not get to know anything about their real thoughts, and to-morrow they behave the same as before. Very often when I happened to be awakened in the night by the barking of the watchdogs or something else, I heard the double tones of the flutes, and, knowing how much exertion was required for this, I could not believe in the long run that this is exclusively done for the amusement of the participators. It is the spirits who demand this heavy service of the men. Moreover, with some ceremonies (see p. 299) the men are obliged to fast for some time. I emphasize this, in order to make it credible that also the eating of sago, yams, pork, etc. in the temple by the men forms part of their cult.

I obtained in H. B. a similar impression as VAN HASSELT [1889, 264] did of the Numfōr, viz. that the people suppose the universe to be ruled by supernatural powers, which are feared, and that all feasts have a religious character (VAN HASSELT [1886, 586]), so far as they take the place of prayers to turn off evil. ERDWEG [l. c. 397] calls the *tapum* good-natured, as long as she is well served, but leading everybody to perdition, who puts her out of temper.

VAN DISSEL [1904a, 941] writes of the west coast, that all acts of the Papuan have the view to prevent the evil influence of the spirits and to obtain their favours. When, on the 18th of February 1903, the carriers of the expedition, under loud manifestations of pleasure, went to bathe in the Maturi River, near Mapār, the Papuans earnestly requested them to be silent, as otherwise the spirit of that river would raise the water and cause great danger. Such spirits may arise out of, or be identical with, the spirits of the dead, who, according to JENS [1904, 57] never have a beneficient influence on the living, and cause the Papuan of Geelvink Bay to live in constant fear and trembling.

This possibly explains why feasts in commemoration of the dead in H. B. take place in the temple. Such a feast occurred on the 30th of May, beginning with a remarkable amount of playing on the flutes. *Warå*, a relative of the defunct, now had to offer a pig, some twenty baskets of sago were provided by his fellow villagers (though not by the women). Again, as reported of the 21st of March, there was a great deal of playing on the flutes and dancing before the sago was taken inside, followed by singing and accompaniment on the drums, which continued till late in the night. The food was distributed, partly amongst the interested visitors. The expedition received one basket of sago, a fish and a piece of pork, the latter two articles being handed to us by *Hāmadi*, not by *Warå*.

In none of the other temples visited, did I witness a service; everywhere I saw fire places, head supports, and, between the vegetable fibres of the centre pole, the flutes, which were always handled in a mysterious manner. The head ornaments N^{os}. 262—263 hung on the centre pole of the temple of Oināke, and had also to be removed covered; this was not the case with the smoking apparatus N°. 62 of the temple of Năcheibe. This building, situated immediately on the sea under the trees, has a horizontal ridge pole,

as also found more towards the west. The direction is north-south, and at both ends the ridge pole has been continued in a coloured, male figure with erect penis, the face turned downwards. It has also a "missigit-roof".

Tobádi has, moreover, a young man-house — a large, pyramid-shaped house (on the right half of fig. 194), in which boys from 12 till 16 years old live before they are allowed into the temple. The stay in this house must be regarded as a religious fore-stadium, during which these young men, still wearing the cock's comb, must also keep themselves aloof from the women. Ingrås had, during the stay of the expedition, just finished building a new young man-house (fig. 195). Both, old and new, have a horizontal ridge pole, the projecting ends being carved, and have screens in front of the door. The old one is also to be seen in MEYER and PARKINSON [1900, Pl. 3]. Inside this house a watch is kept, for which reason it is built at the end of the village.

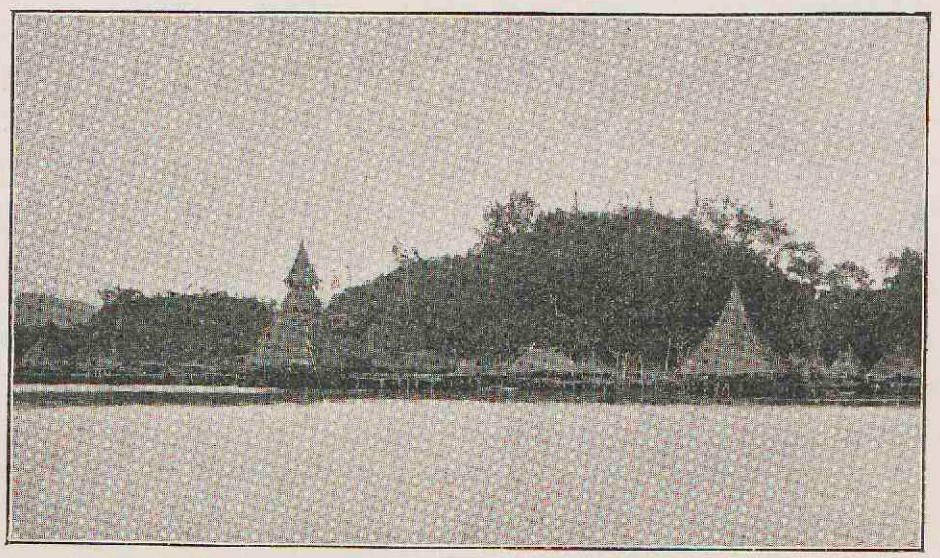


Fig. 194. Tobádi, seen from the south-east.

The *rum sĕram* are buildings characteristic of Geelvink Bay, used by the unmarried men to pass the night in. The one best known, that of Doré, now fallen down, was described and illustrated by VAN DER GOES [1858, 151, Pl. S] and was supposed to serve for the worship of the ancestors incorporated in the supporting poles, which are carved into human and animal figures (crocodiles). Many of these images were characterised by large genitals, whilst, on one of the platforms carved figures in actu copulationis were found. GOUDSWAARD [1863, 69] saw the young men going there before the evening meal, (like young man-houses in British N. G.; D'ALBERTIS [1880, I, 390])



Fig. 195. Old (to the left) and new (to the right) young man-house; Ingrau.

the food being brought by slaves, whilst a single aged woman inside had to rub several parts of their body with oil, provide them with medicines and instruct them in sexual matters. DE CLERCQ and SCHMELTZ [1893, 176] give a number of details about the *rum sĕram*, some with the turtle-shaped roof [l. c. Pl. XXXIX, fig. 12], others with horizontal ridge pole; one of the beams is often shaped at the ends into the head and tail respect., of a crocodile. I came across two of these buildings, one at Mios Kórwār (fig. 196), built like the whole of this settlement, on the shore, near the margin of the forest, but at the end of the settlement, a little separated from and on much higher poles than the other houses. The floor is a parallelogram, the roof turtle-shaped. In the middle of each of the short walls there is a low, narrow opening, and it is only possible to creep in and out, the same as e. g. VAN DER GOES [1858, 153] reports of Doré, HORST [1889, 242] of Anus, VAN BALEN [1886a, 65] of Jendé, and clearly visible at the *rum sĕram* of Wendèsi, figured by SNELLEMAN [1906b, 231]. The *rum sĕram* of Mios Kórwār contains no furniture even no fire place, food cannot be prepared here. The same is mentioned of the others; in that of Jendé two crocodile figures are lying. The vertical timbers of the front side are continued at the bottom into human figures, of which I omitted to note the sex. Similar timbers, not reaching to the ground, have been noticed with other *rum sĕram* (DE CLERCQ and SCHMELTZ [1893, 178]) in the shape of human figures with large genitals or in the shape of genital organs themselves. On a side plank turned towards the sea, a drawing in red and black has been made, which can be recognised on the photo, representing three persons, of which the two front ones run forward with raised arms, the third is firing a gun in a backward direction. On the front there are also painted representations of people in warlike attitudes, which remind one of the armed figures under the *rum sĕram* of Doré. HORST [1893, 147] classes them with the temple guards of the Śiva temples. Those of Jendé VAN BALEN [l. c., 65] calls korwārs.

The *rum sĕram* of Ototå stands (fig. 197), like the other buildings, on piles in the shallow water of a bay opening towards the south, and is, by a fairly long foot bridge, connected with the stage of one of these houses. It has the same shape as that of Wendèsi (SNELLEMAN [1906b, 231]). The people of Kwatisoré, call it *arègiè* and I understood from them that the young men, *nonárè*, have to sleep, *numèrè* (?), there until their marriage. I have not been able to find out anything except this already known peculiarity, but that these small houses have a deeper meaning than only that of a sleeping place for young men, may already be concluded from their finish and ornaments. HORST [1893] supposes them to be dedicated to a kind of linga-worship (Brahman religion), VAN HASSELT [1889, 262], who obtained his knowledge on the spot, calls the *rum sĕram* simply "temple", and indeed the conclusion is easily drawn that the *rum sĕram* of Geelvink Bay, the *kărĕwări* of Papua Tălandjang and the *parák* of Berlin Harbour have their origin in the same fundamental idea, though the external ceremonies of the service have, in the case of the *rum sĕram*, much diminished.

The cultus of ancestors appears in Geelvink Bay, according to UHLE [1886, 3], in six forms, namely: 1st korwars, 2nd animal figures, 3rd skulls, 4th wooden figures with a skull inside, 5th dried corpses and 6th amulets. Nos. 1 and 4, manufactured after the death of relatives, are analogous, worshipped and consulted as household gods, and also taken on sea voyages; they do not occur with the Maníkion nor on Lake Jamūr, and they are also wanting at other inland places round Geelvink Bay (UHLE [1886, 3]), neither are they known

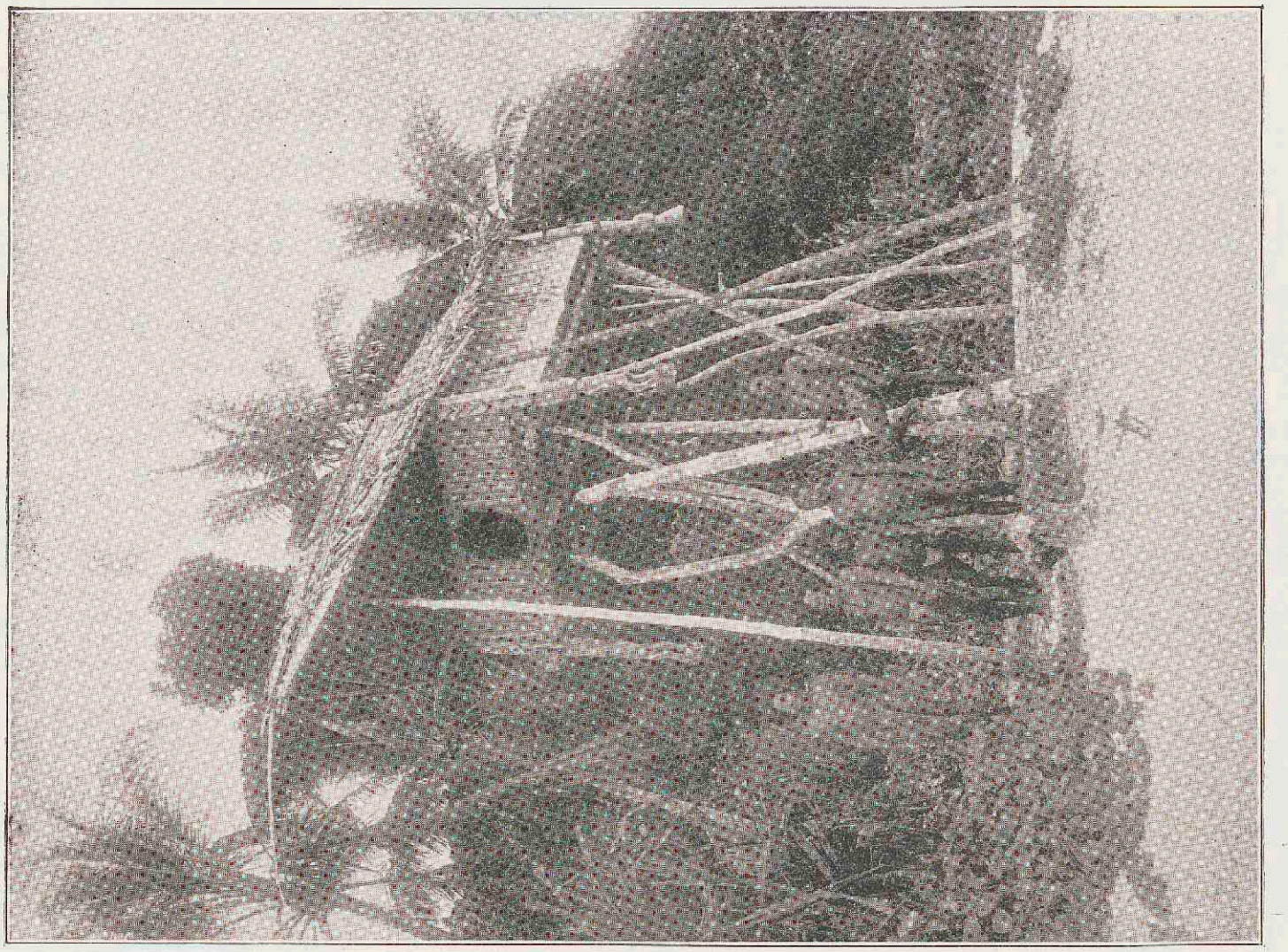


Fig. 196. *Rum sĕram*; Mios Kórwār.



Fig. 197. *Rum sĕram*; Ototå, near Kwatisoré.

(DE CLERCQ and SCHMELTZ [1893, 159]) to the east of Liki. Stone korwars (see SNELLEMAN [1906a, 83]) were till now only found in Geelvink Bay, manufactured at Wandămen. As far as the animal figures are concerned, if these are really worshipped as ancestors (they often occur in the ornamentation, in lineal or plastic representation e. g. on the outside of the temple of Tobádi in a great many forms), then the cultus of ancestors has here also great importance. But possibly these animal figures represent, as MEYER [1875, 30] learned from the mouth of the Papuans, regarding the wooden korwars of Geelvink Bay, merely their value as a food. The skulls and the dried bodies enjoy the veneration arising out of the remembrance of the deceased person (ROBIDÉ VAN DER AA [1879, 234]). The mats of the dead bodies which I found in the houses of the Manikion (see p. 271), were all so new and intact, that I could nowhere get a glimpse of the contents, from which I conclude that the corpses, after some time, when the memory of the dead has passed away with the living, are removed.

Amulets or talismans, carried on the person, sometimes consist of simple pieces of wood, of a kind which brings luck to the wearer; — even when a human face or a complete human figure is carved on them, according to DE CLERCQ and SCHMELTZ [1893, 169] they seldom or never refer to certain deceased persons, the placing of them amongst the cultus of ancestors being in this case somewhat artificial. Teeth of crocodiles, nails of cassowaries and similar objects count as talismans, each for its particular purpose. The amulets of the collection (Nos. 1321—29, Pl. XXIX, figs. 26—28) do not differ from the forms already published, but they come from places where they had not been collected before, also from Angádi. I have not seen any with the Manikion. N°. 1328 has a dress of larval covering. The appendices occurring on the breast shields (Nos. 389—391), the contents of the knitted bag of the girdle N°. 421, and the figures of the prows (see also SCHMELTZ [1903, 243, Pl. XI, figs. 3 and 4]) have a talismanic meaning.

The wooden figures of the collection (Nos. 566—571) I have never seen carried on the body; they were mentioned as house ornaments (p. 148). Still PREUSS [1899, 24, Pl. V, figs. 1 and 2] calls wooden figures of H. B. "Ahnenbild". SCHMELTZ [1896, 128, Pl. IX, fig. 5] justly ascribes to a small image, offered as an "Ahnenfigur" of H. B., a more western origin. PARKINSON [1900] and ERDWEG [1902] neither mention talismans, but FINSCH [1888—93, 257, Pl. 15] does take small wooden effigies, which he found more to the east, as such.

Of totemism and animism in Papua Tălandjang I did not find a trace; the influence of sorcerers is also in Netherl. N. G. almost entirely restricted to the west.

Amongst the musical instruments, the Jew's harp has only very recently become known of Netherl. N. G., of the north coast (SCHMELTZ [1903, 243]), made out of bamboo, ornamented with burnt-in lines, and at the closed end provided with a small string; a photo, kindly placed at my disposal by the author, appears on Pl. XXVIII, fig. 12. On Lake Sentáni and in H. B. the expedition also met with these instruments (N°. 1272—75, Pl. XXVIII, figs. 13 and 14), but made of palmwood. All but one have the broadening at the ends of the legs, which facilitate the grasp by the left hand, whilst with N°. 1272 (fig. 14) those ends are tied together. Jew's harps of German N. G. are made of bamboo (on a specimen of the Bismarck Mountains, now in the Berlin Museum, the bamboo is kept cylindrical at the closed end) or of palmwood (BIRO [1899, 58]); the latter sometimes with the ends of the legs tied together, as also illustrated by FINSCH [1888—93, 28, Pl. 3] of the

Bismarck Archipelago. Specimens of which the tongue vibrates inside a closed slit, such as the specimen of Buru (Utrecht collection, N°. 517), a form reported by SCHADEE [1896, 81, Pl. IV, fig. 11] of the western part of Borneo, by MEYER and SCHADENBERG [1890, Pl. XVII, fig. 17] and PEAL [1893, 251, Pl. XVI, fig. 6] of the Philippines, I have not come across.

According to SCHELLONG [1889a, 82] and SCHMIDT-ERNSTHAUSEN [1890, 274, fig. 5] one of the legs of the Jew's harp is kept between the incisors, after which the central piece is made to vibrate by striking it with the middle finger or by pulling the string, when by opening more or less the lips the pitch of the tones is modulated. FINSCH [l. c.] writes that the left hand places the instrument against the slightly parted teeth and the right hand gives short pulls at the string; BIRO [l. c.] also states that it is pressed against the teeth. In H. B. and on Lake Sentáni it was shown to me in a different way. The left hand presses the ends of the legs against each other and causes the tongue to deviate somewhat towards the convex surface of the instrument, and it is thus held, with this side outwards, horizontally in front of the open jaws along the corners of the open mouth, not against the teeth. The right index, round which the end of the string is wound, pulls this at short intervals, more or less in the direction of the length, towards the points, just as HAGEN [1899, 187] saw the Bataks doing. By enlarging more or less both the hollow and the opening of the mouth, the modulations of the resounding tone are obtained. The two specimens of SCHMELTZ [1903, 243], fastened to one string, cannot, according to the above described manner, be used at the same time. I have only seen the Jew's harp in the hands of men and boys, but never at feasts and only for the amusement of the person using it. The name of the objects in the collection is plainly onomatopoëtic; I was surprised to notice that N°. 1272 of Asé was intended to represent a dog, the broad end being indicated as the head, the vibrating part being called "*mū*" (penis).

The drum is, more than any other musical instrument, found over the whole of New Guinea, and has a religious significance, as demonstrated by HADDON [1894, 22] of British N. G. In Berlin Harbour district (PARKINSON [1900, 35]) the drum, consisting of a hollowed tree trunk, with a lengthways slit (therefore without vellum), as well as the bamboo temple flutes, may only be used when the spirits are present in the temple. More towards the east such drums are, however, sometimes seen lying outside (MEYER and PARKINSON [1894, Pl. 45; 1900, Pl. 20, *2*]) and they are therefore presumably not everywhere so decidedly "tabu" as FINSCH [1888—93, 24] thinks; they are very often beautifully carved (FINSCH [1888a, Pl. XIII, fig. 1], KRIEGER [1899, 492—493], PARKINSON [1900, 40], GRAEBNER [1902, 299]). Similar drums are sometimes used to call fellow villagers (SCHELLONG [1889a, 83], SCHMIDT [1903, 77], PÖCH [1905, 446]), a separate signal existing for each person. The large drum, hanging in the temple of Tobádi, also called signal drum, *kaduār*, by FINSCH [1888, 356 and 357] is, however, a religious instrument, only used at ceremonies inside the temple. At the time of BINK [1897, 169], who mistook these drums for boats, there were more. GRAEBNER [1902, 299] states correctly that H. B. forms the western limit of the area of distribution of this kind of drum. I did not come across it on the adjacent Lake Sentáni.

Another form of drum, often of a pronounced hour-glass shape, quite hollow, but only covered with a tympanum at one end, is, as far as the bigger specimens are concerned, like those suspended in the temple of Tobádi (figs. 185, 186, 188) also of a decidedly religious

character. Such a drum (N°. 1276, Pl. XXVIII, fig. 1), but by far not the most beautiful, which had been made inside the temple and hollowed by fire, and which was never allowed to be beaten, *pau*, anywhere but inside, nor to be seen by women and children, I obtained after long pressure under great secrecy. In the community house at Asé similar drums, but carved with different ornaments (zigzag line), were also hanging above the fire place and were prized very highly. Here the great value was for the greater part owing to their age, and also because they date from the stone period. I gathered at several places that the hollow was obtained by burning, and the inside of some drums has still plainly a thin, charred layer. ERDWEG [1902, 302] proves that the core of certain palms, by putting water in, rots very quickly and that thus the hollow might be easily obtained. When bartering such a drum, N°. 1277 (Pl. XXVIII, fig. 4) of Asé, they tried to make me believe that the value lay in the sound and to convince me of this, it was beaten; in reply I had two steel axes sounded against each other, asking them how they liked this sound, and amidst general laughter the exchange took place. Here there was no necessity to hide the drums from anybody, a smaller specimen, not less beautifully carved (N°. 1278, Pl. XXVIII, fig. 3) being brought to me by one of the villagers, evidently out of his own house.

The drum of Kaptiau (N°. 1286, Pl. XXVIII, fig. 5), has the slender form which is also so frequent in German N. G., called "tifa" in the Moluccas, whilst the specimens of Kwatisoré (N°. 1287, Pl. XXVIII, fig. 7) and Angádi (N°. 1288, Pl. XXVIII, fig. 6) excel on account of length and extraordinary thinness of the walls. The two drums of Mios Kórwār (N°. 1289, Pl. XXVIII, fig. 8, and N°. 1290) are in the shape of a moderately high and wide cylinder, slightly of the hour-glass type, as appears to be characteristic of the West (VAN DISSEL [1904, fig. 10]), the Moluccas (MARTIN [1894, Pl. VII, fig. 1; Pl. XXXVII, fig. 1]) and the Babar Archipelago (RIEDEL [1886, Pl. XXXIII, figs. 9 and 10]).

Wherever there is a handle, it is often applied in Netherl. territory (DE CLERCQ and SCHMELTZ [1903]), as well as in German territory (ERDWEG [1902, 303, fig. 203]) in the shape of a crocodile, the hand grasping it round the body, between the fore and hind legs. N°. 1279 of Waba (Pl. XXVIII, fig. 2) is worked in this manner.

In Tobádi I found small hand-drums of a cylindrical piece of bamboo, with and without the carving of N°. 1284 (Pl. XXVIII, fig. 10), as the men carry about with them without any secrecy; in Waba such small drums (N°. 1285, Pl. XXVIII, fig. 11) were even used as tobacco holders, also for holding their spoon and fork.

The tympanum of the drum in most cases consists of Varanus skin, with the specimens of Lake Sentáni (N^os^. 1277—78) of cassowary skin, which DE CLERCQ and SCHMELTZ [1893, 156, N°. 666] also report from Wandisiau. On N°. 1284 of H. B. shark skin is used, on N°. 1281 a membrane, undoubtedly coming from the tractus intestinalis of a crocodile or pig, having on the inside dry, hard papillae. On Mios Kórwār, an island where no cassowary or Varanus are found, the skin of the crocodile, belly part, (N^os^. 1289—90) is used, the scales of which have been loosened by a long soaking in sea water, at all events I found *Balanidae* on the edges. The skin of marsupials (SELIGMANN [1906, 229]) or snakes (VAN DER GOES [1858, 163]) does not occur with the drums in question, nor prepared bark, as reported by VAN DER GOES [1858, 181] of H. B.; probably this author has confused this with cassowary skin, which often retains the remnants of fibres of feathers.

To cover a drum at Tobádi, the edges of the skin seized by a number of persons with both hands, the skin was stretched in all directions, and held over the opening of the drum in such a way that an exactly fitting ring could be passed over it, which pressed the edges against the outside surface. With the drums of Mios Kórwār the skin is spanned with a strip of rattan inside a rattan hoop, and this is pushed down with wedges round the wall of the drum. This method of fastening is met with as far to the east as Wéwé (DE CLERCQ and SCHMELTZ [1893, 154, N°. 658]), according to VAN DISSEL [1904, fig. 10] also to the south of MacCluer Gulf; here the drums serve to call protecting spirits.

Not only to fill up small holes (ERDWEG [1902, 302]) but also to obtain a full sounding tone, a number of small props are often glued on to the middle of the skin, of a material taken by ERDWEG [1902, 303] to be resin of the breadfruit tree, but in the case of the specimens of the collection more like beeswax, for which it is also taken by HADDON [1894, 39]. I never noticed that drums with Varanus skin are heated before being played upon (SCHELLONG [1889a, 83], SCHMIDT-ERNSTHAUSEN [1890, 271]).

When used, the small, cylindrical drums are carried under the left arm, the bigger ones for greater facility with a carrying sling which passes over the left shoulder. Larger drums are held horizontally by the handle, and the other hand beats in the peculiar manner, so minutely described and illustrated by HAGEN [1899, 185, Pl. 30], the hypothenar resting on the edge and the last 3 or 4 fingers only slightly touching the drum. Of the S. W. coast I found the beating of drums with sticks mentioned (VAN DER GOES [1858, 114]), and it is not surprising that at Angádi, so closely related to that part, a drum-stick (N°. 1288, Pl. XXVIII, fig. 6a) was found, the knob formed by a small ball of the above named bees-wax. The drums of the Tugeri (SCHMELTZ [1903, 223]) and those of Geelvink Bay are not at all treated in a mysterious manner but serve for signalling. When the expedition left Angádi by boat to visit the villages situated on the shores of the lake, the inhabitants had been warned by drum signals from Angádi, and had fled before we arrived.

In Netherl. N. G. the bull-roarer is only met amongst the Tugeri (PÖCH [1906a, 901]).

Of the wind instruments, known of K. W. Land, and amongst which calabashes (BIRO [1901, 179]) are mentioned, the whistle-like cocoa-nuts are in Netherl. N. G. only used by the Tugeri (SCHMELTZ [1903, 224, Pl. XI, figs. 9 and 10], SELIGMANN [1906a, 67]). The bamboo flute (neither Pan pipe, nor nose flute; HADDON [1894, 247]) occurs on the north coast, the area of its distribution reaching as far as Pt. D'Urville. FINSCH [1888a, 31, Pl. XIII, fig. 5] who illustrates a flute of Tobádi, wrongly classes this with the flutes of K. W. Land [1888—93, 254]. Firstly the latter are blown at an endwise opening and are either composed of two pieces and filled partly with water (ERDWEG [1902, 295, fig. 201]) or they are prepared for the production of different scales of notes by pushing up or down a piece fitting into the other end (SCHELLONG [1889a, 82], SCHMIDT-ERNSTHAUSEN [1890, 273, fig. 2]), or again they are provided near this end (then closed) with one or two lateral finger-holes [l. c. fig. 3] and would lend themselves to the playing of melodies (BIRO [1901, 181, Pl. XVIII, fig. 4]), the thumb acting as a key. MACLAY [1876, 321], however, mentions long flutes, of more than one internode. Meanwhile HAGEN mentions [1899, 186] a flute which is blown by a lateral opening, made near the closed end, and which has also a finger-hole near the open end.

Two kinds of bamboo flutes are to be found in Netherl. N. G., both closed at one end by a node and both equally sacred, at all events to be hidden from the eyes of women and children, who are allowed to hear the sound, which is not the case in K. W. Land (SCHMIDT-ERNSTHAUSEN [1890, 272]). One kind (N^os^. 1291—1309, Pl. XXIX) is blown at the open end and for this purpose, like almost all the specimens of the collection which originate from H. B., it is provided at that end with a small projection, *arau*; the specimens of Tarfia (N^os^. 1291—93, Pl. XXIX, fig. 21), however, are with a notch. DE CLERCQ and SCHMELTZ [1893, 156, N°. 678] and FINSCH [l. c.] have also mentioned notched specimens of Tobádi and N^os^. 1308—09 have neither projection nor notch, but are cut off straight transversely. The flutes of this kind correspond with the stopped organ-pipes; the fundamental tone has therefore a wave-length of four times the length of the flute. This wave-length divided into the velocity of sound (with a temp. of 27° C. equal to m. 333 $\sqrt{1+\frac{27}{273}}$ = 350 m.) gives the vibration-number of the fundamental tone. Generally people are not satisfied with the fundamental tone but thin, incisive overtones, harmonics, are desired, which, as physics teaches, are created with narrow pipes by increased force in blowing, and of which the vibration-numbers, with stopped pipes, are proportional to the series 1 : 3 : 5 : 7, etc. Generally the blowing is so strong that the second or third harmonic predominates. That this demands a great deal of exertion has already been remarked. By blowing alternately with more or less strength, some experts produce different tones, an effect which does not sound unpleasantly. With the flutes N^os^. 1299, 1306 and 1307 the fundamental tone is predominant.

The second kind (N^os^. 1310—1317, Pl. XXIX) has a lateral blow hole, near the closed end (with one specimen of DE CLERCQ [l. c., 157, N°. 528, Pl. XXXIX, fig. 10] about half-way down the length). The flutes of this kind are, in contrast with those of the previous category, analogous with open organ-pipes; the length thus corresponding with $^1/_2$ of the wave-length of the fundamental tone, which can therefore be calculated from this. By over-blowing, harmonics might also be produced whose vibrations, as compared with the fundamental note, are as the numbers 2, 4, 6, 8. But it is impossible for a human being to blow hard enough, for this purpose the tubes are relatively too wide. One must therefore be satisfied with the diapason-like, fundamental tone, usually more or less lower than the theoretically calculated one, and so easily produced, that the youngest men of the temple can make this sound (see p. 296).

Carved ornaments may occur on both kinds as well as a coronet of cassowary feathers; still most of them have little ornament. But the bamboo is usually pared away at the closed end outside the node into one to three more or less sharp points. Such points are with N°. 1314 (Pl. XXIX, fig. 20) of a special length.

On Lake Sentáni I have not noticed any bamboo flutes, yet in 1901 officers of H. M. "Ceram" heard the sound of flutes in the watch-house of Ifār (fig. 162) and BINK [1897, 171] bought some at Waba, a village of the Sentáni tribe. The Leyden Museum possesses an object (Ser. 1482, N°. 1), presented as a flute of Lake Sentáni, consisting of a perforated, cylindrical piece of wood, the intaglio parts whitened, and one end pared off.

Trumpet-shells (N°. 1319, Pl. XXIX, fig. 22 and N°. 1320), like that figured by EDGE PARTINGTON [1895, Pl. 201, N°. 3], are provided with a circular blow hole, always

to be found at the same spot, on the 2nd whorl, outside the 3rd varix; wing-shells (N°. 1318, Pl, XXIX, fig. 23) have, however, as also observed by MOSELY [1879, 438], a blow hole at the apex of the spire (see the black dots in the figs.). Both kinds were offered to me inside a temple, but had not to be concealed from the women. In fact they are also used outside, as also reported from elsewhere (VAN DER GOES [1858, 46, 125], SCHMELTZ [1895, 243]), as instruments of call, producing a very loud sound when blown. In British N. G. they are used also to drive away evil spirits (CHALMERS [1903, 124]).

Rattlers consisting of bunches of dried nuts without kernels (CHALMERS [1903, 120]), baskets of split bamboo, containing pieces of stone (Berlin Museum, N°. 10339), or bunches of shells to be held in the hand as known of Konstantin Harbour (SCHMELTZ [1895, 243, Pl. XVI, fig. 1]), or to be tied to the body or to the limbs, like N°. 502 (Pl. XVII, fig. 1) (see also BIRO [1899, 58, Pl. I, fig. 7]), I have not seen used with social festivals.

More or less complete particulars of feasts, at which singing and dancing takes place, were only collected of Tobádi, where the large platform near the temple was used for this purpose. Each dance has its particular song, and it is a very remarkable fact that the language of the songs, as well in Humboldt Bay as in the district of Sĕkå and to the west, is said to be an ancient language, which is now no longer spoken and only imperfectly understood. The verses have no caudate rime, as MAC FARLANE [1888, 98] also mentions. The same author writes that the short sounds sung in chorus have no meaning; — perhaps the meaning has got lost, as suggested above. Similar particulars were gathered by MAC GREGOR [1897, 77], and in K. W. Land by SCHELLONG [1889a, 86] and PÖCH [1905, 446]; — this matter is worthy of further investigation! — The use of that old language enables the villagers, who with or without their wives, visit other villages, to join in the general song.

These visits are said to take place more particularly at the commencement of the new year (probably the opening of the east monsoon is meant), when (ERDWEG [1902, 371]) the condition of the sea makes sea voyages possible. The men of Tobádi then go as far as Jamna. Moreover, on the occasion of such visits songs and dances are also taken over from each other, and thus the dance to be described below as "*Unanung*" is said to have come from the village of Sisindo, situated far in the east and where, as we inferred, a bird-hunter was killed some years ago; perhaps Sissanó is meant. ERDWEG [1902, 305] also mentions that people of Tumleo knew dances of other villages, but amongst those which he describes as such, none appear of H. B.

Still the open-air dances of H. B. and of Tumleo agree in so far as firstly the dancers are standing side by side in circles (closed or partly open), with their faces towards the centre, and as the individuals do not move backwards or forward, but sideways, all of them thus describe the same circle. Only with some dances e. g. with the "*Ibå jondige*" and with the dance at Kaptiau (see fig. 2) the participators walk round. With all these dances the movement takes place in the direction opposed to the hands of the clock, as was also remarked of the temple dances (see p. 295). This is in contrast with the dances mentioned by HADDON [1901, 113], in which the direction changes. The accuracy of the step and the time are, as with the dances of the Bogadjim (HAGEN [1899, 271]), often quite unimpeachable, and there can be no question at all of the violent jumping up and down, accompanied by wild singing and noise, by which FINSCH [1888—93, 254], SCHMIDT-

ERNSTHAUSEN [1890, 268 (regarding Finsch Harbour)] and PRATT [1906, 307 (regarding the hill tribes)] qualify the Papuan dancing.

The first dance is the "*Utia*", to which is joined a funeral song of seven verses, with drum accompaniment:  , as heard in the temple on the 30th of May, and danced exclusively by men.

Rajè-rajo, mama saine api, sambèro;

here *rajè* means wind, *rajo* eastern.

Urèb rĕchau, gater mådiai;

it is said, that herein is expressed that human beings intended for the devil, *urèb*, are going to hell.

Jabè rŏti, rŏti ai, karchai saimèo, jabè rŏti;

Tiarni, tremo tremo, rèmahè, rèmaho;

this verse deals with arrow shooting.

Sejaru kimbå, jadu-ai kimbå;

Aie ui, aiĕwa, aiĕwa;

Manĕmeni aie, mate, e aie mètau.

of a bird (*Goura?*), *manĕmĕni*, which is sitting in a tree or on a branch, *aie*, and is shot dead.

The second dance is called "*Djau*" and is executed with drum accompaniment by a row of men opposite a row of women, both rows dancing towards each other and then back again, whereby the time of the men is faster than that of the women. The first verse runs as follows:

Simbora, urasé uha, simboni.

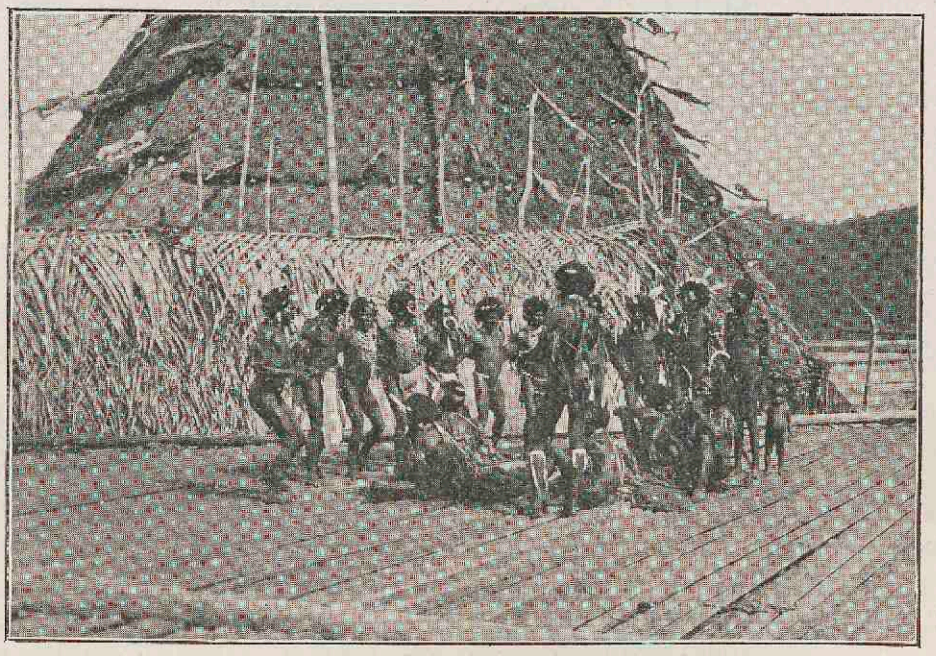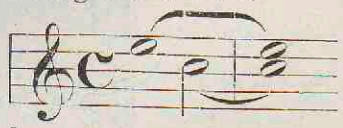


Fig. 198. Guests from Sĕkå, dancing; Tobádi.

The third dance, "*Unanu(ng)*", is executed by a circle of men and one of women; each has the arms resting on the loins of his neighbours as can be seen in the figs. 198 and 199. — At Tumleo (ERDWEG [1902, 304]) the arms are placed on the shoulders. — The circles are either closed or not, and the dancers of each circle dance round in a direction opposed to that of the hands of a clock. A drum is not used.

O ă ă jă̊, è è;
Imbona wawa;
Sia-ho;
Sibaru sibara, tijè tija, monje natu ri;
Inataminè, babu nusa adia; (or: *inataminè, watu rusa èma);*
Aromaiwè (or *arå̊maïbè*), *è è è;*
Aroje maihé;
Tidia rowè;
A°rèje iaputarè.

On the 4th of July 1903 this dance was executed on the platform (figs. 198 and 199) of Tobádi, alternately by people of Tobádi and visitors of Sĕkă (fig. 200). Only the want of boats, it was said, prevented the women from coming. In the middle, some men were sitting; round these, the dancers took up their places, standing at first separated from each other, but at the beginning of the first verse they caught hold of each other in the manner described above. Usually a leader sang the first verse, after which the others repeat it in a much slower time. The beginning of a verse usually is sung in e, the end in c, but some of the singers maintain the e, the last part of the verse sounding like a duet:



and gradually dies out with a long breath.

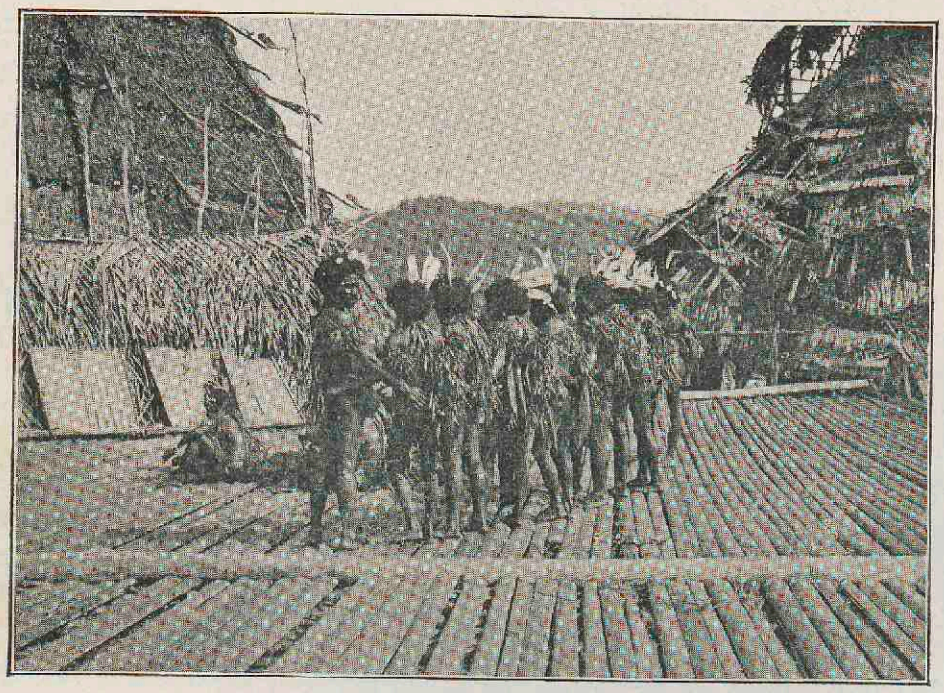


Fig. 199. Dancers at rest; Tobádi.

During the first four verses the step consisted in: 1st lifting the right foot, 2nd a small jump to the right, coming down on the right foot only, 3rd placing the left foot without any noise alongside the right one. With the fifth verse the step became as follows: 1st placing the right foot sideways, only the toes on the floor, 2nd placing the left foot with a stamp alongside the right one, also lowering the right heel in an audible manner. Other steps also occurred; — of British N. G., Beardmore [1890, 463] and Pöch [1906, 604] mention only slight variations in the steps. — Between the verses of the same chant there was often a fairly long interval, during which, as a rule, silence reigned, but some spoke to each other now and then in a subdued manner.

Of the "*Ibă*", executed by men and women to a drum accompaniment, only one verse is known:

Pukur anè, njanè wajă̊, aiè.

The fifth dance, "*Ibă jondige*", is executed by men, boys and girls. Of this one verse was given:

Materewă̊, simbo ai, namoi wè.

On the 8th of July 1903 this dance was performed on the platform of Tobádi by a crowd of about 50—60 persons, consisting of a number of men, behind which was a group of boys and again behind these a group of girls, all standing on a corner of the platform. One of the oldest men now started the song, after which all fell in and began marking time in the tempo of the song, some only stamping with one leg. At a given moment the whole crowd began to move, marching in step towards the next corner, and here, again continuously singing, marked time, and then again to the next corner, and thus always moving along the sides of the square platform, in a direction against the sun. The youngest and smartest men sometimes went ahead, in a trot, always in the correct time. Two of them beat a fairly large drum, held under the left arm. After having gone round the platform several times, they stood still at the spot where they finished. Some ran away to beg some tobacco from the members of the expedition, who were looking on. In a few minutes another start was made from this place of rest. As the fence, made in front of the temple, does not continue to the edge of the platform (see fig. 200, where some novices are looking round the corner) the boys and girls avoided that part of the platform and therefore made their circuit in a smaller radius than the men. It was said that later on in the evening, when the boys and girls would be gone, the novices of the temple would also participate in the dancing.

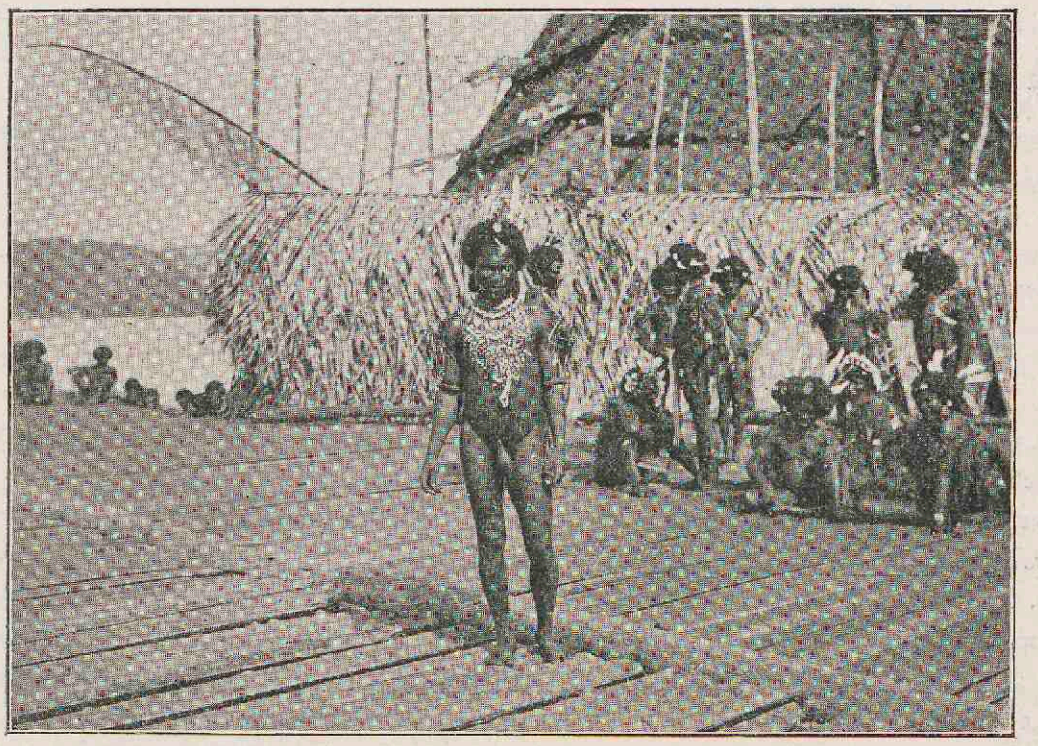


Fig. 200. Visitor from Sĕkă in festive dress; Tobádi.

Another dance was called "*Seremè jondige*", to which this song is sung:

Sari maiå, pinsa rariå, wè wè wå wå wa.

The seventh dance "*Chrīs*", "*Chrisate*" is executed by men and women with drum accompaniment and blowing of Triton shells; the first verse runs:

Nasi agå, di nasè.

An inner circle is formed by the men, an outer circle by the women (see also KONING [1903, 271]), as with dances which ERDWEG [1902, 303] describes of Tumleo; — arrangements in several rows, couples or solo dancers, as mentioned by SCHELLONG [1889a, 87] of Astrolabe Bay, by PÖCH [1906, 605] of British N. G., are unknown in Humboldt Bay.

We were informed by the people of Mapār, that with their numerous dances, which take place inside the house, men, women and children are placed in separate rows, but dance all at the same time. The hands of each dancer in the row are joined to his neighbours as in the prayer of the Christians. These dances, also performed on the occasion

of a marriage, probably have a religious meaning, and last till late in the night. They like to make the house shake by the dancing, which, with the long, thin poles here in use (see fig. 73) is quite possible without endangering the stability.

JEW'S HARPS.

N°. 1272. Pl. XXVIII, fig. 14. 1/4. *Bombom.* Asé; of palmwood, the back concave, front convex; one end, *jŏchu* (= dog; head of), elliptical, open-worked; the extremities, *koba*, of the two legs, *pète*, broadened and tied together with vegetable fibre, *sa*; vibrating part called *mū* (= penis); in small hole of head a strip of calico, *ambèri mărâ*; on one of the legs a carved eye- figure, *sĕmâ*.

N°. 1273. Pl. XXVIII, fig. 13. 1/4. *Pumbúne.* Tobádi; as before, head more pointed, the edges notched; carved squares on both sides, convex side with eye figure; half-way, the outer edges of legs with some notches; the extremities not broadened or tied together.

N°. 1274. *Pompúne.* Tobádi; like N°. 1273, only notched at the head; legs slightly broadened at the end; length 25, breadth 2.5 c.m., strip of calico 28 c.m. long.

N°. 1275. *Pumbúne.* Tobádi; like N°. 1274, some carved triangles on the notched legs.

DRUMS

N°. 1276. Pl. XXVIII, fig. 1. 1/8. *Mĕsīntje.* Tobádi; hour-glass-shaped, the wall ± 1 c.m. thick; on the narrowest part a relief band, *pau*, carved with 5 ellipses (eye ornaments); one opening, *mĕsīntje dibŏ*, with Varanus skin, *prom ŏrige*, on which small pieces of a black, wax-like material; jammed by a thick ring, *muda, mĕdua*, of bark strips, enclosing pieces of old fishing net.

N°. 1277. Pl. XXVIII, fig. 4. 1/7. *Waku.* Asé; as before, somewhat above the middle with a lengthways handle, *mĕ* (= car), in which a loop, *abuinè*, of rattan, *kè*; whole surface carved, *sĕmâ*; one opening, *puru*, with skin, *aiĕdă*, of cassowary, *abwache*, tightened by a ring, *mĕwda*, made of rattan, covered with strips of bark, *sa*. Was suspended in the community house over a fire place.

N°. 1278. Pl. XXVIII, fig. 3. 1/8. *Waku, wachu.* Asé; like N°. 1277, but of reddish brown wood, *ja*, hour-glass shape less pronounced, thickness of wall 1.5—2 c.m. From a private house.

N°. 1279. Pl. XXVIII, fig. 2. 1/8. *Wagu.* Waba; shape as with N°. 1276, handle, *mŏ*, formed by a lengthways ridge (in which 2 holes), continued upwards in a lozenge-shaped animal head, with eyes and mouth; lower part carved with spirals, *wagu sĕmâ*; Varanus skin.

N°. 1280. Pl. XXVIII, fig. 9. 1/8. *Mĕsīn(t)je.* Tobádi; thick bamboo, *ponze*, cut off just below a node; the other end covered with Varanus skin, *prom ŏri(ge)*, claws still adhering, fastened by a ring, *mĕsīnje murda*, like N°. 1276; carrying loop, *ŏrampŏ*, of bark. From a private person.

N°. 1281. *Mĕsīntje.* Tobádi; like N°. 1280, covered with villous membrane from tractus intestinalis of crocodile (?); ring like N°. 1276; no sling; length 39, thickness 7 c.m. From a private person.

N°. 1282. *Mĕsīnke.* Kajó Entsáu; like N°. 1280, no node or loop; length 43, thickness 5 c.m.

N°. 1283. *Mĕsīntje.* Tobádi; like N°. 1282 but with a node; Varanus skin also with the claws, *aiĕ vanki*; ring of net, *mèswār*; length 40, thickness 4.5 c.m.

N°. 1284. Pl. XXVIII, fig. 10 1/6. *Mĕsīntje.* Tobádi; like N°. 1281, 2 circular rows of 6 carved triangles, filled with fish or bird ornament; shark skin, *ai tĕbu*; ring of netting bound with bark fibres.

N°. 1285. Pl. XXVIII, fig. 11. 1/6. *Pontsjè.* Waba; like N°. 1284; bamboo without node; entirely carved with spirals, fish and snake figures; skin of Varanus. Also used for holding fork, spoon, etc.

N°. 1286. Pl. XXVIII, fig. 5. 1/7. *Jatīf.* Kaptiau; light brown wood, hour-glass shape, in the middle a carved band and handle; thickness of wall 1.5—2 c.m.; Varanus skin and bark fibre ring.

N°. 1287. Pl. XXVIII, fig. 7. 1/8. *Hirĕrè.* Kwatisoré; light brown wood, hour-glass shape, in the middle

and at both ends a relief band; coloured black with the exception of the 2 outer bands, one of these with zigzag carvings, the other pared off for tympanum. Manufactured in the interior.

N°. 1288. Pl. XXVIII, fig. 6. 1/7. *Emè.* Angádi; as last, fourteen-sided, thickness of wall 4—12 m.m.; relief bands at the ends carved with triangles; under the upper a row of rhombs; Varanus skin *èmè hiri*, glued on, mounted with 5 plugs of wax-like material; drumstick, *hiramè*, made of cane, inside which a peg of palm wood, *hanamŏ*, bound with bark fibre, *puama*, and with a knob of *kènèpă*; cord loop, *tĭmani*, with tassle of red, brown and white calico, *pïi*.

N°. 1289. Pl. XXVIII, fig. 8. 1/8. *Sāndīp.* Mios Kórwār; cylindrical, thickness of wall 1 c.m., along lower edge a band of hooks and curls; crocodile's skin (belly part), deprived of scales (along edge some *Balanidae*) spanned in hoop of plaited rattan which is forged down by 14 wooden wedges along outside surface of drum. A crack repaired with bark lashing and wedge jammed in.

N°. 1290. *Sāndīp.* Mios Kórwār; like N°. 1289 but 17-sided, thickness of wall 1.5 c.m., along lower edge a 2.5 c.m. broad, scalloped ridge; 13 wedges. A crack lashed with three-stranded cord.

Bamboo temple flutes (one end open).

N°. 1291. Pl. XXIX, fig. 21. 1/8. *Jauwe.* Tarfia; one end closed by node, the other end open and with a notch, broad 1.5, deep 2.5 c.m., near this end a carved ornament. C♯[1]); A, c and e.

N^{os}. 1292—93. *Jauwe.* Tarfia; like N°. 1291, no ornament; length 115 and 114 c.m. resp.; N°. 1292: E; B, d and f. N°. 1293: D♯; A, c♯ and c.

N°. 1294. Pl. XXIX, fig. 17. 1/6. *Ide.* Tobádi; below node, *pau*, 2 points, *twèri*; edge of opening, *ide suwi*, with projection, *arau*, 2.5 c.m. broad, 1 long; partly bound by strip of rattan, *chi*. d; g‴.

N°. 1295. *Ide.* Tobádi; like N°. 1294, no rattan binding, only one point; length 65 c.m.. d; c‴, g‴.

N°. 1296. *Ide.* Tobádi; like N°. 1294, over 16 c.m. of the length wound round with rattan, below this a narrow, plaited ring of liana; length 57 c.m.. d♯; c‴♯.

N^{os}. 1297—98. Pl. XXIX, fig. 16. 1/6. *Bukâb ide.* Tobádi; like N°. 1295, below opening (with projection, *ide khau*), wound round with two-stranded cord, *nĕnui*, 1 and 3 points, *ide abăne*, resp.; N°. 1297: d♯; c″, e″. N°. 1298 with carved zigzag lines and snake figure. d♯; c‴.

N°. 1299. Pl. XXIX, fig. 12. 1/6. *Chru.* Tobádi; opening, *suwibŏ*, with broad projection; one point, with a hole, *dibŏ*, *dibwŏ*. d′.

N°. 1300. Pl. XXIX, fig. 3. 1/6. *Sĭtje.* Tobádi; like N°. 1299, one point. a′; d‴.

N^{os}. 1301—02. Pl. XXIX, fig. 19. 1/6. *Wărĕbŏ.* Năcheibe; like N°. 1295; N°. 1301 with 2 blunt points, N°. 1302 cut off transversely; both darkened by soot. d♯; c‴♯.

N°. 1303. Pl. XXIX, fig. 15. 1/6. *Kainrŏ.* Kajó Entsáu; like N°. 1301; obtained in temple. d; a′, e‴.

N°. 1304. Pl. XXIX, fig. 18. 1/7. *Kainrŏ.* Kajó Entsáu; like N°. 1301, near opening wound round with rattan, the end with wreath of cassowary feathers. d♯; c‴♯.

N°. 1305. Pl. XXIX, fig. 7. 1/6. *Darŏ.* Kajó Entsáu; like N°. 1303, no points. g′; d‴.

N°. 1306. Pl. XXIX, fig. 1. 1/6. *Limachiu.* Kajó Entsáu; like N°. 1305, 2 long points. d″.

N°. 1307. Pl. XXIX, fig. 5. 1/6. *Niöpa.* Kajó Entsáu; like N°. 1306, points shorter. d‴♯; d″.

N°. 1308. Pl. XXIX, fig. 10. 1/6. *Tièntì.* Kajó Entsáu; opening without projection; no points. a.

N°. 1309. Pl. XXIX, fig. 4. 1/6. *Chŏchŏ.* Kajó Entsáu; like N°. 1308; 2 carved bands of chevrons, and 2 of lozenges, in which spirals. d‴♯; d″.

Bamboo temple flutes (with two openings).

N°. 1310. Pl. XXIX, fig. 11. 1/6. *Wiwi.* Kajó Entsáu; opening at the end without projection or notch, below the node cut off transversely, above this an oval side opening. b′; g♮♯.

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1) The first tone mentioned is the theoretical fundamental tone, the others are overtones preferred.

N°. 1311. Pl. XXIX, fig. 14. 1/6. *Ibi.* Kajó Entsáu; as before, at the node a ramification. c‴♯; a′.

N°. 1312. Pl. XXIX, fig. 2. 1/6. *Waima.* Kajó Entsáu; as before, shorter. f‴♯; g‴♯.

N°. 1313. Pl. XXIX, fig. 6. 1/6. *Wiwi.* Tobádi; lateral opening circular; carved loop coils and triangles; one eye ornament; coloured red and white; below node 3 points each with a hole, in one of which a three-stranded cord, made of bark fibres. g″; a′.

N°. 1314. Pl. XXIX, fig. 20. 1/6. *Pui.* Thaë; as before, uncarved; 2 points. f‴♯; d′.

N°. 1315. Pl. XXIX, fig. 8. 1/6. *Pui.* Thaë; as before, only 1 point on which eye ornament; carved with 2 bands of triangles and lozenges, in the latter loop coils. d‴♯; a′.

N°. 1316. Pl. XXIX, fig. 9. 1/6. *Pui*(?) Mabo; as before, 2 points; carved chevrons and spirals. f‴♯.

N°. 1317. Pl. XXIX, fig. 13. 1/6. *Pui*(?) Jambuë; as before, only 1 point the edges notched; carved loop coils; near the end a plaited rattan ring. d‴♯; c‴♯.

SHELLS.

N°. 1318. Pl. XXIX, fig. 24. 1/6. *Laisoisä.* Kajó Entsáu; shell of *Strombus maximus*, at the apex of the spire with circular opening. From the temple. Used as instrument of call.

N°. 1319. Pl. XXIX, fig. 22. 1/6. *Embru.* Kajó Entsáu; shell of *Triton variegatum* Lam., an opening outside the last varix but two. Found and used as N°. 1318.

N°. 1320. *Am.* Tobádi; like N°. 1319 but 37 c.m. long. Originating from Tanah Merah.

AMULETS.

N°. 1321. *Aimamun.* Senge (Bay of Manokwari); wooden peg, 8 m.m. thick, 12 c.m. long, upper part carved into a squatting human figure, *kărĕwar*, *kărĕwajè*, chin resting on vertical shield; octangular head dress; suspended by cotton cord, *serfè*, 72 c.m. long, between 8 coloured beads, *idă*.

N°. 1322. *Ahărè.* Kwatisoré; like N°. 1321, 2.5 c.m. thick, 23 long; no shield below the face, *örè mögrè*, cord 32 c.m. long.

N°. 1323. *Ahărè.* Kwatisoré; as before, 2 pegs 13 and 11 c.m. long, 2.5 and 1.5 thick; hands under chin; lower a vertical shield, (carved, on the smallest object, with a vertical cross); 10 yellow and 19 blue and white beads, *nahab gĕrè*, threaded on cotton cord, *abibrè*.

N°. 1324. Pl. XXIX, fig. 26. 1/5. *Otâ.* Angádi; like N°. 1322, head dress hexangular, face, *ötă tihă*, with eyes, *mămè*; in nose, *mihă*, a length of beads, *kămuri*; coloured brown, lower down a coat of red calico, *pïï*; 10 white beads threaded on three-stranded cord, *tèmani*, passing below chin.

N°. 1325. *Arioi.* Wári; as before, 1.4 c.m. thick, 16 long, vertical edge on frontside of head dress; face, *mămŏ*, with mouth slit, in which indication of teeth; hands under chin, shield with carved lozenges; two-stranded cord, *ăpas*, 36 c.m. wide, through transverse opening below chin.

N°. 1326. Pl. XXIX, fig. 28. 1/5. *Arioi.* Wári; like N°. 1325, head covering septangular, no mouth slit; limbs curled, below chin a vertical shield with 2 vertical rows of 8 relief disks.

N°. 1327. *Arioi.* Wári; as before, head covering octangular, lower part of figure seized by an open muzzle; lower down wound round with red calico; suspending string of 73 c.m. passing under chin, also carries 2 white beads, *irai*, and a thin, 6 c.m. long piece of wood.

N°. 1328. Pl. XXIX, fig. 27. 1/5. *Arioi.* Wári; bent, wooden pin, carved with a human head, and pyramid head dress; lower down surrounded by larval envelope, *isos*; strip of bark for carrying.

N°. 1329. *Anos.* Wári; octangular peg, 7 c.m. long, 1.5 thick, carved with human figure and vertical shield; two-stranded cord, 56 c.m. long, of Pandanus fibre, with another peg and 4 white beads, *irai*.

CHAPTER XIII.

ANTHROPOLOGY.

The inhabitants of New Guinea are usually known by the name of Papuans, and (see KEANE [1899, 126]) together with the Melanesians, called Papuasians, forming with Australians, Tasmanians and Negritoes the group of Oceanic Negroes. The fact that really black Papuans do not exist (see p. 329), is not necessarily an objection to the use of the name "negro"; all African Negroes are not black. With the increased number of observations such variety has been found to exist amongst the Papuasians, that HADDON [1894, 253] names both groups merely "peoples".

Supposing that the known Papuans form the autochthones of New Guinea a list of characteristics was fixed upon for them, to which, however, only a provisional meaning must be attached (see also MACGREGOR [1897, 31]), and will have to be revised before long. So, for instance, the practice of tattooing is regarded as a characteristic of the Melanesian (HADDON [1894, 254]), but in the ethnographical part (p. 40 et seq.) I pointed out that the Papuans of the north coast are very generally tattooed. The use of the bull-roarer, by which in British New Guinea the pure Papuan is said to be distinguished from the Melanesian (HADDON l. c.), has as yet only in a single instance been reported of the Netherlands territory (see p. 306) and can therefore in no case count as a characteristic of the Papuan.

As to the general functions of the body some details have already been reported in the ethnographical part (food see p. 6, drink p. 14, sleeping p. 144). Belching is not retained, neither does it offend, flatus only then when the smell is offensive. The act of defaecation is always committed in secret; also for mixturiation one disappears or turns away from the company. Squatting on the stage of a pile dwelling built in the water, the urine is simply allowed to run away between the laths of the flooring.

In squatting, in Papua Tălandjang as in other parts of the north coast (MACLAY [1873a, 247], COMRIE [1877, 104]), a position similar to that of the Malays is adopted, with the haunches just off the ground. Often this position is changed into a sitting one, by pushing a piece of wood or something else under the nates. Frequently a man will let himself down on the nates, without such a support, whilst the legs (the soles of the feet on the ground) remain

bent and the knees often serve as a support for the arms (see figs. 29, 37, 163, 164, 188, 193; also MEYER [1874, 95]). Therefore, DENIKER [1900, 495] is wrong when mentioning a sitting attitude, with limbs crossed tailor-fashion, as an ethnic character of the Papuans. This position is only adopted on the clean floors (figs. 102 and 190). The women also squat (figs. 7 and 145), but they often drop down on the knees and then sit with the nates on or beside the heels (see figs. 32, 146 and 174; also MEYER and PARKINSON [1900, Pl. 19]).

When standing, the position is up to an advanced age elastic and straight, however, with striking lordosis of the loins, as already reported by MACLAY [1873a, 242] and MEYER [1874, 96].

When moving, the arms are swung slightly; the footprints lie in an almost straight line.

Carrying loads by the men is generally performed on or from one shoulder and then the opposite leg sometimes takes longer strides than the other. The women often carry a child on one hip (see fig. 7; also ANNUAL REPORT [1897—98, Pl. 1]), however, they prefer to carry on the back (see p. 181; also ANNUAL REPORT [1897—98, Pl. 20], PRATT [1906, 303]); sometimes the bag with the baby is hung in front (THOMSON [1892, 80]), but the carrying sling is generally placed round the head. It appeared to me that the Papuan prefers pulling to pushing, possibly because by pulling the load is also somewhat lifted, e. g. when lowering boats into the water or dragging them up on the shore.

When necessary they can walk briskly and for a long time over uneven ground without visible signs of fatigue. The female Nagramádu carriers of the expedition, after a day's march, rubbed their bodies and limbs with the leaves of a shrub, the species of which I do not know, growing in the forest. PRATT [1906, 323] mentions a similar use of the leaves of a small stinging plant, causing "violent irritation, followed by a feeling of pleasant numbness".

The people of Tobádi swim on the chest and the arms are struck out alternately, the fingers being held slightly apart, the tempo not always corresponding to that of the legs.

When climbing trees they try to make use of lianas hanging down, or of small stems standing alongside (see also SCHELLONG [1905, 614]). In the case of a tree standing by itself a man of Tarfia acted as follows: he placed his hands breast-high round the trunk, keeping his body entirely away from it, then raising and bending his knee, he first placed one foot with the sole against the trunk, after this the other and walked upward, alternately shifting his hands; a similar method is described by COMRIE [1877, 104]. PRATT [1906, 94] noted another manner, the ankles tied together by a hoop. By this method, also very common in the Malay Archipelago, the arms are clasped round the stem and each time the body must be pressed against the tree, to draw up the feet.

With a dynamometer of COLLIN, I noted that in 4 out of 39 cases the strength of both hands was the same, in 9 cases the left hand was stronger by 1—7 K. G., on an average 3.5 K. G., than the right, whilst in 26 cases the right hand was stronger than the left by 0.5—13 K. G., on an average 4.8 K. G.. This certainly indicates (see also ANNUAL REPORT [1894—95, 17]) a larger use of the left arm than with Europeans, as MACLAY [1873a, 243] has already pointed out; but the occurrence of decided lefthandedness is less frequent than indicated by the above figures. Only once I saw a man, while eating his sago dinner, hold his fork with his left hand. The holding out and shaking of hands when meeting

(see p. 277 and D'ALBERTIS [1880, II, 189]) is not practised on the north coast of the Netherlands territory, and I fancy that a visitor who extends his right hand in European manner, to a Papuan, practically invites the extension of the corresponding hand, in casu the left one, from which a prevailing lefthandedness need not be concluded, as apparently by D'ALBERTIS [1880, I, 248] in the case of people of Yule Island.

Pain as a rule is dreaded; and not a few of my patients were so accustomed to their chronic ulcerations, which were the prevailing complaint, that they were unwilling to endure any pain on that account.

Heat and cold the Papuans with whom I came in contact appeared very well able to stand (see p. 35). Local freezing of the skin with ethyl chloride only caused surprise.

Great excitability, amounting to noisiness, is commonly accepted (HADDON [1894, 254], KRIEGER [1899, 138], KEANE [1899, 127]) as a characteristic of the Papuans, as distinguishing them from the Melanesians. It has however often been pointed out that the tribes living further in the interior possess in a much smaller measure the characteristic of being noisy and laughterloving (MEYER [1873, 308], SCHELLONG [1891, 169]), — D'ALBERTIS [1880, I, 215] calls the Ramoi the gloomiest people in the world. The noisy and rough reception of the expedition in the year 1875 by the people of Humboldt Bay, caused ROBIDÉ VAN DER AA [1879, 268] to write of "savages", a term which should be avoided. Since then, no doubt, manners have considerably improved, but still the Sentáni people living only a few miles inland are much more sedate. With them playing and singing are rare; when they saw any of my objects which were new to them, they did not utter any exclamations, but later on discussed them among themselves. Of the Sĕkánto, who live still further inland, MOOLENBURGH [1904, 185] reports a decidedly depressed disposition. The people of Mapar and Horna, places situated 4 and 6 days' journey resp. from the coast, were also very reserved in their behaviour, although they were able to talk about festivities. Like MACGREGOR [1897, 32] I think that the more active, intellectual trading life of the coast produces an intelligence of a higher order.

Although not entirely agreeing with MEYNERS D'ESTREY [1881, 11]: "Les Papous sont généralement mauvais caractère", still it is known that helpless beings as prisoners (ANNUAL REPORT [1894—95, 42]), women, children and domestic animals are often treated roughly. HAGEN [1899, 266] even found occasion to write of the Bogadjim that sympathy, charity and gratitude are feelings unknown to them. I remember an instance when I had narcotized with chloroform a Sentáni boy to operate on a large wound in his foot. At the moment when I began to remove the granulation tissue with a sharp spoon, to prevent too great a loss of blood in a quick, apparently cruel manner, the father of the boy uttered a plaintive "*sobä*!" (from the Malay *sobat* = friend). I could very well understand this and appreciated it in this father. Not so the spectators, his fellow-villagers, squatting round; — with a general, loud "sis!" they silenced the man, afraid that for the sake of the father I should interrupt this, to them unusual and attractive spectacle. They thereby showed a want of sympathy as HAGEN l. c. and ERDWEG [1902, 291] noticed in a still greater measure towards people dangerously ill or dying.

Gratitude very seldom finds expression. My patients often showed themselves very well satisfied with the results of the medical treatment, to which I devoted much time and trouble nearly every day, but only twice (and in both cases it was a woman), did they offer a

piece of sugar cane out of gratitude. MACGREGOR [1897, 36] also states that Papuans do not give presents, and if so they expect or ask far more than an equivalent in return. This indeed is their stand-point with regard to Europeans, who in the eyes of the natives are loaded with desirable objects. A man of Tobádi, however, who had treated me very impertinently and who had been reproved for this by the magistrate, argued that I had misunderstood his behaviour and some days later on offered me some of his ornamented arrows; after that we were on a good footing.

Joy and sorrow are freely expressed, especially by the coast people. Tears of grief are not rare. When taking leave they not infrequently weep (see p. 276 and PRATT [1906, 278]); on the S. W. coast the women cried loudly every evening when the visitors returned to the ship (MÜLLER [1857, 79]); however, the same thing happened when a pig that had been sold, was taken on board [l. c., 76].

When quarrels take place disputes arise, in which words are not spared, as I witnessed with the Tobádi people, especially with the women (see also LAWES [1880, 608]). Instances are known where anger has led to sudden murder, also to suicide.

The gesture of astonishment often consists in bringing the hand to the mouth, and laughing at the same time (see also PRATT [1906, 145]), as the woman standing in the middle of fig. 170. FINSCH [1888, 321] saw how the index or [l. c., 131] the thumb (see also CHALMERS [1885, 92]) was taken between the teeth, whilst the other hand struck the belly. When hearing their own songs from the phonograph, young men of Tobádi suddenly brought the back part of the left hand to the mouth, the first joint of the bent index horizontally between the incisors, whilst some of them turned round on one heel and with the right hand struck the hip on that side (see also MOSELEY [1879, 440]). HADDON [1901, 246] mentions sucking and clicking noises with the lips (also observed on Lake Sentáni) and flicking the teeth with the thumb nail.

Generally it is not difficult to gain the confidence of the Papuans. One should act in every thing calmly, honestly, and adhere firmly to agreements, may they be ever so trifling; once their confidence is gained they are hospitable (see also PRATT [1906, 329]). With male European visitors, the Papuan women often keep in the background, in the villages of Abār and Poë, however, they were obtrusive.

Cases of dishonesty and theft towards visitors (LAWES [1880, 613] states: "all are thieves!") generally refer to metal objects and must be judged leniently, as these things strongly excite cupidity. Thus I was robbed by a man of Ajápo of a pocket knife, which was lying on a table between pencils and rulers. The honesty of our Papuan carriers was, however, in favourable contrast with that of the Malay coolies, who preferred silver objects.

Breach of promise is another grievance brought against the Papuans and the expedition experienced more than once great difficulties through this. The causes cannot, however, be always rightly judged, from want of knowledge of the language and disposition of mind. The murder of officials, missionaries or traders, on Netherl. territory is very exceptional, and is generally an act of revenge on account of a real or supposed infringement of existing rights.

ATLEE HUNT [1905, 8] declares that it is altogether a mistake to regard the natives of New Guinea as amongst the lowest class of savages, and in this I agree with him.

MAC FARLANE [1888, 103] and GUISE [1899, 219] also point to this; the former, while testifying the possession of many noble qualities, however, considers the Papuans as "the remnant of a worn-out race".

The people of Humboldt Bay were always praised (VAN DER GOES [1858, 86], FINSCH [1888, 360]), on account of their sharpness and desire for knowledge. On several occasions it appeared that all the actions of the members of the expedition were understood and the object grasped. The comical side of a situation never escaped their notice and not uncommonly they were able by exaggeration to show up the ridiculous part. The Tobádi carriers whom we took to Ternate, very soon made themselves at home amongst their new surroundings and they all learned several Malay words.

As to their knowledge of orientation, far from home the direction in which their native village was situated was indicated with fair accuracy by our Papuan carriers.

The time of the day is calculated from the sun, besides which they count with moons and monsoons, the beginning of the east monsoon being regarded as the beginning of the year. The people of H. B. pointed out to us that during one part of the year the sun rises exactly in the opening of the inner bay, but in other parts of the year more to the north or to the south. During the night, the time at Tumleo (ERDWEG [1902, 392]) is calculated by the position of the stars and moon. Living almost on the equator, the native of the north coast has the advantage of being able to see the whole of the northern as well as the southern sky, and it is therefore not surprising (NACHRICHTEN [1888, 227], HAGEN [1899, 245]) that he has proper names for planets, stars and constellations (Great Bear, Orion, Southern Cross).

The moon, however, plays a very peculiar part, the moon's changes in British N. G. causing menstruation (BEARDMORE [1890, 460]). The first crescent which after the new moon is just visible at sunset above the western horizon, is in Geelvink Bay (MEYER [1875, 37], VAN HASSELT [1889, 263]) saluted by women and children with singing, because, as they say, the moon illuminates the nightly path of husbands and fathers, who may be travelling. In K. W. Land (HAGEN [1899, 287]) only the children raise a cheer, because the new crescent shows that the moon, which was threatened by a shark, has been saved by small fishes. FINSCH [1888—93, 34] mentions a similar custom in the Bismarck Archipelago.

In Humboldt Bay and on Lake Sentáni, when the thin crescent is seen, women and children, as well as some of the men, with their faces turned towards the west, utter a loud cry: *åååååå*, in the pitch of a' = 440 vibrations, lasting about half a minute, whilst with the flat hand, in a tempo of ± 160 per minute, the opening of the mouth is lightly struck, whereby the sound is interrupted: *å å å å å* .... This ceremony, of course, occurs only once a month, but it happened to be witnessed on two occasions. They could not make me understand what the meaning of this was.

As they have no written language, the past can only be related from memory. Very interesting is the account of the people of Tobádi of their first acquaintance with fire-arms. A man of about 36 years described to the members of the expedition, how one day, when he was still a little boy, a ship, painted black and with one funnel, had anchored in the bay. When the boats were coming to the shore, some natives, seeing no bows and arrows with their visitors, took them to be without arms and tried to steal iron objects. Some five

of them were then wounded by gun shots, two mortally; of the others two were still alive and one of them showed the scars of the wounds made by the shot. This encounter must have happened about 1875, but has never been reported. It is known that in 1874 and 1875 three men of war visited Humboldt Bay: Basilisk (Engl., May 1874), Challenger (Engl., Febr. 1875) and Soerabaija (Netherl., Dec. 1875). Both Challenger and Soerabaija had to endure the extremely rough behaviour of the natives. From the latter ship metal objects were robbed (SWAAN [1875—76, 342]), and to prevent attacks the crew were armed and the cannon loaded (BECCARI [1876, 36]). Probably some shots were then fired, but this has then been the only occasion that fire-arms were turned upon these people and it is only as a curiosity, and for the benefit of those who do not know, that I quote from the brief resumé given by ARMIT (COMRIE [1877, 118]) of the Dutch exploration in Humboldt Bay:

"The natives of the coast were either butchered or were driven to take refuge among "the hill tribes, to whom they became slaves, and the cruelty of the Dutch has thus become "proverbial along the whole length of the north-east coast of New Guinea", ... which from beginning to end is quite without foundation!

Counting I saw performed by some tribes by means of the hands and feet, and it was proved that in these cases a more or less purely decimal numeration exists.

Thus at Horna with the number "one" the thumb of the left hand was grasped with the entire right hand and when naming the following numbers the next fingers of the left hand were doubled down one after the other. After this the calculation was continued along the right hand from thumb to little finger, and with "ten" both hands were placed flat against each other. With "eleven" the left great toe was grasped, and then counting was continued along this foot; with "fifteen" both hands were clasped round the left knee. After this the right foot was similarly utilized as far as "twenty", when both knees were pressed against each other by both hands. The numbers with this tribe (Maníkion) are:

1	*hom*	8	*sirkèm hŏmoi*	15	*sèsja (nini)sjaharkamă*
2	*hŏai*	9	*sirkèm hŏku*	16	*sjaharkama hokjèdin*
3	*hŏmoi*	10	*sèsja*	17	*sjaharkama hokjèrai*
4	*hŏku*	11	*sèsjsa hokjèdem*	18	*sjaharkama hokjèrĕmoi*
5	*sirkèm*	12	*sèsja hokjèrai*	19	*sjaharkama hokjèrĕku*
6	*sirkèm hŏmi*	13	*sèsja (nini)hŏmoi*	20	*sutĕhŏme*
7	*sirkèm hŏai*	14	*sèsja (nini)hŏku*	30	*sèsja sutĕhŏme*

The numbers of 15 and higher are a little different from those gathered by VAN OOSTERZEE [1904, 1020], who also notes a decimal numeration of the neighbouring Ménam tribe.

On Lake Sentáni a similar system is found. The numbers 1—4 simply bear the names of the fingers (or vice-versa), the number 5 is indicated by the word "hand", for 6 they say "one hand one", for 7 "one hand two", for 10 "two hands", etc.:

1	*imbai*	7	*mĕhĭnĕbè*	13	*ŏtŏnamè*
2	*bè*	8	*mĕhĭnamè*	14	*ŏtŏgĕri*
3	*namè*	9	*mĕhĭnĕgĕri*	15	*ŏtŏmĕ imbai*
4	*gĕri*	10	*mŏbè*	20	*ŏtŏbèmĕbè*
5	*mĕ imbai*	11	*ŏtŏ ĭmbai*	21	*ŏtŏbèmĕbè imbai*
6	*mĕhinimbai*	12	*ŏtŏbè*	Much	*sĕröm*

In Humboldt Bay they also use hands and feet, although sometimes (BINK [1897, 207]) for the second ten, instead of the feet the two hands of another person may be taken.

When one makes them count without using the limbs, most of them make mistakes. ROBIDÉ VAN DER AA [1879, 121] saw a Tobádi man make 10 knots in a string, but in order to make sure, he counted over the number on his fingers. For numbers up to five the right hand is never used; — at Tobádi, to indicate that our carriers, hired from that village, were expected back in 3 months, the women, sad at parting (see p. 276), held up thumb, index and middle finger of the left hand, whilst calling out: *tor! tor!* They never begin with the left little finger, passing to wrist, elbow and body, as described by CHALMERS [1885, 163; 1903a, 111] and HADDON [1894, 21] of British New Guinea, by RAY and HADDON [1896, 162] of the Saibai. MOOLENBURGH [1904, 176] comes to the conclusion that in II. B. they reckon by „fours" and groups of „twenty-four" are formed. His experience [l. c., 178] that also in counting on the fingers and toes groups of "four" are formed is, however, by no means mine. In accordance with KERN [1900, 149] it is proved by MOOLENBURGH that 10 is called "eight plus two", just the reverse of the method attributed to all Papuan tribes by BROWN [1887, 327], of calling 8 "ten less two".

The numeral system of Nagramádu is apparent from the following:

1 *nadi*	6 *mariba nadi*	11 *marabâmä nadi*
2 *äbâmä*	7 *mariba bâmä*	12 *marabâmä bâmä*
3 *äbâmä nadi*	8 *mariba bâmä nadi*	15 *marabâmä mariba*
4 *äbâmä bâmä*	9 *mariba äbâmä bâmä*	20 *âbiasi nadi*
5 *mäma riba*	10 *mäma räbâmä*	

At Angádi (Lake Jamur) the numbers are:

1 *janäūwä*	4 *awaitämä jaminatia*	6 *mähärè janäūwä*
2 *jaminatia*	5 *mähärè ajähèrauri*	10 *mähärè jäminatia*
3 *jaminati janäūwä*		

A man of Goréda, a village on the southern shore of the lake, gave me for 1 *únakwa*, 2 *jämaníni*, 5 *mahèri hèrori*, 10 *täóru*.

Thus in both places Nagramádu and Angádi they have the binary system of enumeration, mentioned by MACGREGOR [1897, 81] of the Fly estuary, by RAY and HADDON [1896, 160] of the western tribe of Torres Straits. It is, however, clear that the binary system, according to RAY [1895, 31] and MÜLLER [1897, 140] characteristic of the true Papuan (the decimal system being Melanesian), is not pure, but that refuge is always taken in the hand for "five", and both hands for "ten". The people of Kaimani, S. W. coast, also use both hands (VAN DER GOES [1858, 129]). — PRATT [1906, 316] reports of British N. G. that people could not count farther than "three"; — a numeral for „three" is ascribed to Australian influence (RAY and HADDON [1896, 161]). Still on reaching "twenty" a small piece of stone or wood is generally placed apart.

MEYER [1873, 309] mentions that the Arfak people cannot count beyond five, a mistake explained by the fact that the fingers of both hands have the same name as the toes of both feet. The idea of higher numbers, however, exists with them just as well as with the Maníkion with whom, as appears from VON ROSENBERG [1875, 97], they entirely agree in the way of counting. For numbers above "twenty" they begin again with the left hand. The Karōn count similarly (BRUYN [1877, 192]).

As I could not get information about the construction of the languages, I must

limit myself to the following words [1]), not mentioned in the ethnographical chapters.

At Horna (Maníkion tribe) only a few words were gathered:

Child *longötěhi*	Man *lengi*	Woman *lengida, ragida*
Brook *töhu mökěrai*	River *töhu koi*	Wood *fuka*
House *tå*	Water *töhu*	To eat *bidi*

VAN OOSTERZEE [1904, 1020] noted, probably gathered from another village, for man: *gijè* or *gidjè*, woman: *gida*.

The next list contains words gathered in the eastern part of Lake Sentáni.

Lake Sentáni.

MISCELLANEOUS NOUNS.

Arrow *fërä*
aunt *omifa*
Bamboo *najao*
bark (prepared, in rolls) *marå huwä*
bird *ajè*
bow *nana, fra*
boy *jugembér*
brother *arabérè*
butterfly *aibumbu*
Chicken *kěru*
child *taipu*
child-birth *faihongi*
chopper *tamå jari*
cocoa-nut *kŏ*
cocoa-nut, fresh *kŏ marèw*
cock *ŏjå tå*
corpse *abru*
crocodile *kaikěrum* or *kächrum*
Daughter *menge*
day after to-morrow *wawè*
day before yesterday *moinä*
dish *hěrai*
dog *jŏchu, jöru*
Earth *jau*
egg *eirå*
evening *tsuè*
Father *aitjai*
fire *ī*
fire wood *īsju*
fish *ka*; sorts of fishes: *ka djamaré, -grögrö, -haugru, -hé, -hibé, -hidå, -jo, -ömä, -seluis, -sěmädi, -siměm, -sinonga, -uté*
food *toré rěmèha*
fowl *ŏjå*
friend *käsiri*
frog *sigé*
funeral *hědëha*
Garden *sěgéda*
grand-child *nètembå*
grave *porè färe*
gun *tamå fërä*
Hatchet (iron) *tamå katu*
hen *ŏjå miè*
hornbill *tëbari*
house *imè*
hut *hège färe*
Island *jŏgöbä* (?)
Knife *tamå naré, ènènè*
Leaf *ofè*
light *eirara, ipète*
lizard *saro*
Man *då, tå*
marriage *miè areigå, miè nagè*
mat *abé*
moon *ŏchŏ, ŏrŏ*
morning *tïnè*
mother *anä*
Name *měcha, rahine*
Pain *gègei, ětětě*
person *tötěre*
pig *öbö*
pig's hair *öbö jěwè*
pisang *öm*
present *isjom*
Rain *ja*
roof (of sago-leaf) *jām*
Sago *fi*
salt *sè*
sand *jaba*
sea *nau*
sister *èmèm*
snake
sorcerer *pěrårärè*
sore *abusåtŏ; gogo*
stone *tuga*
sugar-cane *ju*
sun *su*
Taro *ningai*
tobacco *sächëbai*
to-morrow *wafëna*
tree *si*
trunk (box) *tu*
turtle (land-) *äböwa*
„ (sea-) *pura*
Ubi *fām*
uncle *nèborèfa*
Whirlwind *njangru njangru*
wind *áru*
woman *miè*
wound *kamää̅*
Yesterday *pënä*

PARTS OF THE BODY.

Ankle *öte sëgau*
anus *fèburu*
arm *jarŏ*
arm-pit *mě ningai*
Back *mŏrå*
beard *sei sjära*
belly *jähèrè*
blood *ŏgi*
bone *bå*
breast *nime*
buttock *äwawau, pète*
Calf (of leg) *ötŏ kīm*
cheek *katu* (?)

1) The vowel pronunciations are as with RAY and HADDON [1891, 466], with this difference that *ä* and *è* sound like the short French *a* and *e* resp., *å* as in law, *è* as in the French *père*, *ei* as in German; emphasis is indicated by " ' ".

coccyx *siauwu*
Diarrhoea *jahèri agoi*
Ear *ankai*
elbow *mĕsĕrĕ*
excrement *junå*
eye *jŏre, jŏko, jŏche*
eye-brow *jŏche sĕntai*
eye-lash *jŏche jĕwè*
Finger *mĕ grägrä, mĕ grau*
flesh *ū*
foot *ŏtŏ fè*
forehead *fĕri*
foreskin *kĕru* (?)
Hair (of body) *uïwè, jĕwè* (?)
„ (of head) *ma*
hand *mĕ*
head *farim*
head-ache *farim nåchärè*
Incisor *dĕha*
indexfinger *mĕ nŏro*
Knee *ŏte hörö*
Leg *ŏtŏ, ŏrå*
lip *öjä bŏnai*
little finger *mĕ hembai*
Mandible *tawä*
middle finger *mĕ nami*
molar *mabåm*
mouth *öjä, höwä*
Nail (of finger) *mĕngai*
navel *purindè*
neck *sŏtŏ*
nipple *nime*
nose *joi*
Palm of hand *mĕ fè*
penis *mu*
Rib *kĕringe*
ringfinger *mĕ gĕri*
Saliva *ki*
scrotum *särä*
shin *ŏte gomdu*
shoulder *nate*
shoulder-blade *kanduru*
skin *wa*
small-pox *budu budu*
sweat *nĕgi*
Testis *kĕbau*
thigh *pädö*
throat *mänigå*
thumb *mĕ mäū*
tongue *fèw*
tooth *djè, idè, itjè.*
Vulva *kĕmä*
Whiskers *sei jĕwè*

ADJECTIVES.

Afraid *äwäte*
alive *wari nĕgöte*
Bad *lebām*
beautiful *foi, foisja*
black *èbè*
blind *jŏcho bām*
Cold *mandirīm, mantiri*
Dead *sĕdöge*
Eastern *nabu*
Good *foiä, poiä*
great *käbām*
Ill *hanĕsŏnoi*
Northern *čnèsi*
Old *sĕnä, sĕnai*
Recovered *rĕmåbä*
red *nŭre*
Small *kĕndīm*
southern *tĕbåm*
Western *waibu*
white *au*

VERBS.

Answer *runimerè*
ask *jengenjĕrå*
Belch *kènte bubu*
blow (one's nose) *ensjèmbu*
boil *morombo*
breathe *nå, önäū*
Call *kära*
come *wameni*
come back *onde mĕndi*
cough *kĕnä*
cry *sèrè*
Dance *sörisi*
deny *weirogwè*
drink *ansi, tidätjå*
Excrete *kendå*
Forget *hanèngĕrå, nĕgubugärè*
Give *jinjä*
Kill *karagowai*
know *neidjè*
Laugh *tĕ*
lie (on back) *nèjè*
lie (on belly) *ärfurisja*
love *rådjĕrè*
Masticate *anèw*
Nod *entjīmbå*
Present *wè*
Rise *anju*
Scoop *tègö*
shave *faumëm*
shout *rèhĕra*
sigh *nŏ*
silent (be-) *abām*
sing *bè, jŏchau*
sit *nujebe*
„ (tailor-like) *(ŏtŏ) saringa*
„ (legs stretched) *(ŏtŏ) sisi*
sleep *jŏchu*
sneeze *söbi*
speak *aréga*
spit *ki*
squat *ĕndanda, angĕn numbŏ*
stand *ausjè*
swim *sigåje*
Think *meriniba demabå*
Wait *nĕgĕma, manifa*
walk *ĕjĕ, marèw marèw*
whisper *marŏw*
whistle *öwä*
wind *örörè, örèhŏ*
Urinate *kĕnjasu*
Yawn *öjmau*

PREPOSITIONS.

Above *puma*
Below *kani*

Be not afraid *awä mägate, fĕ mägate.*
Come here, — to me *tabugåte mĕm, tabugor moi, mĕti.*
Come again to-morrow *wafĕna mĕndi.*
Do not forget *nĕgubugärè ītjöwe.*
Do not touch *buhè naijè.*
Finished, ready! *nènè!*
Give! it belongs to me *tai! toimoi.*
Much *sĕrĕm.*
No *ū.*
(Please) go away *öje ma mŏre.*
We are all from the village Ajápo *Ajápo mŏ.*
What is the matter? *mägä?*
Cries for pain are: *ĕtĕtĕ! ŏgoiboi!*

The interpreters of the expedition, originating from Humboldt Bay, who helped us in the eastern part of Lake Sentáni, were of little use in the villages situated in the western parts of the said lake; the inhabitants of Năcheibe and Săgcisårå, on the other hand, speak a language that contains many of the words in use in the eastern part of the lake.

Of the Sĕkanto tribe, living south-west of the lake, only six words were gathered:

Bird of paradise *sjai*	Ear ring (turtle) *sjigi*	Fire *bĕt*
Gaura *ăm*	Sago *pambo*	Tobacco *saòå*

With these people the pitch of the voice rises towards the end of each sentence in a singing way, as has been stated also of other tribes living in the interior.

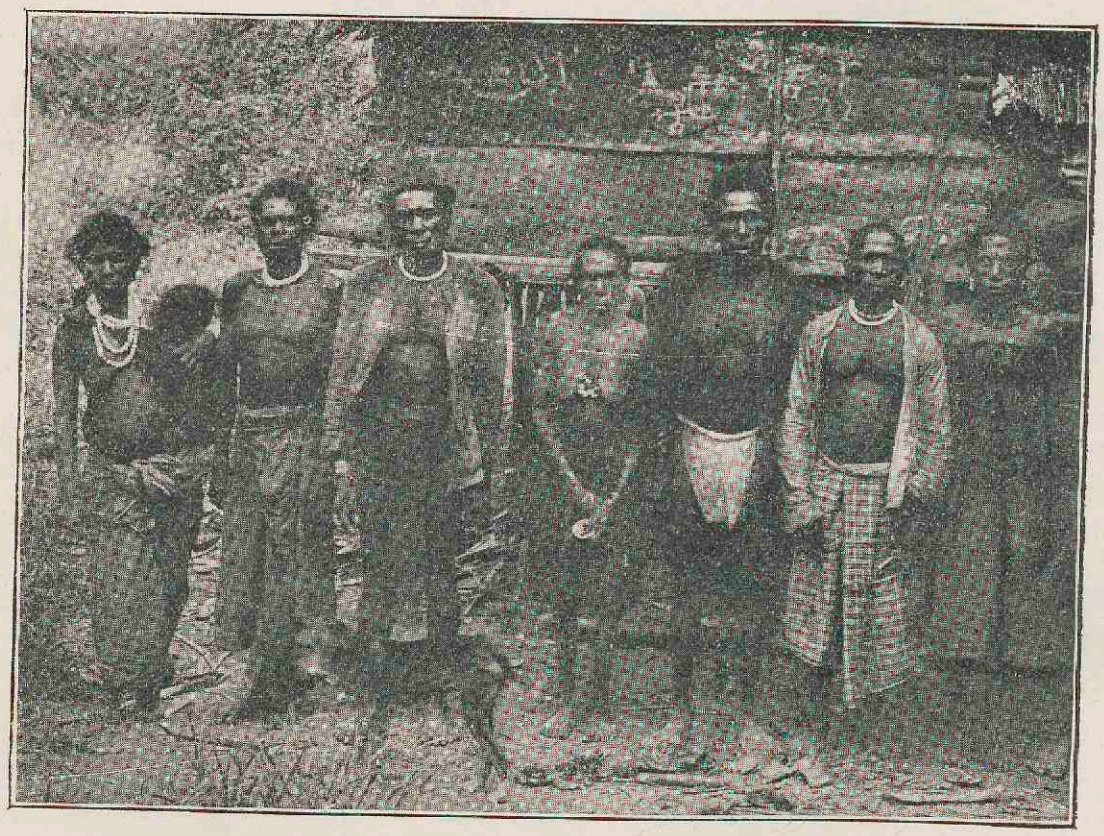


Fig. 201. Group at Angádi (Lake Jamūr).

At Angádi they gave me the following words:

Angádi.

Miscellaneous Nouns.

Armlet (silver) *ma kăretia*
„ (fibres) *ma ărè*
„ (akar bahar) *kaăra maparè*
arrow head *tâwarè*
arrows (bundle of) *kătiārŏ*
Bamboo (for water) *kiniĭ muti*
bark (rough) *ibi*
„ (prepared) *pau ură*
bow *ămorè*
bowstring *kèma, ămorè èmè*
boy *upu ăro, muta pua*
bride *kau apèrè*
Canoe *kū*
cassowary *mŏrăŏ, pŏtèhŏrŏ*
„ (of the hills) *powarŭ*
cocoa-nut *utiri*
„ „ shell *itirăi*
child *ărópia, aïdau*
chopper *tai*
Daughter *ărópia mènihita*
dish (earthenware) *piani*
dog *uwiri*
door-opening *ma oipă*
Ear-lobe (opening in-) *ihani ipă*
evening *jăū èmăpŏjémèă*
Father *nitja*
fire *utămai*
fire wood *utănata*
fish *irèă*
flooring-laths *kini*
Girl *kau ăro, kau ărúpia.*

Hatchet *poáni*
house *kămè*
Javelin *kăra*
(iron head of) *kăra nata*
Knife *kă ira*
Maize *kăbuăi*
man *wèrè*
mat *kăpiri*
moon *pură*
morning *jăū hinaumăra*
mother *enèja*
Night *iratia*
noon *jăū wau uhèrè*
nose-peg (shell) *kurăpahu*
Paddle *på*
pandanus leaf *kăpinăhè*
pig *ŏhŏ*
pole (of house) *kămè ŏtè*
pot (iron) *jau*
Rain *kèhè*
roof (of sago leaves) *ŏrèhè*
rotan *kèma*, *èmè*(?)
Sago *amata*
sago club *ipiri*
sago leaf fibres *tăhŏri*
„ „ stalk *tŏtŏ*
„ oven *tă arani*
sand *tăparå*
son *ărópia pètainiri*
stair pole *ma ŏtè*
stream *wabå*
Tobacco *käpăū*
to-morrow *kaumätiă*
trunk (of Ceram) *pŏta umu*
Virgin *wèrè puaro*
Water *mi*
wind *kimiri*
woman *kauwă*
Yesterday *kåba*

PARTS OF THE BODY.

Back *urumi*
„ of hand *maharè kŏrè*
belly *ătárè*, *kŏpènè*
breast *puriï*
buttock *haimuruhu*
Calf (of leg) *èhănata*
cheek *ăwámu*
chin *kèparè*
Ear *iháni*
ear-lobe (opening in-) *iháni ipă*
elbow *tŏrarè*
eye *măмè*
eye-brow *măмè omai*
„ -lash *măмè* (*h*)*iri*
„ -lid *măмè piïri*
Foot *măū*
Hair (of head) *rupèrè*
hand *maharè*
head *rupau*
Instep *măū kŏrè*
Knee *iripu*
Lip *iri*
Mamma *abå*
mouth *kapu*
Nail (of finger) *maharè hèhè*
„ (of toe) *măū hèhè*
navel *mŏpèrè*
neck *amoïï*
nose *mirimoi*
nostril *mírimoi ipă*, *mihă*
Palm (of hand) *maharè tináta*
penis *kamarè*
Shin *imiri*
shoulder *tŏpapă*
skin *natápa iri*(?)
sole of foot *măū* (*i*)*tináta*
Testis *muta*
thigh *ăhènata*
throat *kapu*
toe *măū kŏmènè*
tongue *nèrè*
tooth *titi*
Upper arm *tŏhŏma parè*
Wrist *maharè pŏnè*

ADJECTIVES.

Beautiful *ămaréméï*
Hungry *iwĕhŏti himáni*
Sharp *èmè*

VERBS.

Awake *èmai ipa*
Buy *èmănu makoraï*
Drink *minărau*
Eat *manamari*
excrete *ata*
Give *kèma*(*è*)
Laugh *ŏkŏ aïïmè*
lie *ătăre mctcŏ*
Paddle *på jăhuríma*
perforate (ear-lobe) *iháni aimèri*
„ „ (septum) *mirimoi aimèri*
Sleep *ètè käimèri*
smoke (tobacco) *măněma năмări*
spit *mètăhŏ*
Urinate *ji*
Walk *mă*
weep *măè aimè*

Come here *ai noè*
Much *tăŏru*

Comparing this vocabulary with that gathered by MÜLLER [1857, 113—116] at Utanata (south-west coast), it appears that both languages have many words in common, e. g. *ăwámu* cheek, *măмè* eye, *măū* foot, *iripu* knee, *imiri* shin (leg with MÜLLER), *titi* tooth. Others are only slightly different; thus MÜLLER gives: bow *awuré*, cocoa-nut *uteri*, house *kami*, javelin *kareh*, sago *amati*; back *urimi*, ear *iäni*, hand *mareh*, head *upau*, tongue *maré*; to laugh *oku*, to sleep *ete*, to weep *makeh*.

So it is clear that the expedition, penetrating from Geelvink Bay to Lake Jamūr, never before visited, had reached the linguistic territory of the south-west coast. This linguistic connexion was already noticed on the spot by Mr. DUMAS, who accompanied the expedition and had formerly travelled along the said coast, but who remarked that some words were used with a somewhat different meaning.

From the people of Nagramádu I noted the following words:

Nagramádu.

NOUNS.

Back *moikĭsi*
belly *bi*
breast *burigi*
Canoe *du*
cheek *ăpèkè*
cocoa-nut *măgrabé*
Dog *iwŏrä*
Ear *èhăra*
Fire *uhă*
Hair *ŏbuèhè*
head *jabimä*
house *ja*
Mouth *möhähă*
Navel *möbèrèbu*
neck *umèkè*
nose peg *ăgŏ gnŏbè*
Pandanus leaf (wrapper for cigars) *kăbirèkè*
pig *ŏhă*
Rain *èmöjä*
Sago *èmă*
shin *ărarièkè*
Throat *göröbèkè*
tobacco *saku*
tongue *jämänärai*
tooth *si*

VERBS.

Drink *măjänäräge*
Eat *hanahăru*
Sleep *mälĕkirĕja*
spit *baburu*
Urinate *idă*

A vocabulary of the Jótĕfa language (inner bay of Humboldt Bay) has already been given by BINK [1902] (also printed in Bulletins de la Société d'Anthropologie de Paris, Vol. XI, 1888, p. 386 et seq.). It needs a revision to which I could spare no time, but it was thoroughly treated by KERN [1900] and by SCHMIDT, the latter [1902, 38] classing this tongue with the Jamir, Sauvein, Saliu and Tumleo, in his IV group of Melanesian languages of the northern coast of the mainland. Melanesian dialects, have proved to be very homogeneous (RAY [1893, 755]), clearly showing that they belong to the same stock. Judging by this, one may suggest that the languages of which lists of words have been given above, are Papuan. For it is characteristic of the Papuan languages that they show little similarity and apparently represent various, distinct, linguistic stocks. The terms Papuan and Melanesian are here used in the sense first indicated by RAY and HADDON [1891, 509, note], to which, however, must be added, that the Tobádi people with a Melanesian tongue show physical features that are Papuan. The linguistic boundaries therefore are no race boundaries, as also remarked by PÖCH [1905, 439].



Fig. 202. Youths of the Mŏso tribe.

From the Sĕkă tribe MOOLENBURGH [1904, 187] gave a small vocabulary, and from the Mŏso tribe two young men were met (fig. 202), but no words were gathered.

As to the illnesses amongst the tribes which the expedition met, it was chiefly wounds that came to my notice. Wounds on the lower legs, resulting from occasional hurts, are especially frequent, as in K. W. Land (NACHRICHTEN [1890, 29]), in the case of both sexes, and particularly with the inland tribes. These cause ulcers sometimes giving rise to buboes, both afterwards leaving deep, white scars, such as at Humboldt Bay COMRIE [1877, 106] took for "unmistakeable evidence of syphilis", of which I could not find a trace. Several men at Tobádi had scars left by bites from crocodiles, which not infrequently attack the genitals. In Papua Tălandjang, as in K. W. Land (NACHRICHTEN [1888, 233]), people pay very little heed to these ulcers, although stiffness of a limb may be the result; I treated two

cases that almost inflamed the ankle joint. I never saw them use any treatment; medicines in general being here as rare as in K. W. Land (SCHELLONG [1889, 20], BIRO [1891, 60, N°. 175]). The Bogadjim (HAGEN [1899, 257]) treat their ulcers by bleeding, cutting the skin with glass sherds. At Kaimani and Ajambori (VAN DER GOES [1858, 120, 160]) a certain leaf and siri saliva resp. is used. My patients liked the western art of surgery, if not too painful, and were willing to be anaesthetized with chloroform; they said I made the people dead, without stopping the heartbeat, and after the operation made them alive; similar ideas about the chloroform sleep were gathered in British New Guinea (MACGREGOR [1897, 38]). The chief of Tarfia made the voyage to Humboldt Bay, to get rid of a piece of an arrow head, that had penetrated into his frontal bone; he was very glad seeing it extracted and the wound healed. Cases like this make me sure that those people know nothing of trepanation, as suggested by VON LUSCHAN [1898a, 398] and VIRCHOW [1901, 538] regarding New Mecklenburg and the Caroline Islands resp.. PÖCH [1905a, 696] states that those „trepanation wounds" are caused by slings.

Malaria was in H. B. not frequent during the time of our stay, I witnessed two cases; one of these patients to cure himself lay down near to a wood fire, a treatment also reported from the Jabim (NACHRICHTEN [1888, 233]). Mosquitoes were only collected at the Wāūdu River, south of Lake Jamūr; these pests proved to be a species of *Culex*: *Mansonia uniformis*.

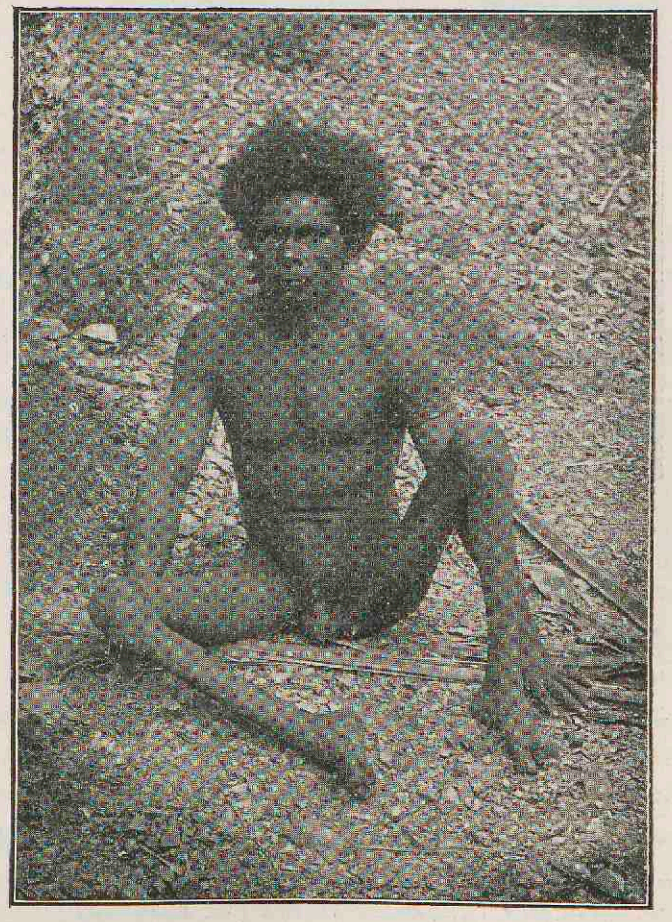


Fig. 203. Suggested case of beri beri; Asé.

At Tobádi I also treated a case of pneumonia.

Whether beri beri occurs in Papua Tălandjang is doubtful. Both in Humboldt Bay and on Lake Sentáni I met a man with paresis of the lower extremities; in the case of the latter (fig. 203) the knee-reflex was wanting, but there was no anaesthesia and his pulse was normal. Owing to faulty knowledge of the language I could get no history, and could make no definite diagnosis. At Demta a photo was taken (fig. 204) of a dwarf, with paralysis of the legs; I myself did not see the case and the verbal information was faulty, but both feet show extreme pedes vari, so that the case probably represents acute anterior poliomyelitis.

Skin diseases are frequent; tinea imbricata is spread over the whole of New Guinea (see p. 330). With the inland tribes it is not infrequently universal; though in the coast villages only one half or less of the inhabitants are affected. It does not always by any means begin at the nates; with a child of two years at Ingrås it started at a spot in the side. Elephantiasis was found only amongst the Sĕkánto.

The larva of *Thrombidium van der Sandei* Oudms., which with Europeans entering the bush causes the scrub-itch, I did not gather from the skin of the natives, who I suppose are immune from its bites. This parasite has been studied by OUDEMANS [1906, 131], to whose bibliography still might be added: D'ALBERTIS [1880, II, 34], NEW GUINEA [1890, 95], ANNUAL REPORT [1897—98, 8; 1899—1900, 34] and PRATT [1906, 93]. Amongst the Sĕkánto the expedition found a deaf-mute boy (MOOLENBURGH [1904, 184]), who was very useful as a guide, because he could understand much better the gestures of the Europeans, the local language being unknown.

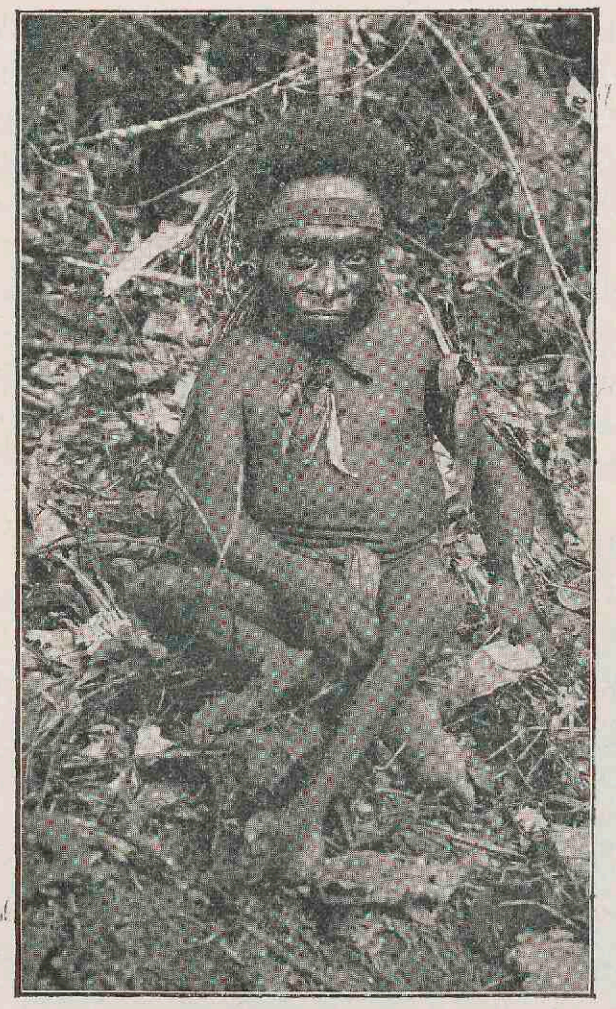


Fig. 204. Infantile paralysis; Demta.

The SOMATIC CHARACTERS to be considered below, are principally taken from the schedules of 22 fullgrown male Sentáni people (N^os^. 1—22), 18 idem of Humboldt Bay (N^os^. 23—40), 2 Sentáni boys (N^os^. 41—42), 3 Humboldt Bay women (N^os^. 43—45) and a Tarfia youth (N°. 46).

From the colour of the skin the Papuan is ranged under the Negroes or "black" races, and some authors speak of "the black colour of the typical Papuan" (BROWN [1887, 321]); "franchement noire", "peau de nègre" (HOVELACQUE and HERVÉ [1887, 382, 597]). WALLACE [1869, II, 187] describes the Arfaks as "generally black" and KRIEGER [1899, 370] mentions that amongst the Tugeri there are some of a "pechkohlenschwarze" colour. EARL [1853, 3], however, states that the black is certainly some shades lighter than the deep black found among some Negro tribes of Africa; still his native of Dourga street [l. c., Pl. I] he draws too dark, and that of Utanata [l. c., Pl. IV] certainly too light. Often the colour is described as "nearly approaching the black" (VAN HASSELT [1886, 577], VIRCHOW [1889, 162]), as "dark, often nearly black" (FLOWER [1885^a^, 381]), "brown that might be called black" (MACGREGOR [1897, 28]), "sooty brown or black" (BROWN [l. c.]), "a deep brown, often approaching closely to black" (WALLACE [1869, II, 185]), but never quite equalling the jet-black of some negro races [l. c., 274], "very deep shades of chocolate brown, often verging on black" (KEANE [1899, 127]). The observations mentioned above were made without using chromatic tables; the same with the description of ERDWEG [1902, 277]. In this respect, however, all agree, that the colour of the skin differs not only according to the district but also individually among the inhabitants of one and the same village (see also MEYER [1874, 98], SCHELLONG [1891, 160], KRIEGER [1899, 141]), a fact which I can entirely confirm. — N°. 36 of my anthropometrical series, for instance, is much darker than his fellow-villagers. — This explains why authors give wide limits of the colours occurring, the lightest being yellowish (MEYER [1874, 98]); COMRIE [1877, 106] mentions "from rusty black to a yellowish brown", D'ALBERTIS [1880, I, 260] "from nearly black to the yellowish tint of the Chinese". In the western half of the island, where there is no intermixture with Melanesian blood (Melanesians in general being fairer than the Papuans; see DENIKER [1900, 494]) the colour of the skin is darker among the mountaineers

than among the coast people (WALLACE [1869, II, 187], D'ALBERTIS [1880, I, 48, 215, 217]). VAN DER GOES [1858, 113] stated that on the S. W. coast the natives of the islands were lighter-skinned than those on the coast, and the latter lighter than those of the mountains [l. c., 116].

In British New Guinea, dark people are met in the western part, in the Gulf and near the Fly estuary (MACGREGOR [1897, 28], ATLEE HUNT [1905, 7]). In a few cases the mountaineers are reported to be the darkest (SELIGMANN [1906, 234]), generally the mountain people are the lightest-skinned (D'ALBERTIS [1880, II, 123], CHALMERS [1885, 36, 142], ANNUAL REPORT [1896—97, 12], [1904—05, 5]). From this the conclusion used to be drawn that the light-skinned people formed the true autochthones of New Guinea, populating the whole interior (D'ALBERTIS [1880, II, 377]). All these observations, confusing as they may appear, will obtain their proper importance by combining them with others, in anthropogeographical studies like those of HADDON [1900].

As far as my investigations go there are no black Papuans (see also DE CLERCQ and SCHMELTZ [1893, Pl. XL—XLII]), there is always a brown mixed with the colour, on this point I agree with DENIKER [1900, 47] and MEYER [1874, 97], the latter of whom remarks that in contrast the African Negro is "grau-schwarz". Even the Tugeri are brown (SCHMELTZ [1903, 202], PÖCH [1906a, 897]). Avoiding the word "black" KEANE [1880, 285] therefore tabulates the Papuans under "Dark Races"; the same with the Australians who are neither quite black (BONWICK [1887, 201]). Meanwhile I owe to the reader this practical hint: without previous washing a correct opinion of the colour of the skin can seldom be obtained. After washing with soap half of a young man's face at Horna, this proved 1 or 2 shades of Broca lighter than the other half. All the natives of the interior, but especially the Sĕkánto and the mountaineers, looked dirty. It appears further on that the palms of the hands among the people of Lake Sentáni and H. B. are lighter than among the Jabim (SCHELLONG [1891, 160]); this may be explained by the fact, that the former almost daily, when fishing or boating, come in contact with water. Notwithstanding this relatively greater cleanliness, I could not take any plaster casts or imprints of the hands without a previous washing.

The lighter colour of the skin of the newly born, observed by VON ROSENBERG [1875, 88] amongst the Arfak, also mentioned by SCHELLONG [1889, 13], PÖCH [1905, 440] and MACLAY [1873a, 230] of K. W. Land, remains visible, according to the latter, in the male sex up to the 20th year, and indeed it could be noticed that Nos. 41 and 42, boys of 12 and 14 years resp., were one shade of Broca lighter than the fullgrown (see also DE CLERCQ and SCHMELTZ [1893, Pl. XLI, fig. 5]).

The lighter skin colour of the women, common with most coloured races (DENIKER [1900, 51]), asserted in connection with the people of Mowat (D'ALBERTIS [1880, II, 189]), and already mentioned with respect to Humboldt Bay by VAN DER GOES [1858, 172] and PARKINSON [1890, 24], I found limited to one shade of Broca.

The figures given below relate to the men, where two numbers are mentioned, the colour referred to lies in between, nearest to the number mentioned first. Little difference has been noted between the Sentáni and Humboldt Bay people, the latter being slightly darker and having less red in the colour of their skin. So, for instance type 29 on Lake Sentáni may correspond with 37 or 37—43 in Humboldt Bay. The deepest colours of Broca, be it observed by those who maintain the occurrence of dark negro black, were noted

by me no more than by BECCARI [1876, 368], LANGEN (VIRCHOW [1889, 162]), FINSCH [1888—93, 183], SCHELLONG [1891, 160] and HAGEN [1899]; the colours noted generally lie between 29 and 30.

That the face is always lighter than the body, an observation already made by MACLAY [1873a, 230] and SCHELLONG l. c. for K. W. Land, I found confirmed; besides it can always be noticed that the cheeks, on an average 30—29 (with the women 30), are still somewhat lighter than the forehead, 29—30.

Of the body the back is the darkest portion, whilst in front the breast is always lighter than the belly; the types occurring most frequently are:

the back 43—29, the belly 29—43 and the breast 29;
or " " 37—43, " " 37 " " " 30—37;
or " " 43, " " 43—29 " " " 29—43.

On the different parts of the breast the skin differs in colour, being darkest towards the armpits.

The colour of the palms of the hands I mostly put down as 24—25 and never darker than 30—33, whilst the ciphers of SCHELLONG are 30, 29—30 and 44.

Albinos are reported from all parts of New Guinea (MEYER [1874, 99], D'ALBERTIS [1880, I, 108], FINSCH [1888, 240], VIRCHOW [1889, 159], MACGREGOR [1897, 28], MOOLENBURGH [1902, 169]). Piebald individuals (ANNUAL REPORT [1897—98, Pl. 25]) even tribes(?) (PRATT [1906, 169, 172]), may represent cases of partial albinism, very probably, however, they are cases of leucopathia acquisita, as shown in the second woman from the right in fig. 214, in which the affected spots show a distinct symmetry. Still I must mention that tinea imbricata s. desquamans (Malay = cascado), called *chăsè* in Humboldt Bay (wrongly called ringworm by COMRIE [1877, 105] and PÖCH [1905, 448]), causes the pigment of the skin, even of the tattoed skin, to diminish. All the light-coloured patches of figs. 1 and 2 of Pl. XXXIII, figs. 3 and 4 of Pl. XXXV, XLI and XLVI represent parts affected by *chăsè*. Another skin disease, tinea albígĕna, described by NIEUWENHUIS [1904a, 561], also causes discoloured spots, specially on hands and feet.

The cristae cutaniae of palms and soles of Sentáni and Humboldt Bay people have been studied from my plaster casts and imprints with printers ink, by Dr. OTTO SCHLAGINHAUFEN [1905] from whom I quote the following: From 90 imprints, taken from 18 individuals, it appeared that the main lines of the hand are strongly reduced and the triangle of the carpal region is shifted in a distal direction. Only in exceptional cases figurae tactiles are met with on thenar and hypothenar, whilst those of the metacarpophalangeal region are always less developed. Contrary to this, the figurae tactiles of the finger tips are of higher development. The stria transversa, stria obliqua and stria longitudinalis were wanting in 76 cases whilst the spirula was met with 26 times. The simian type could still be recognised in 6 cases.

From 24 imprints of plantae it appeared that with regard to "radius R 9a" [l. c., 95] the design deviates further from the original type (and this is still more evident in the right foot than in the left) than with the African Negro. With regard to the "triradius 9" this development even goes further than with the European [l. c., 97—98].

As for the elasticity of the skin, attention may be here called to the transverse folds of the skin in the region of the knee when the leg is extended, resulting from the habit of squatting; with older people these folds are most marked, and sometimes number three above and three below the patella (see Pl. XXXVIII, figs. 3 and 4, Pl. XLI figs. 3 and 4).

Perspiring SCHELLONG [1891, 159] hardly ever saw with the Papuans, not even from great bodily exertion, as when carrying heavy loads. Under similar circumstances, also when rowing, I saw the people of H. B. perspiring very freely, the darkest of our carriers (schedule N°. 36) excessively, still my olfactory organs were seldom offended by the smell. Regarding the natives of British New Guinea MACGREGOR [1897, 28] experienced the same. With the mountain tribes, however, much grease adheres to the skin, especially when this has the rough surface which is formed by the scales of tinea imbricata, and this sometimes causes a disagreeable smell, also experienced by MOOLENBURGH [1902, 164] and JENS [1904, 52]. To prevent this in K. W. Land they oil the skin (HAGEN [1899, 167]).

The nails of the fingers are clearly curved longitudinally, but, as already noticed by MACLAY [1873a, 243], far more transversely. Wherever I paid attention to it, the lunula was visible on all the fingers with the exception of the little one. In most cases the side edges of the visible part of the nail run parallel from the middle of the length, but often they converge towards the top, a condition very seldom met with in Europeans (VIGENER [1896, 603]). With 9 righthanded persons I determined the lineal as well as the bent breadth of all the finger-nails of the right hand, 3 times also of the left. The bent breadth was almost the same with the corresponding fingers of both hands, but the lineal breadth, which on the right (from thumb to little finger) amounted to: 14.5, 11, 12, 11, 9 m.m., was on the left from $^1/_2$ to 1 m.m. less, the curving-index $\left(\frac{\text{lineal br.} \times 100}{\text{bent breadth}}\right)$ on the right being 76, 75, 75, 74, 73, on the left was 73, 69(?), 69(?), 72, 70. Similar results, namely that the curving of the nails of the left hand is greater than of the right, VIGENER [l. c., 589] noted with Europeans. The above numbers also show that the thumb in both hands always has the flattest nail, the curvature increasing more or less regularly towards the little finger. With Europeans the same was found by BOAS and GEGENBAUR; later measurements of VIGENER [l. c., 596], however, state that with Europeans the flattest nail is more often found on the index than on the thumb. The foot-nails were measured from plaster casts; their absolute degree of curvature is considerably less and diminishes towards the fifth toe, the indices being: 86, 88, 89, 89, 93.

The hair of the Papuan has from the earliest times excited the special interest of all who made the acquaintance of this people; this may be proved by the name "Papuan" being derived from the frizzly hair (RIEDEL [1884, 428]), which at the same time must be considered as the most constant characteristic of the race. Concerning the eastern parts of New Guinea cases of wavy-, even straight-haired people were reported (e. g. FINSCH [1888, 216, 283], [1888—93, 83, fig. 1, 184], MACGREGOR [1897, 30], SELIGMANN [1906, 232]), which are the results of intermixture. Only once straight hair, "cheveux flottants", was mentioned of a western, true Papuan tribe, namely from the Arfak, by DE RIENZI (LESSON [1880, 46]), but this must have been a mistake, as was afterwards proved by VAN DER GOES [1858, 164], WALLACE [1869, II, 187], MEYER [1873, 309], VON ROSENBERG [1875, 92], D'ALBERTIS [1880, I, 217] and VAN HASSELT [1886, 577].

EARL [1853, 1], in writing that the hair of the Papuan "does not spread over the surface of the head as is usual with the Negroes of Africa, but grows in small tufts, each of which keeps separate from the rest", gave rise to the opinion that the hair grew like the bristles in a shoe-brush. This is decidedly

not the case, as has been proved by the researches of many travellers. D'ALBERTIS [1880, II, 12, 19] stated this of people wearing the hair short; I myself shaved the whole head of a western Papuan and examined it with the help of another member of the expedition. We could not find that the hairs were implanted in circles (FRITSCH [1899ª, 46]), nor "die bekannten, um verschiedene Centren sich herumwindenden Spiralen" (MEYER [1874, 103]). According to DENIKER [1900, 41] an even mode of implanting is common to all races, "at the most it may be noted that in Negroes the rows of hair are closer together in certain places, leaving in other rows intervals between them of two or three millimetres" (see also UNNA [1896]). We found that on several places some 4—5 hairs appeared to form a tortuous row, as reported by DE MEYERE [1893, 120—127] of primates and men, but for the rest the hairs proved, as was found by MACLAY [1873ª, 238], to be evenly implanted.

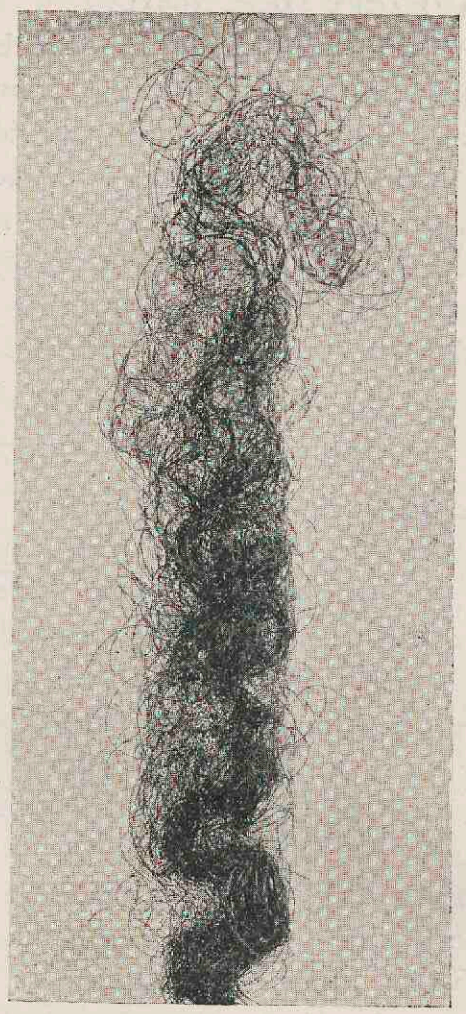


Fig. 205. Tuft-like tress of hair (male).

Unhappily, when doing away with the brush-like growth, some people at the same time threw overboard the tufts, and once being lost, COMRIE [1877, 105] writes: "no trace of it could be seen, although I frequently looked for it". Also NOTES and QUERIES [1899, 19] putting the questions: "Does it grow in separate tufts? Or is it uniformly scattered over the hairy scalp?" makes one suppose that the one necessarily must exclude the other, whilst the Papuan hair, though evenly implanted, grows up in tufts, the character of which I will describe.

Hitherto various terms have been used to indicate the peculiar form of the Papuan hair, e. g. "frizzled", "woolly or twisted" (EARL l. c.), "frizzly" (WALLACE [1869, II, 274], HADDON [1894, 253], SELIGMANN [1906, 227]), "crisp, disposed in small or large ringlets resembling wool" (PRUNER-BEY [1877, 74]), "crisp and frizzly" (COMRIE [1877, 104]), "crisp, fine curly" (MOSELEY [1877, 385]), "woolly" (STANILAND WAKE [1883, 198]), "less woolly", "with broader spirals" than with the Negro (DENIKER [1900, 285, 288]); "lanosa" (BECCARI [1876, 368]); "demi-laineux, très touffus" (HOVELACQUE and HERVÉ [1887, 597]); "buschelig-wollig", "in allen Theilen gekrümmt" (BIRO [1899, 3]), "negerähnliche Kräuselung" (HAGEN [1899, 158]), "kraus", "filzhaarig" (PARKINSON [1900, 24]); "gekroesd" (VAN DER GOES [1858, 117], DE CLERCQ and SCHMELTZ [1893, 10]), "gekruld maar niet wollig als bij de negers" (VAN HASSELT [1886, 577]). Most of these terms have reference to the external appearance of the hair taken as a mass, but are not descriptive of the form of one single hair. In this sense especially I must object to the term "woolly". It is known, and with the naked eye or with the aid of a magnifying glass every one can see, that in good sorts of wool the single hair has a series of waves, more or less lying in a plane, ergo it is not curly, still less forming ringlets (according to LÖBNER [1898, 94] under the influence of the staple), but is simply wavy.

To get a clear idea of the character of the hair, fuller descriptions are required, and one of the shortest and clearest is that of EARL l. c.: "the hairs if allowed to grow, twist round each other and form spiral ringlets"; these he called tufts and adds that if "the ringlets are opened out by the hand and kept "spread by the constant use of a sort of comb, the hair assumes a capacious, bushy appearance which has "caused the people who adopt the latter practice to be called mop-headed Papuans". Subsequent authors

gave the same description, using other words, like "tufts or curls" (WALLACE [1869, II, 274]), "ringlets quite separate from one another" (D'ALBERTIS [1880, II, 12]); "Locken, Strähnen, Zotten" (MEYER [1873, 307; 1874, 103—105] also [1893, 27—32]), "Spirallocken" (SCHELLONG [1891, 160]). They all point, like FINSCH [1888—93, 184], to the fact that naturally the single hair forms a cork-screw, and that without any intervention of the wearer a number of hairs wind together to form a tuft. COMRIE [1877, 104] also saw the cork-screw ringlets, but thought they were artificial, whilst PRUNER-BEY [1877, 75] gave the opinion that some Papuan tribes had tufts and others were mop-headed, both by nature.

The very common occurrence that the exaggeration of a natural, somatic character is used for cosmetic purposes, leads to the smearing of each spiral ringlet with clay or other material, by which each tress is kept quite separate. Such a tress of a Humboldt Bay woman is seen in fig. 10 of Pl. VII. Very often the people may be seen busy in separating their spiral ringlets, smearing them with fresh clay, and from this several authors, mentioning these "Lockensträhnen", "Kleistrengen", "*gatesi*" (MACLAY [1873ª, 232], FINSCH [1880, 41, 108, 362; 1888—93, 227], PARKINSON [1890, 24], HAGEN [1899, 168]), drew the conclusion that they were totally artificial. VAN DER GOES [1858, 172] and BINK [1897, 162] erroneously thought that each tress was previously plaited; on the contrary, the natural spiral winding is properly fixed inside the mass of clay, as is shown in the specimen from Humboldt Bay. Finally, KRIEGER [1899, 138], who has mistaken MEYER's meaning, gives anew the opinion that the hair of the Papuan forms no tufts at all, again increasing the existing confusion of ideas.

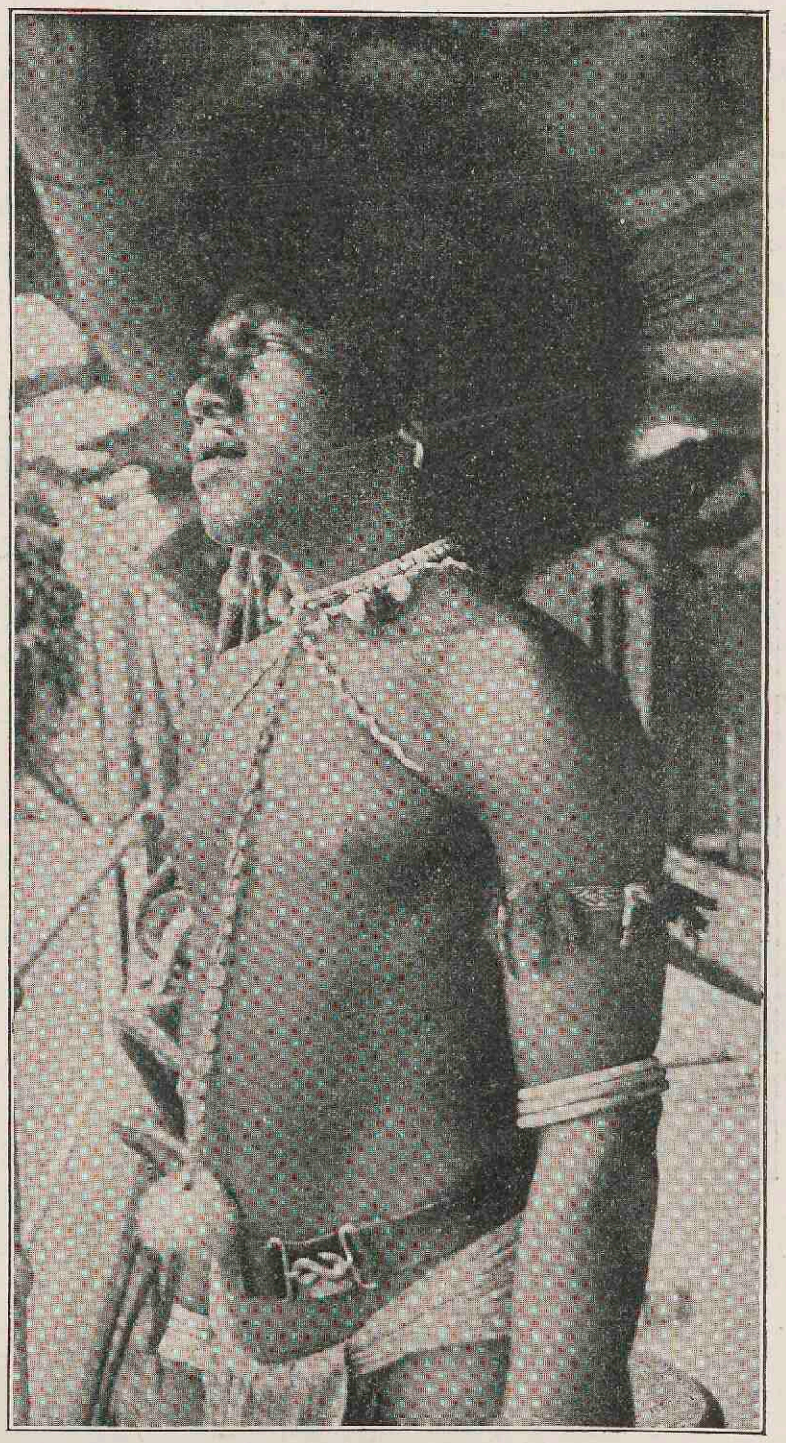


Fig. 206. Mop-headed youth; Manokwari.

My investigations confirm the spiral winding of the single hair; the inclination to form such spirals is so strong that it is impossible by combing or stretching ever to give it the appearance of sleek hair (VIRCHOW [1889, 127, 161]), and when out of curl by moisture, it again curls on drying (MACLAY [1873ª, 234, note], VIRCHOW [l. c., 127]). Now these hairs to a number

varying between 67 and 115 (with the Negritoes SCHADENBERG [1880, 162] found from 50—100) join together, all the hairs forming the same circles which succeed each other at different distances, so as to make tresses, which represent the natural growth, by no means restricted to the Melanesian (PRUNER-BEY [1877, 80]). In daily life the tresses generally are dishevelled, be it accidentally or on purpose; then artificial tufts result, as in fig. 205, each formed out of one tress and still showing at the base the original spiral. The tuft in this figure I took out of such a mop as is depicted in fig. 206, which from a superficial survey one would not presume to contain anything of the kind. The prettiest tresses, on the contrary, I found with inland tribes, with whom the hair is little cared for, specially with women of Lake Sentáni, but also in the cock's comb (see p. 57) of boys, who are not yet allowed to dress their hair. The natural inclination to form joint tresses was clearly proved (MEYER [1874, 104]) in instances when mop-headed men had to dive, when the hairs were disentangled and in drying formed their proper tresses. The same is reported by GUPPY [1885, 278] regarding the Solomon Islanders.



Fig. 207.
Girl of Tobádi, wearing clay tresses.

The length of the tresses, I mean the axis, according to EARL l. c. may reach a foot; FINSCH [1888, 157] mentions "Strähnen" of 18 inches, but I am convinced they can grow longer.

The number of the tresses could have been counted with the women of Humboldt Bay (fig. 207).

The diameter of the tresses by MOSELEY [1877, 385] is supposed to be constant in each race and characteristic. MACLAY [1873[a], 232] found it to be smaller (3—5 m.m.) with children than with adults (6—10 m.m.). The fact is that the width differs individually, possibly also increases proportionately to the growth of the skull, but above all sexually, the men having a wider spiral, up to 10 m.m. (fig. 208, to the left), than the women (see also VIRCHOW [1889, 160]). Thus the narrowest tress, 2.5 m.m. (fig. 208, to the right), was found in the case of *Ima*, a married woman above middle-age from Ajápo; *Radoi* a virgin of about 18 years, who was in her company, had tresses of 6—7 m.m. in diameter. The widest tress observed with a woman is about equal to the narrowest of the boys and men. With the Solomon Islanders, GUPPY [1885, 278] found the diameter of the tresses to vary between 5 and 10 m.m., but he mentions no differences of age or sex. With Negritoes MEYER [1893, 27[b], Pl. X, figs. 7—11] found a diameter of 4, with a young man of 3 m.m..

In the tresses of the collection turning-points (fig. 208 at ×) can be noticed, as in the tendrils of certain climbing plants (e. g. *Bryonia dioica, Cucurbitaceae*), in which the spiral changes its direction. Sometimes the number of windings between two consecutive turning-points is fairly large (6—8), often, and this is particularly the case with moderately long tresses, after one spiral twist a turn takes place, and often two or more follow one another immediately. — — But why does the spiral change its direction?

According to FRITSCH [1899ª, 46] the curvature in the hair is already determined in the hair-follicle (the same with the hairs of sheep; LÖBNER [1898, Pl. 17, fig. A]), in the case of spiral hairs by a sword-shaped root (see DENIKER [1900, 34, fig. 3 B]). However, MACLAY [1873ª, 232] stated, and my own observations are similar, that Papuan hair which grows after shaving is straight for the first 1.5 m.m.. With the Negritoes the spiral form (PINCUS [1873, 155]) only begins (SCHADENBERG l.c.) at a distance of 2 m.m. from the skin. It therefore appears very doubtful to me whether the spiral of the single hair and the inclination to meet in numbers from 67—115 to form joint spirals, also the above mentioned turns, are explained by the curvature of the root.

The hairs of one tress do not converge from where they leave the skin towards the axis of the tress, as indicated by BROCA [1879, 107], but towards a point of the circumference of the tress, which I take it, is always hollow; also the entire bend of a turning-point falls outside the axis and lies pretty well in the cylindrical, circumferential surface formed by the spiral twists themselves. The direction of the first spiral (next to the skin, after the first 1.5 m.m.), is in all samples but two towards the right, and in these two towards the left, as is the case with a cork-screw (holding the point upwards). It is probable that with the two latter I made the mistake of cutting the tress off above the lowest turning-point, and that the direction of the first, basal spiral is always and invariably towards the right. Assuming this to be true, the direction of the topmost spiral should also be to the right, as the Papuans of H.B. and Lake Sentáni never cut off their hair at a certain length, but only know the process of shaving. However, no certainty could be obtained regarding this, the tresses being too much entangled at the free end. It cannot therefore be decided as yet whether the turns are formed consecutively, at the base of a tress, during its growth, or whether, with a constant direction of the basal part, they arise in the course of the tress. The fact is that short tresses with only a few spiral twists and also the top-part of longer tresses show no turning-points. The hairs in the concave bend of a turn are always more or less stretched, describing a much shorter curve, which gives the impression that the turning-points are caused by a certain tension between the outer and the inner hairs of a spiral. The true cause probably is situated in the torsion which each single hair undergoes by the spiral winding. That this torsion really exists, is shown if one suspends vertically a length of hair of say four spiral twists, cut off between two consecutive turning-points, and stretches it by weighting it at the lower end with a small pincette. The latter then turns round in the sense of unrolling the spiral, but because of the concave side of the hair being shorter than the convex, not fully four times 360°, as would agree with the number of spiral twists, but only three times 360°, and the hair resists any further turning of the pincers.

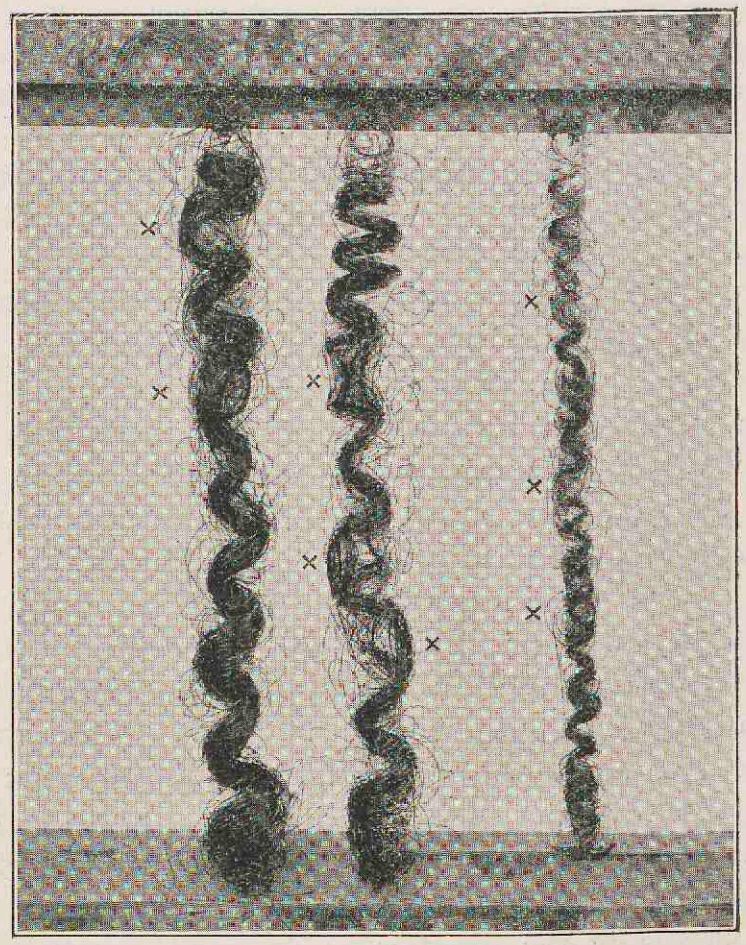


Fig. 208. 1/1. Hair tresses with turning-points (×).

Suspending a longer hair, containing one, two or more turning-points, but of which the number of right and left spiral twists correspond, no turning of the pincers can be noticed, proving that the torsion the hair undergoes between two turning-points is relieved by the latter.

That the existence of the turns, here described, has remained unnoticed up till now, may be attributed to the custom of packing up samples of hair in envelopes, owing to which on their voyage home they are pressed, and when received in the laboratory the form is difficult to be judged. D'ALBERTIS [1880, II, 19] regarding the hair of Kiwai Islanders wrote that it "was that of the genuine Negro", but this author was not aware of the turns, which possibly will prove to be a distinctive race-character. The Negrito hair, on the other hand, as described by PINCUS [1873, 155] and SCHADENBERG [1880], has so many qualities in common with the Papuan, that I should not wonder if on closer examination the former might prove also to possess the typical turning-points.

Papuan hair is hard and coarse (see also MOSELEY [1877, 385]), somewhat like horschair, so it seems to the touch (BIRO [1899, 3]), and HAGEN [1899, 158; 1906, 38] writes that it feels like a mattress, — which of course is due to the spring-like spirals.

The total length to which Papuan hair can grow is nowhere mentioned; indeed it can only be found out by calculation. MACLAY l. c. erroneously thinks that EARL fixes the maximum length at one foot, whilst in reality the length of (the axis of) the tress is meant. On examination I found that a single hair when stretched is about three times as long as the tress it originates from, a result that might be expected, where the height and diameter of the spirals are often equal. Tresses a foot long therefore may correspond with a hair length of about 90 c.m..

The thickness of the hair of the head was given by MACLAY [1873[a], 234] and FINSCH [1888—93, 184] as equal to, and by BIRO [1899, 3] as $1^1/_2$ times, that of the European. Exact ciphers were given by PRUNER-BEY [1877, 80], who in the sections found the diameters 290:100 and 250:70 for the flattest, 250:140 for the widest; also 320:140 and 280:130, all in microns. (Of the Melanesians he gives 220:150, 240:180, 300:200 and 330:220). I must remark that the measuring of the diameters of hair in its cross-section, gives rise to many faulty results. The hair of the Papuan is so hard and coarse, that in trying to make fine sections of 5 or 7.5 microns, it easily shifts in the medium (PRUNER-BEY: "collapses in the direction of its length"), even when celloidin is used. Then the section is not only misformed, but moreover not quite under 90° to the axis and will always give too high ciphers, occasionally also a faulty proportion between the long and short diameters. Seeing the high ciphers of PRUNER-BEY, up to about $^1/_3$ millimeter(!), I resolved to use another method. A hair was gently stretched horizontally under the microscope, and whilst turning it round the axis I noted the various transverse diameters that presented themselves, the highest and the lowest of course being the long and the short diameter resp.. In this way I found the hair of male adults in minimum 109 by 65 microns, in maximum 136 by 87, average 125 by 76, with women 81 by 49 microns; in all the hairs the short diameter being $\pm\,^6/_{10}$ of the long diameter. These ciphers are much lower than those given by PRUNER-BEY, but agree better with those of GUPPY l. c. regarding the Christoval natives, being between 94 and 120 microns. With the tresses of Papua Tălandjang the hair is placed on edge and may be compared with a flat ribbon, wound spirally round a cylinder, the largest diameter of the hair lying in the circumferential plane. This is also the case in the turning-

points, in each of which the lower edge becomes the upper edge, and vice-versa. PRÜNER-BEY [l. c., 80, note] writes of the Negro hair that "the flattening is seen in the direction of the scroll", which apparently means a similar condition.

The colour of the hair is usually a dull black, as is also stated by MACLAY [1873a, 233]. Towards the free end, as also observed by VIRCHOW [1889, 161], it is generally lighter than at the base; DENIKER [1900, 494] only reports this peculiarity in the case of children. With the women of Lake Sentáni who often dive (see pp. 139 and 166) and daily row over great distances in boats, unprotected against the rays of the sun, the tips of the tresses had become a yellowish red. A somewhat lighter hair-colour with women, as observed among European races (DENIKER [1900, 51]), could be noticed on Lake Sentáni, those of Humboldt Bay often using pigments. I could state that in early youth the colour is also lighter; the same as reported by RIEDEL [1884, 428] and by DE CLERCQ and SCHMELTZ [1893, Pl. XLI, fig. 5] and observed by MARTIN [1894, 119] with the "crisp-haired" people of Ceram. With older people it also becomes lighter, but "fox-coloured" hair (HAGEN [1906, Pl. 44]), or hair naturally red over its entire length, as seen by FINSCH on Normanby Island, I never came across, only at Kwatisoré I saw a young man with strikingly light brown hair, who had also very light irides and skin. Such naturally fair hair is very common on New Mecklenburg (HAGEN [1899, 168]). In contradiction of BIRO [1899, 3], who emphatically states all the hair of one and the same individual is of a uniform colour, I found differences even between the hairs of one and the same spiral tress. Even before it is getting grey, the hair of the head begins to fall out, especially with those people who use red clay (see also VAN DER GOES [1858, 169]). Generally baldness begins (see Pl. XXXIX, fig. 4) at the upper corners of the forehead (as found by STEVENS [1897, 178] amongst the population of the Malay peninsula) and advances from there towards the crown, a small island of hair being thus often preserved in the middle above the forehead (see fig. 214). I have not noticed any baldness amongst women. That the eye brows, which are never shaved here (see p. 60) and rarely or never unite over the root of the nose, also show "Kräuselung" (HAGEN [1906, 38]) I did not notice. The eye lashes, generally large (see also MACLAY [l. c., 237]), call for no remark.

The hairs of the beard are not finer than those of the scalp and moreover in K. W. Land (MACLAY [1873a, 237], PARKINSON [1900, 25]) apart from the pulling out (see p. 59; also LAWES [1880, 607]) are reported luxurious, or moderate (SCHELLONG [1891, 158]), the latter being also the case in Papua Tălandjang. The growth starts later than with Europeans, at first at the chin (see Pl. XXXVIII, fig. 4) and upper lip; later on the greatest development is along the lower edges of the lower jaw and below the chin (see Pl. XXXIX—XLI). The spiral growth produces the "peppercorn", of a diameter similar to the tresses of the head; MACLAY [l. c., 237] stated that it was wider. When the hair grows longer, tufts can be recognised, these were however too much entangled to show the presence of turning-points. The hair of the beard grows grey before that of the head.

The hair on the privy parts is not noticeably thinner than that of the head and generally appears sooner with the girls than with the boys. LANGEN (VIRCHOW [1889, 162]) saw it fully developed with a girl of 11 years; the boy *Kiram* (Pl. XLVI, figs. 3 and 4), ± 12 years old, was still without, whilst *Mĕngŏbi*, N°. 42, + 14 years of age, was fairly well

provided with it. Of adult men I put down "abundant" as often as "moderate", occasionally also "scanty"; with women on an average it is less. It forms spirals (see also VIRCHOW [l. c., 128]), which, however, are generally disturbed. Often, even when the rest of the body remains free, a growth of hair on the thighs and the lower belly joins the hair of the genitals, most extensively in the linea alba, often reaching the epigastric region; a similar line then exists in the back (see also MACLAY [1873[a], 238]). With more hairy individuals, who, also according to VAN DER GOES [1858, 171], BECCARI [1876, 369] and MACGREGOR [1897, 29], are uncommon, hair is seen on chest (see also BECCARI l. c., D'ALBERTIS [1880, II, 188], DE CLERCQ [1889[b], 1669]) and nates. Only on two occasions (N[os]. 3 and 40, Pl. XXXII and XLVI resp.) I saw the trunk, also the shoulders, and the limbs with the exception of the inside of the upper arms, but including the back of the hands (see MACLAY l. c.), entirely covered with small peppercorn-like ringlets (see also MOSELEY [1877, 385]), called "woolly" by D'ALBERTIS [l. c., I, 305]. The hair of the armpits is moderately developed and when drying, (VIRCHOW [1889, 127]) curls. An entire absence of hair on the body as found with people at the mouth of the Fly River (HADDON [1894, 69]) is often the consequence of tinea imbricata, between the patches of which sometimes lanugo-like hair is found. A difference of hirsuteness between the coast and the inland population has not been noticed by me.

The microscopical study of the hair showed the well known (PRUNER-BEY [1877, 80]) elliptical, oval or reniform section. The bulbus is strongly coloured, oval, often provided with irregular excrescenses and its axis often curved irregularly, in one preparation bent almost at right angles as met with in the Negro (UNNA [1896]). In a few cases the hair just above the bulbus proved to be thinner than higher up, whilst towards the end, especially with short hairs as those of the armpits, it becomes considerably thinner. The clear cuticula showing the imbricate arrangement and the undulating boundaries of its cells, is narrowest in the short curves, where with an enlargement of 220 it can sometimes hardly be noticed, thickest in the middle of the long sides, not infrequently straightening the concave curve of a reniform cortex. Towards the point the cuticula retains, with the diminution of the total diameter of the hair, the same thickness for a long distance, decreasing rapidly after this and disappearing entirely at the point. The cortex, which at the thickest part of the darkest hairs, with an enlargement of 220, is almost non-transparent (see also BIRO [1899, 3]), has in the thinner and lighter hairs, with transmitted light, a reddish brown colour, against which the dark medulla, if present, shows up strongly. The cortex contains no pigment in a dissolved state, but only in the shape of grains, joined into small longitudinal clouds, thickest towards the circumference, closest together against the cuticula (as reported by MARTIN [1905, 311] of the inland tribes of the Malay peninsula) thinner and more spread out towards the centre, which is often quite blank. Towards the point the pigment is lighter. The medulla is often wanting even in thick hairs; still it occurs first in the thickest parts of the single hair, sometimes as a continuous, though generally as an interrupted, dark column to the thickness of $^1/_5$—$^1/_4$ of the diameter of the hair (with Negrito hair $^1/_6$—$^1/_5$; PINCUS [1873, 155]), invariably disappearing towards the thinner end. The colour of cortex and medulla show no fixed proportion; dark hairs may lack a medulla, and hairs of a light yellowish pink may have very dark medulla cells. A few of the hairs examined show along the edges loose split ramifications, diverging towards the top.

The teeth of the Papuan owing to the use of betel are generally stained black, in K. W. Land also blackened purposely (HAGEN [1899, 167], BIRO [1901, 37]), but otherwise they are praised for their whiteness (l. c., 272) and, as with the Melanesians (STEPHAN [1906, 15]), for their regularity and strength (VAN DER GOES [1858, 113, 170], PRATT [1906, 49]). Judged evidently from their black colour without further examination, the teeth of the H. B. people were called bad (CHALLENGER [1876, 323]), however, as might be expected with a primitive race (see also SCHELLONG [1891] and WILBERFORCE SMITH [1895, 110]), a careful examination with the mouth mirror, with people up to the age of 45, proved to me that caries is totally absent, as noticed in Papuan skulls by COMRIE [1877, 103] and DORSEY [1897, 2; 1897a, 38]. In cases (ANNUAL REPORT [1903—04, 41]) when dental troubles were reported, these might have been caused by tartar, consecutive gingivitis, receding gums, and by strong abrasion. This strong abrasion was already reported by MACLAY [1873a, 242] and by this author attributed to the predominating vegetable food, as he also noticed on himself. I would put down the chewing of betel, siri and lime (the latter being a gritty substance) to be the cause of the abrasion, at the age of 20 the abrasion being already perceptible, whilst at 30 the cusps are generally, at least with M^1, worn down. The said gingivitis, ascribed by HAGEN [1899, 204] to the use of raw fruit, I found very frequent amongst the men, and when taking impressions not seldom caused some hemorrhage; with N°. 36 it was purulent. By middle age the gums have already considerably receded, which accelerates the dropping out of the teeth. MACLAY [1873a, 242] pointing to the "bad teeth" of the older people probably means the "loss of teeth", first of the front teeth (SELIGMANN [1906, 227]), owing to which, as BIRO [1901, 96] reports, in K. W. Land even toothless old people are met with. In one single instance, N°. 21, a man of about 44 years, I found that M^3 was lost; in his clamorous surprise that I had noticed the absence of that molar, the man forgot to give the information requested. The forcible removal of teeth, e.g. of $I^1|I^1$ of which HADDON [1901, 191] makes mention, or the filing of the teeth to a sharp point (MODERA [1830, 74], EARL [1853, 5], MÜLLER [1857, 66], D'ALBERTIS [1880, I, 213], VIRCHOW [1889, 128], DE CLERCQ and SCHMELTZ [1893, 73]), I have never noticed in a single instance.

The permanent teeth generally appear early. With *Kiram* (N°. 41, Pl. XLVI), an Asé boy of about 12 years, all four M^2 were fully irrupted. In the case of *Ugai* ♀ (N°. 43, Pl. XLVII) aged 18, all third molars were wanting, however, with N°. 23, also about 18 years old, three third molars were irrupted and the fourth was irrupting, whilst N°. 46 (Pl. L, figs. 1 and 2), of the same age, only wanted $\overline{M^3}|M^3$. With N°. 32 (25 years) one might speak of retarded third molars, as he only possessed $|\underline{M^3}$, as also with N°. 37 (29 years) who had only $|\overline{M^3}$; their ages fall inside the limits mentioned by WELCKER (see SCHMIDT [1888, 149]) for the irruption of M^3. N°. 13 (Pl. XXXVII, figs. 1 and 2), 33 years old, with whom $\overline{M^3}|\overline{M^3}$ were absent, possibly represents a case of suppressed third molars. With 15 New Guinea crania DORSEY [1897] found 3 cases, where from 2—4 third molars were suppressed, but it appears questionable whether D. was perhaps dealing with skulls of young people, for D. reports emphatically the absence of wear of the teeth to any extent, whilst (see above) at the age of thirty a set of teeth with normal cusps is very rare with males.

I have not noticed any supernumerary teeth.

The impression trays in the size used in Europe, turned out to be too short for the

Papuans; even the extension of 1 c.m. soldered on was not always sufficient. They also were too wide at the back, and after the lengthening they could, in some instances, not be introduced into the mouth. Of one boy (N°. 41) and ten adults I made plaster casts, which DE TERRA [1905a] already reported, and which will be referred to here below.

The length of the arch of the lower jaw, measured as indicated by DE TERRA [1905, 2 and 3], varies between 56.0 (N°. 9, Pl. XXXV) and 63.6 m.m. (N°. 20, Pl. XL), the average being 58.8 m.m.. In the upper jaw the average is (if N°. 10 is excepted) 2.6 m.m. greater, varying from 58.3 (N°. 9) to 64.8 m.m. (N°. 24). In the case of this last man the row of the upper teeth, although normal bite, enarmosis (GREVERS [1905, 555]), exists, reaches further backwards than the row of the lower teeth. This is also the case with N°. 36, but here combined with edge to edge bite, prosarmosis (l. c.). With N°. 10 (Pl. XXXV) the upper jaw is about 1 m.m. shorter than the lower, and the back part of the masticating surface of $\overline{M^3}$ stands free, thus forming an exception to the rule that $\overline{M^3}$ strikes directly on M^3. The arch which in the upper jaw has generally the shape of a parabola, varies in width between 61.0 m.m. in N°. 10, and 70.3 m.m. in N°. 26, averaging 67.1 m.m., and is therefore just as large as that of the lower jaw, always a hyperbola, which varies between the same amounts: 61.0 m.m. in N°. 10 and 70.3 m.m. in N°. 46 (Pl. L). Consequently the arch-index (of DE TERRA) is smaller for the upper jaw than for the lower. The first varies between 105.2 with N°. 10 and 114.7 with N°. 36, average 109.8, which number lies between those given by DE TERRA [1905, 199] for Singhalese (108.0) and for Battak (110.03). For the European it amounts to 124.97. In the lower jaw minimum and maximum are (with the same individuals) 107.0 and 121.0 resp., average 114.5, which agrees with that of the Togo Negro (114.2); for the European 148.0 has been found (DE TERRA l. c.). It is worth noticing that with N°. 25 and N°. 36 the greatest width of the upper jaw was taken across M^2 M^2, with N°. 41 even across M^1 M^1.

The dental length (mesio-distal molar length) of FLOWER [1885, 183] in the upper jaw varies between 41.2 (N°. 10) and 49.9 m.m. (N°. 24), average 47.7 m.m.; in the lower jaw between 46.0 (N°. 10) and 53.5 (N°. 46), average 50.5 m.m.; both numbers are higher than those given by FLOWER [l. c., 186] for Melanesians (45.2), Australians (45.9) and Tasmanians (47.5). Below are given the bucco-lingual and the mesio-distal diameters of the teeth, next to those found by DE TERRA [1905, 22, 23] for recent Europeans.

		PAPUAN.						EUROPEAN.			
		Length.			Width.			Length.		Width.	
		Min.	Max.	Med.	Min.	Max.	Med.	Min.	Max.	Min.	Max.
First incisor	sup.	8.4	9.4	9.0	8.1	9.2	8.6	7.7	9.8	6.7	8.0
	inf.	5.3	6.3	5.9	6.9	7.8	7.3	4.3	6.0	5.7	7.0
Second incisor	sup.	7.4	8.1	7.7	6.8	8.1	7.5	5.8	7.8	5.5	7.5
	inf.	6.2	7.6	6.8	7.2	8.0	7.6	5.0	6.7	5.7	8.5
Caninus	sup.	8.2	9.1	8.5	8.6	10.1	9.4	6.1	9.3	7.0	9.9
	inf.	6.9	8.5	7.6	8.1	9.2	8.6	5.0	6.8	6.8	9.8
First premolar	sup.	6.7	9.0	7.7	9.8	11.8	10.8	5.8	8.2	7.8	11.0
	inf.	7.1	8.7	7.7	8.4	9.9	9.1	5.5	8.0	6.5	9.5
Second premolar	sup.	6.6	8.2	7.2	9.2	11.5	10.6	5.7	7.8	7.5	11.5
	inf.	7.4	9.2	8.0	8.6	10.1	9.2	5.5	8.2	7.0	10.1
First molar	sup.	10.5	12.8	11.6	11.2	13.6	12.5	8.0	11.8	9.8	13.2
	inf.	11.4	13.1	12.2	10.7	12.0	11.6	10.0	12.0	9.0	11.5
Second molar	sup.	8.9	11.9	10.8	10.3	14.1	12.4	7.0	11.0	9.1	13.9
	inf.	9.8	12.4	11.2	9.5	12.4	11.5	9.0	11.6	8.5	11.8
Third molar	sup.	9.3	12.8	10.7	11.0	13.8	12.1	6.0	11.0	7.5	13.5
	inf.	10.4	12.7	11.7	9.6	12.6	11.4	9.0	12.0	8.9	11.8

This table shows that with the Papuans all minima and nearly all maxima are higher; often the averages (calculated from 38—44 measurements) are close to, sometimes even above the maxima of the European. Megadontism may therefore be mentioned as a decided characteristic of the Papuan.

All teeth are close together; I only found slight spaces with N°. 9 between $\underline{I^2}$ and $\underline{C}$, between $\underline{C}$ and $\underline{P^1}$, and between $\underline{I^2}$ and $\underline{C}$, with N°. 25 between $\underline{C}$ and $\underline{P^1}$.

The angle formed by the right and the left side of the lower jaw is often so sharp that there is not sufficient room in front and with 25% of the persons examined, the front teeth stood in irregular position. $\overline{I^1}$ and $\overline{I^2}$ stand just as often inside as outside, $\overline{C}$ stands almost exclusively outwards and then (a character of low race; THOMPSON [1899, 164]) with the incisors in a plain square row, forming the angles of the same. Not seldom $\overline{P^1}$ also stands outwards.

The occurrence of 3 cases of prosarmosis (one depicted on Pl. XXX, fig. 10) in 11 casts means a percentage of 27, which, although high, still remains considerably below the 57.1% mentioned by WELCKER [1902, 87] of the Papuans. The figure clearly shows that with prosarmosis the abrasion is most considerable, whilst with enarmosis (see Pl. XXX, fig. 11), where a normal interdigatation exists, the wear is much less. Protruding lower jaw, epharmosis (GREVERS [1905, 555]), I have never seen. On the upper jaw I noticed but once (N°. 33, Pl. XLV, fig. 1) an irregular position, namely $\underline{I^2}$ shifted lingually, and one therefore may presume that the report of MACLAY [1873[a], 242] that the rows of teeth are very often asymmetrical only refers to the lower jaw. Usually the teeth are placed vertically, which was also stated by SCHELLONG [1891, 212], sometimes, however, with the lower jaw they are somewhat inclined forward and with the upper jaw slight sub-nasal prognathism, the eversion of GREVERS [l. c., 558], is found, especially plain with N°. 5 (Pl. XXXIII), otherwise naturally increasing with the age.

The line of occlusion, being normaliter upward concave (SPEE [1890, 287], KIRK [1900, 20, fig. 4]), appears more pronounced than usual, partly caused by the stronger abrasion of $\overline{M^1}$, which forms the lowest point of the curve.

After the foregoing it needs only to be remarked of the incisors, that the abrasion in the lower jaw is horizontal, in the upper jaw in the direction linguo-labial downward, the front edge therefore being sharp here. Cases of enlarged incisors as described by MACLAY [1876[b], 290] of Melanesians, I did not meet with. The cuspids are little prominent (see also LAMBERT [1877, 585]); with young people they show a "développement plus accentué de la pointe de la dente", being $^1/_4$—$^1/_3$ of the entire height of the tooth, a characteristic of primitive races (REGNAULT [1894, 16]). With a few there is a trace of two other tubercles placed mesial and distal, but the top is soon worn down concave.

The premolars, however, are striking in size; in the lower jaw they are generally round and $\overline{P^2}$ is larger than $\overline{P^1}$, the same as found by LAMBERT [l. c., 584]; in the upper jaw $\underline{P^1}$ is usually larger than $\underline{P^2}$, the bucco-lingual dimension predominates and the grinding surface is often of a trapezium shape, the base lying bucally. All premolars, as a rule, have two cusps, which are in the upper jaw of about equal length, the buccal one largest in mesio-distal direction. Below, the buccal always preponderates, especially in height, the lingual cusp, as usual with primitive races (LAMBERT [l. c., 570]), often appearing like a low ridge. In 4 casts this ridge shows two elevations, three tubercles being thus distinguishable. Besides interstitial cusps are present in half the number of the cases, below as well as above. With Melanesians, amongst whom were also Papuans, DE TERRA [1905, 296] found no interstitial cusps on premolars. The abraded surface is horizontal, or directed buccally downward.

The molars, closely arranged, in the lower jaw have a square form, length (mesio-distal) and width (bucco-lingual) differing very little (see table). In the upper jaw the width is predominant and here is an inclination, increasing from $\underline{M^1}$ to $\underline{M^3}$, to adopt a rhomboid shape, the approximal surfaces being directed bucco-lingually backward (see Pl. XXX, fig. 12). With the molars of the lower jaw the buccal surface is bell-shaped, with those of the upper jaw on the contrary, the lingual side is more strongly arched than

the buccal. As appears from the table, in the upper jaw the molars gradually diminish in length as well as in width, thus: $\underline{M^1} > \underline{M^2} > \underline{M^3}$. In the eleven casts only two exceptions occur, namely with N°. 26 where the order is reversed, and with N°. 46 in which $\underline{M^1} > \underline{M^3} > \underline{M^2}$. This latter relation is the rule for the lower jaw (see Pl. XXX, fig. 13), also with two exceptions, namely with N°. 26 where $\overline{M^3} > \overline{M^1} > \overline{M^2}$ and with N°. 20, where the condition of the upper jaw is found: $\overline{M^1} > \overline{M^2} > \overline{M^3}$. LAMBERT [l. c., 589] found in Papuans of Waigeu the molars of equal size, or in the lower jaw $\overline{M^2}$ a trifle larger than $\overline{M^1}$ and $\overline{M^3}$.

It must be remarked that whilst the first molars stand vertical, $\overline{M^2}$ inclines slightly and $\overline{M^3}$ in a greater measure lingually, whilst in the upper jaw, in a compensatory way, the condition is reversed: $\underline{M^2}$ is directed less, $\underline{M^3}$ more buccally. The consequence is that with abraded teeth, where the grinding surfaces of premolars and molars offer an uninterrupted ribbon-shaped facies, this surface is not only concave below and convex above (see Pl. XXX, figs. 10 and 11), but is also distorted on a mesio-distal axis, in such a manner that the plane of occlusion (KIRK [1900, 20, fig. 4 C]) on the premolars and often also on the first molars bevels outwards, on the second and third molars inwards, as described by SPEE [1890, 289].

The cusps of the molars are originally by no means low, in this respect they do not differ from European molars (see also DE TERRA [1905, 90]). In 17 observations the formula of the cusps of the lower molars has proved to be: 2× 5 5 5, 7× 5 4 5, 7× 5 4 4 and 1× 5 4 6. In 11 observations of the upper molars: 5× 4 4 4, 3× 4 4 4|3, 1× 4 4|3 4|3 and 2× 4 4|3 3. The 11 casts show moreover the anterior transversal groove 9× with $\overline{M^2}$ and 8× with $\overline{M^3}$, the posterior groove 2× with $\underline{M^1}$ and 2× with $\overline{M^1}$, but here only little developed and in Y-shape, in connection with the central groove.

Carabelli's cusp is found twice, the homonymous groove 4 times on $\underline{M^1}$. — One M^3 carries lingually, another buccally, an accessorial cusp. Interstitial cusps also are numerous with the molars, with M^3 e. g. 8× 1 distal and 2× 2 distal, with M^2 2× 2—3 mesial ones.

The frequency of the pulse observed on 42 fullgrown men in erect posture proved to differ a good deal, but by no means as physiology would have it (SCHÄFER [1900, II, 101]), decreases with the increasing standing height of the individual. The tallest man (N°. 29, Pl. XLII), 1712 m.m. tall, had exactly the highest pulse rate (100), the slowest pulse (50) was found with N°. 14 (Pl. XXXVII), of little more than medium height (1640 m.m.), and the shortest man (N°. 6, XXXIII), 1520 m.m., had a heart beat at the rate of 58. In 18 cases (= 43°/₀) the frequency taken in the day time between 10 and 4 o'clock, proved to be 68 or less (1× 50, 1× 52, 2× 58, 1× 59, 4× 60 etc.), in 24 cases (= 57°/₀) the frequency was 72 or less and the average rate of the pulse might therefore be expected to be below this cipher. However, an average frequency of 73 is found, owing to the higher pulse frequencies which were caused by the nervousness of the moment. The Jabim (SCHELLONG [1891, 168]) also have a low pulse rate. At the S. W. coast, KOCH [1906, 209] found a rate of 76.1 in standing and of 63.3 in horizontal posture. JOUSSET [1884, 95, Pl. IV and V] for natives of the tropics gives rates from 76 to 86; among the whites and the Negroes of the United States the pulse has 74.8 and 74 beats resp. (DENIKER [1900, 108]).

The steepness of the ascending limb of the radial sphygmogram proves that the systolic output is quick and vigorous. With a low pulse rate (fig. 209, P = 65; the time-marker records one-fifths of a second) the arterial pressure is, as shown by the high position of the dicrotic wave and the great number (3—4) of minor waves, rather high; the oscillations of the wall of the artery here sometimes number ± 10 per second. With a higher pulse rate (fig. 210; P = 77) the form of the curve indicates a moderate tension and elasticity

of the arterial wall. With a still higher frequency as in fig. 211 (P = 96), the low position of the increased amplitude of the dicrotic wave proves that the pressure of the blood has diminished but that a remarkably great elasticity of the arterial wall exists. This, a high vascular elasticity combined with a relatively low blood pressure, according to JOUSSET [l. c., 100], is the rule with tropical races. The respiratory undulations of arterial tension are only slightly marked in my tracings.

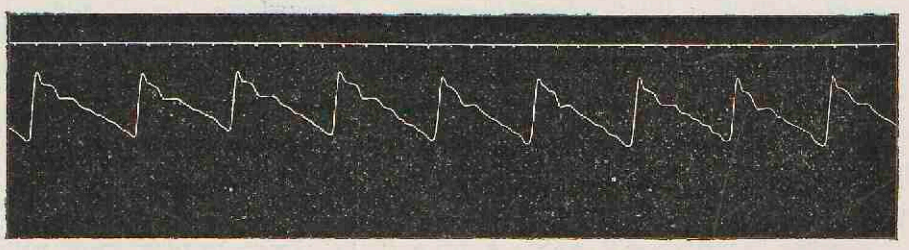


Fig. 209. Radial sphygmogram of N°. 16; P = 65.

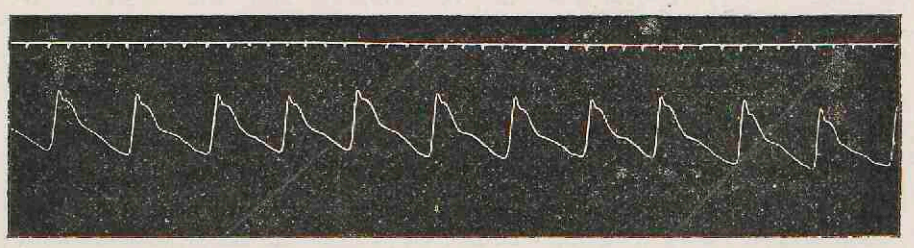


Fig. 210. Radial sphygmogram of N°. 36; P = 77.

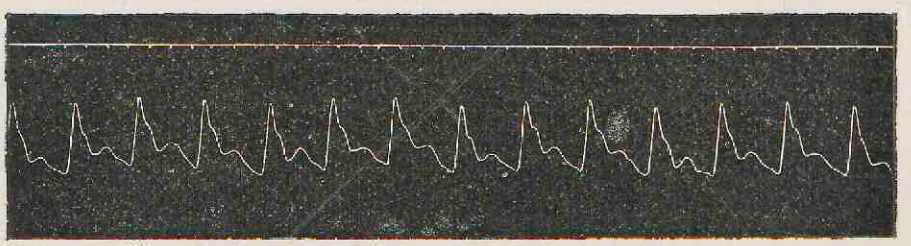


Fig. 211. Radial sphygmogram of N°. 15; P = 96.

The frequency of respiration with 36 males in erect posture, proved to vary between 17 and 27, averaging 22; SCHELLONG [1891, 168] with the Jabim also found 22, HAGEN [1891, 101] with Melanesians 21.3; these numbers, agreeing with the results of JOUSSET [l. c., 92] with different tropical races (see also DENIKER [1900, 108]), are higher than that found with the European. The relation between the respiratory and the cardiac frequency, being 3.55 with Europeans, varying with coloured people between 3.43 and 3.69 (JOUSSET [l. c., 96]), is only 3.32 with the Papuans under mention.

Below are given some tables dealing with the measurements of the living, after schedules of Prof. Dr. RUDOLF MARTIN of Zürich, and taken with his traveller's anthropometer [1899, 130], whilst also the technique followed has been the same as that taught at the Zürich Anthropological Institute by my friend and teacher above-named. The measurements taken by others are marked with the respective names.

The data of the H. B. people, living on the coast, remain separate from those of the Sentáni people, living a few hours' journey inland. Besides the mental differences stated on p. 317, both tribes differ in physical characteristics, in the same way as noted elsewhere in the north, namely that the standing height on the coast is greater than in the interior (WALLACE [1869, II, 187], MEYER [1873, 309], D'ALBERTIS [1880, I, 48, 215], VAN HASSELT [1886, 577], DE CLERCQ [1889^a, 1327; 1889^b, 1678], NACHRICHTEN [1891, 50], SCHELLONG [1891, 169], HORST [1899, 235], HAGEN [1899, 159], WEULE [1902, 247], PÖCH [1905, 441]). In a few instances tall inland people were reported, e.g. the Arfak (D'ALBERTIS [l. c., 217]) and the Sīmbra (VAN DISSEL [1904^b, 814]), also coast people of low stature as the Poum (SCHELLONG [1891, 173])

and the Papuans of Sisir (DE CLERCQ [1889b, 1672]). Some authors, and amongst them MEYER [1874, 92], deny "constitutionelle Unterschiede", others consider the mountaineers, differing, even in a relatively narrow island as Jäpen (HORST [1889, 235]) so much from the coast people, as the autochthones driven inland by taller, overbearing invaders. Where short people are found at the coast, this must be regarded as a proof that no invaders from over the sea have ever landed here. The natives of Waba in the S. E. corner of the inner bay of Humboldt Bay also represent such a case, agreeing in every respect, including language, with the inland Sentáni people. Everywhere I could note the overbearing conduct of the coast-people. Those of Kwatisoré considered themselves far too important to serve our expedition as carriers, but were willing to fetch inland people from Nagramádu, who did the work. In former times it was the custom in the western part to organize slave hunts in the mountains, and we were told that as a result of continual harassing, the Sĕkánto tribe, formerly very numerous and spread over a number of villages possessing seven temples, was reduced to merely a few families who now reside in very poor settlements on the river Jafúri (see p. 128). Another tribe which until a short time ago lived on the Möso River, has been reduced by the persecution of Aså and Oinåke people to 15 persons, amongst whom are 8 males, who after roaming about for some time have settled down in the mountains, 4 hours further inland. PÖCH [1906, 605] reports that in Goodenough Bay the Melanesian invaders drive the Papuan elements towards the interior.

In the south also a mountain people of rather short stature is usually reported (EARL [1853, 6], MÜLLER [1857, 103], D'ALBERTIS [1880, I, 305], CHALMERS [1885, 36, 84; 1897, 335], THOMSON [1892, 95], HADDON [1900, 291, 415], ANNUAL REPORT [1902—03, 14], PRATT [1904, 2; 1906, 304]). The Toro, living on the Bensbach River, are rather tall (SELIGMANN [1906a, 66]) but the neighbouring coast people, the Tugeri, according to PÖCH [1906a, 897] are still taller; see however table I.

It must still be remarked that living pygmies have as yet been reported only from the interior (D'ALBERTIS [1880, I, 305], VAN HASSELT [1886, 578], ELLIS [1888, 34], NACHRICHTEN [1897, 56], BIRO [1901, 14], WEULE [1902], ROBINSON [1904], PÖCH [1905, 441]). Moreover, those who regard the Negritoes as the infantile, undeveloped or primitive form of all Negroes (STANLAND WAKE [1883, 214]), that has also preceded the Papuans themselves in New Guinea (ALLEN [1879, 40]), could also expect such forms exactly in the interior. However, basing their opinion on the study of skulls, some anthropologists have pointed out the presence of Negritoes or Negrito-Papuan cross-breeds at the mouth of the river Fly (DENIKER [1900, 494]).

In contrast with the north where the inland people are harassed by those of the coast, the population of the mountains in the south seems to be strongest and drives the hill people towards the coast and in some places (HADDON [1900, 415]) even advances till there. As an example of this state of affairs the raids to the S. W. coast by the Angádi people (Lake Jamūr), really incited and aided by people of Geelvink Bay (VAN HILLE [1905, 315]), have already been recorded above (p. 242). That there are exceptions to this rule is demonstrated by the Tugeri, who formerly on their hunts also ascended the rivers; and tall inland people are reported by CHALMERS [1885, 84]. Therefore on the northern parts of the island we see the people being driven further inland, whilst at the southern parts exists a "continual pressure from the mountains towards the coast" (HADDON [1900, 278]), ... both these facts combined mean a mass removal over the whole breadth of the island from north to south. Verbal communications so far confirm this, as some coast people of K. W. Land (HAGEN [1899, 143]) declare that they have come over the sea, whilst some of the south coast relate (HOLMES [1903, 126]) that "the birth place of the tribe was in the interior", and that by fighting they came to the coast [l. c., 128]. Researches like those of HADDON l. c. will throw the true light on this matter.

The difference in average standing height (see table I) between the male of Humboldt Bay and Lake Sentáni, the latter living only 3—4 hours inland, is 36 mm., therefore some-

what greater than the difference between the Jabim, living on the coast near Finsch Harbour, and the Kai, living in the adjacent mountains. The average standing height of H. B. women amounts to 95.6°/₀ of that of the males (see also fig. 212); with Jabim and Poum women SCHELLONG [1891] found 95.3°/₀ and 97.1°/₀ resp., with Tugeri women (KOCH [1906, 203]) it is 97°/₀. With most of the eastern peoples the percentage is lower, also with Europeans: 94°/₀ (MANOUVRIER [1902, 80]). The individual differences in the tribe itself are great, as shown in the following table by MARTIN [1905, 242], supplemented with other measurements; also the people of the north coast are not so tall as some of the southern parts. DENIKER [1900, 582] for British New Guinea gives 1674 m.m.. At the S. W. coast the standing height increases from west to east (KOCH [1906, 203]).

Table I. Standing height.

	MALE.			FEMALE.			
	Median.	Minimum.	Maximum.	Median.	Minimum.	Maximum.	
Papua Kowiai . . .	—	1480	1750	—	1310	1510	
Geelvink Bay	—	1300	1755	—	1404	1534	
„ „	1537	1314	1773	1509	1419	1550	MEYER.
Humboldt Bay . . .	1633	1561	1712	1561	1500	1597	VAN DER SANDE.
Lake Sentáni	1597	1517	1696	—	—	—	„ „ „
Poum	1543	1442	1598	1498	1451	1551	SCHELLONG.
Jabim	1614	1495	1705	—	—	—	HAGEN.
„ „	1606	1550	1692	1530	1438	1570	SCHELLONG.
Kai	1546	1507	1577	—	—	—	„ „
Astrolabe Bay . . .	—	1420	1740	—	1320	—	
East New Guinea. .	—	1398	1692	—	1438	1570	
South „ „ . .	—	1520	1810	—	1390	1580	
Bensbach River. . .	1691	—	—	—	—	—	SELIGMANN.
Merauke	1700	—	1880	—	—	—	PÖCH.
„ „	1649	—	1790	1567	—	—	KOCH.
Mimika	1643	—	1727	1508	—	—	„
Etna Bay	1643	—	1775	1520	—	—	„
Fak Fak.	1557	—	1599	—	—	—	„

Whether during the different periods of life the growth shows the same variations as with Europeans, could not be discovered. According to communications of Mr. J. M. DUMAS who twice, with an interval of 2 years, visited Humboldt Bay, youths of 16—17 years had during that period developed into manly forms and dimensions. It is sufficiently well known that eastern people are early full-grown. This was also stated by HAGEN [1898, III], who, however, for anthropometrical purposes separated a group of 20—25 years from the adults. The measurements of my male Papuans between 18 and 21 years, examined especially as to standing height and biacromial breadth, proved to agree with those of the older people, for which reason I arranged them all (also those of HAGEN) under one category; according to MANOUVRIER [1902, 31] in this period the proportions of the skeleton are already fixed.

The span of arms measured with the solid anthropometer in front of the chest, proved to be much greater than the standing height. Schedules N°. 14 (Pl. XXXVII) and

N°. 29 (Pl. XLII) even show a surplus of 182 and 212 m.m. resp., giving a relative arm-span of 111.1 and 112.0 resp. With the taller (coast) people the relative span of arms is greater than with the shorter (inland) people, the same as found by SCHELLONG [1891] and KOCH [l. c., 205]. That a great biacromial breadth is not to be put down to this unusually large span of arms is proved by the fact that the relative biacromial breadth of the shorter inland people is greater than that of the taller coast people (see table VIII). When examining the photos one is struck by the length of the arms; often the tip of the middle finger reaches nearly to the knee (e. g. N°. 14; length of arm 804, relative l. o. a. 49.0), adding decidedly to the ugly impression which many Papuans make upon us. In the figures tabulated below it appears that (with the exception of the Tugeri; Merauke) the women, though possessing a lower relative sp. o. a., also found with European women (MANOUVRIER [1902, 80]), have a higher relative l. o. a., which need not cause surprise, as FRITSCH [1899, 161] gives for the male 43.1 and for the female 46.0.

Table II. Arm-span and arm-length.

	Standing height.	Span of arms.			Length of arm.		
		Surplus.	Median.	Ratio.	Median.	Ratio.	
Humboldt Bay ♂	1633	121	1754	107.2	762	46.1	
„ „ „ ♀	1561	101	1662	106.5	731	46.8	
Lake Sentáni ♂	1597	94	1691	106.0	737	46.2	
Jabim . . . . ♂	1614	—	—	—	745	46.1	HAGEN.
„ „ . . . . ♂	1606	98	1704	106.1	753	46.9	SCHELLONG.
„ „ . . . . ♀	1530	66	1596	104.3	—	—	„ „
Kai . . . . . ♂	1546	78	1624	105.0	712	46.7	„ „
Poum . . . . ♂	1543	70	1613	104.5	718	46.5	„ „
Merauke . . . ♂	1649	124	1773	107.5	846	51.3	KOCH.
„ „ . . . ♀	1567	76	1643	104.8	736	46.9	„
British N. G. ♂	1562	—	—	—	736	47.2	COMRIE.

All these Papuans are long-armed, in eastern Asia only the Deli Malays with 46.1 (HAGEN [1898, 91]) and the Veddahs with 47.0 (SARASIN [1893, 89]) or 45.5 (MARTIN [1905, 249]) have a corresponding relative arm-length. With the two Sentáni boys (N°. 41, Pl. XLVI, and N°. 42) at the age of 12 and 14 years resp. the relative sp. o. a. proved to be 103.9 and 103.7, and the relative arm-length 45.1 and 45.7 resp..

The height at which the arms are fastened to the trunk, the height of the acromion, is with my males as often above as below the height of the jugular notch, still on an average the acromion lies 6 m.m. higher, with the H. B. women lower, another reason for the tip of the finger to reach far downwards (see Pl. IL, fig. 1). With the Tugeri KOCH l. c., found the reverse.

The following table concerns the different parts of the upper limb as compared with the standing height. The forearm has been measured from the articular line between the head of the radius and the external condyle of the humerus, to the extreme end of the styloid process of the radius. — With the lower limb the tibia has been measured, from the articular line of the knee-joint to the lower end of the internal malleolus.

Table III. Measurements of upper limb.

	Upper arm-length.		Fore-arm-length.		Hand-length.		Hand-breadth.		Middle finger-length.		Thumb-length.		
	Med.	Ratio.	Med.	Ratio.	Med.	Ratio.	Med.	Ratio.	Med.	Ratio.	Med.	Ratio.	
Humboldt Bay ♂	313	19.1	268	16.5	181	11.1	80	4.9	100	6.1	62	3.8	
„ „ „ ♀	304	19.5	253	16.2	174	11.1	76	4.9	104	6.6	65	4.2	
Lake Sentáni ♂	304	19.0	256	16.0	178	11.1	78	4.9	100	6.3	62	3.9	
„ „ N°. 41	261	19.0	211	15.4	149	10.8	67	4.9	87	6.3	48	3.5	
„ „ N°. 42	276	18.4	237	15.8	170	11.3	73	4.9	98	6.5	56	3.8	
Merauke . . . . ♂	392	23.7	272	16.5	182	11.0	85	5.1	108	6.5	69	4.1	KOCH.
„ „ . . . . ♀	292	18.6	267	16.1	177	11.3	79	5.0	103	6.5	63	3.8	„
Jabim . . . . . ♂	313	19.4	247	15.3	172	10.7	—	—	—	—	—	—	HAGEN.

This table proves that the hands are not "übermäszig gross" as HAGEN [1905, 22] says; MEYER [1874, 97] and SCHELLONG [1891] already pointed this out, DE CLERCQ [1889b, 1669] even calls the hands small; in fact, form (see also MACLAY [1873a, 243]) and size as shown by fig. 8 of Pl. XXX, are quite ordinary. A relative shortness of the female hand (FRITSCH [1899, 161], MANOUVRIER [1902, 80]) is wanting here; N°s. 41 and 42, boys of 12 and 14 years resp. show the quicker growth of the upper arm as compared with that of the forearm and hand, common to this period of life (see HALL [1895, 35]). The length-breadth index with H.B. males is 44.2, females 43.7, with Lake Sentáni males 43.8. In all hands the 3rd finger was longer than the index; with the Jabim they are generally (?) equal (SCHELLONG [1891, 168]).

The humero-radial index is fairly high, in Humboldt Bay in the case of males 82.4, of females 83.2, with male Sentáni people on an average 84.2, proving that the great arm-length is principally due to the greater forearm-length. KOCH [1906, 205] with males of Fak-Fak even found an index of 91.8! FRITSCH [l. c., 161] gives for upper arm, forearm and hand relative lengths of 19.0, 15.2 and 10.7, and a humero-radial index of 80 (TOPINARD [1885, 1043] for Europeans gives 72.5), besides stating that the superior length of the female arm is due to a longer humerus; contrary to this with the H. B. women it is the forearm which is the longer; also with the Tugeri women (KOCH l. c.) the index is higher (89.8) than with the males (77.1).

The next table contains the girths of the upper limb, absolute and proportionate to the length of the arm as a whole.

Table IV. Girths of upper limb.

	Arm-length.	Upper arm-girth.		Fore-arm-girth.		
	Med.	Med.	Ratio.	Med.	Ratio.	
Humboldt Bay ♂	762	266	34.9	160	21.0	
„ „ „ ♀	731	251	34.3	147	20.1	
Lake Sentáni ♂	737	274	37.1	158	21.4	
Merauke . . . . ♂	846	226	26.7	180	21.1	KOCH.
„ „ . . . . ♀	736	260	35.3	160	21.8	„

This table will be referred to on page 352.

The length of the lower limb, measured from the great trochanter (lying very nearly on the same level as the head of the thighbone) was easy to determine on the generally thin Papuans, and proved in all schedules to exceed half the standing height, in the case of N°. 14 (Pl. XXXVII) by 75, and of N°. 9 (Pl. XXXV) even by 93 m.m.; on an average the anterior superior iliac spine is situated 40 m.m. higher than the trochanter. The different measurements of the lower limb may be tabulated as follows:

Table V. Vertical measurements of lower limb, and indices.

	Total length.		Thigh.		Lower leg.		Foot.		Femoro-tibial index.	Inter-membral index.	
	Med.	Ratio.	Med.	Ratio.	Med.	Ratio.	Med.	Ratio.			
Humboldt Bay	869	53.2	423	25.9	387	23.7	59	3.6	91.5	71.7	
Lake Sentáni ♂	852	53.3	413	25.9	380	24.0	59	3.7	92.0	70.6	
Jabim . . . . . ♂	851	52.7	405	25.1	387	24.0	59	3.7	95.6	70.7	HAGEN.
„ . . . . . ♂	845	52.6	—	—	—	—	—	—	—	—	SCHELLONG.
Poum . . . . . ♂	806	51.7	—	—	—	—	—	—	—	—	„ „
Merauke . . . . ♂	928	56.4	438	26.5	426	25.8	64	3.8	97.2	76.8	KOCH.
„ „ . . . . ♀	856	54.6	403	25.6	399	25.4	54	3.8	99.0	69.7	„

The two Sentáni boys being of an age in which (RANKE [1905, 168]) the relative length of the leg is greatest, showed indeed a slightly higher relative length than the full-grown: N°. 41 (12 years) 54.3 and N°. 42 (14 years) 54.9. The relative length of the lower limb for Europeans amounts to 50.5 (FRITSCH [1899, 162]).

In the "Proportionsschlüssel" of FRITSCH, depicted in fig. 212, the right halves are Papuan; the height of the line combining the heads of the thighbones, taken as fixed, could not be measured with the women, with the result that the thigh and the lower limb appear too short and the trunk is too long. A relative longer leg with the women is a real sexual characteristic (MANOUVRIER [1902, 81]), though the existence of such differences with males and females of the same stature was denied by REGNAULT [1903, 287]; with the women of Merauke, however, the lower limb is relatively shorter.

The femero-humeral index with H. B. ♂ proved to be 74.0, Lake Sentáni ♂ 73.6, Jabim ♂ 77.3, Merauke ♂ 89.5, Merauke ♀ 72.4.

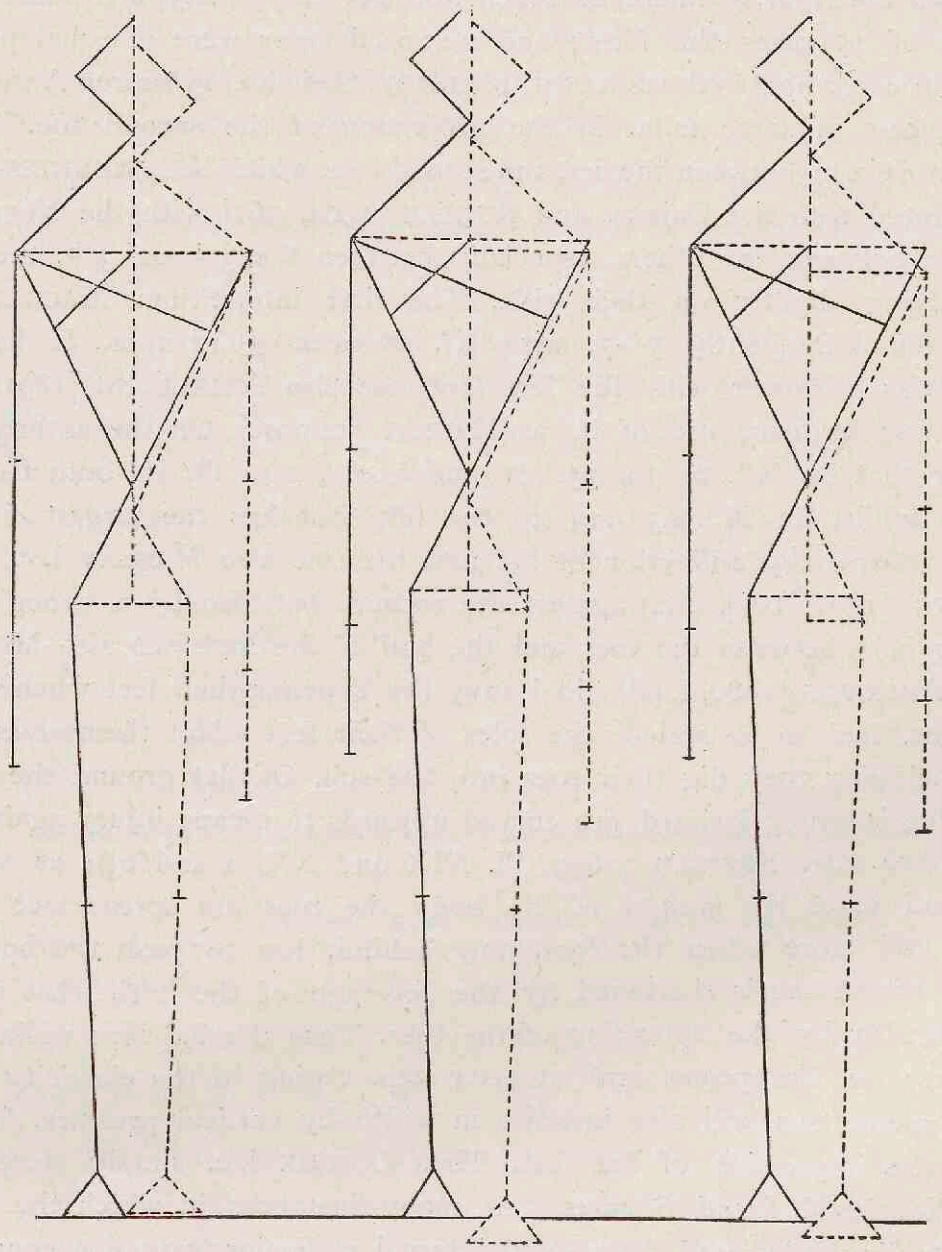
Table VI. Girths of lower limb (length = 100), and indices.

	Thigh.		Calf.		Min. supra-mall.		Thigh-calf index.	Calf index.	
	Median.	Ratio.	Median.	Ratio.	Median.	Ratio.			
Humboldt Bay ♂	480	55.2	335	37.4	202	23.2	69.8	60.3	
Lake Sentáni ♂	487	57.2	341	40.0	209	24.5	70.0	61.3	
Merauke . . . . ♂	507	54.6	352	37.9	—	—	69.4	—	KOCH.
„ „ . . . . ♀	504	58.8	325	38.0	—	—	64.4	—	„

This table will be referred to on page 352.

Table VII. Measurements of foot, and index.

	Length.		Breadth.		Index.	
	Median.	Ratio.	Median.	Ratio.		
Humboldt Bay ♂	254	15.5	102	6.2	40.1	
„ „ „ ♀	242	15.5	96	6.1	39.7	
Lake Sentáni ♂	251	15.7	102	6.4	40.6	
Merauke . . . . ♂	263	15.9	101	5.1	38.3	Koch.
„ „ . . . . ♀	247	15.7	95	5.4	38.4	„
Mimika . . . . ♂	261	15.8	96	5.8	36.7	„
„ „ . . . . ♀	232	15.3	88	5.8	37.9	„
Etna Bay . . . ♂	257	15.6	103	5.2	40.1	„
„ „ . . . . ♀	240	15.7	90	5.9	37.5	„
Fak Fak. . . . ♂	249	15.9	100	6.0	40.1	„



Humb. Bay female. Fig. 212. 1/2. Canons of Humb. Bay male. Lake Sentáni male.

HAGEN [1898, 91] mentions of the Jabim a relative length of the foot of 16.9, which indeed may be called extraordinarily long [1905, 22]; of the same tribe SCHELLONG [1891, 171] reports feet which he calls long and broad, like those of the Kai (length-breadth index between 38 and 42), but with a relative length that is little greater than that of the European, given as 15.4 (QUETELET [1848, 593]), 15.1 (FRITSCH [1899, 162]) and 15.69 (MANOUVRIER [1902, 70]). Moreover, D'ALBERTIS [1877, 218; 1880, II, 188] also mentions feet of between 15.0 and 16.1 relative length, whilst other travellers stated that the feet are by no means long (MEYER [1874, 97]) and sometimes, as also shown in the above table, may be called short (DE CLERCQ [1889b, 1669]). Those of the Sentáni people, living inland, are relatively longer and broader and have a higher index. The female foot presents no constant differences from the male foot, either in relative length or breadth; the feet of the Sentáni boys are of greater relative length and breadth, but the index has changed little. In a few instances when I measured both feet of the same individual, the left turned out to be longer and narrower than the right, a difference which MACLAY [1873a, 243] attributes to unequal use.

In 3 out of 45 cases the first and second toes were of equal projection, in 12 other cases (27%; according to SCHELLONG [1891, 167] "bei einer grösseren Anzahl von Füssen") there was an excess of some m.m. in the projection of the second toe. Generally there is a large interstitium between the first and second toes, which NIEUWENHUIS—KOHLBRUGGE [1903, 8] also noted with the Dajaks, and RUELLE [1904, 561] with the Negroes; also there is often a space between the others, especially between the 3rd and 4th, the latter and the 5th sometimes lying slightly on their side. The first interstitium MACLAY found to be 2—2.5 m.m., I found frequently 5—7, with N°. 28 even ± 12 m.m.. It did not strike me that the space was narrower with the left foot (see also SCHELLONG [1891, 216, N°. 11]), because of the less frequent use of it, as MACLAY supposes. On the anthropological plates it may be seen that in Nos. 8, 30, 35, 41 and in fig. 2 of Pl. IL both feet are the same in this respect, whilst in Nos. 43 and 46 the left foot has the largest first interstitium. Objects can be grasped by adduction of the first toe (see also MACLAY l. c., COMRIE [1877, 104], SCHELLONG [1891, 167], etc.) against the second, but also by a strong plantar flexion, the object being held between the toes and the ball of the foot (see also MEYER [1874, 97]). No less than D'ALBERTIS [1880, I, 98] did I envy the Papuans their feet when unbeaten tracks, softened by rains, had to be scaled; the soles of their feet adapt themselves to the ground and to prevent slipping they dig their toes into the soil. On flat ground the highly movable toes, when the leg is swung forward, are curved upwards to escape injury against irregularities of the ground (see e. g. FRITSCH [1899, Pl. XIX and XX, a and b]); as soon as the foot finds support and takes the weight of the body the toes are spread out as in fig. 9 of Pl. XXX, and still more when the foot, now behind, has to push the body forward; for when the supporting plane is shortened by the leverage of the heel, what is lost in length is gained in breadth by the spreading of the toes. Thus the Papuans walked with ease on marshy soil where we, Europeans, sank at each step. Owing to the elasticity of the ligatures the tarsus and metatarsus will also increase in width by vertical pressure, for which reason footprints give the impression of flat feet. Thus COMRIE l. c. simply states: "the feet are flat". In 45 schedules I found 6 cases, but many instances in which the tuberositas ossis navicularis, resembling a lowered, broadened internal malleolus, caused a convex bend in the

back half of the medial part of the tracing, as can also be seen in the contours published by SCHELLONG [1891, Pl. V and VI]. With other peoples who go bare-footed, the same bend may be found (MARTIN [1905, 273, 274]), and the Negroes even passed as a flat-footed race, until MUSKAT [1902] proved this opinion to be untenable.

The natives of the Augusta River (HOLLRUNG [1888, 306]) and the Agaiambo swamp (ANNUAL REPORT [1902—03, 14; 1904—05, 6], ROBINSON [1904, 244], PÖCH [1906, 612]) are known by their atrophic legs; sabre-shaped legs were reported by COMRIE [1877, 104], rhachitic pygmies by PÖCH [1905, 449], whilst X-formed legs, frequent in the coast people, as also stated by SCHELLONG [1891, 158], might be ascribed to the peculiar position adopted (p. 198) whilst boating. Pl. L offers examples of this deformity, also occurring with women (N°. 43, Pl. XLVII). Only the great trochanters are supported by the side-boards (see fig. 130, p. 200), which causes a pronation of the thighs, already in adduction owing to the narrowness of the opening of the boat, whilst the lower legs diverge in the hollow of the hull and the feet are pressed against the sides.

The length of the neck (chin to sternal notch) with the H. B. people is 77 m.m. (relat. 4.7), with the Sentáni people 64 m.m. (relat. 4.0). The measurements of the trunk (seat to sternal notch) are given in the following tables.

Table VIII. Breadth measurements of trunk.

	Biacromial.		Biiliac crest.		Biiliac spine.		Bitrochanteric.		
	Median.	Ratio.	Median.	Ratio.	Median.	Ratio.	Median.	Ratio.	
Humboldt Bay ♂	369	22.6	264	16.2	217	13.3	292	17.9	
Lake Sentáni ♂	365	22.9	267	16.7	215	13.4	284	17.8	
Merauke . . . . ♂	378	22.9	279	16.9	267	16.1	319	19.3	KOCH.
„ „ . . . . ♀	347	21.0	271	17.2	258	16.4	290	17.5	„
Mimika . . . . ♂	377	22.9	270	16.2	267	16.2	289	17.5	„
„ „ . . . . ♀	339	22.4	238	15.7	248	16.4	280	18.5	„
Etna Bay . . . ♂	356	21.6	266	16.2	251	15.2	289	17.5	„
„ „ . . . ♀	330	21.7	255	16.7	230	15.3	270	17.7	„
Fak Fak . . . ♂	355	22.8	251	16.0	248	15.9	277	17.7	„

Table IX. Height and girths of trunk.

	Height.		Girth of chest.		Girth of waist.	
	Median.	Ratio.	Median.	Ratio.	Median.	Ratio.
Humboldt Bay ♂	523	32.0	872	53.3	737	45.1
„ „ ♀	497	31.8	839	53.8	713	45.8
Lake Sentáni ♂	521	32.6	870	54.5	778	48.7

The dwarf *Korobala* (ROBINSON [1904, 244]) had a relative girth of chest of 50.9.

With the males the musc. pectoralis major is sometimes strongly developed and prominent. The women of H. B. have relatively a somewhat greater girth of chest and of

waist than the men. The mammae, often of unequal size or form after lactation, are usually well developed in the shape of the mamma areolata (STRATZ [1904a, 165, fig. 115 c]), the prominent areola, therefore, placed like a small mamma on the large one. Cases of supramamma and hyperthely have not been noticed by me.

On page 343 I pointed to the coast people being taller than the mountaineers; the latter, as often remarked, look healthy and strong, as well at the S. W. coast (MODERA [1830, 99 and 110], VAN DER GOES [1858, 33]) as in Geelvink Bay ([l. c., 160]; BRUYN [1877, 188]). The same magnificent physique of the shorter (SELIGMANN [1906, 234]) inland people is mentioned of the southern parts (HADDON [1900, 278], ANNUAL REPORT [1904—05, 5]), and it is noted especially that they have better developed legs (PRATT [1906, 304]), whilst there is a "coast-tendency to long and free-playing limbs, good arms, but flat chests and thin legs" (MACGREGOR [1897, 28]). Notwithstanding in the north the coast people are overpowering the inland tribes (see also WEULE [1902, 247]), the above tables show by exact ciphers that the same somatic difference exists here; HAGEN [1899, 158], however, calls the coast-Jabim "wohlproportionirt".

Firstly it appears that all relative measurements of the trunk (with the exception of the bitrochanteric diameter) are larger in people of Lake Sentáni (inland type) than in H. B. people (coast type); however, as regards the limbs, the figures in the tables III and V are not very striking; more significant results are obtained by relating them to the trunk (MANOUVRIER [1902, 11]). The relative length of the upper limb then is on Lake Sentáni and Humboldt Bay 141.4 and 143.8 resp., that of the lower limb 163.5 and 166.1 resp.. Therefore with respect to these Papuans once more the experience of MANOUVRIER [1902, 63, 74] is confirmed, that with the increase of the standing height the length of the limbs increases more than that of the trunk, and that of the thoracic limb more than that of the abdominal limb. But not only are the limbs of the inland tribe relatively shorter, and thus in better proportion to the length of the trunk, the limbs themselves are also better developed, that is to say, more fleshy, which is proved by the girths and indices of the tables IV and VI, being superior in the case of the inland tribes. HAGEN [1899, 160] in his description of the mountain type, points to the same characteristics, classing that type with the premalays.

Comparing the weight of the body similar results are obtained. The weight of Sentáni males varies between 53 and 72.5 K.G., average 61.9 K.G., that of H. B. males between 50 and 64 K.G., average 57.6 K.G.; for the former this means 38.7 grams, for the latter only 35.3 grams per centimeter of the standing height. For the male inhabitants of Merauke, Mimika, Etna Bay and Fak Fak this number is 39.5, 38.1, 35.7 and 33.4 grams resp..

Table X. Trunk; heights from bottom.

	Acromion.	Sternal notch.	Papilla.	Iliac crest.	Umbilicus.	Iliac spine.	Trochanter.	Pubis.	
Humboldt Bay ♂	1325	1332	1194	994	990	913	869	849	
" " ♀	1286	1281	1098	—	937	—	—	—	
Lake Sentáni ♂	1309	1315	1189	966	945	889	852	822	
Merauke ♂	1355	1375	1244	—	982	—	—	868	KOCH.
" " ♀	1284	1280	1129	—	945	—	—	828	"



Fig. 213. Group at Demta.

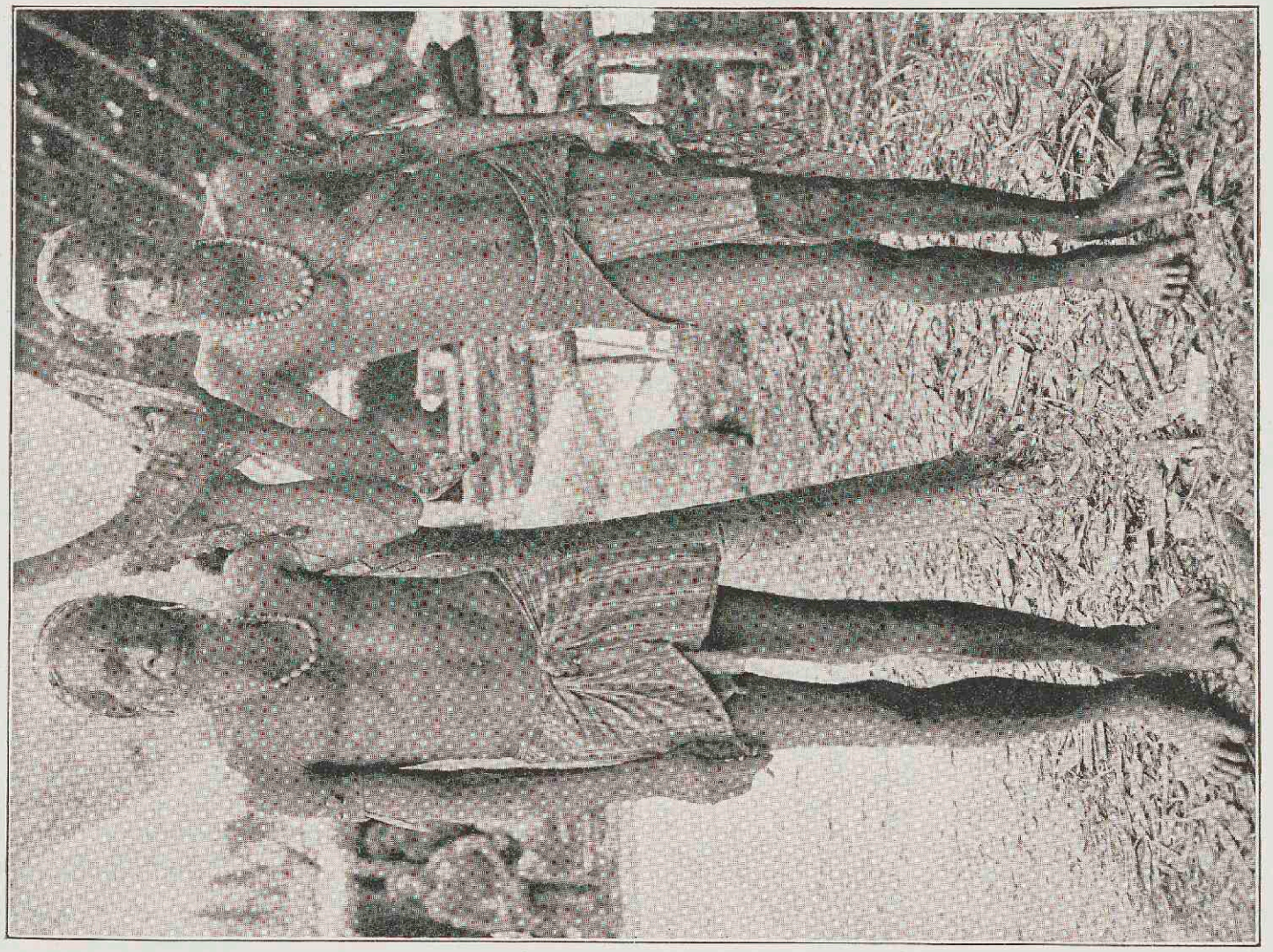


Fig. 214. Papuans with aquiline noses; Kaptiau.

As it was impossible to obtain more than one skull in Papua Tălandjang, the head-measurements of the living may be of some value; for comparison with the dimensions of the skull it will be necessary to deduct 10 m.m. from all measurements taken with the calipers. With the grouping and nomination I follow MARTIN [1905, 342]:

Head index.		Skull index.
less than 76.4	dolichocephalic	less than 74.9
76.5 till 80.9	mesaticephalic	75.0 till 79.9
81.0 „ 85.9	brachycephalic	80.0 „ 84.9
86.0 and higher	hyperbrachycephalic	85.0 and higher.

The form of the head can only be judged when the exuberant hair has been shaved and then the top often appears ridged (see also the description of the skull of Ungrau, page 358), a well-marked sagittal crest being perceptible (see N°. 41, Pl. XLVI, fig. 3).

Table XI. Lineal head measurements; indices.

	Length.		Breadth.		Height.		Latitudinal index.	Altitudinal index.	Breadth-height index.
	Median.	Ratio.	Median.	Ratio.	Median.	Ratio.			
Humboldt Bay ♂	190	11.7	148	9.1	122	7.5	77.90	64.28	82.4
„ „ ♀	183	11.7	138	8.8	116	7.4	75.67	63.44	85.5
Lake Sentáni ♂	189	12.4	144	9.0	121	7.6	75.68	63.56	84.0

Table XII. Circumferences of head.

	Horizontal.		Sagittal.		Transverse.		
	Median.	Ratio.	Median.	Ratio.	Median.	Ratio.	
Humboldt Bay ♂	557	34.1	366	22.4	340	20.8	
„ „ ♀	538	34.5	356	22.8	345	22.1	
Lake Sentáni ♂	558	35.0	368	23.0	346	21.7	
Jabim . . . . . ♂	526	32.6	—	—	331	20.6	HAGEN.
Merauke . . . . ♂	569	34.6	358	21.7	334	20.3	KOCH.
„ „ . . . . ♀	548	35.0	344	21.9	324	20.7	„
Mimika . . . . ♂	546	33.2	369	22.5	334	20.3	„
Etna Bay . . . ♂	546	33.2	360	21.9	329	20.0	„
Fak Fak. . . . ♂	547	35.1	370	23.8	320	20.6	„

The absolute, but also the relative measurements of the head may be called small. That the head of the women is in an absolute sense smaller, in a relative sense larger than that of the men is clearest with the Tugeri women. Judging from the average measurements in the table the Sentáni people must be called dolichocephalic, the H.B. people mesaticephalic, but it deserves attention that amongst the former there was a low range of individual variations, 13 being dolichocephalic and 9 mesaticephalic, whilst with the coast-people less than half (8) were dolichocephalic, 7 meso-, 2 brachy- and 1 hyperbrachycephalic. This greater uniformity, also found with the length-height index, of the inland people is in

accordance with the prevalence of intermarriage between coast and inland people (see p. 267). By the above tables it is shown once more that the Papuan is by no means everywhere dolichocephalic, as still taught by KEANE [1899, 127] and DENIKER [1900, 285]. Regarding K. W. Land, HAGEN [1899, 159] declares the coast people to be purely dolichocephalic, those of the interior inclined to be brachycephalic, but the numbers given by this author do not confirm such a statement. The length-height indices range under hypsicephaly, the same as the indices found by SCHELLONG [1891].

Not infrequently a narrow forehead is mentioned as a characteristic of the northern Papuan (MACLAY [1873a, 240], VAN HASSELT [1886, 577], JENS [1904, 51]); VAN DER GOES [1858, 113, 118, 160] stated the same of many coast parts, but [l. c., 169] noted that the people of H. B. had broader foreheads than were seen by him elsewhere. Now, the proportion to the face, especially to the projecting malar bones, may make the forehead appear narrow, ... as a part of the calvarium it must be compared with this, and then the next table shows that the index is larger than with Europeans (FRITSCH [1899, 159]).

Table XIII. Breadth of head and forehead.

	Head (max.).		Forehead (min.).		Index.
	Median.	Ratio.	Median.	Ratio.	
Humboldt Bay ♂	148	9.1	105	6.4	70.3
Lake Sentáni ♂	144	9.0	100	6.3	70.0
European	—	10.1	—	6.9	68.3

Table XIV. Height measurements of head and face.

	Head.		Forehead.		Physiognomy.		Morphol. face.		Middle face.		
	Median.	Ratio.	Median.	Ratio.	Median.	Ratio.	Median.	Ratio.	Median.	Ratio.	
Humboldt Bay ♂	224	13.7	72	4.4	190	11.6	118	7.2	68	4.2	
„ „ ♀	216	13.8	67	4.3	173	11.1	106	6.8	64	4.1	
Lake Sentáni ♂	218	13.6	71	4.4	185	11.6	114	7.1	65	4.1	
Jabim . . . . . ♂	—	—	64	4.0	174	10.8	110	6.8	—	—	HAGEN.
Merauke . . . . ♂	—	—	94	5.7	205	12.4	113	6.9	—	—	KOCH.
„ „ . . . . ♀	—	—	73	4.7	175	11.2	104	6.6	—	—	„

This table proves that with the people of H. B. the height of the body is 7.3 times that of the head. TOPINARD [1885, 1072] gave for the Negro 7.0, for the European 7.5, for which DENIKER [1900, 92] gives the percentage 13, corresponding with the cipher 7.7. That females have a relatively higher head than males, as stated by different authors, is also, though slightly, shown by the H. B. women; as, however, with women of all races the limit of the hair reaches down lower than with the men, the facial dimensions are less. The relation between the height of the forehead and the physiognomic height, varying little in the Papuans of the north coast, differs very much between both sexes of the Tugeri (Merauke). In Europeans the percentage of 40 but also of 32.5 is found (MARTIN [1905, 382]).

Table XV. Breadth measurements of face.

	Minimum frontal.		Bizygomatic.		Bigonial.		
	Median.	Ratio.	Median.	Ratio.	Median.	Ratio.	
Humboldt Bay ♂	105	6.4	142	8.7	102	6.3	
„ „ ♀	102	6.5	131	8.4	91	5.8	
Lake Sentáni ♂	100	6.3	141	8.8	104	6.5	
Jabim . . . . . ♂	—	—	137	8.5	102	6.3	HAGEN.
Merauke . . . . ♂	118	7.2	139	8.4	106	6.4	KOCH.
„ „ . . . . ♀	136	8.6	131	8.4	98	6.3	„
Mimika. . . . . ♂	110	6.7	143	8.7	108	6.6	„
Etna Bay . . . ♂	112	6.8	132	8.0	105	6.4	„
Fak Fak. . . . ♂	113	7.2	138	8.9	101	6.5	„

Table XVI. Facial indices.

	Fronto-zygomatic.	Gonio-zygomatic.	Physio-gnomic.	Mid-facial.	
Humboldt Bay ♂	75.2	83.8	73.9	71.8	
„ „ ♀	75,5	80.8	77.9	69.5	
Lake Sentáni ♂	76.2	80.5	70.9	73.8	
Jabim . . . . . ♂	78.7	80.3	—	74.5	HAGEN.
Merauke . . . . ♂	84.6	76.2	67.8	81.3	KOCH.
„ „ . . . . ♀	103.8	74.7	75.4	79.4	„
Mimika . . . . ♂	76.9	75.5	71.8	—	„
Etna Bay . . . ♂	84.8	79.5	75.8	—	„
Fak Fak. . . . ♂	81.8	73.1	73.4	—	„

The above indices indicate the decimal relation to the bizygomatic breadth; the women of Merauke present the exceptional condition that the minimum frontal breadth is larger.

Table XVII. Measurements of nose.

	Vertical length.		Breadth across nostrils.		Index.
	Median.	Ratio.	Median.	Ratio.	
Humboldt Bay ♂	53	3.3	44	2.7	83.7
„ „ ♀	50	3.3	39	2.5	78.9
Lake Sentáni ♂	49	3.1	44	2.7	87.9

As far as the measurements of face and nose determine the physiognomy, this is included in the above tables. The degree of prognathism may be judged from the auriculo-alveolar, auriculo-nasal and auriculo-gnathic radii, which are with the Humboldt Bay males 113, 93 and 133 m.m. resp., with the females 97, 84 and 119 m.m., with the Lake Sentáni males 103, 86 and 121 m.m. resp..

The eyes are generally deeply set, the openings of medium width and on an average

29 m.m. in length. The eye slit of the Jabim HAGEN [1899, 158] calls long and narrow, SCHELLONG [1891, 161] calls it wide and mentions a length of 35 m.m.. On 8 of the 45 schedules (N^{os}. 3, 5, 6, 19, 25, 31, 36 and 45) I noted a slightly oblique position of the eyes and N^{os}. 1, 25, 27, 28, 31 and 43 had a trace of epicanthus, without touching the caruncle; still none were found who owing to this had a Chinese appearance, HADDON [1894, 157] speaks of. The irides are never black, although MACLAY [1873^a, 240], MEYER [1874, 99], COMRIE [1877, 106] and JENS [1904, 51] state they can be so, — a "black" iris means that there is no difference in colour between iris and pupil! — the colour is brown, sometimes (SCHELLONG [1891, 161]) dark brown. Further, the distance between the inner angles, with the Jabim (SCHELLONG l. c.) not above 35 m.m., with H.B. males is seldom below this figure.

The nose of the Papuan merits attention, because up till now pre-eminent authors as KEANE [1899, 127] and DENIKER [1900, 493], following the example of WALLACE [1869, II, 185], call the large, aquiline or convex nose characteristic, although MEYER [1873, 307] already pointed out that at Doré and environs, where WALLACE resided, non-semitic, European and Malay forms of noses occur as well. Of the same territory VAN HASSELT [1886, 577] and JENS [1904, 51] describe the flat, broad nose like that of the young man in fig. 205 as a characteristic. MACLAY [1873^a, 240], (FINSCH [1888—93, 183] for Astrolabe Bay), SCHELLONG [1891, 162, 175] and PARKINSON [1900, 24] have testified against the judgment of WALLACE; EARL [1853, 3] particularly mentioned the broad nose as the cause of the Negro character of the Papuan physiognomy. I will merely say that the aquiline nose is no characteristic of race; that this form occurs, nearly all the above-mentioned authors admit, also D'ALBERTIS [1880, I, 217], THOMSON [1892, 95] and HAGEN [1899, Pl. 19]. On his territory MACLAY saw altogether only 2 or 3 of such noses, and in Humboldt Bay, as already remarked by VAN DER GOES [1858, 169], in contrast with the supposition of HAGEN [l. c., 159], they do not occur at all, no more than on Lake Sentáni. I therefore do not understand how MOSELEY [1877, 386] can report long, Jewish noses from that part. The difference between the North and South in this respect is so marked that some visitors to the first named territory consider the flat nose as the characteristic of the true Papuan (PARKINSON l. c.), whilst visitors to the south coast (COMRIE [1877, 105], HADDON [1894, 157], MACGREGOR [1897, 29]) look upon the aquiline nose in the same way. And yet in some parts of Papua Tälandjang one comes upon such noses amongst the usual faces (fig. 214). HAGEN l. c. and NACHRICHTEN [1897, 56] report that in K. W. Land the long nose occurs more on the coast than in the interior, whilst in British N. G. (PÖCH [1906, 609]) it is just the Kagi people, living in the mountains, who have very hooked noses.

That the wearing of a nose peg by its weight produces the long aquiline nose, as supposed by UHLE [1886, 2], is erroneous (see also MOSELEY [1877, 386]), as is also the opinion of DE CLERCQ [1890, 152] that the nose peg has no influence at all on the form of the nose. VON ROSENBERG [1875, 85], ERDWEG [1902, 319] and others have already pointed out that the alae nasi are pushed aside and upwards, and illustrations of FINSCH [1888^a, Pl. XX, figs. 1 and 2], HAGEN [1899, Pl. 35], MEYER and PARKINSON [1900, Pl. 9], and DENIKER [1900, figs. 149 and 150] (see also N°. 15 on Pl. XXXVIII, wearing a tube for photographical tablets!) show this quite clearly. But it must be remembered that it is not the nose bone (FINSCH [1865, 137], VAN HASSELT [1886, 579], DE CLERCQ [1889^b, 1669])

nor the nasal cartilage (VAN DER GOES [1858, 29, 169], D'ALBERTIS [1880, I, 86], HORST [1889, 243], THOMSON [1892, 17]) which is perforated, but that the piercing is in reality performed below the lower edge of this cartilage, between this and the medial extremities of the cartilagines alares. With a gradual increase of the diameter of the nose peg the necessary enlargement of the opening in an upward direction is prevented by the cartilaginous septum, and in a backward direction by the bony upper jaw. Thus the thin lower border is pressed downward and the fleshy tip of the nose is forced forward, owing to which the ridge of the nose often forms a concave line. This can easily be noticed in the drawing of FINSCH, also in N°. 15 of Pl. XXXVIII; from the lifting of the alae it is often possible to see through the opening (see profiles in anthropological plates; also page 75 and MEYER [1874, fig. 5]). The breadth of the nose measured over the extreme sides, therefore, is generally unnatural, — N^os. 8 and 14 even have indices of 104.1 and 106.7 resp.; — the nose of the women, a moderate mesorrhine, is the typical in which, moreover, the relative height (see also FRITSCH [1899, 159]) is greater than that of the male nose. The shape of the nose mentioned as "Papuan" by NOTES AND QUERIES [1899, 20, Pl. IV, fig. 8], is very seldom seen in the north part of the Netherl. territory.

Still rarer than the Semitic physiognomy is the Negro type in the parts visited by the expedition, just as in K. W. Land (HAGEN [l. c., 158]). The tables show that the face must be called mesoprosopic and that the judgment of KRIEGER [1899, 138] and DENIKER [1900, 493] that the Papuans have elongated faces cannot hold good for these parts. The differences between inland and coast people, though small, are of the kind described by HAGEN, the inhabitants of the interior having shorter and broader faces, the broadened parotid region (see HAGEN [1899, 159; 1906, Pl. 45], SCHELLONG [1891, 170, 175]) often being striking. With the Humboldt Bay people, on the other hand, the lower part of the face not infrequently with the smaller bizygomatic and bigonial breadth forms a triangle, so often shown in the wooden figures (see p. 284). The cheeks then converge like two flattened surfaces towards the narrow chin (see also SCHELLONG [l. c. 173]). The face of the women often has a nice, oval shape.

The mouth of the Papuan is generally called large (COMRIE [1877, 105], HAGEN [1899, 158]), also flabby (MACGREGOR [1897, 29]), even mouth openings of 75—80 m.m. are reported (MACLAY [1873a, 241]). The largest dimension found by SCHELLONG [1891, 227] is 66 m.m.; in Humboldt Bay males, though chewing in much practised, the maximum was 62, median 55 (ratio 3.4), with the females median 51 m.m. (ratio 3.3), whilst with the males of Lake Sentáni the maximum was 64, median 57 m.m. (ratio 3.6). FRITSCH [1899, 154] gives for the European a relative length of 2.7. The lips are mostly moderately thick and prominent, which fact principally depends on (FORSTER [1904, 45]) the development of the orbicular muscle.

OSTEOLOGICAL CHARACTERS. A skull was found on the shore behind Ungrau, where the people of this village deposit their dead; the other skeletal parts originate from the small islands near Wendèsi (see figs. 78 and 79, p. 133). Of this skull, without doubt a male, the lower jaw is missing and the lower part of the face not complete.

The index-frontozygomaticus is calculated from bistephanic and bizygomatic breadth The angles are taken according to the German horizontal plane.

Table XVIII. Skull of Ungrau (Humboldt Bay).

Capacity	1190 c.m.³
Horizontal circumference	491
Sagittal „ „	362
Frontal part (34%)	122
Parietal „ (36%)	130
Occipital „ (30%)	110
Vertical transverse circumference	298
„ „ „ „ over bregma	293
Total median circumference	499
Maximum length	179
Horizontal „	176
Intertuberal „	177
Nasion — protuberantia occipitalis	173
Basal length	101
Occipital „	53
Basio-alveolar length	101
Auriculo-orbital „	70
Height	133
Vertical height	132
Ear-height	112
Auxiliary ear-height	114
Opisthion — ⅔ sutura sagittalis	122
Opisthion — lambda	94
Maximum breadth	129
Biparietal „	123
Biasterial „	108
Auricular „	112
Bicoronal „	106
Upper facial „	110
Bizygomatic „	129
Bimalar „	94
Minimum frontal breadth	92
Bistephanic breadth	101
Bijugal „	107
Interorbital „	29
Orbital „	41
Nasal „	27
Minimum breadth of both oss. nasalia	12
Breadth of base	99
Frontal height	108
Nasal „	49
Length of proc. nasal. oss. frontis	12
Orbital height	37
Upper face height	69
Length of foramen magnum	35
Breadth „ „ „	28
Maxillary length	59
Molar „	42
Length-breadth index	72.1
„ -height „	74.3
Breadth- „ „	103.1
Nasal index	55.1
Orbital „	90.2
Maxillary „	100.0
Molar „	41.6
Upper facial index (KOLLMANN)	53.5
Stephano-zygomatic index	78.3
Cranio-facial index	100.0
Gnathic index	100.0
Facial angle (RANKE)	80°
Nasal „	85°
Alveolar „	64°
Modulus	140.0

Seen in the norma verticalis (Pl. XXX, fig. 2), the frontal part is narrow, the sides being straight and gradually diverging towards the parietal eminences.

The norma lateralis (fig. 3) shows a prominent glabella, extending far upward, with an inclined forehead. The arching of the parietalia is regular and forms the highest elevation, placing the skull in the German plane, about 2 c.m. behind the bregma. The upper part of the os occipitale is slightly convex, the lower part fairly steep. The protuberantia occip. ext. is feebly developed, but there exists a strong torus occipitalis. The lateral parts of the nuchal portion are strongly arched; the margo parietalis is the longest.

In the norma occipitalis (fig. 4) the pentagonal form is very striking; the cranial vault has a keeled form (which also causes the great breadth-height index), connected with flat depressions of the upper parts of the parietalia, having prominent bosses, below which the sides converge slightly downward.

In the norma frontalis (fig. 1) the feeble development of the forehead is plainly apparent as well in height as in breadth, and the whole facial portion makes a decidedly

chamaeprosopic impression. Pars nasalis oss. frontis is very long, the sutura nasi thus lying almost in the middle of the medial edges of the orbits. The glabella is evenly developed and prominent, the superciliary ridges are hardly marked. The interorbital region is broad and the orbits are very roomy. The broad and massive maxilla shows a projecting alveolar portion. The squamosal suture lies low, because the squama oss. temporis is slightly developed in height; the linea temporalis, however, is situated pretty high. The mastoid processes are small, the muscular ridges moderate. All the sutures are of a very simple type (Broca Nos. 2 and 3), even the lambdoidal suture. The pterion region shows no variations, except that it is narrow. Most of the teeth are lost post mortem, those present are (see p. 339) somewhat worn down.

Norma basilaris (fig. 5). Basion lies higher than opisthion and therefore the foramen magnum looks forward, the skull as an exception to the rule, resting on the back part of the circumference.

Scapula. Five specimens of which the average length is 145 m.m., breadth 105 m.m., therefore the index 72.4; with Europeans (MARTIN [1905, 578]) it is 65.3. The infraspinous index is 106.6! These shoulderblades strike one on account of the angle between the upper and the lower part of the margo vertebralis, being on an average 135°. The angle between the spine lamella and the fossa infraspinata is less than 90°. In consequence of this, notwithstanding the moderate dorso-ventral breadth of the spine, the fossa supraspinata is roomy enough for a powerful musc. supraspinatus (FORSTER 1904, 72]). The dorsal ridge of the spine has, as usual, a thickening for the medial fibres of the musc. trapezius. This thickening, however (see Pl. XXX, fig. 7), is in casu exclusively directed downwards (with the erect human being) so far that one can hide the top of the finger beneath it, and even in this manner carry the shoulderblade on the finger. The acromion is short and broad, arches in the usual way over the cavitas glenoidalis, with an almost right angle between the hind and the lateral part. The coracoid process is less arched and directed more horizontally than with European scapulae. The cavitas glenoidalis does not look upwards and has the fairly large index of 74.1. Close to the angulus inferior there is a large flat space for the insertion of the Musc. teres major, with the Papuan strongly developed (FORSTER [l. c., 74]), by which at a distance of 3—4 c.m. from the inferior angle a second angle is formed. Another peculiarity is the curve of the blade along the line of the spine base, the fossa supraspinata and the fossa infraspinata thus forming an angle, and the fossa subscapularis showing a very strong concavity. On Pl. XXX a Papuan scapula (fig. 7) is shown beside an average European scapula (fig. 6).

Humerus. Four specimens, on an average 319 m.m. in length, which according to MANOUVRIER [1902, 104], corresponds to a standing height of 1641 m.m., which is above the real stature of the Wendèsi people to whom those bones belonged. These humeri are slender, their minimum circumference varies between 56 and 66 m.m.; both epiphyses, however, are relatively strong. Two are right humeri, and although shorter than the left ones, have a larger circumference than the latter, which are probably female. The ellipsoid form of the caput (43 × 40 m.m.) is normal. Tuberculi, sulcus intertubercularis and crista tuberculi majoris, well developed. The anatomical neck forms a marked groove, both towards the tuberculum majus and the tuberculum minus, which latter through this stands more apart than in the

European. In consequence of the small angle of torsion, both tubercles lie rather ventrally, that is to say, when the humerus is placed with the dorsal side on a table, the tub. maj. rises higher from the surface of the table and the tub. min. is placed more towards the median line than in European specimens. Thus the sulcus intertubercularis lies more in the middle of the ventral surface, and without the curvature occurring with Europeans it runs down almost parallel with the axis. The tuberositas deltoidea reaches rather far downwards. The foramen nutritium is situated on the margo medialis below the middle. The lateral epicondyle is only moderately developed. The angle between axis of diaphyse and axis of lower articular surface more nearly approaches a right angle, and the lower articular surface itself is more curved than with European humeri. The fossa radialis, in Europeans only a shallow concavity, is almost as large and deep as the fossa coronoidea, besides it is situated more towards the median line; the bony ridge that divides both fossae and which in Europeans deviates strongly laterally, here runs more nearly parallel with the axis of the diaphyse. All these peculiarities, met with by MARTIN [1905, 587, fig. 77] in a still greater measure in the natives of the Malay Peninsula, form characteristics of primitive races. The angle of torsion, determined with MARTIN's [1903, 129] paralellograph, is on an average 138°; for Europeans, according to BROCA, it is 161.5°. LAMBERT [1904, 81] gives of Melanesians 139° and of Australians 134.5°. The capito-diaphysal angle on an average is 41.5°, the condylo-diaphysal angle 80.5°; with 30 Swiss humeri MARTIN [1905, 593] found for the latter 77°.

Ulna. One specimen, 266 m.m. long, corresponding with a standing height of 1672 (male) or 1719 m.m. (female). The crista m. supinat. well developed, and a crista interossea which makes the transverse section in the middle triangular, but entirely disappears below, so that at 3 c.m. above the lower articular surface the thinnest part (circumference 34 m.m.) is found. In the middle the maximum diameter is 16.5, the minimum diameter 13 m.m., the circumference only 49 m.m.. European ulnae of the same length are much heavier. The facies volaris is less concave than usual. The curvature of the diaphyse is in the upper part in front, in the lower part behind, slightly concave. A similar S-shaped curvature, but less pronounced, appears when it is examined from behind: the medial side concave at the top, convex below. The articular surface of the olecranon is only 13 m.m. long, but 26 m.m. broad, and is separated by a rough, slightly raised, transverse ridge from the almost equally large articular surface of the proc. coronoides. There is a great resemblance with the ulna of a New-Hollander, drawn by FISCHER [1903, 166, fig. 1 B], only in the latter the decimal relation between the length of olecranon and ulna is 2.57, in the specimen here described 1.65. The proc. coronoides ends with a small sharp crista that bends proximally, the extreme edge thus being only 22 m.m. away from the edge of the olecranon. A wide nutrient foramen lies ventrally between the proximal and the middle third part.

Radius. Two left radii, one right, all extremely slender and without marked curvature. The length, being from 251 to 260 m.m. (average 255 m.m.), corresponds (MANOUVRIER) with a standing height of 1703 (male) or 1774 m.m. (female), much too great for the actual stature of the people of Wendèsi. The minimum circumference (39 m.m.), in European radii situated just below the tuberositas radii, notwithstanding the well developed crista interossea, is found 2—3 c.m. below the middle. The tuberositas radii is found more proximal than in Europeans, in one specimen at only 1 c.m. distance from the articular circumference, so

that the upper part of the bone looks more or less compressed. To determine the curvature of the radius, FISCHER [1903, 169, fig. 2] drew a straight line from the lateral border of the styloid process to the same side of the head, and indicated the greatest deviation of the diaphyse from that line in percentages of the length, in these radii only 0.5%. According to the experience that male long bones have larger epiphyses than female, these radii, having a circumference of head of 47 m.m., might be male. All three have well developed ridges and a nutrient foramen near the muscular roughness for the attachment of the pronator teres muscle. The sulcus for the tendon of the musc. extens. poll. longus is well-marked.

Femur. Six specimens, forming three pairs. Their length (median 426 m.m.), large in comparison to the circumference in the middle of the bone (81 m.m.), causes the index to be only 19.1; according to SOULARUE [1899, 338] it is 20.4 in Europeans. The tendency towards great length with small thickness is also shown in the rather large collo-diaphysal angle (in the right specimens some degrees larger than in the left), on an average 132°, which raises the collum upwards, and in the slenderness of the collum and smallness of the head. That the total length of the upper epiphyse (93 m.m.) is less than in an average European femur, is the result of the trochanter major being much thinner, that is to say less developed in a lateral direction. As a result of the large collo-diaphysal angle the upper border of the great trochanter, when in a natural position of the femur, scarcely reaches to the horizontal line of the articular head. The crista intertrochanteria is feebly developed, so that the lesser trochanter stands more apart, and whilst being placed more towards the median line than in the European femur its axis has a more dorsal direction. A trochanter tertius is not to be found, but the tuberositas glutealis is strongly developed in two specimens and both labia of the linea aspera merge into a plain pilaster, both lateral surfaces of which are slightly concave. A clear platymery, though with a high range of individual variation, is borne out by an average index pilastricus of 123.4, which surpasses even those of Negroes (119.8), Veddahs (122.1) and Australians (122.2) (see MARTIN [1905, 610]). Distally, both labia of the linea aspera, where they include the planum popliteum, are well developed, specially the medial labium, which forms here a sharp ridge. The breadth of the condyles is 73 m.m.. Their articular surface extends high upwards at the back and terminates on the medial condyle nearly horizontally, a result of the custom of squatting. The curvature of the diaphyse is rather strong; placed on a flat surface, the highest elevation is found at $^1/_4$ of the length from the distal end. The angle of torsion, averaging 24°, is (MARTIN [l. c., 625]) only surpassed by the Senoi, Ona, Negroes and Maori. For Europeans the average amounts to 8°.

Tibia. Five right specimens, showing a degree of platycnemy which in the neighbourhood of the nutrient foramen is quite as large as in the middle of the bone and must be considered as one of the highest known. A comparison with European tibiae shows that the margo medialis has been removed more towards the back, that the strongly convex facies posterior is directed more medially and in the crista interossea joins the facies lateralis at a very obtuse angle. One can almost speak of a linea interossea. It runs in an almost straight line towards the frontal part of the lateral edge of the lower epiphyse, thus differing from European tibiae, where this line runs in a curve. The crista anterior runs as usual with a faint curve (above medially, below laterally convex) to the front side of the maleolus.

Both epiphyses are narrow. The articular surface for the capitulum fibulae is circular and quite flat, and on the front edge of the lower articular surface without exception a secondary facet is found, which is characteristic of people that are accustomed to squat. The following table gives a survey of the measurements, etc.

Table XIX. Five right tibiae of Wendèsi.

	I	II	III	IV	V	Median.	
Maximum length	376	358	351	349	345	356	
Condylo-astragalic length	354	334	332	326	331	335	
Maxim. breadth of proximal epiphyse	74	69	73	70	70	71	
„ „ „ distal „	47	46	50	46	—	47	
Sagittal diameter in the middle	32.5	30	31	29	28	30	
Transversal „ „ „ „	20	21	18	18	19	19	
Index of section „ „ „	61.4	70.0	58.1	62.1	67.9	63.9	
Circumference „ „ „	85	82	80	76	77	80	
Sagittal diameter near for. nitritium	35	36	37	34	34	35	
Transversal „ „ „ „	21.5	23	21	20.5	23	21.8	
Index cnemicus „ „ „	61.4	63.9	56.8	60.3	67.6	62.0	
Circumference „ „ „	92	91	92	86	91	90	
Minimum circumference	75	71	71	69	72	71	
Length-thickness index	19.9	19.8	20.2	19.8	20.6	20.1	
Angle of retroversion	19.5°	16°	17°	21.5°	—	18.5°	
„ „ inclination	15°	13°	13.5°	18°	—	15°	
„ „ torsion	15°	16°	22°	22°	—	19°	
Corresponding standing height, male	1662	1573	1566	1545	1562	1582	MANOUVRIER.
„ „ „ „ female	1586	1540	1536	1520	1533	1543	„ „

Without exception the minimum circumference is found at one fourth part distant from the lower end of the bone. The concave curve of the articular surface of the extern condyle deserves attention. The retroflexion is extreme and is partially located in the distal part of the diaphyse. The inclination is also very great, consequently the "angle biaxial" of MANOUVRIER [1893, 231] is only moderate (3—4.5°).

Fibula. Three specimens, the longest being 365 m.m. in length (aver. 350 m.m.), all with a very slight curvature, the lower third part especially being very straight. In antero-posterior direction thinner than European fibulae, they give one the impression of being narrow rulers. The sharp back ridge is formed by the crista lateralis, the front, 4.5—6 m.m. broad and transversely concave, has laterally the crista anterior, medially the crista interossea. The broad lateral surface shows along the front edge a shallow groove, along the back edge a slight, transverse arching. The second broad surface is formed by the facies posterior and the facies medialis together, and only on the middle third part of the bone has a ridge, which represents the crista medialis. There is a muscular roughness for the soleus muscle and a groove for the insertion of the musc. peronei. The capitulum is small in proportion to the length of the bone, and has entirely at the end, there being no real apex, the circular articular surface, slightly concave and surrounded by a low, bony ridge. The maleolus has become almost bifid, owing to a medial fossa which continues round the lower end. The

minimum circumference is found either near the upper end or near the maleolus.

HANS VIRCHOW [1903, 794] rightly advises that the study of the skeleton should not be limited to the individual bones, but that the manner in which they are joined should also be investigated. Joining together tibia N°. III and the fibula that belongs to it, it strikes one that the interosseal space is much broader than with the European, affording much more room for the attachment of muscles, amongst which the musc. tibialis anticus was found to be very strongly developed (FORSTER [1904, 115]). Besides the axes of fibula and tibia lie almost in a frontal plane. For comparison I give fig. 215, a reproduction of a drawing of SPALTEHOLZ

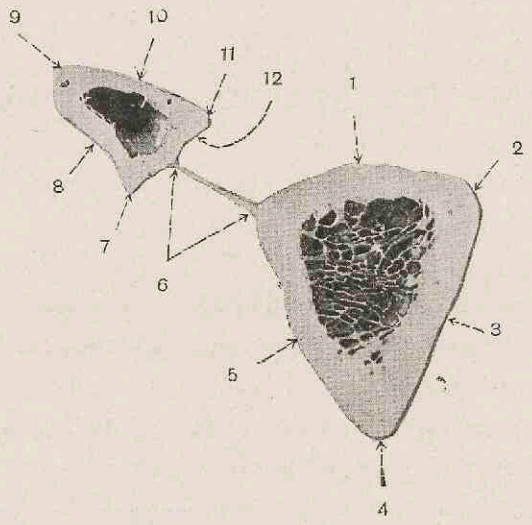


Fig. 215. Section through European crus, at the middle.

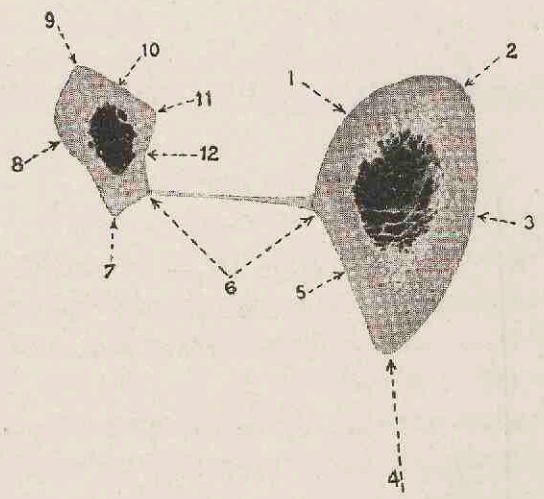


Fig. 216. Section through Papuan crus, at the middle.

1. Facies posterior tibiae.
2. Margo medialis „
3. Facies „ „
4. Crista anterior „
5. Facies lateralis tibiae.
6. Cristae interosseae.
7. Crista anterior fibulae.
8. Facies lateralis „
9. Crista lateralis fibulae.
10. Facies posterior „
11. Crista medialis „
12. Facies „ „

[1899, I, 135, fig. 180a], representing a transverse section of the bones of an European crus, at the middle of the length, placed alongside such a section (fig. 216) of the above-named Papuan bones, in natural position.

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LIST OF ALTERATIONS.

Page	line	for	read
11	13	93	91
37	2	1873	1873[a]
39 and 40	—	WESTERMARK	WESTERMARCK
58	14	Sawéh	Sáwé
60	3	118	218
64	1	1903	1893
86	13	Serui	Serué
88	18	1899	1900
122	28	fig. 7	fig. 9
127	last but two	1873	1873[a]
134	18	1900	1901
137	1	1900	1901
146	17	1887	1897
155	(fig. 99)	bear	boar
165—167	—	ERDWEG [1904]	ERDWEG [1902]
174—247	—	MOSELY	MOSELEY
177, 195, 196	—	KONING [1904]	KONING [1903]
222	1	595	593
226	last but one	shopje	schopje
232	19	670	700
235	4 and 15	1901	1900
237	4	BUSHAN	BUSCHAN
242	29	1884	1885
269	37	1904	1900
276	1	MURPHY	MORPHY
281	32	1902—03	1903—04
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(Several of the measurements taken by KOCH have been revised by this author in his soon to be published: "Bijdrage tot de anthropologie der bewoners van Zuid-West Nieuw-Guinea". Leiden, E. J. Brill).

ALPHABETICAL LIST.

(The ciphers in ordinary print refer to the pages of the text, the numbers and ciphers in italics refer to the catalogue divisions).

Abacus 219, 267, *Nos. 1270—71, 282.*
Abrus beans 72, 84, 85, *111.*
Adenanthera pavonina 82, 90, *120.*
Agriculture 172.
Akar bahar (*Plexaura*), for armlets 99, 102.
Aleurites Moluccana 52.
Alstonia scholaris, pith of- *111*, 199.
Amomum Cardamomum, leaves of- 69, *110*, *111*, *No. 399 b*, *119.*
Amulets 67, 187, 225, 302, *Nos. 1321—29, 314.*
Ancestors, cultus of- 302.
Animal food 1, 153, 160; -prohibited for women 2.
Animal membrane, on drums 305.
Ankle ornaments 105.
Anthropophagy 1, 269.
Antiaris, bark fibres of- *113.*
Antique beads, see Currency
Aprons 91, 93, 94, 144, *Nos. 430—432, 121*; knitted- 95, *Nos. 450—452, 122.*
Arca pilula Reeve 104, 163.
Areca 16, 17, 20; -husk on comb 69.
Areca Nibung *110*, 246.
Arenga saccharifera 14, 69, 246.
Arm, -girths 347; -length 346; -ornaments 97; -span 345.
Armlets 97, *Nos. 453—496, 122*; glass- 224.
Arms 177, 240; -on graves 246, 271.
Arrows 242; fishing- 166, *Nos. 766—744, 258*; hunting- 157, 242, 243, *Nos. 745—765, 258*; ornamental- 244, 245, 318; protection against- 74, 83, 84, 88, 251, 253; -release 248; war- and others 242, 256, *Nos. 775—1224, 258.*
Arrowheads, bamboo- 157, 243; bone- 244; palmwood- 244; spine of ray- 244.
Art 283.
Artocarpus, -fruit 8; -barkfibres *113*, 180, 185.
Astonishment, gesture of- 318.
Axes, copper- 226, *Nos. 694—695, 230.*

Bags, cord- 16, 178, 179, 220, 224; -for beads 187; borders of- 181, 187; bottom of- 181, 183, 185; -on graves 273; men's- 182, *Nos. 630—648, 190*; women's- 180, *Nos. 626—629, 190.*
Balaenoptera 102
Baldness 56, 57, 337.
Baling, balers 197, 198, 202, *Nos. 678—679, 213.*
Bamboo, -arrow heads 157, 243; -belts 91; -bows 246; -combs 66; -cylinders for arrows 246, for Coix-seeds 107, for lime 22, for liquids 14, 129, *No. 100, 29*, for percussion caps 159, for soot 53, for tobacco 17, 305; -ear ornaments 79, *Nos. 324—329, 115*; -flutes 144, 292, 294, 306; -knives 61, 233; -nose ornaments 75, *Nos. 296—321, 114*; -tubes in the hair 58, 69; -for war banner 254.
Bandoliers 85, 292, *Nos. 394—404, 119.*
Bark, -belts 88, 251, 266, *Nos. 405—407, 120*; -for housebuilding 134; preparing- 234.
Bark, prepared, -behind bags 180; -used as blankets 36, 147; -for carrying loops 16, 179; -fibres *112*, *113*, 180, 185, 205; -petticoats 37, 94, 268; rolls of- 279; -tobacco pouches 16; -as wrapper 71, 224.
Barringtonia speciosa, leaves of- 4.
Barter 17, 37, 40, 52, 74, 79, 89, 100, 143, 158, 179, 194, 216, 221, 228.

Baskets, -for beads 219, *N°. 693, 230*; carrying- 178, *N^os. 620—625, 189*; -as dishes 12, *N°. 87, 27*; -above fire places 144; fishing- (traps) 168, *N°. 593, 171*; sago- 4, 297, 300, *N°. 1, 23*; tobacco- 16, 179.
Batata edulis 8.
Batissa violacea (*Cyrena*) 234, *N°. 710, 238*.
Battues 154.
Beaching 203, 206.
Beads, (see Currency), -on girdles 90; -in the hair 60, 61; -on necklace 82, 219; -in nose 75, 78.
Beard 59, 337.
Beating bark, beaters, 234, 235, *N°. 712, 238*.
Bells, -of brass 229, *N°. 697, 231*; -of shell 107, 185, *N^os. 525—527, 126*.
Belts, 86, 87, 220, 235, *N^os. 405—428, 120*; ornamental- 89, 220.
Betel chewing 4, 19, 22, 228, 297, 339.
Bidding good-bye 277.
Biotite-quartzite for grinding 233.
Bird, -hunting 159, -of paradise 159; -figure 62, 70, 79, 145, 148, 201, *209, 210, 213*, 280, 285, *N^os. 564—565, 151*.
Bivouacs 36, 145, 217.
Black pigment 11, 12, 47, 53, 177, 245; -as mourning colour 275; -as war colour 54.
Blankets 36, 147.
Boar, -arrows 157, 243; -femur 5; -hunting 153, 154, 243, 281; -killing 2; -lances 155, 255; -scrotum 99, 157; -skulls 157, 158, 272; -snares 154; -tails 85, 157; -tibia 5.
Boar tusks, -as armlet 99, 101, *N°. 491, 124*; -on bags 185; -for breast ornament 78, 82, *115, 118*; -as currency 217; -as forehead ornament 73, *N^os. 292—294, 114*; -as hunting trophy 157; -for neck ring 78, 81, *N^os. 377—378, 117*; -in nose 76—78, *N^os. 312—321, 115*; -as scrapers 78, 232, *N^os. 699—700, 237*.
Boats 142, 157, 160, 161, 172, 193, 196, 208, 210; fire place in- 8, 202; men's- 195, *N°. 657, 211*; models of- 199, *N^os. 654—655, 211*; pieces of a boat 198, *N°. 656, 211*; platforms on- 161, 194, 201, 206; railing of- 201; -sailing 203; side-boards of- 161, 194, 198, 199, 206; stability of- 202; women's- 138, 177, 195, 206.
Bodkins, bone- 76, 232, *N^os. 308—309, 114, N°. 698, 237*.
Bone, -armlet 102, *N°. 495, 124*; -arrow tips 244; -bodkins 76, 232; -breakers 5; -daggers 5, 97, 240, 256; -forks 6; -knives 5; -ringlets 79; -spoons 5, 97.
Borders of bags 16, 181, 187.
Borers 232.
Bows 129, 242, 246, 256; bamboo- 246, 248, *N^os. 1246—48, 263*; -on graves 271; ornamented- 247, 248, 268, 284; palmwood- 246, *N^os. 1225—45, 263*; the stringing of- 247; -figures tattooed 45; -as toy 265, *N^os. 1242—45, 263*; unstringing- 248.
Bow guards 98, 102, 103.
Bow nets (fykes) 169.
Bow strings 247; protection against- 98, 102, 103; spare- 248.
Boxes 37; lime- 22, *N^os. 206—207, 34*; tinder- 19, *N^os. 172—173, 32*.
Breakers, bone- 5; wooden- 8, *N^os. 57—61, 25*.
Breast, -ornaments 82; -shields 83, *N^os. 386—393, 118*.
Bride, capture of a- 266; -'s dress 38, 100, 268; price of a- 176, 212, 219—221, 267, 268, 279.
Bridges, -leading to houses 132; -over rivers 193, 217.
Brow bands 36, 73, 90, *N^os. 288—295, 113*.
Brown pigment 245.
Buckets 13, 129, 272, *N°. 93, 28*.
Bugles of glass 80, *N°. 368, 117*.
Bull-roarer 306, 315.
Bundles of hair 58.
Burning, -the surface of boats 194; -the bush 176; -inside of drums 305; -when hunting 155; scar- 49; shell- 22.
Burying the dead 271.
Bush-men 126.
Butterfly figure 284.

Cacatua triton Temm., feathers of- 62, *109—111*.
Calabashes, lime- 20, *N^os. 174—195, 33, N°. 205, 34*; -for liquids 13, *N°. 94, 28*; -as musical instruments 306; -as pubic covering 39, 92, *N^os. 433—443, 121*; -on suspensory strings 144.
Calf, -bands 104, *N^os. 502—516, 124*; -index 348; -girth 348.
Calico, -as currency 94, 215; -as pubic covering 37, 94; red- 38, on graves 273, as mourning dress 81, 274.
Calophyllum inophyllum 52, 200.

Cannibalism 1, 169.
Canoes, see Boats
Canon 348.
Caps 37, 276; -of hair 64, *N°. 223, 109.*
Capsizing of boats 195, 202, 206.
Cardium, -as ornament *116*; -as scraper 8, *N°. 55, 25*; -as sinker 163.
Carrying, -bags 181; -children 316; -loads 178, 181, 182, 216, 277, 316; -shields 253.
Carvings, 5, 8, 12, 18, 21, 101, 102, 140, 146, 156, 163, 165, 174, 177, 189, 197, 199, 201, 202, 209, 241, 242, 244, 247, 248, 279, 283, 301, 307.
Cassowary, -bone 79; -eggs 147; -feathers 72, 307, *N^os. 275—287, 113*; -figure as ornament 66, 147, 201, *N°. 668, 212*; -hunting 159; -primaries 80, *N^os. 361—363, 117*; -skin 85, 305; -tarso metatarsus as dagger 241; -tibia as dagger 240.
Caulking of seams 199.
Caves as tombs 274.
Centre pole of temples 292, 294, 299, 300.
Ceraunia metallica 226.
Ceremonial staves 297.
Ceremonies, initial- 266; religious- 288; wedding- 74, 266, 268.
Chavica, *-betle* Miq 20; *-siriboa* Miq. 20.
Chewing of betel 4, 19, 22.
Chiefs 65, 127, 138, 154, 161, 167, 175, 177, 186, 220, 224, 255, 269, 278, 279, 281, 291, 294, 327.
Child-birth 269, 279.
Childhood 265.
Chinese, -beads 223; -bells 229; -glass rings 224—225; -navigation 223—225; -physiognomy 356; -pottery 223, 273.
Chisels 194, 233, *N^os. 702—703, 238.*
Chloromelanite 174, 225.
Chopsticks 6.
Cigars, cigarettes 18.
Circles as ornament 41, 284.
Circumcision 266, 294.
Clay, grey- 1, 52, 53, *N°. 228, 109*: red- 52, 235, 297, *N°. 208, 108*, in hair 56, 57, 235, 337, *N°. 209, 108*; -for pottery 9, 53, 235; yellow- 53, 235, *N°. 713, 238.*
Clearing the bush 177.
Climbing 316.
Clothing 35.
Clubs 241, *N^os. 738—739, 257.*
Clubhouses 145.
Coast people, characters 317, 343, 352.
Cock, "-'s comb" 57, 301, 334; -'s feathers 62.
Cocoa-nut, flesh of- 8, 154; milk of- 8, 13; -openers 8, *N^os. 57—61, 25*; -palms 177; sprouting- 8.
Cocoa-nut shell, -armlet 101; -cups 13; -ladles 13; -lime gourds 21; -spoons 5; -in war banner 254.
Coition 269.
Coix lacryma 107, *N^os. 528—531, 126.*
Colocasium antiquorum 8.
Combs, 6, 7, 65; -as amulets 67; bamboo- 66, *N^os. 233—243, 109*; composed- 68, *N^os. 244—258, 110*; palmwood- 69.
Commemoration of the dead 300.
Communication 214.
Community 162, 163, 167, 277; -houses 147, 256, 268, 279, 305; -treasury 220, 224, 278.
Conus, -as bells 107, *N^os. 525—527, 126*; as breast ornament 83, *N°. 380, 118*; -as currency 217; -disks 73, -for nose ornaments 76, *N^os. 310—311, 114*; -ringlets 79, 100, 103, *N°. 471, 123*; -wrist rings 103, *N°. 501, 124.*
Copper objects 225, 279, *N^os. 694—696, 230.*
Cord, see Twine.
Counting 320.
Covering, -during the night 36, 147; pubic- 36.
Crab as ornament 44, 286.
Cristae cutaneae 330.
Crocodile, bites from- 326; -as food 3; -hunting 158; -as ornament 22, 71, 145, 148, 213, 279, 281, 285, 301, 305, *N°. 559, 151*; -skin 305; -skulls 159.
Cuffs 98.
Culinary utensils 4, *N^os. 1—102, 23.*
Cultus of ancestors 302.
Cups, drinking- 13, *N°. 95, 28*; -with handle 13, 129, *N^os. 96—98, 28.*
Currency 215, 217; -beads 78, 82, 104, 186, 216, 218—223, *N^os. 681—692, 229.*
Cuscus, -hunting 159; -skin 79, 185, *N^os. 330—332, 115*, *N^os. 522—523, 126.*
Customs 265.
Cutting, hair- 60; -up a pig 2, 256, 297.
Cypraea annulus 83, *117, 118.*
Cyrena (*Batissa violacea*) 234, *N°. 710, 238.*

Daggers 5, 97, 240, 256, *N^os. 717—737, 257.*
Dancing 284, 308; -trees 159.
Dashes, tattooed- 42.
Dead, burying the- 270, 271; -in cages 271; commemoration of the- 300; depositing the- 273; drying the- 270; matting the- 271; squatting position of the- 271; -in tree trunk 272, 274.
Dendrolagus, fibula as nose peg *114.*
Dental length 340.
Dental troubles 339.
Derris elliptica 170.
Dingo 153.
Dioscorea 8.
Dip nets 165, *N°. 589, 171.*
Dishes, wooden- 12, *N^os. 82—86, 27*; China- on graves 273.
Dishonesty 318.
Disks on suspensory strings 144.
Diving, -when house building 138; -for molluscs 166, 337; -for turtles 169.
Dogs 129, 153; -as food 1, 154; hunting with- 153; -figure as ornament 11, 71, 144, 146, 148, 189, 209, 271, 285, *N^os. 560* and *563, 151*; -'skulls 154; -'teeth 106, 217.
"Donderschopjes" 226.
Drawings 285, 286.
Dress, -against climate 35; hair- 55; pubic- 37.
Drinking, -cups 15 *N^os. 96—99, 28*; -water 13, 14, 129; way of- 14.
Drums 279, 292, 289, 304, 309—311, *N^os. 1276—1290, 312*; bamboo- 305, *N^os. 1280—85, 312.*
Dug-outs 193.
Dwellings (see Houses), communal- 138; hill- 129; pile- 128.

Ear ornaments 78, *N^os. 322—369, 115.*
Earthenware, -pots for drinking water 13; -pots from Humboldt Bay 9, *N^os. 63—67, 25*, from Lake Sentáni 10, *N^os. 68—73, 26*; -on graves 273; -potsherd as fire place 8, 202.
Eatable earth 1, 53.
Echidna 209, 286.
Elasticity of the skin 330.
Enarmosis 341.
Epharmosis 341.
Epicanthus 356.
Excitability 317.
Eye 355, -brows 60, 337; -colour 356, -lashes 337; -as ornament 6, 195, 213, 284; -slit 355; -triangles 199.

Face, colour of- 330; measurements of- 354.
Family 276.
Fasting 299, 300.
Feasts 2, 8, 54, 70, 142, 157, 169, 245, 266, 268, 274, 280, 281, 289, 299, 300.
Feathers in the hair 62, *N^os. 219—220, 108.*
Feeling of shame 37.
Felling trees 177, 193, 217.
Femur, human- 361; -of pig 5.
Fences 299, -round gardens 154, 176; -round graves 247, 271; -round temples 164, 280, 294, 297; -round villages 142.
Ferns in the hair 62.
Festooning 91, 97, 104, 181.
Fibula 362.
Figures, wooden- 137, 148, 291, 299.
"Figure eight" stitch 37, 87, 88, 90, 96, 174, 178, 180—183, 185, 186, 188, 276; composite- 183.
Fingerrings 103.
Fire-arms 159, 215, 268, 320.
Fire place, -in boats 8, 202; -in houses 8, 34, 128, 132, 136, 142, 143, 147; -in temples 291, 300, 305.
Firewood 128, 136, 145, 158, 180.
Fish, -as food 3, 160; -figure 5, 12, 17, 22, 79, 145, 147, 148, 197, 201, 209, 233, 241, 271, 284, *N^os. 555—557, 150*; smoking of- 8; -eye as ornament 10, 41.
Fishing 153, 160; -arrows 166; -basket 168; -grates 167; -hooks 166, 168; -kites 171; -nets 160, 161, 163; -during night 166; -rights 163, 169; shark- 168; -spears 161, 165, 166, 168; turtle- 169; -weirs 167.
Fissurella as ornament *116.*
Floats of outriggers 194, 200, 206, 207.
Floaters on nets 160, 163, *N°. 578, 170.*
Flooring 128, 130, 139, 140, 147, 290, 291, 315, 316.
Flowers in the hair 63.
Flutes of bamboo 279, 288, 292, 294, 298, 299, 306, *N^os. 1291—1317, 313.*
Foot measurements 348.
Forehead, colour of- 330; -measurements 354; -or-

naments 64, 70, 72, *N^os. 266—295, 112*; -protection against arrows 74; -tattooing 41, 48.
Foreshaft of arrows 243.
Forgers 220.
Forks 6, 66, 97, *N^os. 41—46, 24*; -in wrapper 16.
Frog figure, tattooed 44.
Functions, physical- 315.
Furniture 127.
Fykes 169.

Gambir 20.
Games 265, 317.
Gardens 176, 177; working in- 254.
Get off a beach, to- 203.
Girdles 87, *N^os. 405—432, 120.*
Glass, -armlets 101, 224; -beads, see Beads; -bugles 80; -sherds 60, 327; -ringlets 80, 116.
Gnetum, bark fibres of- 112.
Goura Beccari Salv. 309; feathers of- 72, *N°. 290, 113*; hunting- 159.
Government 265, 278.
Graculus carbo figure as ornament 209.
Gratings above fire places 143.
Gratitude 317.
Graves 13, 158, 271—273.
Grey clay, -as pigment 53, *N°. 228, 109.*
Grinding on stone (filing), -beads 220; -boars' tusks 77; -chloromelanite 175; -seeds 108; -shell 79.

Habitations (see Houses) 127.
Hackling-sticks 8, 164, *N^os. 580—583, 170.*
Hair, -of beard 59, 337; -character 55, 331; -colour 56, 337; colouring- 56; -cutting 60; -diameters 336; -dress 55, 57, 297; -fringes 36, 64 *N^os. 221—222, 109*; -length 336; -mop 55, 59, 332; -as mourning 64, 274; microscopical study of- 338; -ornaments 61; palmleaves in- 63; -pins 7; -plaits 57, 59, *N°. 211, 108*; -of pubis; 337 pulling out- 59; -ringlets (spirals) 55, 332, 335; -shaving 55, 57, 60; torsion of the- 335; -tresses 57, 59, 332, 334, *N^os. 210—212, 108*; -tufts 56, 331—333; turning points in- 334; -wigs 63.
Halicore Dugong 169.
Hammers 174, 233, *N^os. 705—709, 238*; -for preparing bark 234, *N°. 712, 238.*
Hammerhead figure 272.
Hammocks 144.
Hand, -drums 305; -measurements 347; -nets 167.
Harness 86, *N^os. 402—403, 119.*
Harvest festival 177.
Hats 37.
Hatchets, stone- 174, 176, 194, 220, 234, 242, 267, *N^os. 603—619, 189.*
Head, -covering 36, 37; -measurements 353; -ornaments 58, *N^os. 208—265, 108*; -supports 144, 256, 300, *N^os. 542—553, 149.*
Heat and cold, endurance against- 317.
Helmets 70, *N^os. 262—263, 112.*
Herringbone pattern 88.
Hibiscus rosa sinensis, flowers of- 63.
Hibiscus tiliaceus, -bark 178, 180, 181; -leaves 16.
Hippopus 166.
Hornbill, see *Rhyticeros.*
Houses, arrangement of- 142; -of assembly 163; community- 163; construction of- 128, 135, 138; decorations of- 147, *N^os. 554—572, 150*; floor of- 128, 130, 139, 140, 147, 290, 291, 316; permanent- 128; roofs of-, see Roofs; temporary- 129, tree- 128; two-storied- 141; wall of- 128—130, 132, 136, 138, 140, 141, 290; women's- 147, 266.
Human figure, -on buildings 137, 255, 291, 299; -as ornament 12, 17, 21, 34, 67, 84, 137, 144—147, 255, 279, 291, 301—303, *N^os. 566—571, 151.*
Humerus 359.
Hunting 153; -arrows 157, 242, 243; dogs used in- 153; -ground 153; nets used in- 155, 159; snares used in- 154, 159.

Illness 326.
Imperata arundinacea 178.
Industry, 87, 179, 194, 216, 232; Chinese- 223.
Initial ceremonies 266.
Inocarpus edulis, fruit of- 8.
Intelligence 143.
Interdigitation, normal- of the teeth 341.
Interstitium between toes 350.

Jars, Chinese- on graves 223, 273.
Javelins 252, *N^os. 1249—60, 264.*
Jew's harps 303, *N^os. 1272—75, 312.*
Joy 318.
Juncaceae 179.

"Kain timor" 215, 268.
Kās or *khās* 224.
Kawa, Kial 14.
Kites for fishing 170.
Knitting laths 145, 188, *N^os. 649—652, 190.*
Knitting needles 180.
Knives, bamboo- 61, 233; bone- 5; metal- 5, 233, 238.
Knob, copper- 228, *N°. 696, 231.*
Korwārs 271, 275, 302.

Ladder 130, 132, 133, 135, 136.
Ladles 12, *N^os. 89—92, 27.*
Lagenaria 8.
Lances 153, 155, 242, 254—256, *N^os. 574—576, 160, N^os. 740—744, 257.*
Language 321.
Leech figure as ornament 10, 42.
Lean-tos 147.
Lefthandedness 253, 316, 317.
Leglets 103, *N^os. 502—516, 124.*
Leg measurements 348.
Letting-outs 183, 185, 186.
Lice 55, 56.
Lime 20; -boxes 22, *N^os. 206—207, 34;* burning- 22; -calabashes 20, 256, *N^os. 174—195, 33;* cocoa-nut shell as -gourd 21, *N^os. 196—200, 34;* -cylinders 22, *N^os. 201—204, 34;* -as pigment 5, 53, 56, 102, 210, 245.
Livistonia rotundifolia 235.
Loading capacity of boats 195, 196, 202.
Lofts 135, 141.
Loop, festooned- 97; -coils as ornaments 17, 241, 284; -shaped stitch 184, 241.
Lordosis 316.
Lorius Lory L., feathers of- *110.*
Lower jaw arch 340.

Macur, mamacur 224.
Mammae 352.
Man-catcher 242.
Mandible of *Rhyticeros* as ornament 80.
Maranta 15, *N°. 101, 29.*
Marches 217.
Markets 216.
Marriage, -ceremonies 74, 266—268, 311.
Massoia aromatica Becc. 15, 214, *N°. 102, 29.*
Mats 147
Meals 3, 4, 12, 176, 291; preparing- 8, 12, 291
Measurements of the living 343.
Megadontism 341.
Megapodius, -eggs 147; -hunting 159.
Melanesian 315, 317, 326, 328.
Melo diadema 91.
Mementoes 85, 246, 276, 286.
Memory 319.
Mental qualities 317.
Meshpins 165, 180, *N°. 585, 171.*
Mice 129, 143, 144.
Microglossus as ornament 211.
Mirrors 56.
Molluscs, -as food 3; diving for- 166; -as ornament 45, 285, 286.
Monopolies 89, 100, 101, 108, 283.
Monsoons 141, 216, 217, 281, 288, 298, 308, 319.
Moon 319.
Mop, mop-headed 55, 57, 59, 332.
Mosquitoes 147, 327.
Mother of pearl 73, 79, 80.
Mountaineers, characters of- 317, 343, 352.
Mourning, -ceremonies 274; -colour 52, 81, 275; -dress 37, 64, 81, 95, 100, 102, 274, 275; -tattooing 48, 275.
Moustache 60.
Mouth 357.
Murex as ornament 286.
Musa leaves, -as cigar wrapper 16, *N°. 107, 29;* -for perineal band 91.
Musical instruments 303.
Mycelium 16, 86, 90, 99, 100, 120.

Nails 331.
Nakedness 35, 37, 39.
Nañgí as tattooing ornament 45.
Nassa 72.
Náturará as tattooing ornament 47.
Navigation 193; Chinese- 223, 228; Malay- 214, 215, 228.
Neck, -length 351; -ornaments, 4, 81, 219, *N^os. 370—393, 117.*
Needles 184, *N°. 653, 192.*
Nephrite, see Chloromelanite
Nets 169; dip- 161, 165, *N°. 589, 171;* hand- 167;

encircling- 160, 163, 280, *N°. 577, 170*; hunting- 155, 159; manufacture of- 165; repairing of- 166.
Netting needles 165, *Nos. 586—588, 171.*
New Year 281, 308, 319.
Nipa husk as floater 163.
Nomads 126, 127.
Nose, -form 356; -measurements 355; -ornaments 74, *Nos. 296—321, 114.*
Novices in temples 56, 57, 97, 129, 164, 293, 294, 296—298, 307, 311.

Occlusion, line of- of the teeth 341.
Oceanic Negroes 315.
Orientation 319.
Ornaments, burnt-in- 20; various- 106, *Nos. 517—532, 125.*
Ornamental art 283.
Ornamental, -poles 271, 298, 299; -staves 281, 290, 298.
Ornamented poles 299.
Osteological characters 357.
Outhouses 136, 141.
Outriggers 194, 200, 206, 207.
Oven, sago- 10, *N°. 74, 26.*
Ovula ovum 107, *N°. 524, 126.*

Paddlers 195, 197, 202, 207, *Nos. 669—677, 212.*
Paddling 195, 196, 203.
Pain, endurance of- 317.
Painting the skin 51.
Palm leaves 130, 134, 157, 158, 177, 178, 198.
Palmwood, -arrow heads 243; -bows 246; -combs 67, 68; -hackling sticks 164; -lances 155; -piles 139.
Pandanus, -leaves for baskets 198, as cigar wrapper 16, for roofs 129, for sails 204; -aërial root fibres 8, 100, 101, 164, *N°. 579, 170.*
Papuans 315.
Papuasians 315.
Paradisea minor Shaw, -on comb 69; -hunting 159.
Parinarium laurinum 200.
Parotide region 357.
Patella as ornament *116.*
Paths 217.
Pattern, -of apron 96; -of bands 80, 82, 86, 103—105; -of bandoliers 86; -of borders (bindings) 16, 82, 96, 181, 187; -of festooning 91, 97; herringbone- 88; interlooping- 17; -of plaiting 17, 83, 88, 104, 105; -of slings 181, 188; -of stitches 37, 87, 96, 183—187.
Peacemaking 256, 276.
Pediculus capitis 55, 65, 109.
Percussion caps, holder for- 159, *N°. 573, 160.*
Perineal bands 91, 266, *Nos. 431—432, 121.*
Perspiration 331.
Petaurus figure as ornament 93, 285.
Petticoats, back- 37, 94, 268, *Nos. 444—449, 122*; calico- 94, 236; -of leaves 94; woven- 236.
Phalanger maculatus, skin of- 107, *110*, *N°. 289, 113.*
Physical functions 315.
Physiognomy 355.
Pig (see Boar), cutting up a- 2, 256, 297; -as food 2; -under the houses 129, 137, 158; -figure as ornament 148, *Nos. 561—562, 151*; -rearing 158; -styes 158; -trade 158, 216, 220.
Pigments 52, 245.
Piper, *-betle* L. 20; *-methysticum* 14; *-siriboa* L. 20.
Pipes, tobacco- 18, *Nos. 169—171, 32.*
Pitfalls 155.
Plaits of hair 57, 59, *N°. 211, 108.*
Plaiting 17, 83—85, 88, 100, 104, 105, 178, 180, 232.
Platforms, -on boats 161, 194, 201, 204, 206, 207; -for fishing 166; -of houses 130, 132, 133, 138, 141, 142, 158, 203, 206, 255, 281, 315; -of villages 142, 157, 161, 206, 281, 310, 311.
Plectranthus, leaves of- *N°. 339 a, 119.*
Plexaura Antipathes 99, 102.
Polygamy 269.
Pots, see Earthenware.
Pot, -sherds 8, 53, 103, 202; -supports 11, *Nos. 75—79, 26.*
Pottery 9, 215, 235; Chinese- 223.
Preparation of food 8, 12.
Prepared bark, see Bark.
Preparing, -bark 234, *Nos. 710—712, 238*; -sago 172.
Presents 243, 317, 318.
Preservation, -by smoke 143, 144, 246, 256; -against vermin 143, 144.
Prisoners 224, 254, 278, 317.
Property 11, 162, 172, 193, 269.
Prosarmosis 340.
Prows, ornamental- 204, 207, 208, *Nos. 658—667, 212.*
Pteroceras 286.
Pteropus, -hunting 159; phalanges of- 80, 184; -figure as ornament 93, 284.

Pubic covering 37—39, 91—97, 236, 294.
Public Exchequer, see Community treasury.
Pueraria novoguineensis 180.
Pulling 316; -the bowstring 250; -out the hair 59.
Pulse 342.
Pumice stone 60, *N°. 218, 108.*
Pushing 316.
Pygmies 327, 351.
Pyramid-shaped roofs 134, 255.

Quarrels 318.
Quartzite for clubheads 241.
Quills as ornaments 16.

Radius 360.
Raids 14, 344.
Railings of boats 201, 207.
Ransom for prisoners 224, 254, 278.
Rasps 233.
Rattan, -armlets 98; -headdresses 71; -pot supports 11; -ropes 139, 205.
Rattles 104, 309; -on houses 142; -for shark fishing 168, *N°. 594, 171.*
Ray, -as food 268; -figure as ornament 10; -skin as rasp 233; -spine as arrow tip 244.
Red pigment 52.
Religion 287.
Resin 53, 84, 200, 306, *N°s. 224—225, 109.*
Respiration 343.
Rhyticeros plicatus Forst., -feathers 16, 62, *109, 110, 112*; -hunting 159; -mandible as ornament 80, *N°s. 351—352, 116*; -figure as ornament 43, 145, 201.
Righthandedness 97, 241, 253, 316, 317.
Rings of glass (*kās*) 224.
Ringlets, glass- 79, 80; hair- 332.
Roofs, eightsided- 134, 255, 290; foursided- 134, 141, 255, 279, 290; -with horizontal ridge 128—130, 137, 279, 300; leaves for- 128, 129, 134, 138; pyramid-shaped- 133, 255, 290; "missigit"- 279, 301; saddle-shaped- 137; turtle-shaped- 132, 302.
Ropes of boats 205.
Rum sĕram 129, 133, 145, 265, 287, 295, 301.

Saccharum officinarum 8, 318.
Sago 4, 8, 216, 220; -baskets 4, 297, 298, 300, *N°. 1, 23*; -cakes 4, 10; -clubs 172, 175, 234, *N°s. 595—598, 189*; -forests 172; -leaves 128, 148, 174, *N°. 602, 189*; -oven 10, *N°. 74, 26*; -porridge 4, 6, 9, 11, 316; preparing -172; -strainers 174, *N°s. 599—601, 189.*
Sagueir 14.
Sagus Rumphii, seeds of- *120.*
Sailing 203.
Salt 15.
Saluting 276.
Sapotaceae, seed of- as ornament 106.
Sassafras goesianum 15.
Sawfish, -figure 10, 209, 271; saw of- 148, *N°. 554, 150.*
Scabbards 241, *N°s. 720, 727, 728* and *732, 257.*
Scapula 359.
Scars 326; -as ornaments 40, 49; -from crocodile bites 326.
Scrapers 5, 232, 234, 245; boar's tusks as- 78, 232, *N°s. 699—700, 237.*
Scratchers 3, 7, 55, 65, *N°. 232, 109.*
Scrub itch 328.
Sea water 15.
Seclusion, -of boys 142, 293; -of girls 266.
Seed rings 74, 82, 101, 105, 107, *120, N°. 532, 126.*
Separations 270.
Sexual, -emotions 39; -intercourse 266, 269.
Shaking hands 316.
Shame, feeling of- 37.
Shamfight 196.
Sharks 168, 319; -as ornament 169, 209, 272; rattles for- 168; skin of- 305.
Shaving 57, 60, 233, 268, 274; -with bamboo 61.
Sheds, 158, 176, 217.
Shells, -as bells 107; -burned for lime 22; figures of- 45, 286; -for hooks 166; -for ornaments 73, 74, 76, 79, 84, 103, 106, 107; -as musical instruments 298, 307, 308; -as pubic covering 91; -as scrapers 8, 234.
Shields 251, 253, 280, *N°s. 1261—67, 264.*
Side-boards of boats 194, 198, 199.
Sieves for liquids 14.
Singing 157, 267, 274, 298, 308, 317, 318; -when saluting 276.
Sinkers on nets 160.
Siri 4, 20, 22, 186.
Sitting on a canoe 196.

Skin (human), -colour 328; -disease 327; -elasticity 330; -painting 51; -tattooing 40, 48, 275; -washing 51; scars of the- 40, 49, 326.
Skull, cultus of the- 302; measurements of a- 358.
Slaves 254, 269; slave trade 214.
Sleeping 144; -frames 36, 128, 129, 132, 147; -hammocks 144.
Smith, -'s calling 3; -'s craft 237.
Smoking, -apparatus 8, *N°. 62, 25*; -cigars 18; -fish 8; -meat 2; -pipes 18.
Snails 3.
Snakes, -as food 3; -as ornaments 11, 22, 70, 145, 146, 177, 201, 213, 245, 285; skin of- 77, 305.
Sobriety 13.
Somatic characters 328.
Soot, -as pigment 12, 49, 53, 56, 84; -cylinders 53, *Nos. 226—227, 109*.
Sorrow 52, 318.
Spades 271.
Span of arms 345.
Spatulas, lime- 5, 22; stirring- 12, *N°. 88, 27*.
Spears for fishing 161, 165, 166, 168, 252, *Nos. 590—592, 171, Nos. 1249—60, 264*.
Spirals as ornaments 241, 284.
Spirits 290, 297—299, 300.
Spoons, -of cocoa-nut shell 5, *Nos. 2—28, 23*; -of bone 5, 97, *Nos. 29—40, 23*; scooping- 12, *Nos. 89—92, 27*.
Squatting 55, 277, 315, 317; -position of the dead 271.
S-shaped ornament 228.
Stagings, -for boats 206; fishing- 167, 252.
Standing, -height 343, 352; -position 316.
Stitches 37, 87, 96, 179, 181, 183—187.
Stone, -clubs 241; -hammers 235; -hatchets 174, 194, 220, 234, 242, 267; -sago clubs 172, 175, 234; -underlayer 234, *N°. 711, 238*.
Strangers, treatment of- 100, 265, 276, 278, 280, 318.
String, to- a bow 247.
Strombus maximus 308, *N°. 1318, 314*.
Stupefying fish 170.
Suicide 318.
Sun 319.
Suspensory hooks 143, *Nos. 533—541, 148*.
Sweet-scented leaves 69, 81, 86, 110, 119, 185, 277.
Swimming 193, 316.
Swords 240, 242.
Sympathy 317.
System of enumeration 321.

Tabu 142, 177, 294, 304.
Taking-ins 185, 187.
Talismans 148, 303.
Talismanic meaning of prows 208.
Taro 8.
Tattooing 40; -as mourning 48, 275.
Tears 318.
Teeth 339.
Temples 142, 157, 165, 287; centre pole of- 292; construction of- 290; fence round- 164, 280, 294, 297; novices in- 56, 57, 97, 129, 164, 293, 294, 296—298, 307, 311; platforms of- 142, 290; watch in- 255, 293.
Theft 142, 318.
"Thunder-spades" 226, *Nos. 694—695, 230*.
Thrombidium van der Sandei Oudms. 328.
Tibia 361; -of cassowary 240; -of pig 5, 97.
Tidore 215.
Tifas 305.
Tilling the soil 176.
Time, calculating- 319.
Tinder boxes 19, *Nos. 172—173, 32*.
Tinea imbricata 41, 75, 327, 331.
Tissues 236.
Tobacco 15, 19, 215; -bags 16, *Nos. 642—645, 191*; -baskets 16, 179, *Nos. 108—112, 29*; -cylinders 17, 305, *Nos. 113—168, 30*; -pipes 18, *Nos. 169—171, 32*; -pouches 16, *Nos. 103—106, 29*.
Toes 350.
Tombs 271.
Tongs for eating 6, *Nos. 47—54, 24*.
Top 265, *N°. 1269, 282*.
Torches 166.
Totemism 3, 48.
Trade 214; Ceram- 214; Chinese- 223; coasting- 215; -with the interior 216; -mark 52; Ternatian- 15, 215.
Traps, -for fish 168, *N°. 593, 171*.
Tree trunks, -for canoes 193; -as ladders 130—133, 135—136; -as tombs 272, 274.
Tresses of hair 57, 59, 332, 334, *N°. 210, 108*.
Triangles, as ornaments 284, 286.
Trichoglossus cyanogrammus Wagl., feathers of- *111*.
Tridacna 74, *114*, 166.

Triton variegatum Lam. 307, *Nos. 1319—20, 314.*
Trochus niloticus 79, 100, *115*, *123*, 268.
Trunk, measurements of- 351.
Tuba 170.
Tubes of bamboo in the hair 58, 69, *Nos. 213—217, 108.*
Tufts of hair 56, 331—333.
Turbo, -marmoratus L. *108*; *-olearius* 73, *N°. 295, 114.*
Turning points of the hair 334.
Turtle, catching- 169; -eggs as food 3, 169, as ornaments 4, 169, 272.
Turtle shell, -armlets 100; -chains 80; -ear rings 79; -nose rings 78; -for trade *N°. 680, 229.*
Twilling stitch 187.
Twine, -for bags 180; fibres for- *112*, *113*, 164, 180, 181, 185, 205; -for hackling stick 164, *N°. 584, 170;* manufacture of- 164; four-, five- and seven-stranded- *Nos. 584, 581* and *580, 170.*

Ulna 360.
Uncaria gambir Roxb. 20.
Unstable equilibrium in *īsja* 195.
Unstringing a bow 248.
Upper jaw arch 340.
Upper limb, measurements of- 346.
Varanus, -figure as ornament 148, 271; -skin 305.
Vegetable food 4, 172.
Ventilation 140.
Verandahs 130, 132, 134, 141.
Vermin, to kill- 65; protection against- 143.
Vessels, wooden- 11, *N°. 80, 27.*
Villages, arrangement of- 141; stockaded- 142.
Visits 308.

Waist, -belts 87, *Nos. 405—428, 120*; -girth 351.
Walking 217, 316.
War 89; -banner 254, *N°. 1268, 264*;- breast shields 83, *Nos. 388—391, 118*; -colour 54; -dress 72, 83; -fare 242, 254.
Wărĕpu, -paddle 202, *N°. 675, 213*; -pole 299.
Watch 255, 293, 301; -houses 12, 21, 56, 57, 79, 137, 138, 148, 158, 196.
Water, -in bamboos 14; -buckets 13, 129, 272, *N°. 93, 28*; drinking- 13; way of -drinking 13; sea- 4, 15.
Wax 84, 306.
Weaving, -frame 237, *N°. 716, 239*; -industry 236.
Wedding ceremony 267.
Weeping 276, 318; -over brides 267; -over deceased 274.
Weight of the body 352.
Whale bone armlet 102, *N°. 496, 124.*
Whetstones 79, 108, 175, 233, *N°. 704, 238.*
White pigment 52, 53.
Widows 267, 274; -caps 37, 276; lamenting- 273, 274; -hired as weepers 268, 274.
Wigs 55, 58, 63, 274, *Nos. 221—223, 109.*
Windows 132, 140.
Women, -'s bags 180; -'s boats 138, 195, 206; capture of- 266; -carriers 154, 216; -'s houses 147, 266; married- 269; purchase of- 266.
Wooden, -armlets 98, 101; -beaters 235; -dishes 12; -figures 147; -hackling sticks 8, 164; -hammers 233; -head ornaments 36, 70; -laths for bag-knitting 145, 188; -vessels 11.
Wrappers, cigar- 16.
Wrist bands 102, *Nos. 497—501, 124.*

Yams 8.
Yellow clay, -as pigment 53, 209; -for pots 53, 235, *N°. 713, 238.*
Young men's-houses 142, 255, 299, 301.
Youngsters, see Novices.

Zigzag lines as ornaments 284.
Zoöcnas Westermanni Schleg., feathers of- 62, 109.

DESCRIPTION OF PLATES.

(The ciphers in ordinary print refer to the pages of the text, the numbers and ciphers in italics refer to the catalogue divisions).

PLATE I.

Fig. 1 eating tongs 7.
„ 2 fork 6, *N°. 44, 24.*
„ 3 „ 6, „ *41, 24.*
„ 4 eating tongs 7, „ *51, 24.*
„ 5 „ „ 7, „ *54, 24.*
„ 6 fork 6, „ *46, 24.*
„ 7 „ 6, „ *45, 24.*
„ 8 eating tongs 6, „ *48, 24.*
„ 9 „ „ 7, „ *52, 24.*
„ 10 „ „ in cylinder 7, „ *49, 24.*
„ 11 spoon 5, „ *31, 23.*
„ 12 „ 5, „ *15, 23.*
„ 13 „ 5, „ *2, 23.*
„ 14 „ 5, „ *38, 24.*
„ 15 smoking apparatus 8, „ *62, 25.*
„ 16 spoon 5, „ *34, 23.*
„ 17 „ 5, „ *11, 23.*
„ 18 „ 5, „ *39, 24.*
„ 19 cocoa-nut opener 8, „ *57, 25.*
„ 20 „ „ „ 8, „ *56, 25.*
„ 21 basket with sago 4, „ *1, 23.*
„ 22 pot from Lake Sentáni 10, „ *71, 26.*
„ 23 „ „ „ „ 10, „ *70, 26.*
„ 24 sago oven 10, „ *74, 26.*
„ 25 pot from Lake Sentáni 10, „ *68, 26.*

PLATE II.

Fig. 1 pot from Humboldt Bay 9, *N°. 63, 25.*
„ 1a ornament of „ *63, 25.*
Fig. 2 pot from Humboldt Bay 9, *N°. 65, 25.*
„ 2a ornament of „ *65, 25.*

PLATE III.

Fig. 1 calabash for liquids 13, *N°. 94, 28.*
„ 2 vessel 11, „ *81, 27.*
„ 3 water ladle 14, „ *99, 29.*
„ 4 „ „ 13, „ *96, 28.*
„ 5 „ „ 13, „ *97, 28.*
„ 6 „ „ 14, „ *98, 29.*
Figs. 7, 7a scooping spoon 12, „ *91, 28.*
Fig. 8 „ „ 12, „ *90, 28.*
„ 9 stirring spatula 12, „ *88, 27.*
„ 10 pot support 11, „ *79, 26.*
„ 11 „ „ 11, „ *78, 26.*
„ 12 „ „ 11, „ *75, 26.*
„ 13 dish from Lake Sentáni 12, „ *83, 27.*
„ 14 „ „ „ „ 12, „ *85, 27.*
„ 15 „ „ „ „ 12, „ *86, 27.*
„ 16 „ „ „ „ 12, „ *82, 27.*
„ 17 basket 12, „ *87, 27.*
„ 18 water-bucket 13, „ *93, 28.*

PLATE IV.

Fig. 1 tobacco cylinder 17, *N°. 126, 30.*
„ 2 „ „ 17, „ *124, 30.*
„ 3 „ „ 17, „ *121, 30.*
„ 4 „ „ 17, „ *119, 30.*
„ 5 „ „ 17, „ *114, 30.*
„ 6 „ pouch 16, „ *104, 29.*
„ 7 „ basket 16, „ *111, 30.*

Fig. 8	tobacco basket	16,	*N°.*	*112, 30.*
„ 9	„ „	16,	„	*109, 29.*
„ 10	„ cylinder	17,	„	*155, 31.*
„ 11	„ „	17,	„	*149, 31.*
„ 12	„ „	17,	„	*140, 31.*
„ 13	„ „	17,	„	*139, 31.*
„ 14	„ „	17,	„	*138, 31.*
„ 15	„ „	17,	„	*133, 30.*
„ 16	„ „	17,	„	*130, 30.*
„ 17	lime calabash	21,	„	*205, 34.*
„ 18	tobacco cylinder	17,	„	*127, 30.*
„ 19	lime „	22,	„	*203, 34.*
„ 20	„ gourd	21,	„	*200, 34.*
„ 21	„ „	21,	„	*199, 34.*
„ 22	„ „	21,	„	*198, 34.*
„ 23	„ calabash	20,	„	*193, 33.*
„ 24	pin of lime calabash	21,	„	*195, 34.*
„ 25	lime calabash	20,	„	*185, 33.*
„ 26	„ „	20,	„	*181, 33.*
„ 27	„ „	20,	„	*178, 33.*
„ 28	„ „	20,	„	*174, 33.*
„ 29	tinder box	19,	„	*172, 32.*
„ 29[a]	piece of porcelain to		„	*172, 32.*
„ 30	tobacco pipe	19,	„	*171, 32.*
„ 31	„ „	19,	„	*169, 32.*
„ 32	„ cylinder	17,	„	*168, 32.*
„ 33	„ „	17,	„	*167, 32.*
„ 34	„ „	16,	„	*166, 32.*
„ 35	pin of lime calabash	21,	„	*177, 33.*

PLATE V.

Figs. 1, 1[a]	tobacco cylinder	17, *N°.*	*136, 31.*
Fig. 2	lime cylinder	22, „	*204, 34.*
„ 3	tobacco „	17, „	*153, 31.*
„ 4	„ „	17, „	*144, 31.*
„ 5	„ „	17, „	*159, 32.*
„ 5[a]	ornament of	„	*159, 32.*
„ 6	tobacco cylinder	17, „	*165, 32.*
Figs. 6[a], 6[b]	ornament of	„	*165, 32.*

PLATE VI.

Fig. 1	lime calabash	20, *N°.*	*175, 33.*
„ 1[a]	ornament of	„	*175, 33.*
„ 2	lime calabash	20, „	*192, 33.*
„ 2[a]	ornament of	„	*192, 33.*
„ 3	lime calabash	20, „	*179, 33.*
Fig. 3[a]	carved pin of	*N°.*	*179, 33.*
Figs. 4, 4[a]	lime calabash	20, „	*186, 33.*
Fig. 5	lime box	22, „	*206, 34.*
„ 5[a]	plaited ornament of	„	*206, 34.*
„ 6	red clay	52, „	*208, 108.*
„ 7	hair tube	58, „	*214, 108.*
„ 7[a]	ornament of	„	*214, 108.*

PLATE VII.

Fig. 1	composed comb	68, *N°.*	*254, 111.*
„ 2	„ „	68, „	*248, 111.*
„ 3	„ „	68, „	*244, 110.*
„ 4	bamboo „	66, „	*238, 110.*
„ 5	„ „	66, „	*237, 110.*
„ 6	„ „	66, „	*235, 109.*
„ 7	„ „	66, „	*236, 110.*
„ 8	scratchers	65, „	*232, 109.*
„ 9	red clay in shell	53, „	*209, 108.*
„ 10	hair tress	57, 333, „	*210, 108.*
„ 11	hair plait	59, „	*211, 108.*
„ 12	hair tress	61, „	*212, 108.*
„ 13	hair fringe	64, „	*221, 109.*
„ 14	cap of hair	65, „	*223, 109.*
„ 15	head ornament	70, „	*259, 111.*
„ 16	composed comb	68, „	*246, 110.*

PLATE VIII.

Figs. 1, 1[a]	bamboo comb	68, *N°.*	*243, 110.*
Fig. 2	brow band	72, „	*288, 113.*
„ 3	composed head feather	62, „	*220, 109.*
Figs. 4, 4[a], 4[b]	bamboo comb	68, „	*242, 110.*
„ 5, 5[a]	brow band	73, „	*291, 113.*
Fig. 6	composed head feather	62, „	*219, 108.*
„ 7	„ comb	69, „	*258, 111.*

PLATE IX.

Figs. 1, 1[a]	forehead ornament	71, *N°.*	*271, 112.*
Fig. 2	„ „	71, „	*268, 112.*
Figs. 3, 3[a]	„ „	71, „	*273, 113.*
Fig. 4	bandolier	86, „	*400, 119.*
„ 5	bamboo comb	68, „	*241, 110.*
Figs. 6, 6[a]	forehead ornament	71, „	*276, 113.*
Fig. 7	head ornament	70, „	*265, 112.*
„ 8	„ „	70, „	*264, 112.*
„ 9	forehead ornament	71, „	*267, 112.*

PLATE X.

Fig. 1 head ornament 70, *N°*. *260*, *112*.
„ 2 forehead „ 72, „ *272*, *113*.
„ 3 „ „ 72, „ *287*, *113*.
„ 4 „ „ 71, „ *275*, *113*.
„ 5 head „ 70, „ *262*, *112*.
„ 6 „ „ 70, „ *263*, *112*.
„ 7 forehead „ 72, „ *277*, *113*.
„ 8 „ „ 72, „ *290*, *113*.

PLATE XI.

Fig. 1 ear ornament 79, *N°*. *359*, *116*.
„ 2 forehead ornament 73, „ *293*, *114*.
„ 3 ear ring 79, „ *344*, *114*.
„ 4 nose peg 76, „ *303*, *114*.
„ 5 „ „ 76, „ *302*, *114*.
Figs. 6, 6[a], 6[b] neck ornament 83, „ *384*, *118*.
Fig. 7 composed ornament 106, „ *519*, *125*.
„ 8 car „ 80, „ *353*, *116*.
„ 9 „ „ 80, „ *366*, *116*.
„ 10 ornament 106, „ *520*, *126*.
„ 11 car ornament 88, „ *350*, *116*.
„ 12 forehead „ 71, „ *269*, *112*.
„ 13 armlet 100, „ *476*, *123*.
„ 14 forehead ornament 71, „ *266*, *112*.

PLATE XII.

Fig. 1 nose (or ear) pegs 76, *N°*. *306*, *114*.
„ 2 nose peg 76, „ *309*, *114*.
„ 3 „ „ 76, „ *307*, *114*.
„ 4 car ornament 79, „ *327*, *115*.
„ 5 „ „ 79, „ *324*, *115*.
„ 6 „ „ 79, „ *322*, *115*.
„ 7 „ „ 79, „ *325*, *115*.
„ 8 „ „ 79, „ *329*, *115*.
„ 9 „ „ 79, „ *328*, *115*.
„ 10 forehead ornament 73, „ *294*, *114*.
Figs. 11[a], 11[b] ear „ 79, „ *323*, *115*.
Fig. 12 „ „ 80, „ *354*, *116*.
Figs. 13[a], 13[b] „ „ 79, „ *349*, *116*.
Fig. 14 nose ornament 76, „ *311*, *115*.
„ 15 ear „ 80, „ *369*, *117*.
„ 16 „ „ 80, „ *352*, *116*.
„ 17 „ „ 80, „ *363*, *117*.
„ 18 neck band 81, „ *370*, *117*.
Fig. 19 neck band 81, *N°*. *371*, *117*.
„ 20 nose and breast ornament 76, 77, „ *321*, *115*.

PLATE XIII.

Fig. 1 neck ornament 83, *N°*. *380*, *118*.
„ 2 bandolier 85, „ *397*, *119*.
„ 3 necklace 82, „ *375*, *117*.
„ 4 neck ornament 83, „ *383*, *118*.
„ 5 „ „ 82, „ *385*, *118*.
„ 6[a] breast shield, front 84, „ *389*, *118*.
„ 6[b] „ „ back 84, „ *389*, *118*.
„ 7 bandolier 86, „ *399*, *119*.
„ 8 forehead ornament 82, „ *379*, *118*.
„ 9 neck ring 81, „ *378*, *117*.

PLATE XIV.

Figs. 1, 1[a] breast ornament 84, *N°*. *392*, *119*.
Fig. 2 neck and breast ornament 82, „ *386*, *118*.
„ 3 girdle 92, „ *432*, *121*.
„ 4 calf band 104, „ *510[a]*, *125*.
Figs. 5, 5[a] calf band 104, „ *509*, *125*.

PLATE XV.

Figs. 1, 2 house ornament 148, *N°*. *572*, *152*.
„ 3, 3[a] breast „ 83, „ *387*, *118*.
Fig. 4 penis calabash 93, „ *433*, *121*.
„ 5 „ „ 93, „ *437*, *121*.
„ 5[a] ornament of „ *437*, *121*.
„ 6 calf band 104, „ *510[b]*, *125*.

PLATE XVI.

Fig. 1 harness 86, *N°*. *403*, *119*.
„ 2 „ 86, „ *402*, *119*.
„ 3 girdle or bandolier 86, „ *404*, *119*.
„ 4 girdle 88, „ *405*, *120*.
„ 5 armlet 100, „ *461*, *122*.
„ 6 „ 99, „ *456*, *122*.
„ 7 girdle 88, „ *412*, *120*.
„ 8 „ 88, „ *416*, *120*.
„ 9 armlet 99, „ *457*, *122*.
„ 10 „ 100, „ *467*, *123*.
„ 11 penis calabash 93, „ *435*, *121*.
„ 12 „ „ 93, „ *436*, *121*.
„ 13 knitted apron 96, „ *451*, *122*.
„ 14 armlet 102, „ *495*, *124*.
„ 15 „ , being made 100, „ *464*, *123*.
„ 16 wrist band 101, „ *493*, *124*.

Fig. 17 armlet 100, *N°. 475, 123.*
„ 18 whale bone armlet 102, „ *496, 124.*
„ 19 girdle 90, „ *421, 120.*
„ 20 armlet 101, „ *494, 124.*
„ 21 „ 101, „ *491, 124.*

PLATE XVII.

Fig. 1 calf band 104, *N°. 502, 124.*
„ 2 „ „ 105, „ *516, 125.*
„ 3 „ „ 104, „ *504, 124.*
„ 4 „ „ 104, „ *508, 125.*
„ 5 wrist ring 103, „ *501, 124.*
„ 6 „ band 102, „ *499, 124.*
„ 7 *Conus* bell 107, „ *525, 126.*
„ 8 wrist band 102, „ *497, 124.*
„ 9 calf „ 104, „ *505, 125.*
„ 10 „ „ 105, „ *515, 125.*
„ 11 suspensory hook 144, „ *537, 149.*
„ 12 „ „ 144, „ *534, 148.*
„ 13 „ „ 144, „ *535, 148.*
„ 14 „ „ 144, „ *536, 149.*
„ 15 ornamented fruit kernels 106, „ *521, 126.*
„ 16 ball of *Cuscus* skin 107, „ *522, 126.*

PLATE XVIII.

Figs. 1[a], 1[b] head support 145, *N°. 543, 149.*
„ 2[a], 2[b] „ „ 145, „ *542, 149.*
„ 3[a], 3[b] „ „ 146, „ *549, 150.*
Fig. 4 human figure 148, „ *570, 152.*
„ 5 „ „ 148, „ *571, 152.*
Figs. 6[a], 6[b] head support 146, „ *550, 150.*
Fig. 7 „ „ 146, „ *552, 150.*
„ 8 „ „ 147, „ *553, 150.*
„ 9 „ „ 146, „ *548, 150.*
„ 10 suspensory hook 144, „ *539, 149.*
„ 11 „ „ 144, „ *540, 149.*

PLATE XIX.

Figs. 1, 1[a] human figure 148, *N°. 567, 151.*
Fig. 2 „ „ 148, „ *568, 152.*
„ 3 dog's „ 148, „ *560, 151.*
„ 4 „ „ 148, „ *563, 151.*
„ 5 pig's „ 148, „ *561, 151.*
„ 6 „ „ 148, „ *562, 151.*
Figs. 7, 7[a] human „ 148, „ *566, 151.*
Fig. 8 bird's „ 148, „ *565, 151.*
„ 9 crocodile's „ 148, „ *559, 151.*

PLATE XX.

Fig. 1 cord bag 179, 183, *N°. 633, 190.*
„ 2 sago strainer 174, „ *599, 189.*
„ 3 „ „ 174, „ *601, 189.*
„ 4 cord bag 183, „ *636, 191.*
„ 5 „ „ 181, „ *628, 190.*
„ 6 rattle (fishery) 168, „ *594, 177.*
„ 7 sago club 173, „ *598, 189.*
„ 8 stone hatchet 174, „ *618, 189.*
„ 9 floater 163, „ *578, 170.*
„ 10 plaited basket „ *624, 190.*
„ 11 „ „ 179, „ *625, 190.*
„ 12 sago „ „ *620, 189.*
„ 13 plaited „ 178, „ *622, 190.*
„ 14 dip net 166, „ *589, 171.*
„ 15 netting needle 165, „ *587, 171.*
„ 16 hackling stick 164, „ *580, 170.*
„ 17 meshpin 165, „ *585, 171.*

PLATE XXI.

Fig. 1 cord bag, being made 183, *N°. 648, 192.*
„ 2 cord bag 187, „ *644, 192.*
„ 3 „ „ 186, „ *642, 192.*
„ 4 needle 184, „ *648, 192.*
„ 5 knitting lath 145, 188, „ *650, 192.*
„ 6 „ „ 145, 188, „ *652, 192.*
„ 7 „ „ 145, 188, „ *651, 192.*
„ 8 „ „ 145, 188, „ *649, 192.*
„ 9 cord bag, being made 180, („ 648[a]).
„ 10 cord bag 187, „ *645, 191.*
„ 11 *Pteropus* phalang 184, „ *653, 192.*

PLATE XXII.

Fig. 1 paddle 197, *N°. 672, 213.*
„ 2 „ 197, „ *670, 213.*
„ 3 „ 202, „ *674, 213.*
„ 4 „ 202, „ *675, 213.*
„ 5 „ 202, „ *673, 213.*
„ 6 ornamental prow 210, „ *662, 212.*
„ 7 boat ornament 201, „ *668, 212.*
„ 8 ornamental prow 210, „ *665, 212.*
„ 9 „ „ 210, „ *663, 212.*
„ 10 stern ornament 210, „ *664, 212.*
„ 11 boat model 199, „ *654, 211.*

PLATE XXIII.

Fig. 1 stuffed fish skin 148, *N°. 556, 150.*
„ 2 fish figure 148, „ *557, 151.*
Figs. 3, 3[a] ornamental prow 209, „ *659, 211.*
„ 4, 4[a] „ „ 209, „ *660, 211.*
Fig. 5 currency bead 218, „ *681, 229.*
„ 6 „ „ 218, „ *682, 229.*
„ 7 „ „ 218, „ *683, 229.*
„ 8 „ „ 218, „ *685, 230.*
Figs. 9[a], 9[b] currency bead 218, „ *687, 230.*
„ 10[a], 10[b] „ „ 218, „ *688, 230.*
Fig. 11 „ „ 218, „ *689, 230.*
Figs. 12, 13 „ „ 218, „ *690, 230.*
„ 14, 15[a], 15[b] „ „ 218, „ *692, 230.*
„ 16, 16[a], 16[b], 16[c] glass ring 224.

PLATE XXIV.

Fig. 1 knob-shaped copper object 228, *N°. 696, 231.*
„ 2 copper thunder spade 227, „ *694, 230.*
„ 3 „ „ „ 227, „ *695, 231.*
„ 4 „ „ „ 228, (N°. 1560).
„ 5 „ „ „ 228, („ 1561[c]).
„ 6 „ „ „ 228, („ 1561[f]).
„ 7 section of glass bead 219, *N°. 375, 117.*
„ 8 „ „ „ „ 218, (N°. 5553).
„ 9 basket for beads 219, *N°. 693, 230.*
„ 10 knife 233, „ *701, 238.*
„ 11 chisel 233, „ *703, 238.*
Figs. 12, 12[a] paddle 208, „ *677, 213.*
Fig. 13 boar's tusk, scraper 232, „ *699, 237.*
„ 14 bailer 198, „ *679, 213.*

PLATE XXV.

Fig. 1 weaving frame 237, *N°. 716, 239.*
„ 2 stone (pottery) 236, „ *714, 238.*
„ 3 stone underlayer 234, „ *711, 238.*
„ 4 hammer 233, „ *707, 238.*
„ 5 „ 233, „ *708, 238.*
„ 6 „ 233, „ *705, 238.*
„ 7 „ 233, „ *706, 238.*
„ 8 „ 233, „ *709, 238.*
„ 9 shell, scraper 234, „ *710. 238.*
„ 10 beater (pottery) 236, „ *715, 239.*
„ 11 „ (bark-) 235, „ *712, 238.*

PLATE XXVI.

Fig. 1 War banner 254, *N°. 1268, 264.*
Fig. 2 shield 253, *N°. 1262, 264.*
„ 3 dagger 240, „ *725, 257.*
„ 4 „ 240, „ *726. 257.*
„ 5 „ 240, „ *721, 257.*
„ 6 „ 240, „ *729, 257.*
„ 7 scabbard 241, „ *727, 257.*
„ 8 dagger in scabbard 241, „ *728, 257.*
„ 9 stone club 241, „ *738, 257.*
„ 10 „ head of club 241, „ *739, 257.*
„ 11 shield 253, „ *1265, 264.*
„ 12 „ 253, „ *1264, 264.*
„ 13 „ 253, „ *1263, 264.*
„ 14 „ 253, „ *1261, 264.*

PLATE XXVII.

Fig. 1 boar arrow 243, *N°. 748, 258.*
„ 2 „ „ 243, „ *754, 258.*
„ 3 ornamental arrow 245, „ *759, 258.*
„ 4 „ „ 244, „ *763, 258.*
„ 5 fishing „ 166, „ *766, 258.*
„ 6 „ „ 166, „ *768, 258.*
„ 7 „ „ 166, „ *773, 258.*
„ 8 „ „ 166, „ *774, 258.*
„ 9 war „ 243, „ *775, 258.*
„ 10 „ „ 243, „ *781, 258.*
„ 11 „ „ 243, „ *782, 259.*
„ 12 „ „ 243, „ *783, 259.*
„ 13 „ „ 243, „ *788, 259.*
„ 14 „ „ 243, „ *791, 259.*
„ 15 „ „ 243, „ *794, 259.*
„ 16 „ „ 243, „ *807, 259.*
„ 17 „ „ 243, „ *827, 259.*
„ 18 „ „ 243, „ *828, 259.*
„ 19 „ „ 243, „ *835, 259.*
„ 20 „ „ 243, „ *842, 259.*
„ 21 „ „ 243, „ *853, 259.*
„ 22 „ „ 243, „ *862, 259.*
„ 23 „ „ 243, „ *864, 259.*
„ 24 „ „ 243, „ *872, 259.*
„ 25 „ „ 243, „ *881, 259.*
„ 26 „ „ 243, „ *882, 259.*
„ 27 „ „ 243, „ *883, 259.*
„ 28 „ „ 243, „ *886, 260.*
„ 29 „ „ 243, „ *892, 260.*
„ 30 „ „ 243, „ *895, 260.*
„ 31 ornamental „ 245, „ *896, 260.*

Fig. 32 ornamental arrow 245, *N°. 897, 260.*
„ 33 „ „ 245, „ *898, 260.*
„ 34 „ „ 245, „ *903, 260.*
„ 35 „ „ 245, „ *908, 260.*
„ 36 war „ 243, „ *910, 260.*
„ 37 „ „ 243, „ *911, 260.*
„ 38 „ „ 243, „ *913, 260.*
„ 39 ornamental „ 245, „ *915, 260.*
„ 40 „ „ 245, „ *1073, 262.*
„ 41 spear 252, „ *1258, 264.*
„ 42 lance 242, „ *744, 257.*

PLATE XXVIII.

Fig. 1 Drum 305, *N°. 1276, 312.*
„ 2 „ 305, „ *1279, 312.*
„ 3 „ 305, „ *1278, 312.*
„ 4 „ 305, „ *1277, 312.*
„ 5 „ 305, „ *1286, 312.*
Figs 6, 6a „ and drumstick 305, „ *1288, 313.*
Fig. 7 „ 305, „ *1287, 312.*
„ 8 „ 305, „ *1289, 313.*
„ 9 „ 305, „ *1280, 312.*
„ 10 hand-drum 305, „ *1284, 312.*
„ 11 „ „ 305, „ *1285, 312.*
„ 12 Jew's harp 303.
„ 13 „ „ 303, „ *1273, 312.*
„ 14 „ „ 303, „ *1272, 312.*

PLATE XXIX.

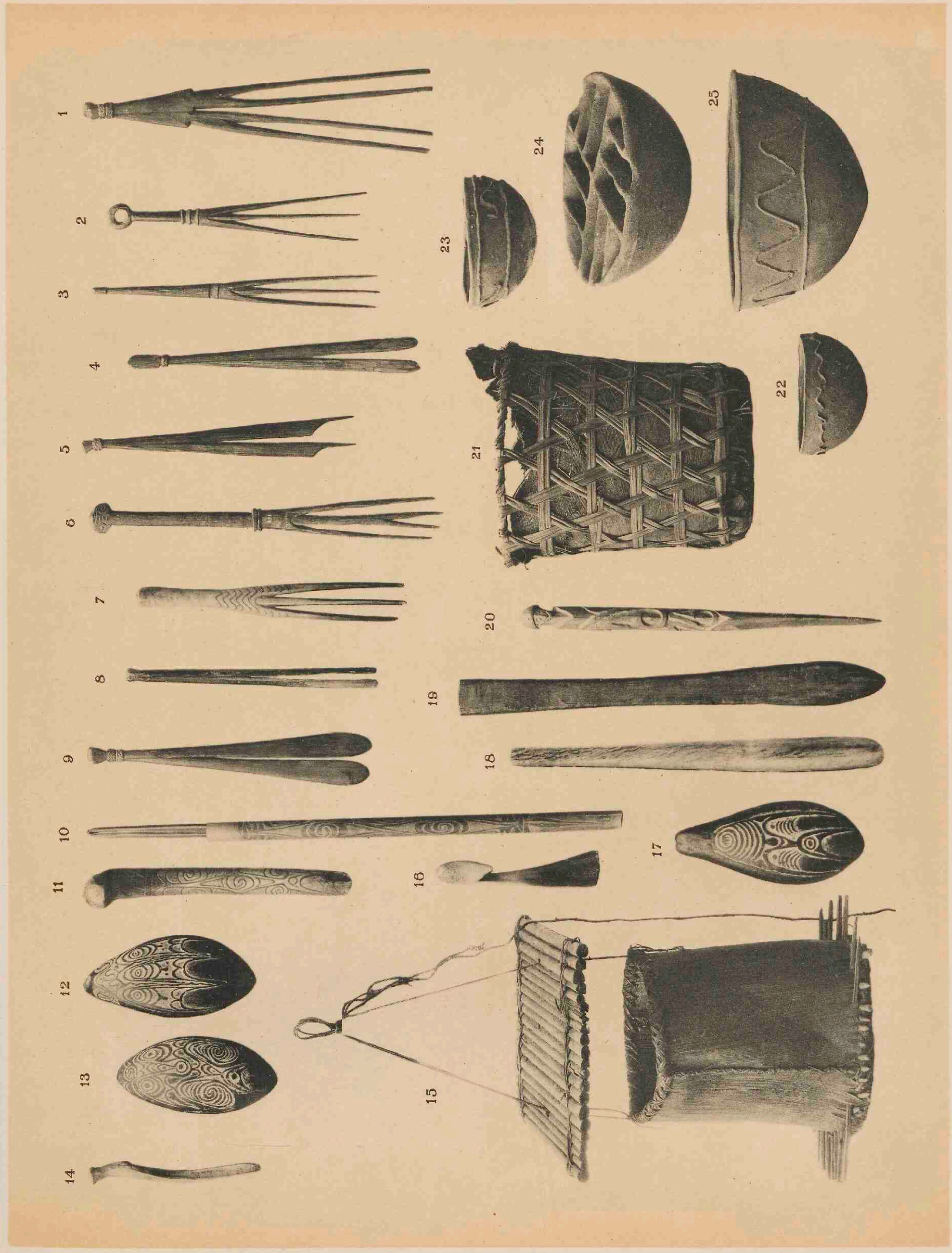
Fig. 1 bamboo flute 307, *N°. 1306, 313.*
„ 2 „ „ 307, „ *1312, 314.*
„ 3 „ „ 307, „ *1300, 313.*
„ 4 „ „ 307, „ *1309, 313.*
„ 5 „ „ 307, „ *1307, 313.*
Fig. 6 bamboo flute 307, *N°. 1313, 314.*
„ 7 „ „ 307, „ *1305, 313.*
„ 8 „ „ 307, „ *1315, 314.*
„ 9 „ „ 307, „ *1316, 314.*
„ 10 „ „ 307, „ *1308, 313.*
„ 11 „ „ 307, „ *1310, 313.*
„ 12 „ „ 307, „ *1299, 313.*
„ 13 „ „ 307, „ *1317, 314.*
„ 14 „ „ 307, „ *1311, 314.*
„ 15 „ „ 307, „ *1303, 313.*
„ 16 „ „ 307, „ *1298, 313.*
„ 17 „ „ 307, „ *1294, 313.*
„ 18 „ „ 307, „ *1304, 313.*
„ 19 „ „ 307, „ *1302, 313.*
„ 20 „ „ 307, „ *1314, 314.*
„ 21 „ „ 307, „ *1291, 313.*
„ 22 *Triton* shell 307, „ *1319, 314.*
„ 23 abacus 219, 267, „ *1270, 282.*
„ 24 *Strombus* shell 308, „ *1318, 314.*
„ 25 top 265, „ *1269, 282.*
„ 26 amulet 303, „ *1324, 314.*
„ 27 „ 303, „ *1328, 314.*
„ 28 „ 303, „ *1326, 314.*

PLATE XXX.

Figs. 1—5 Skull of Ungrau. 358.
Fig. 6 European scapula 359.
„ 7 Papuan „ 359.
„ 8 Plaster cast of hand 347.
„ 9 „ „ „ foot 350.
„ 10 Prosarmosis 341.
„ 11 Enarmosis 341.
„ 12 Teeth of upper jaw 341.
„ 13 „ „ lower jaw 342.

PLATES XXXI—L are anthropological plates, having underneath the names of the individuals, the names of the villages, and, in brackets, the numbers of the anthropometrical schedules.

Map of *Netherlands North New Guinea*, Scale 1 : 3.000 000.

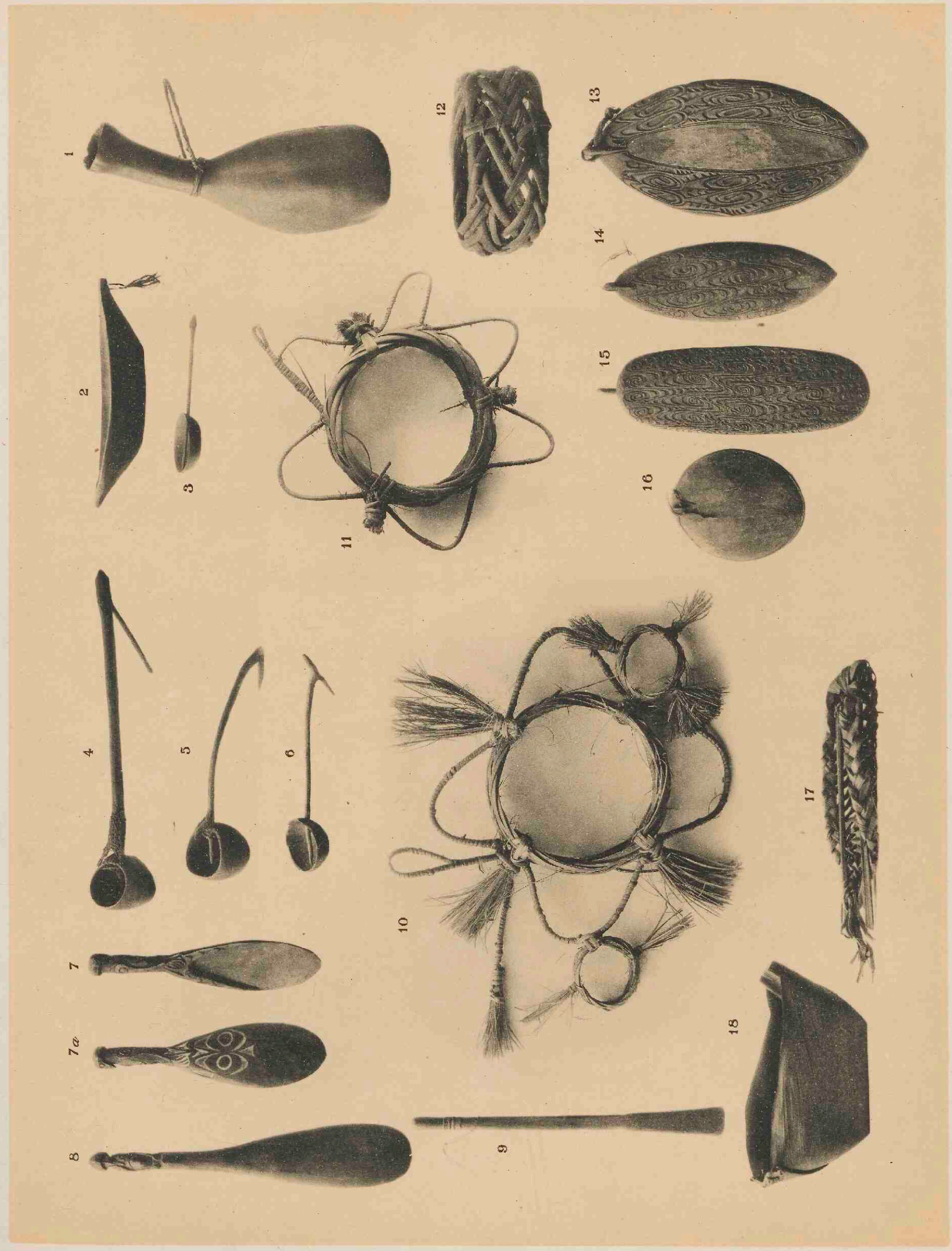


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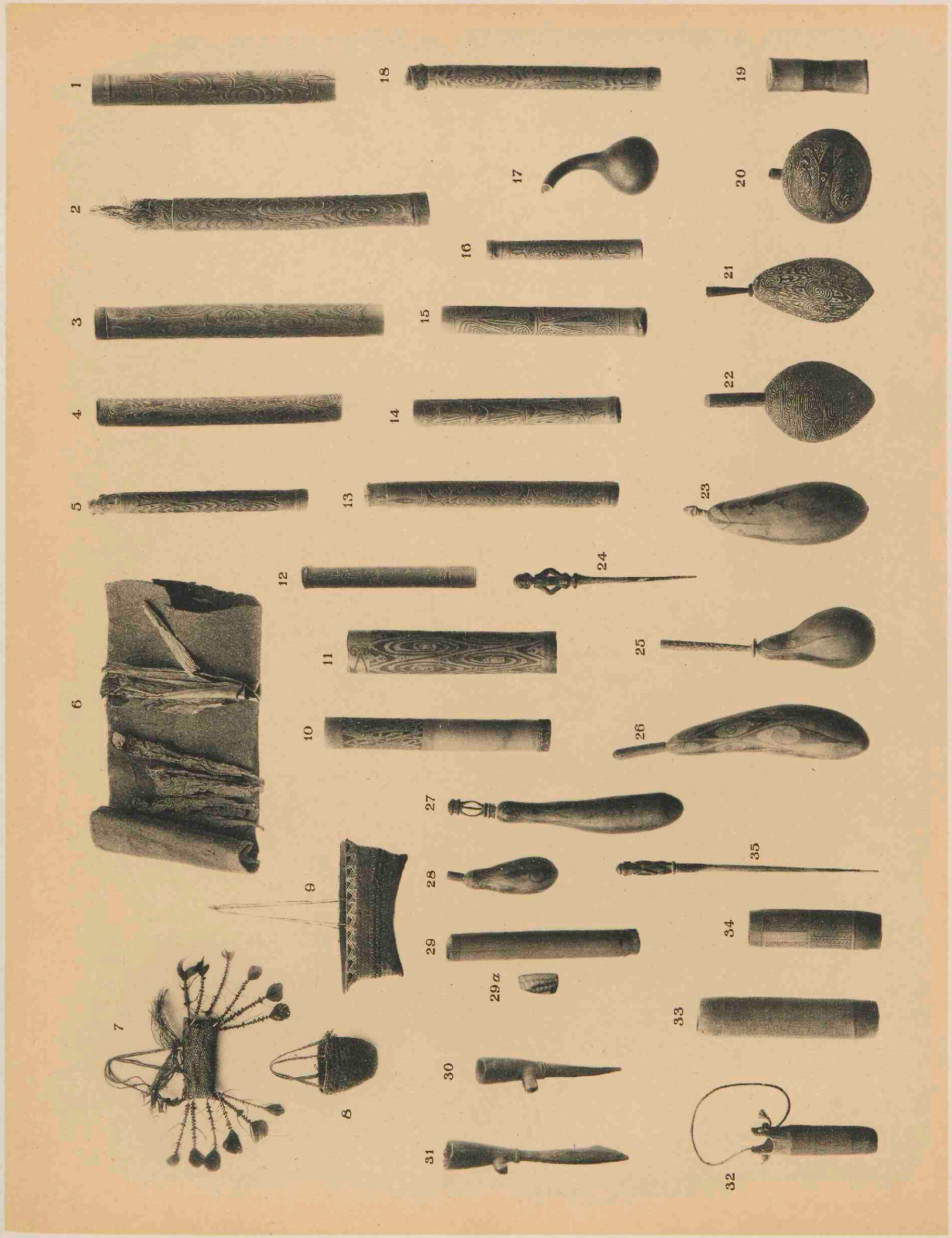


R. Raar ad nat. del. et lith.

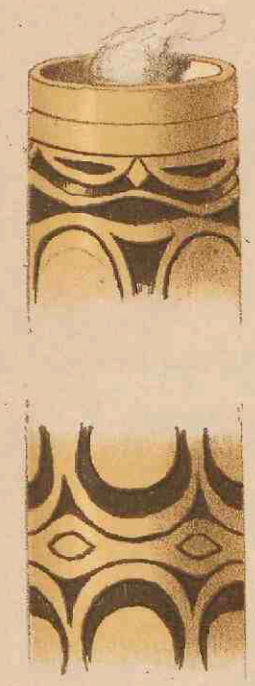
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1a.





1.



2.



3.





4.

6a.





5a.

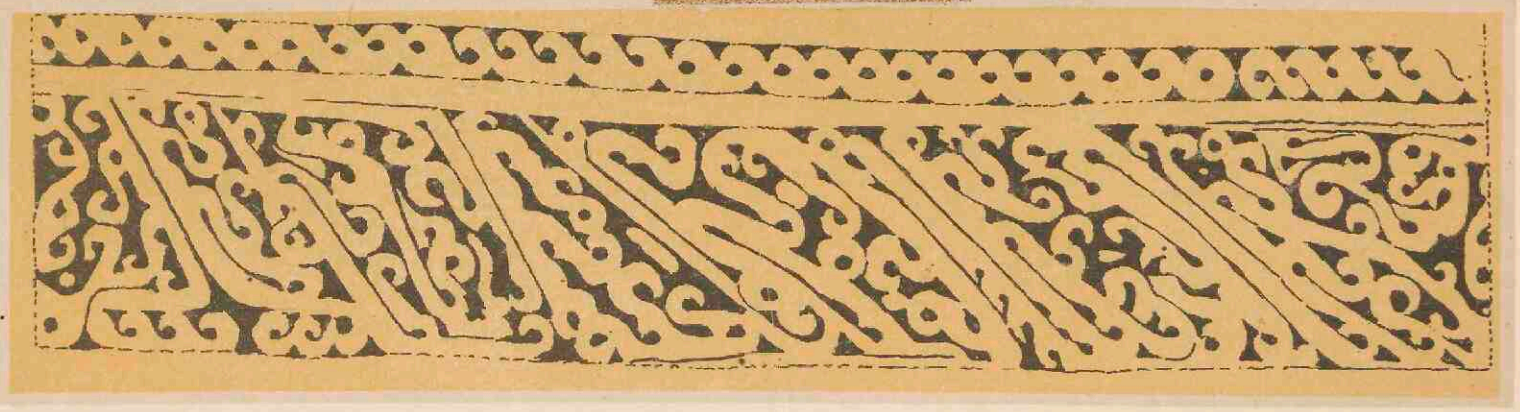


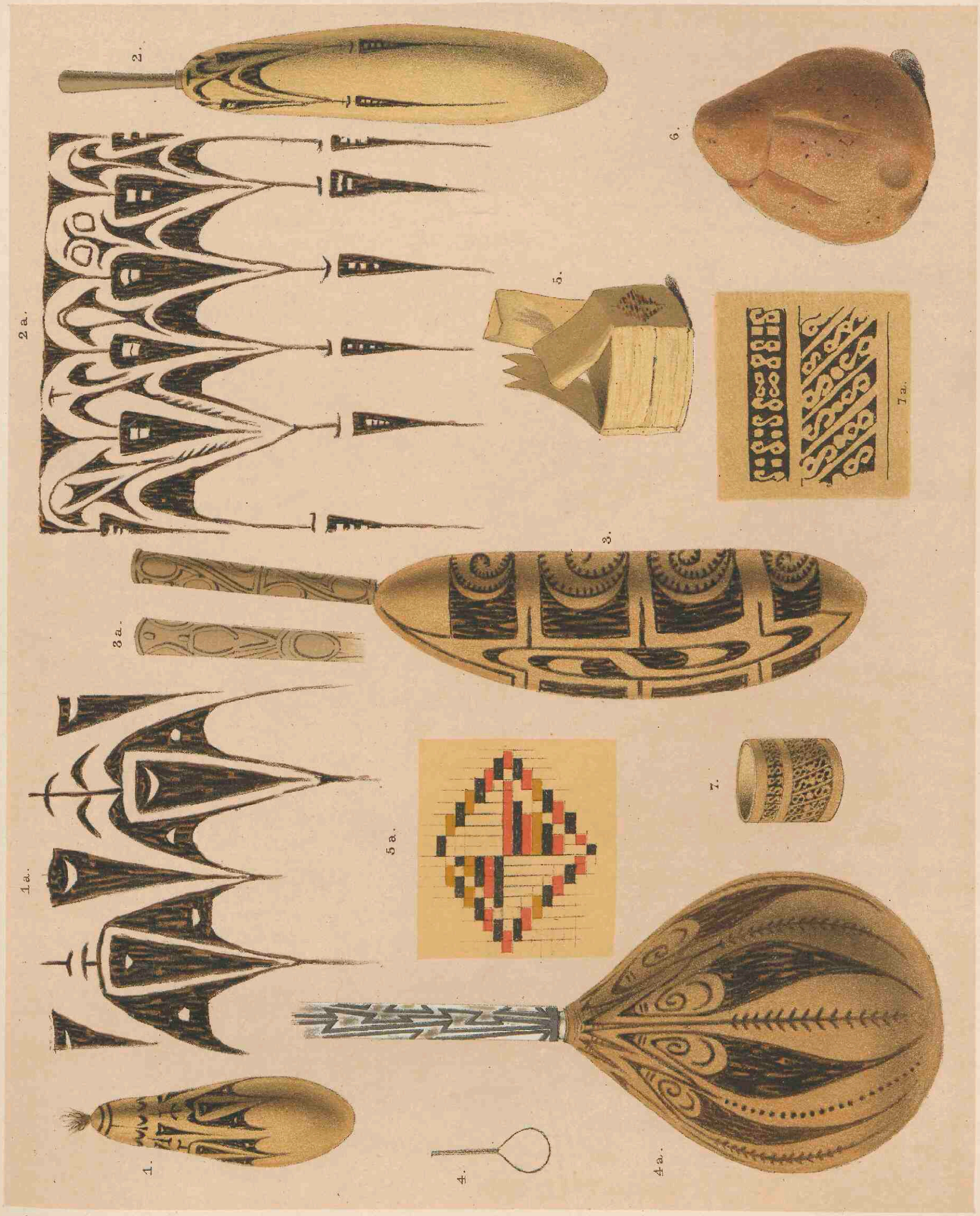
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6.

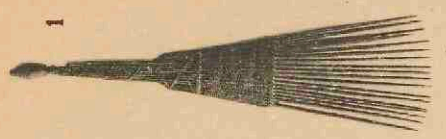
6b.





R. Raar ad nat. del. et lith.

P. W. M. Trap impr.

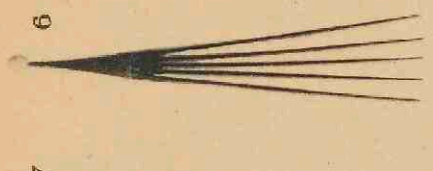

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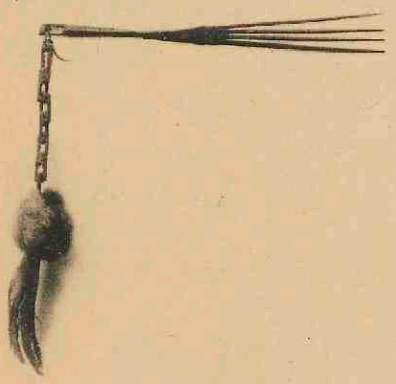

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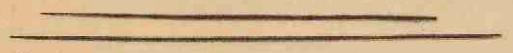

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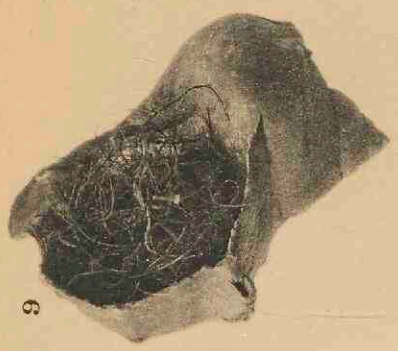

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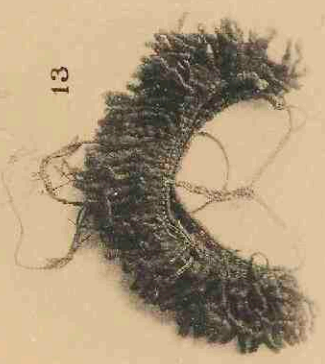

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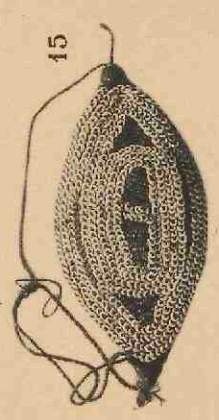

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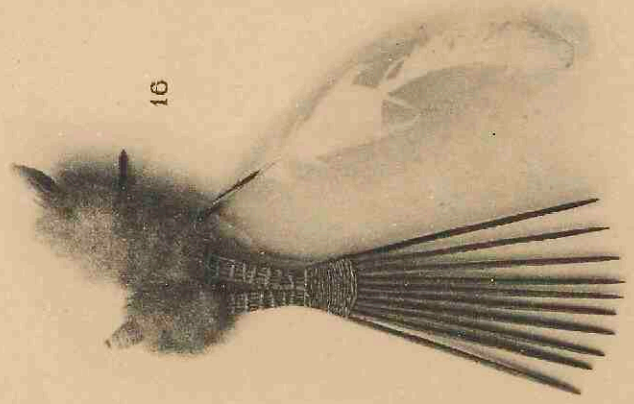

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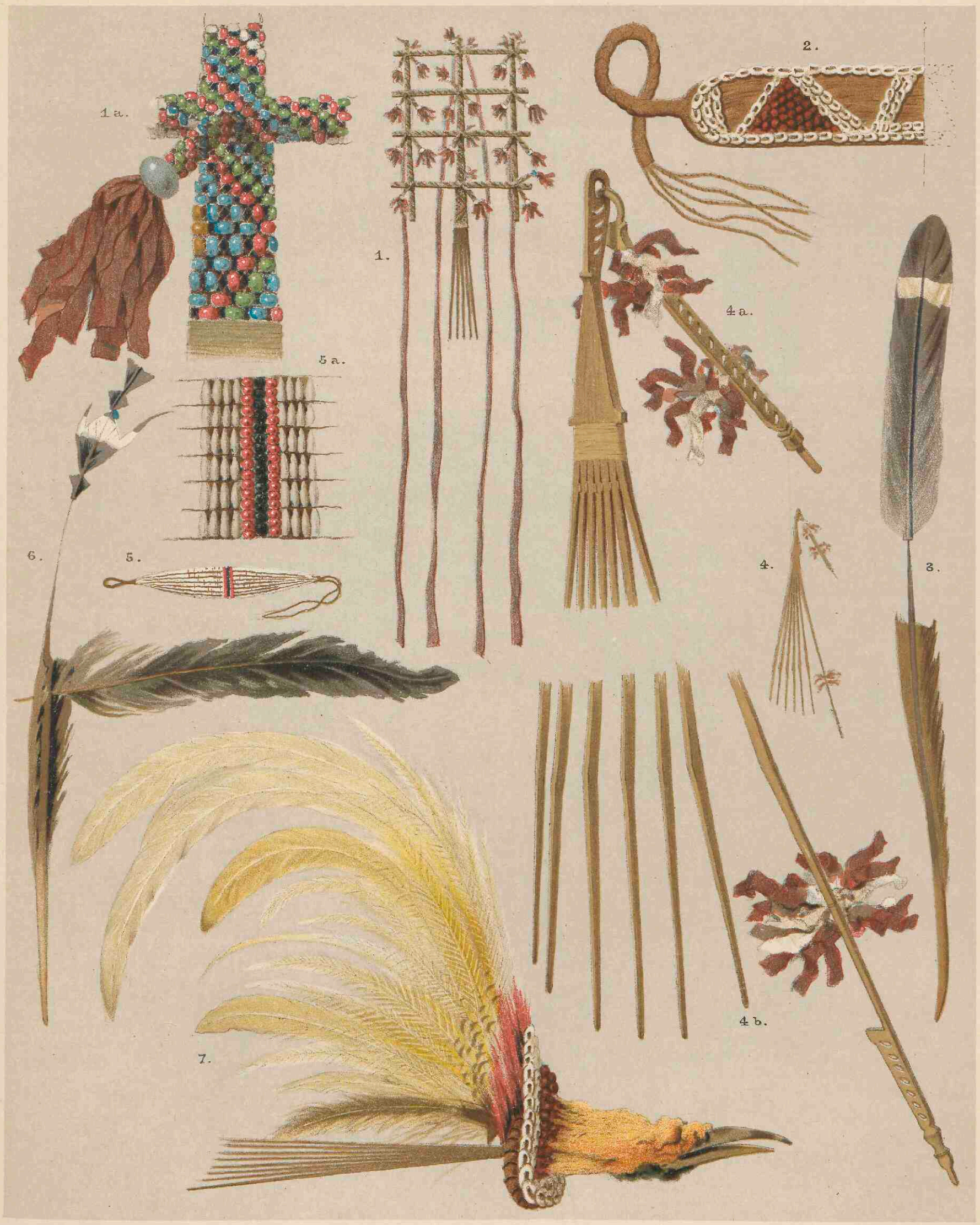

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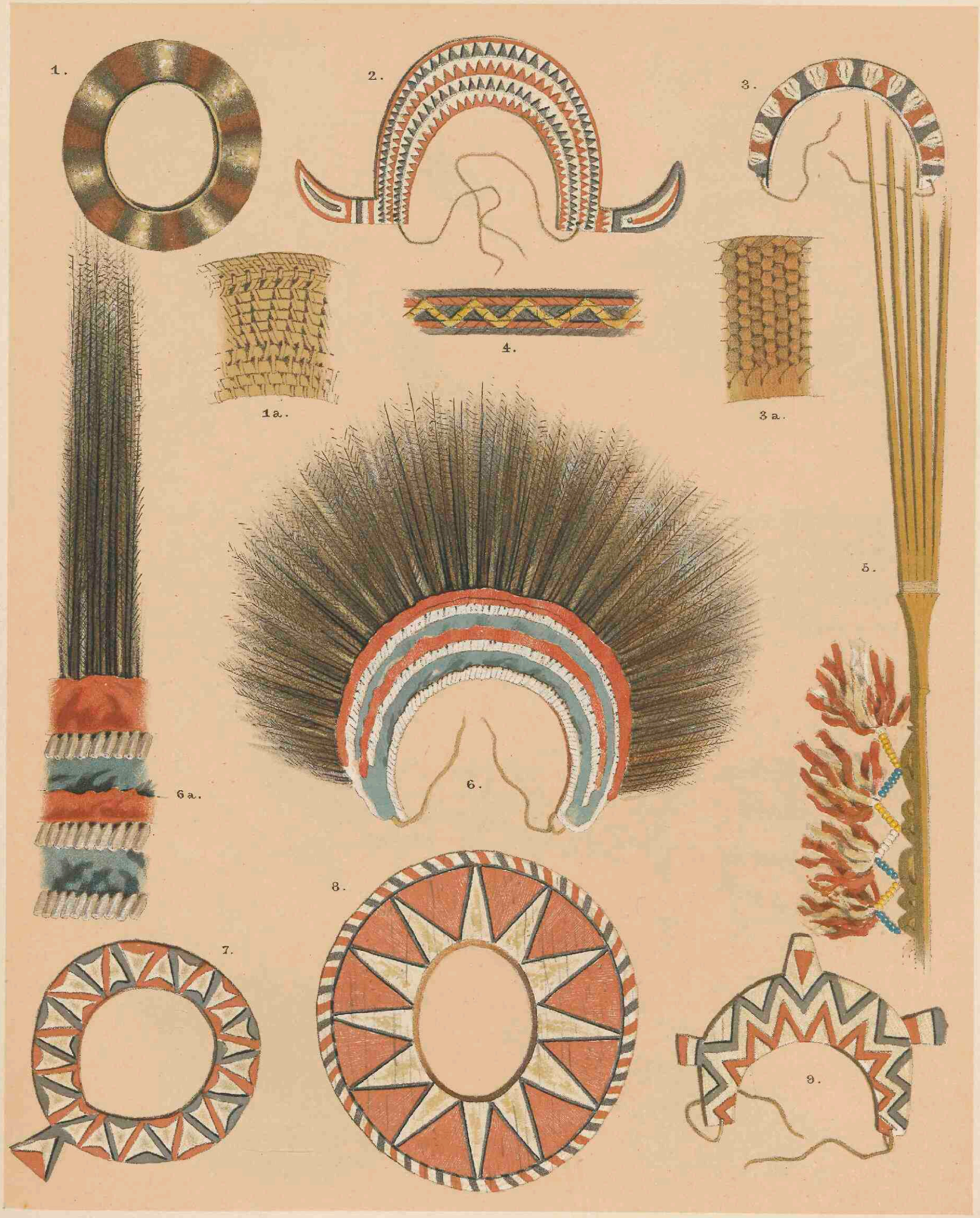

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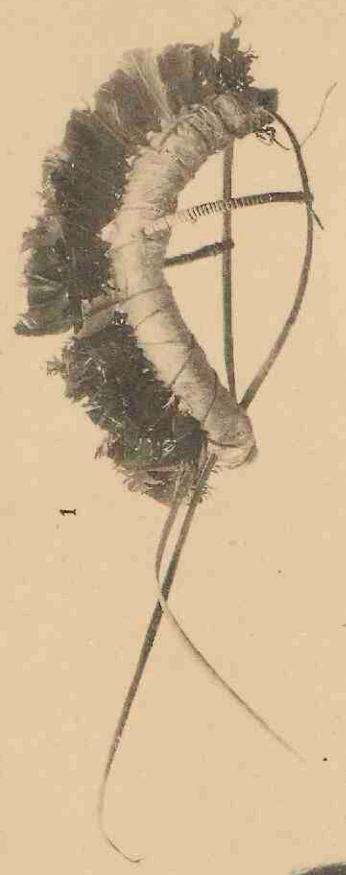
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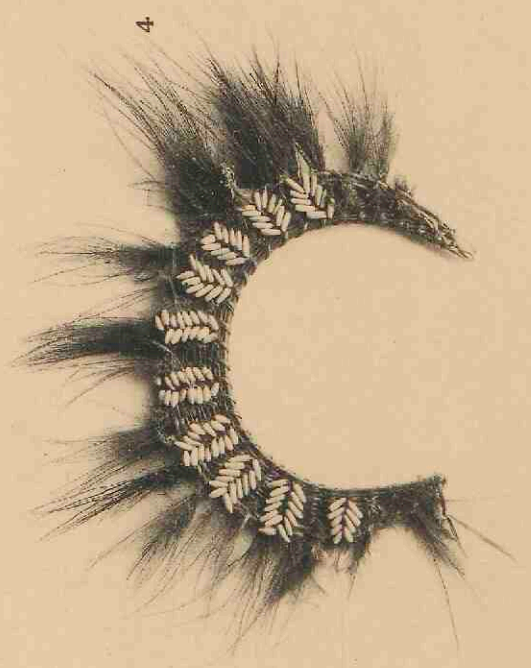
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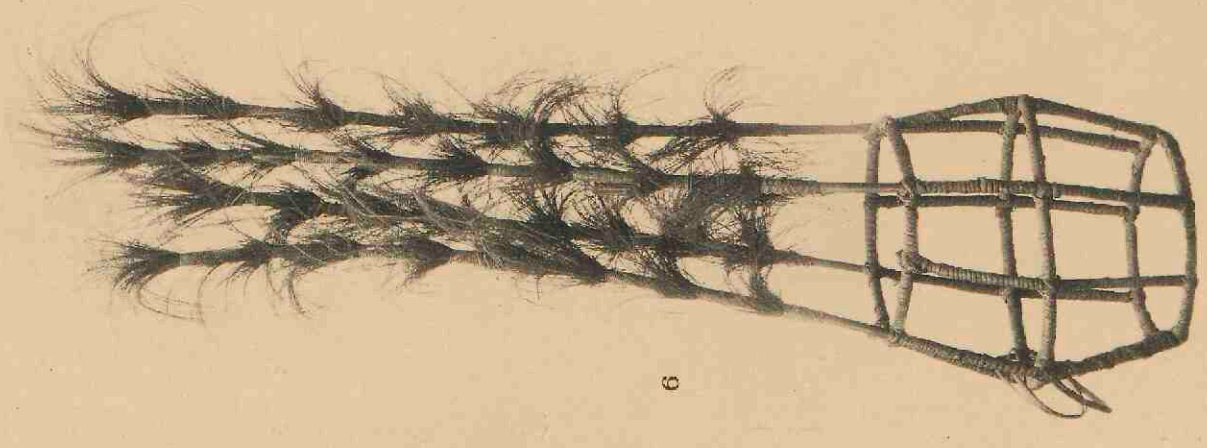
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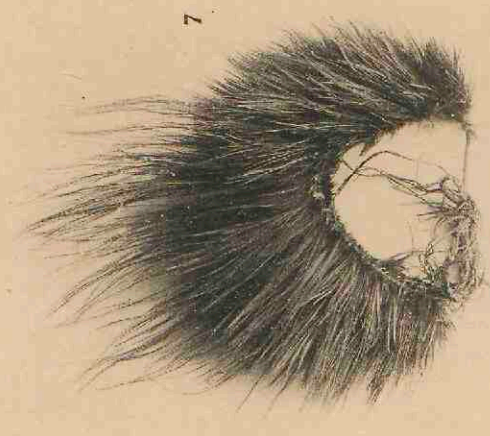
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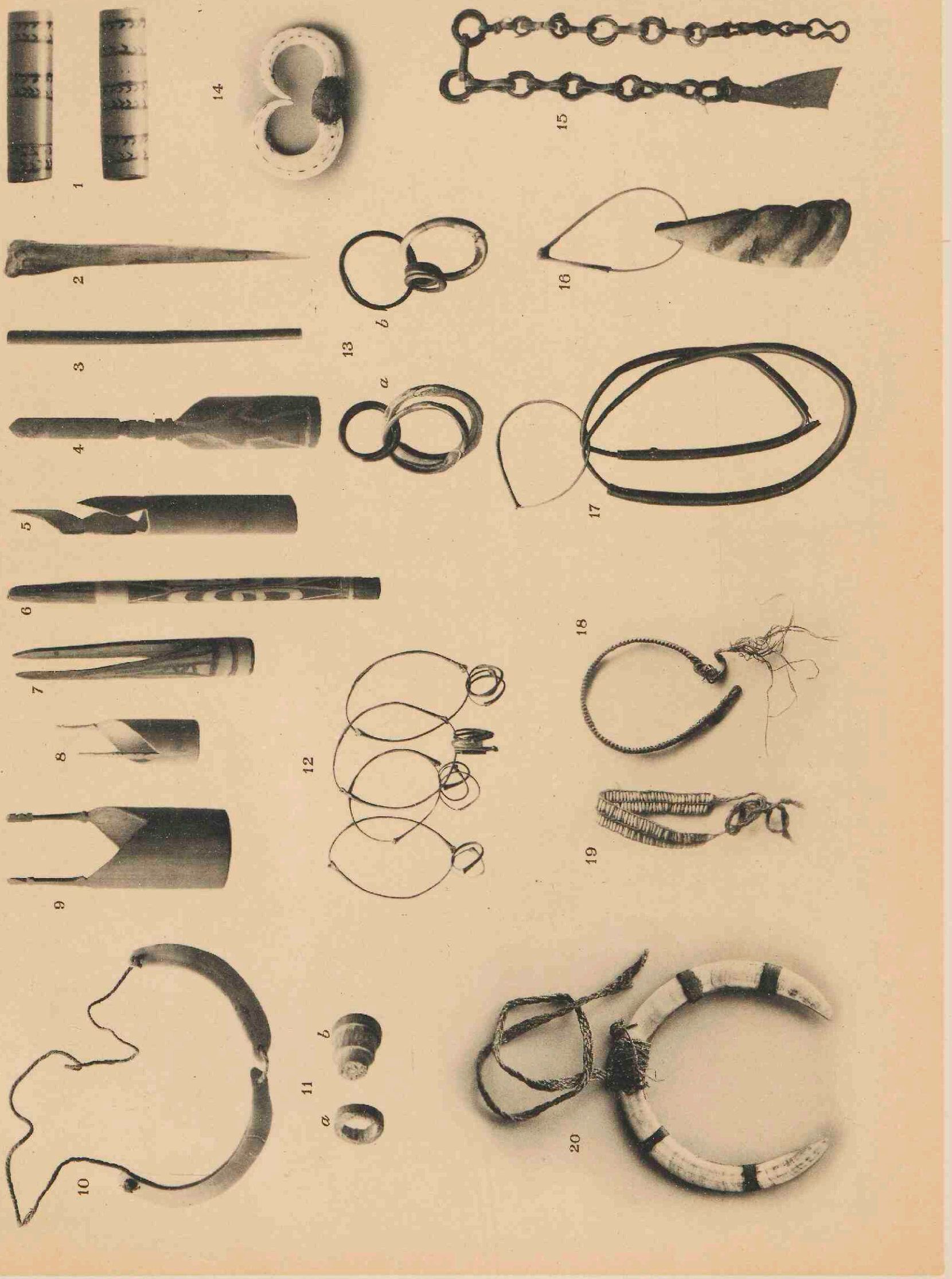
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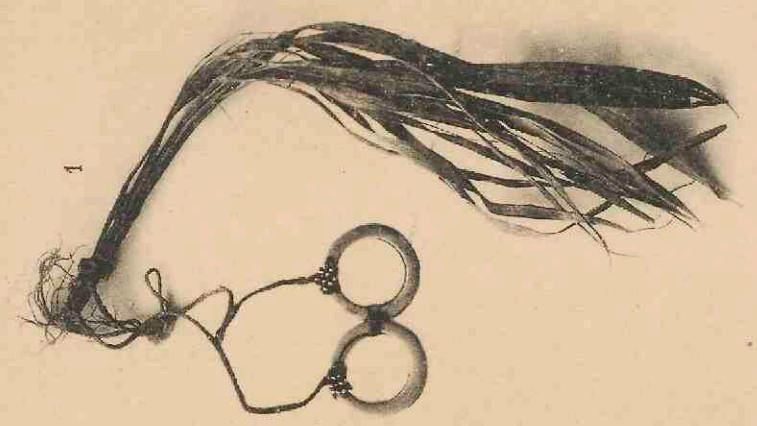
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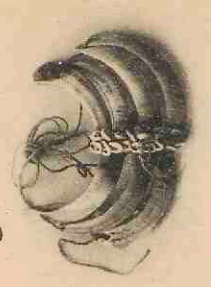


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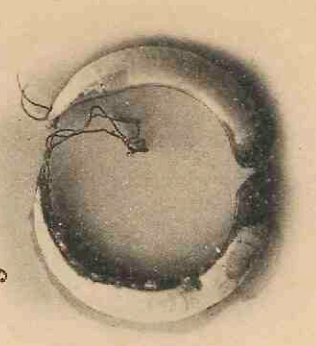
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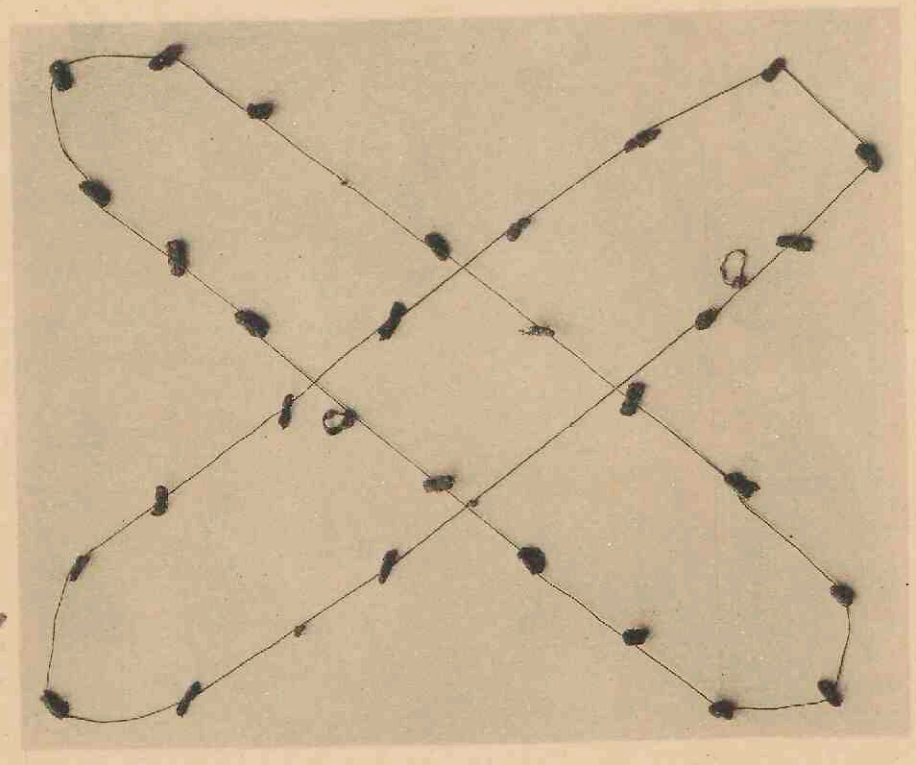
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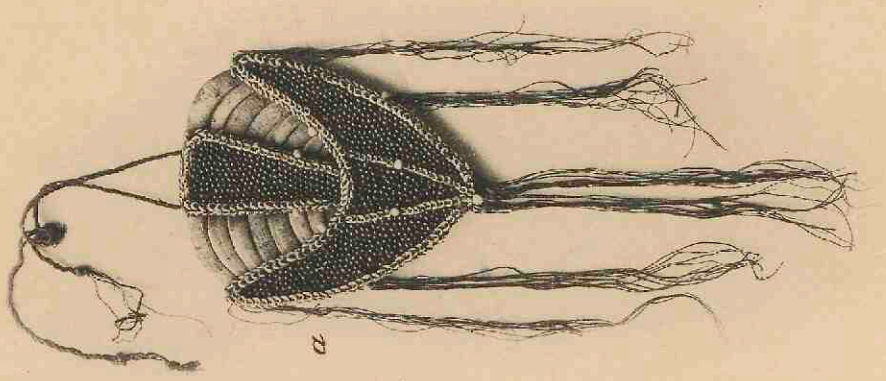
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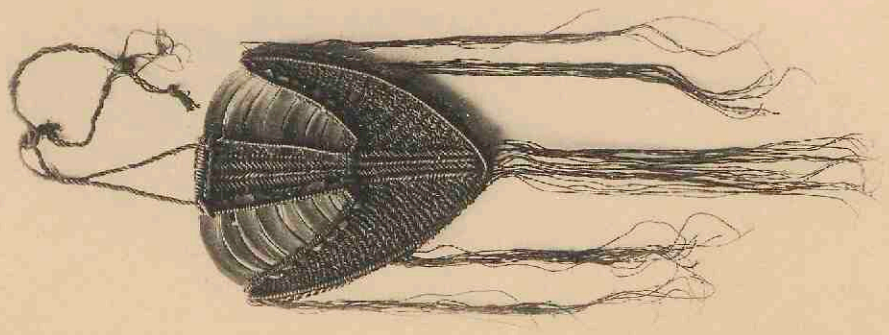


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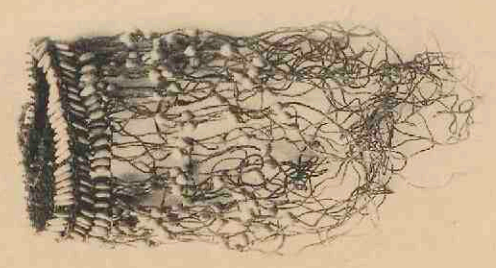


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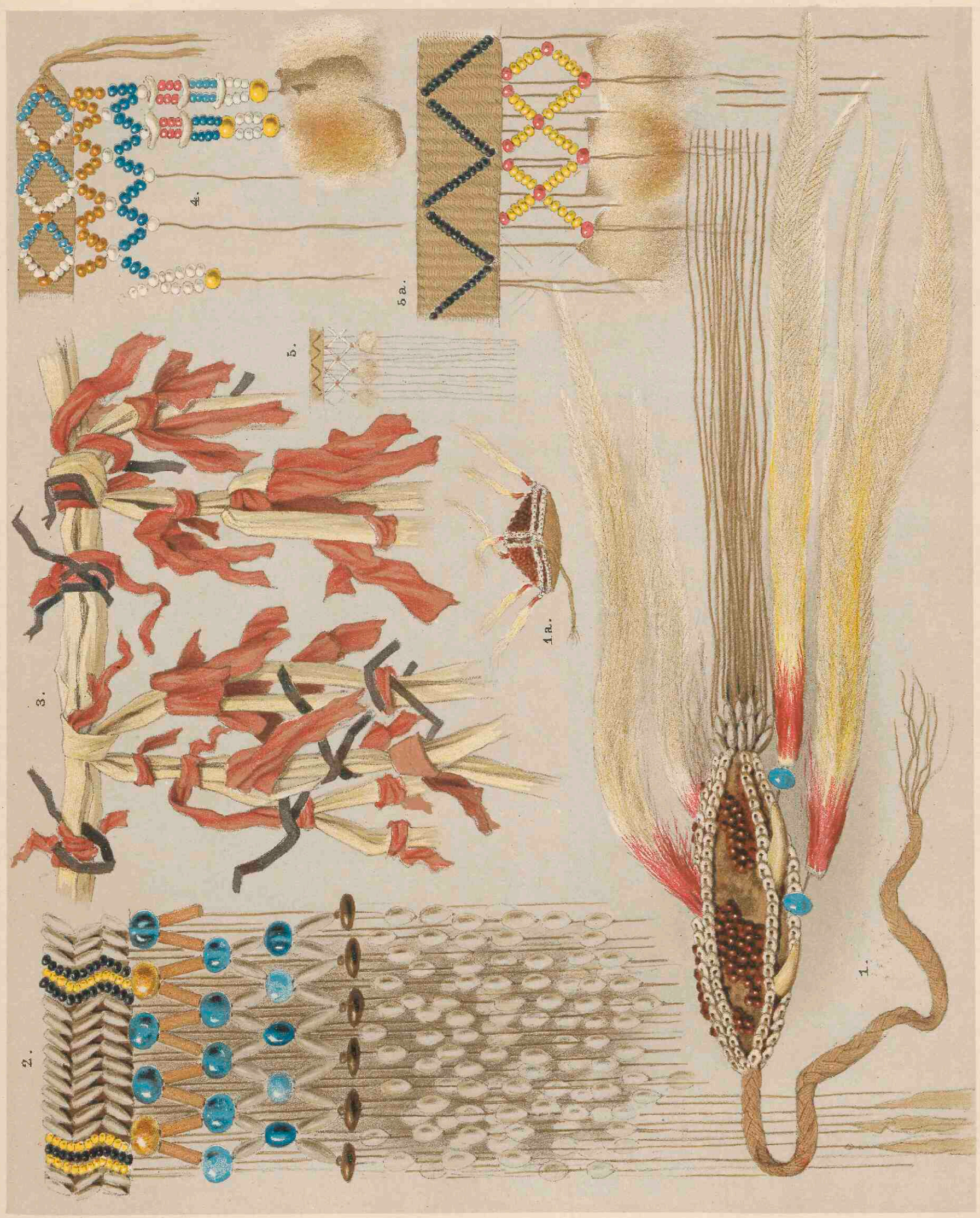
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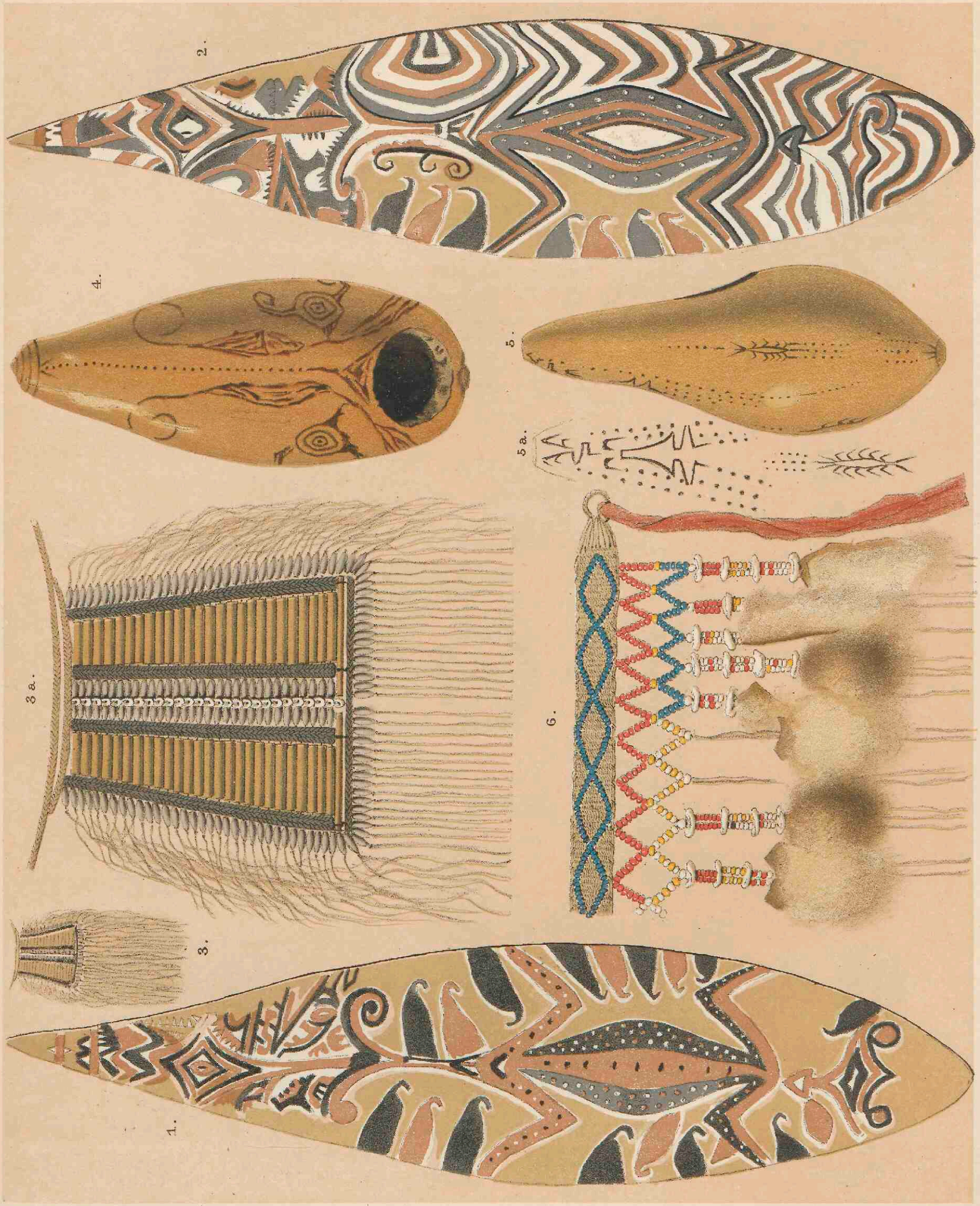


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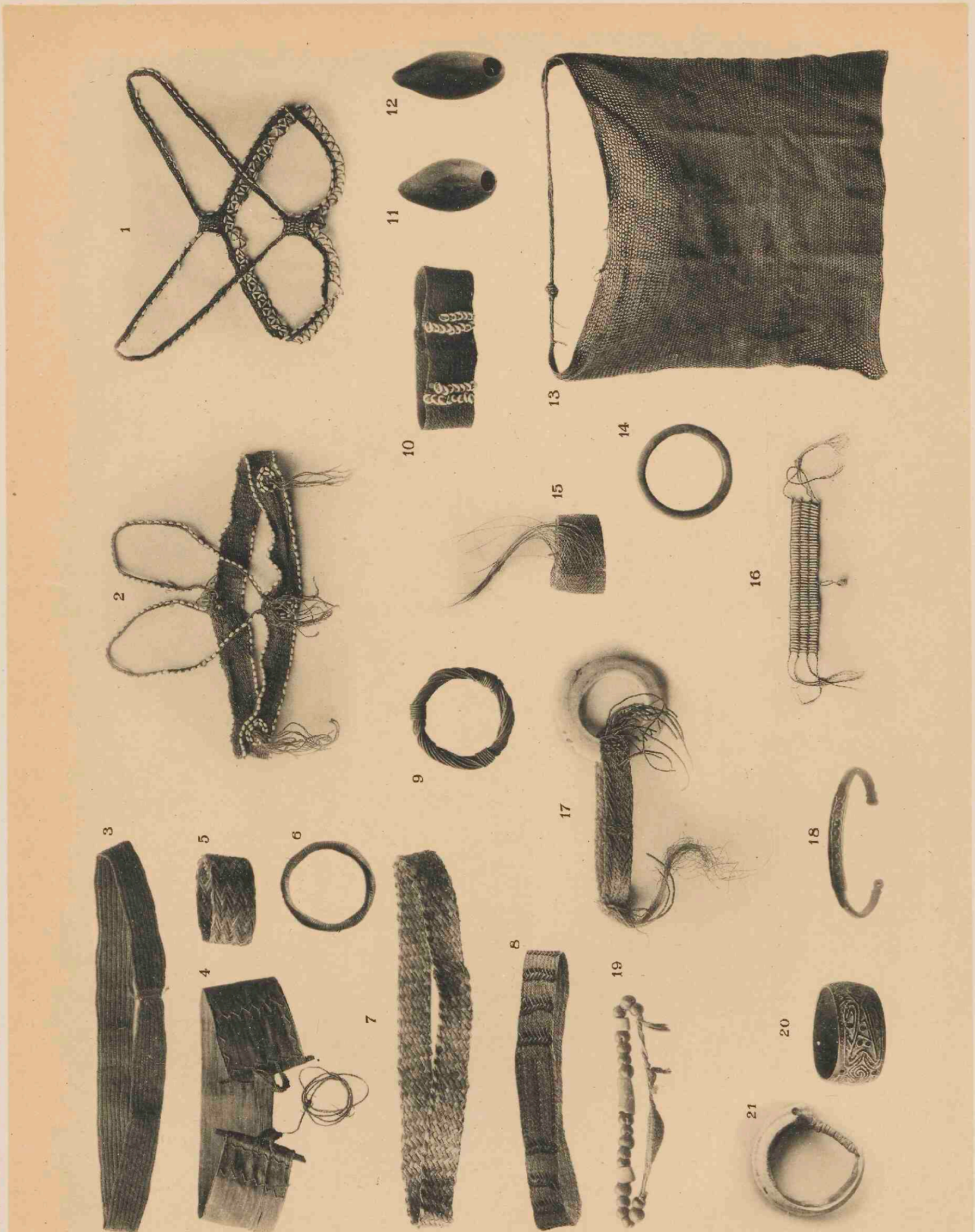
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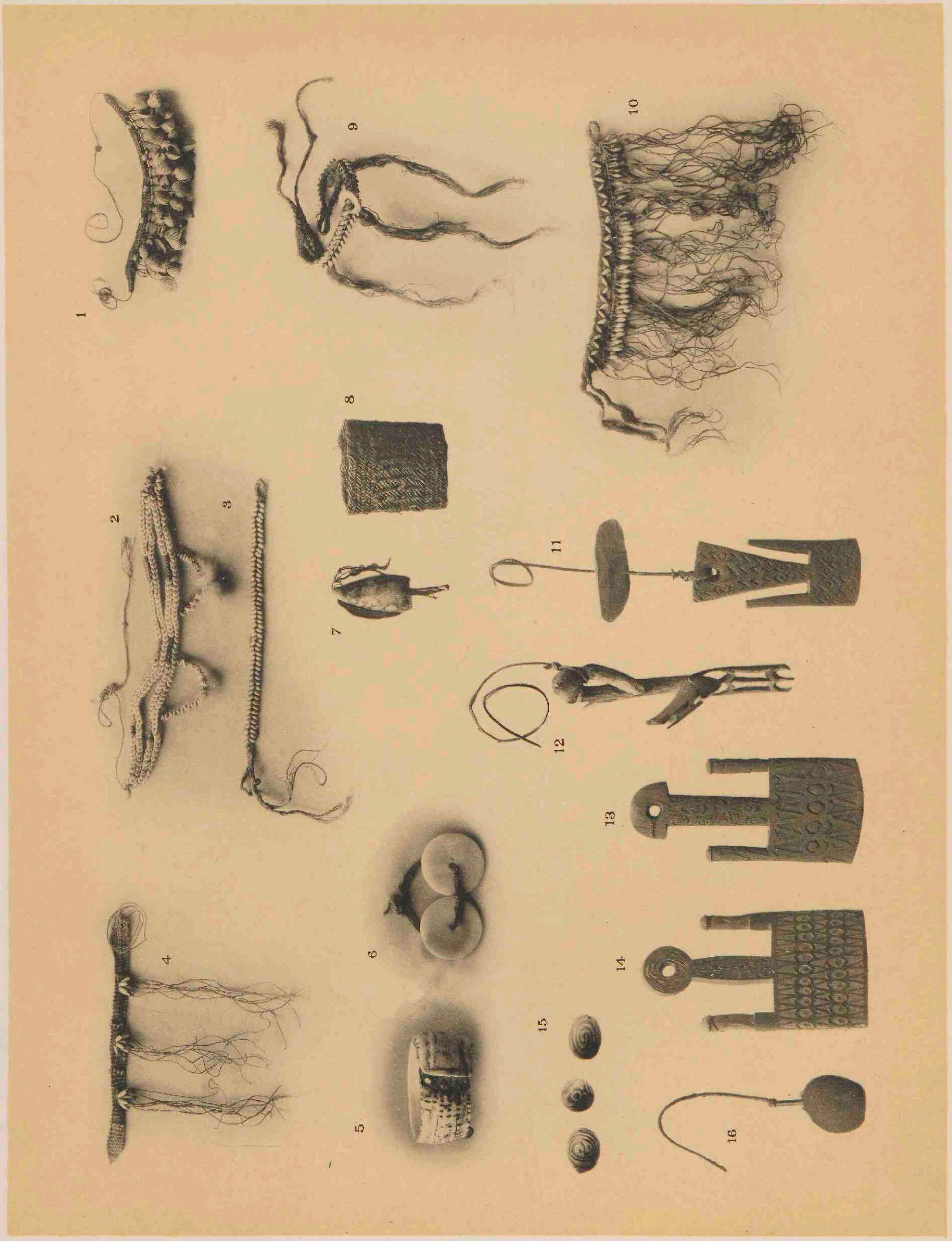


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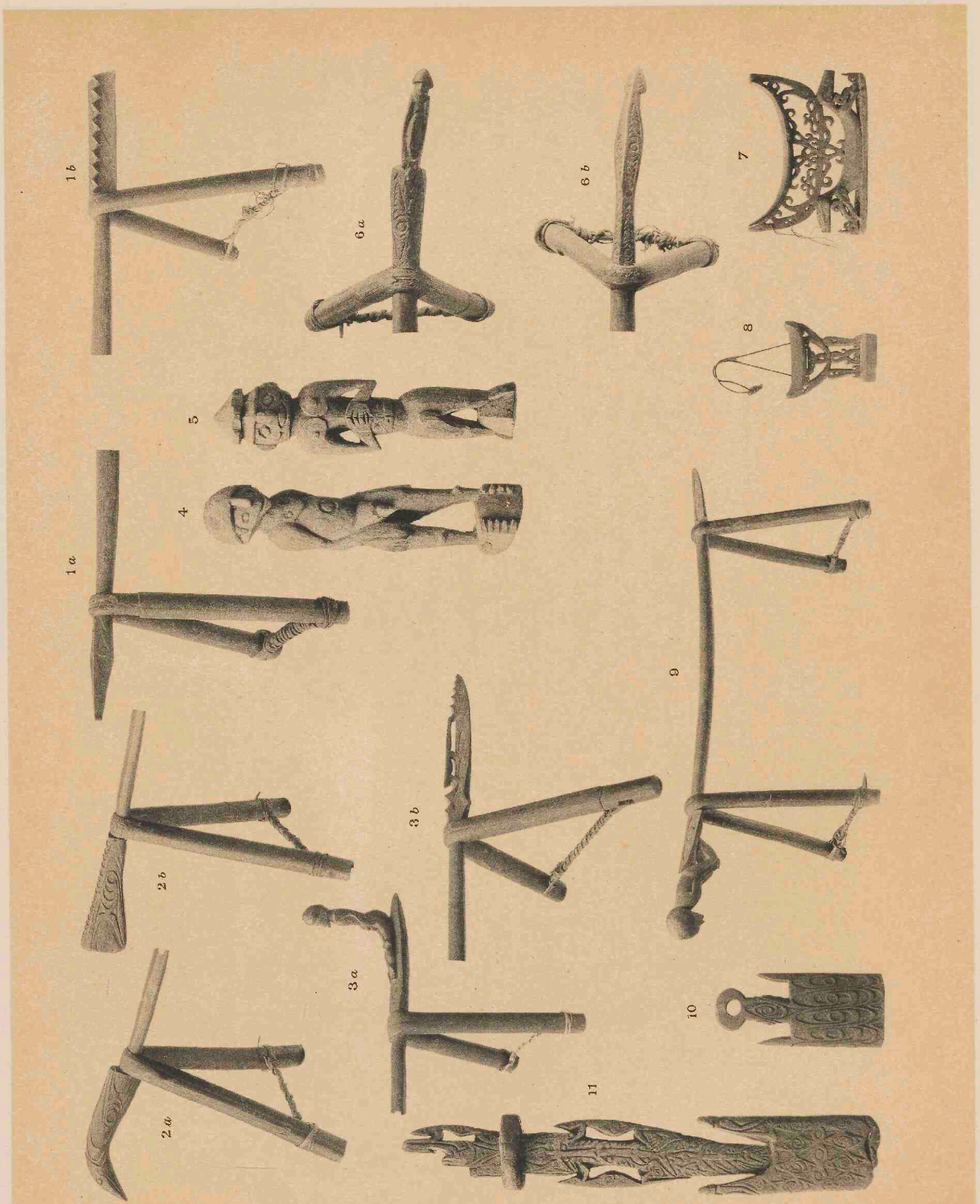
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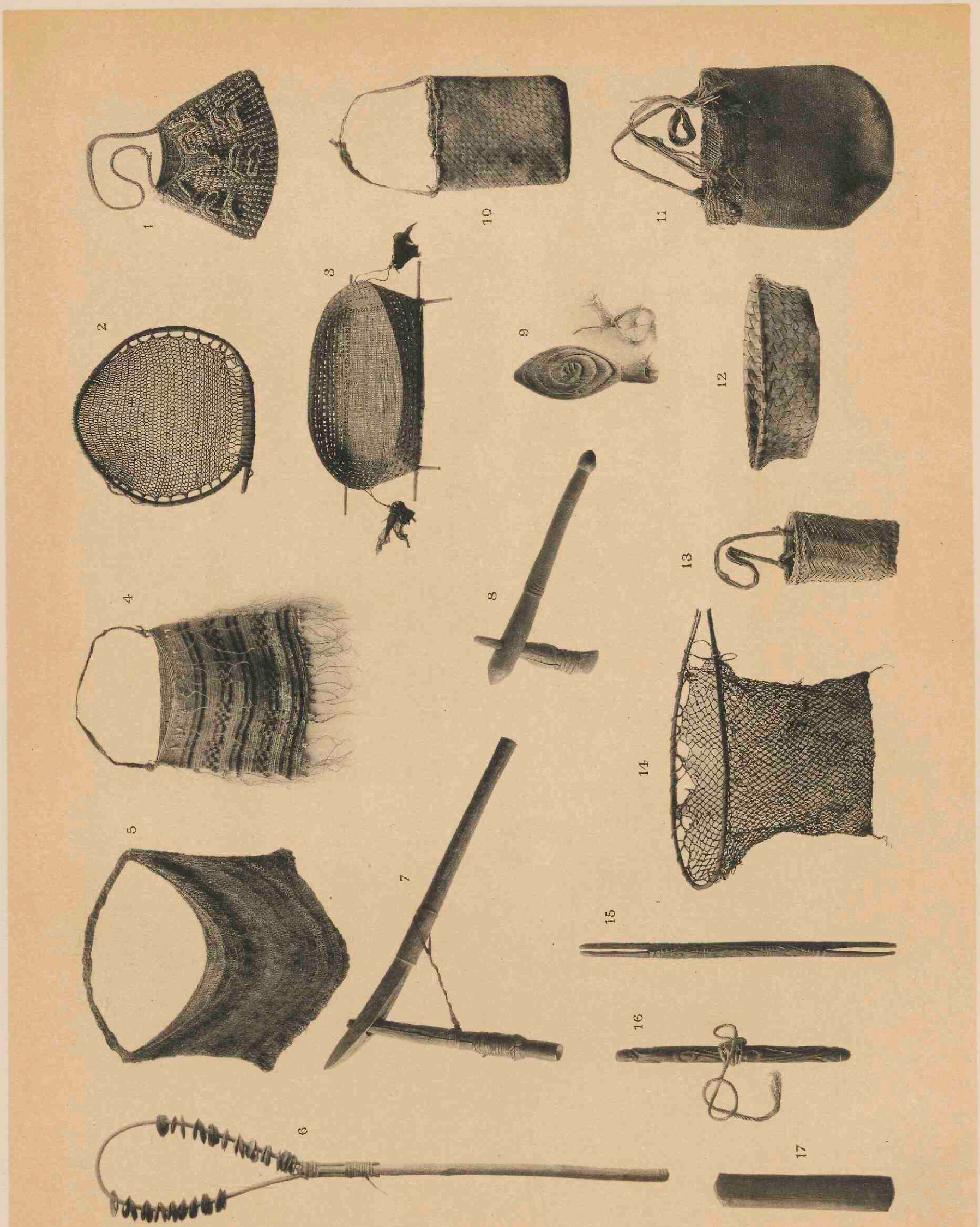


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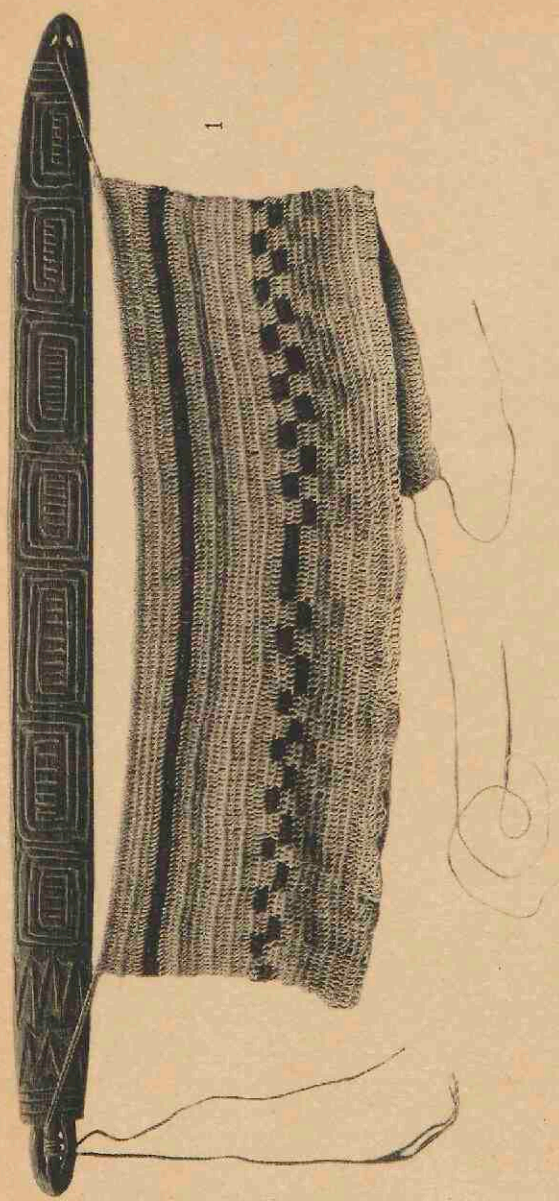


R. Raar ad nat. del. et lith.

P. W. M. Trap impr.



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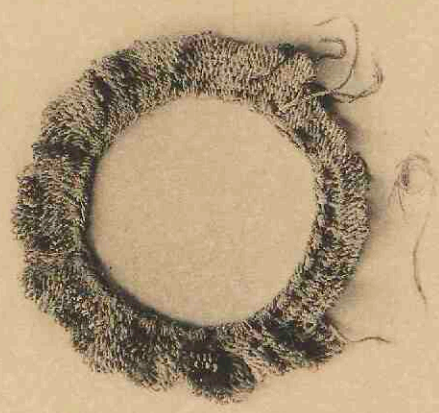

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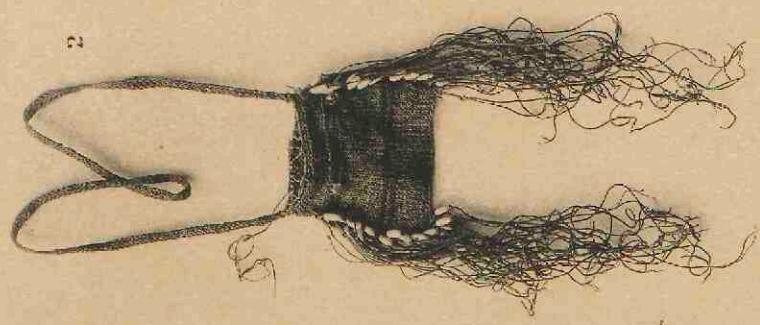

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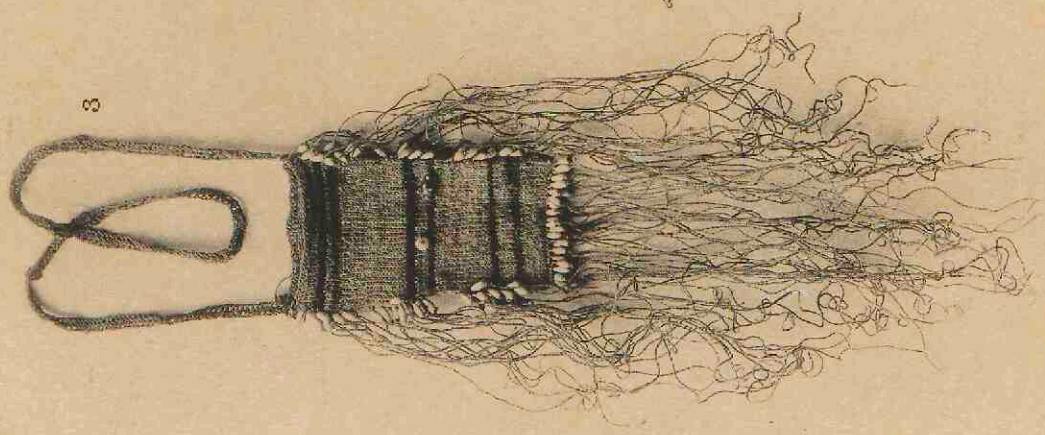

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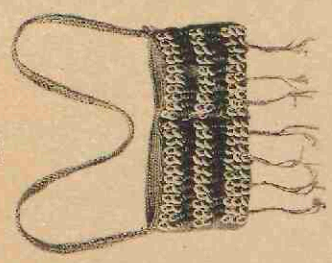

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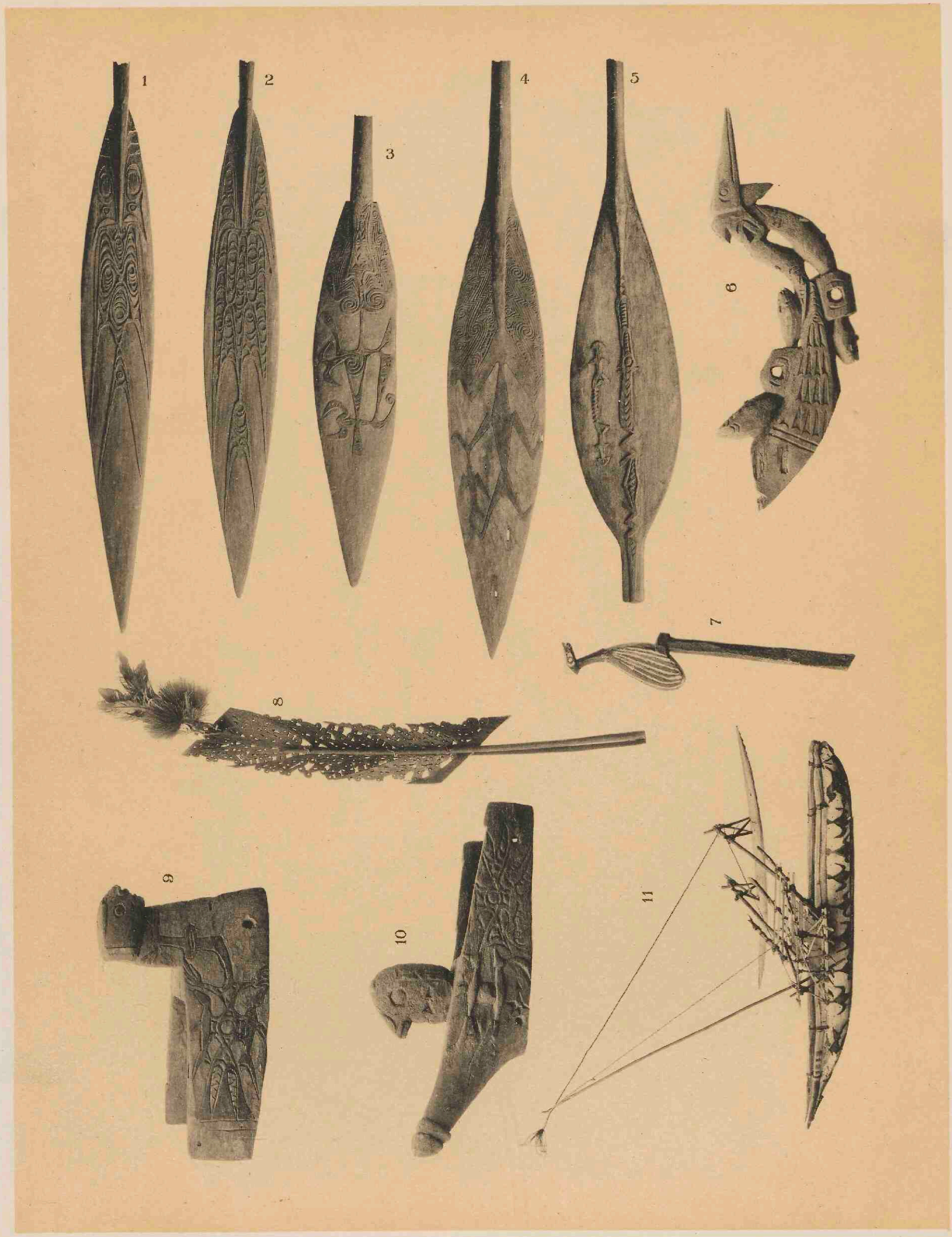

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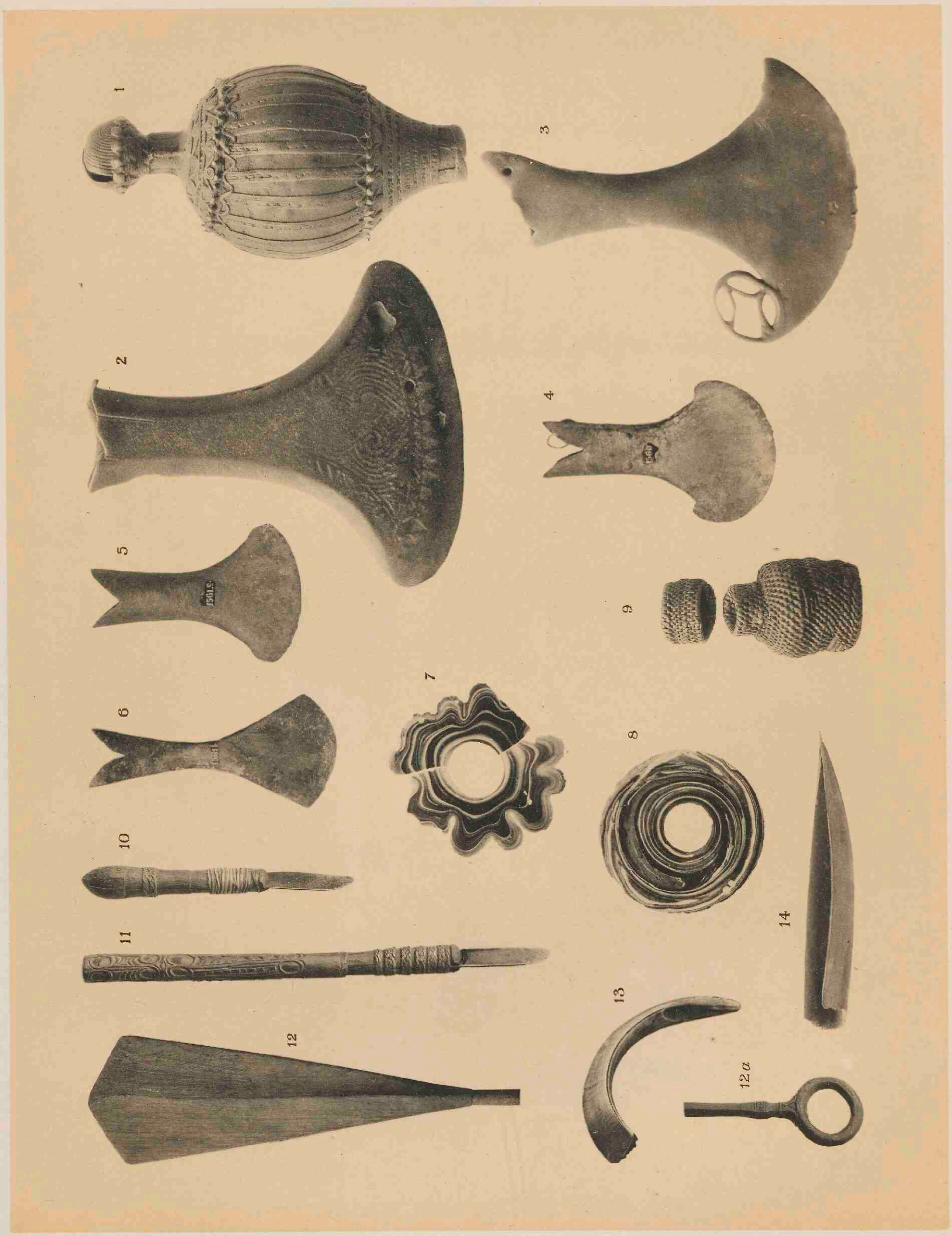


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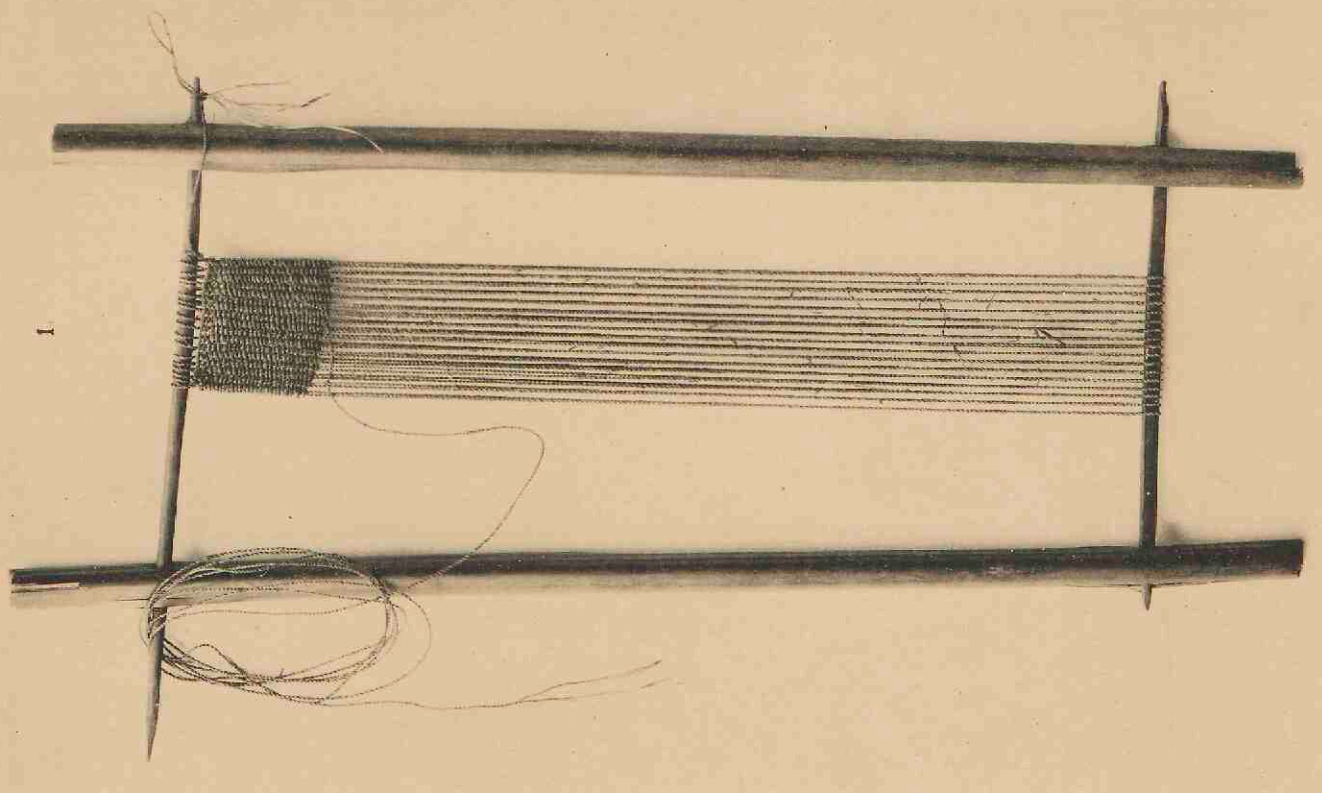


R. Raar ad nat. del. et lith.

P. W. M. Trap impr.



L.van Leer & Cº Photo & Impr.















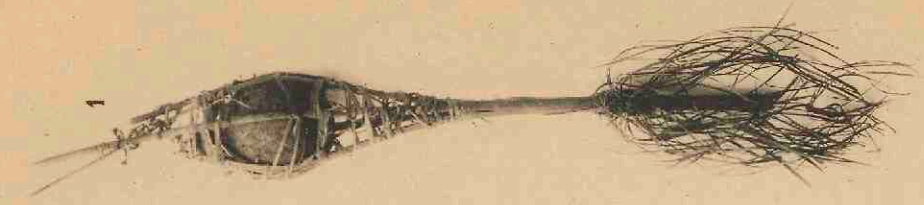








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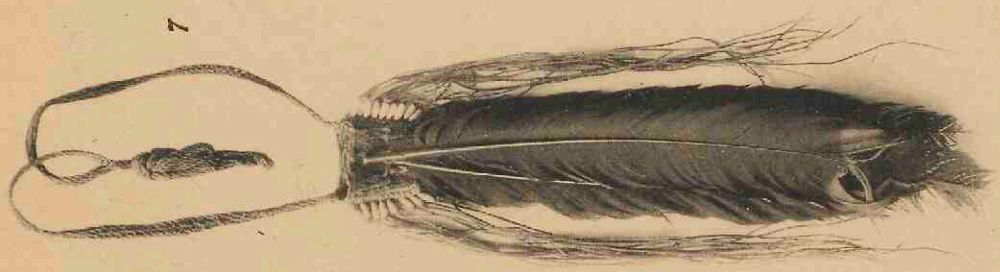

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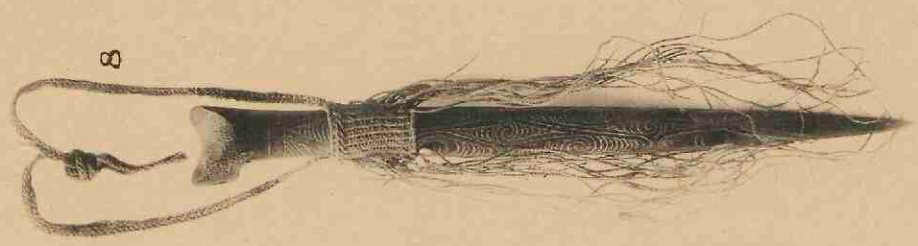

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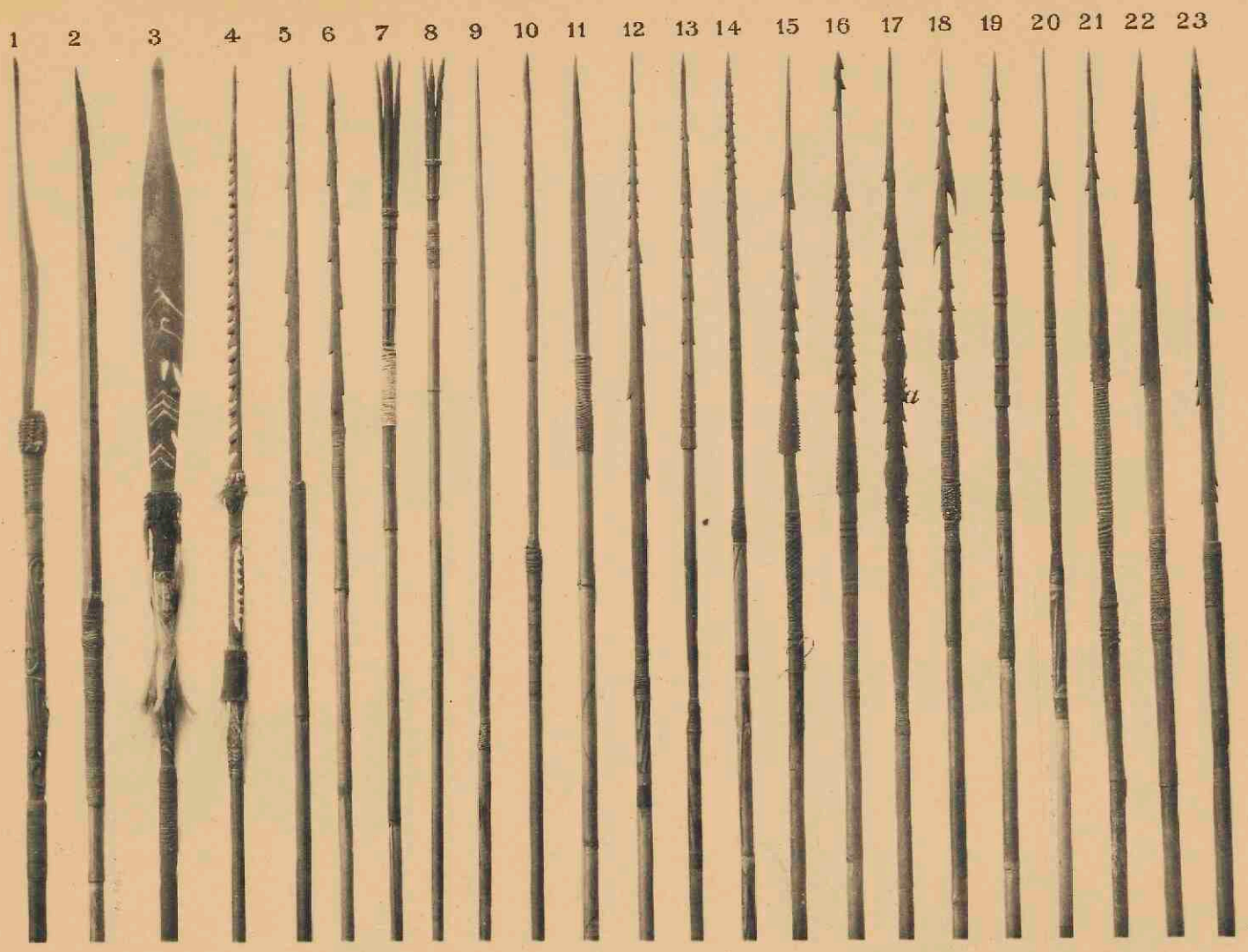

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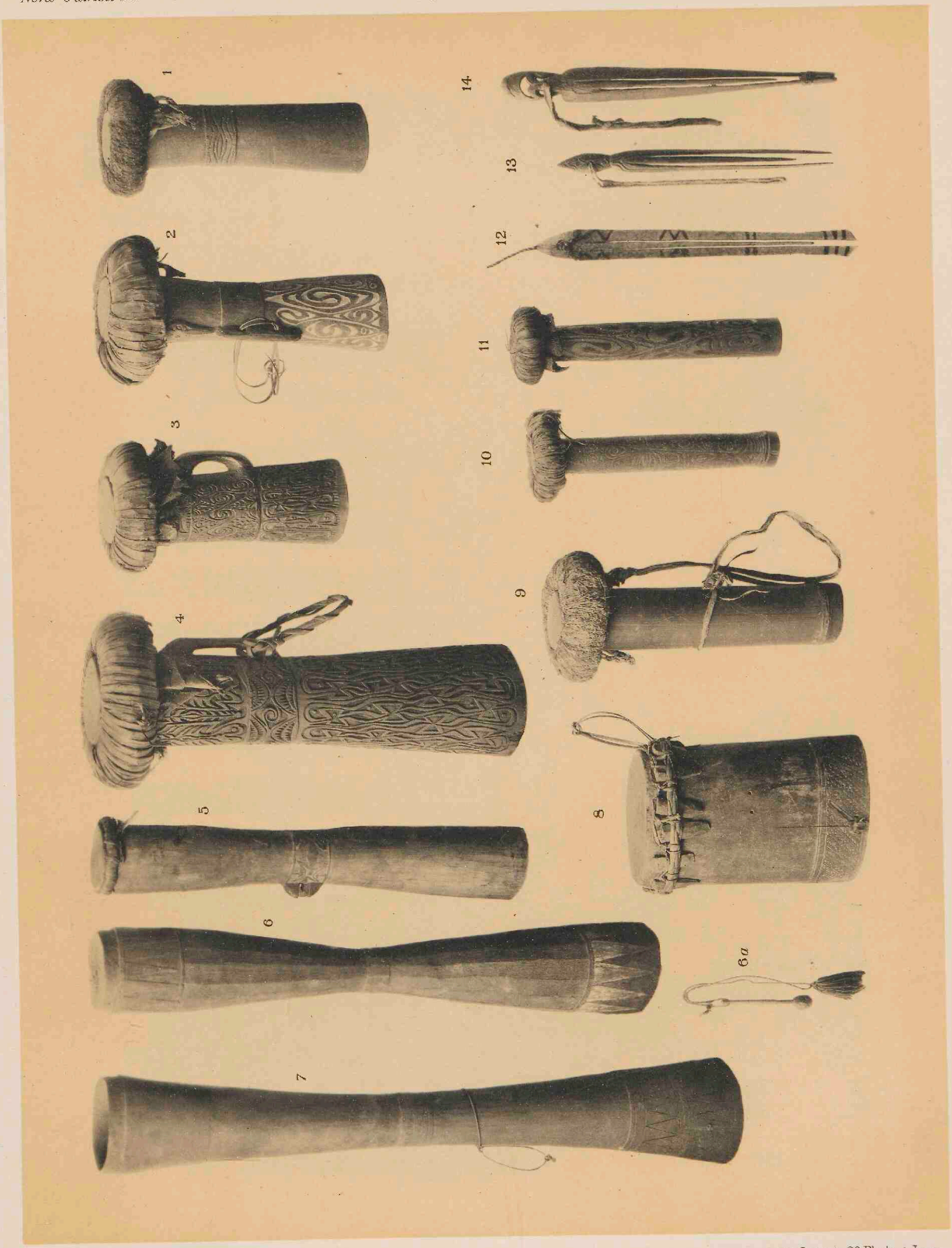

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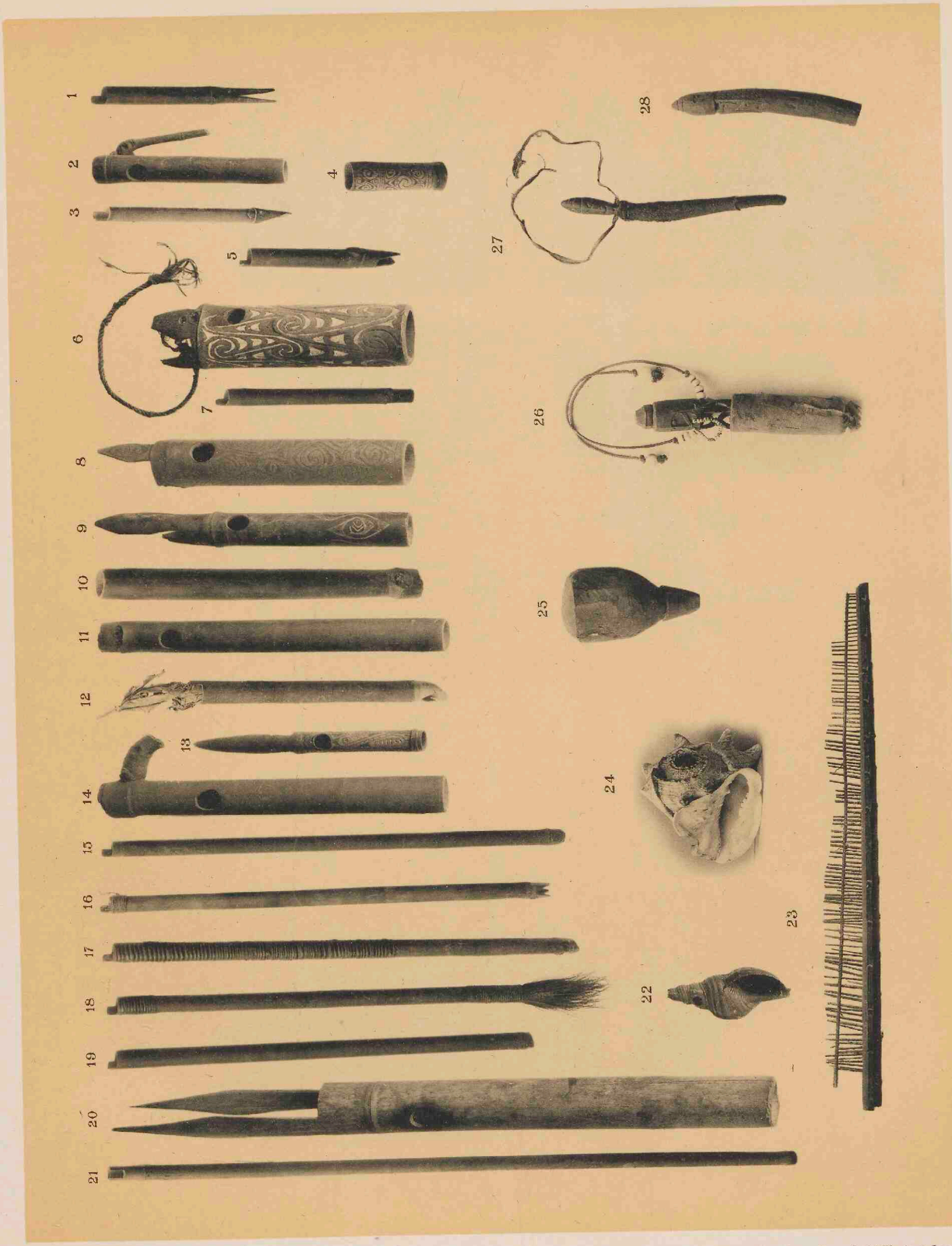
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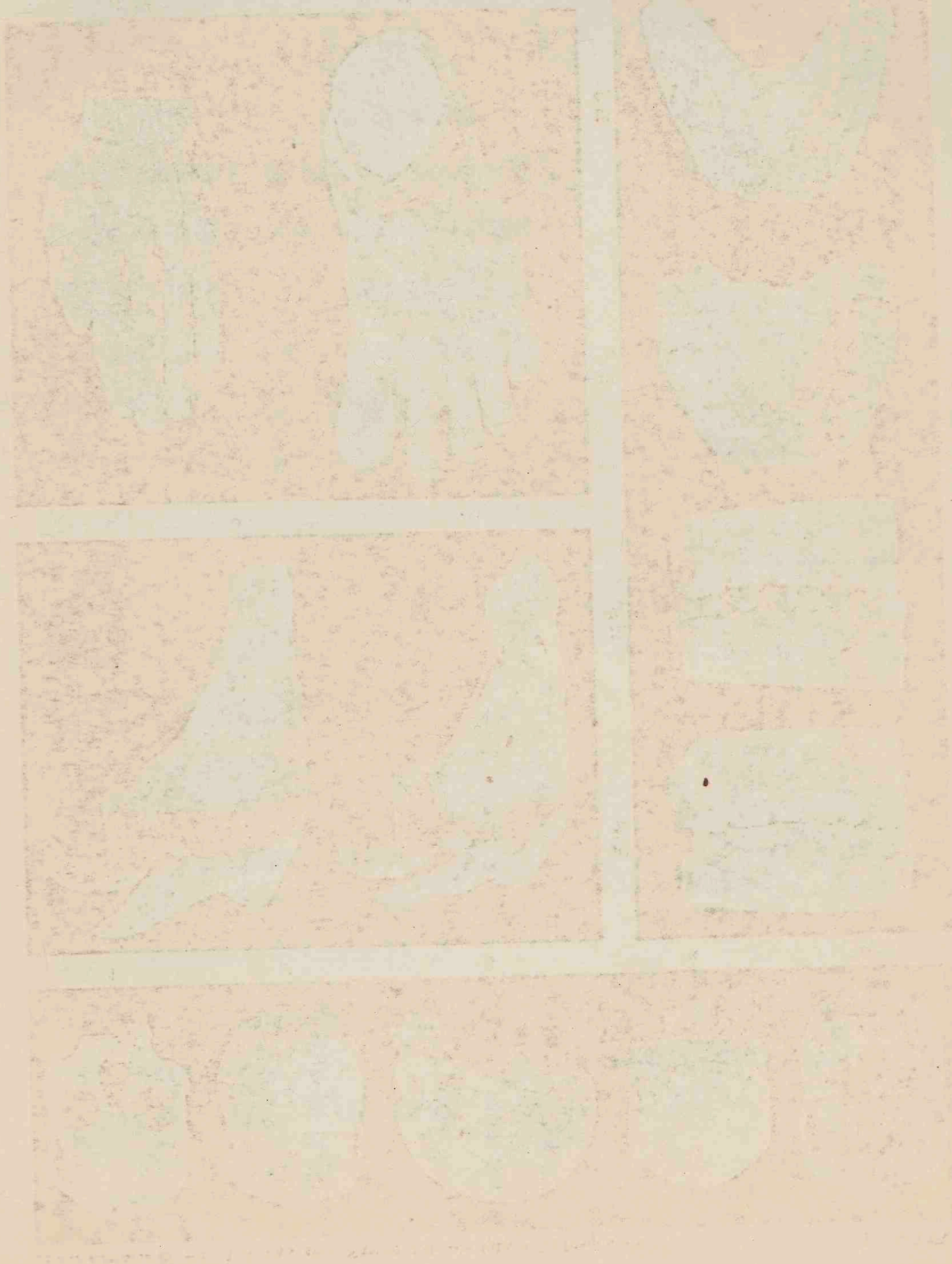
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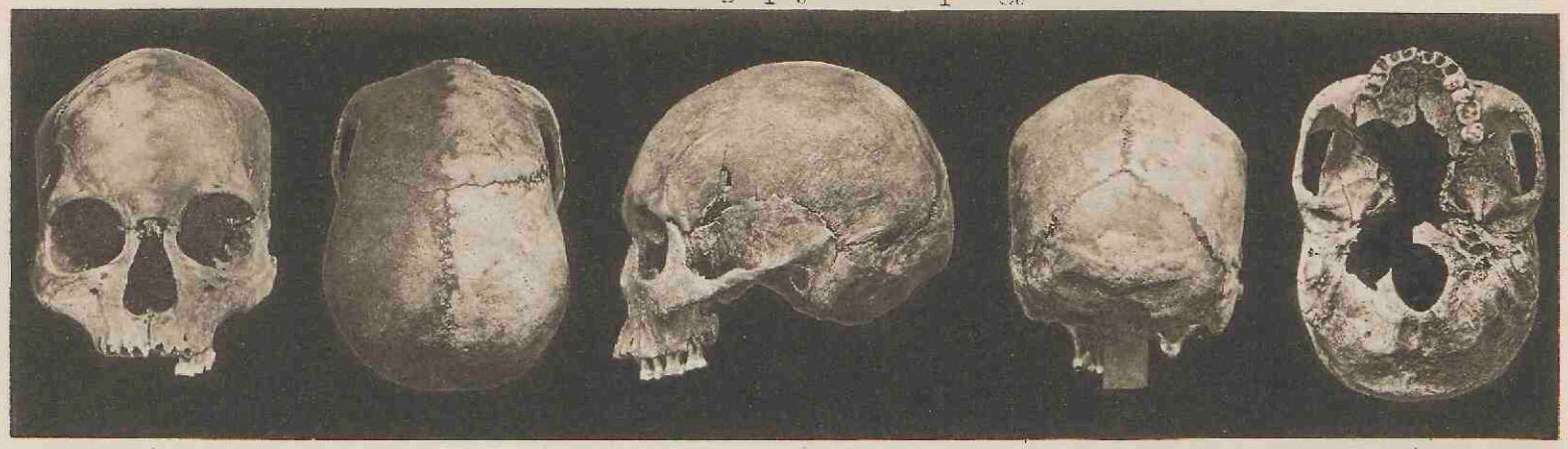


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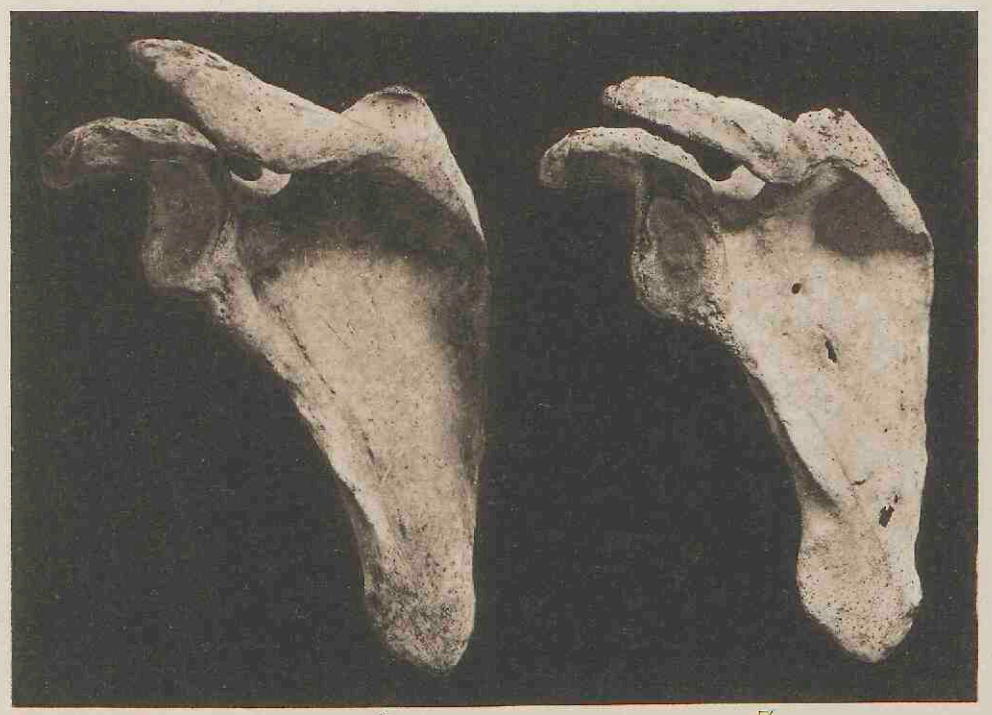


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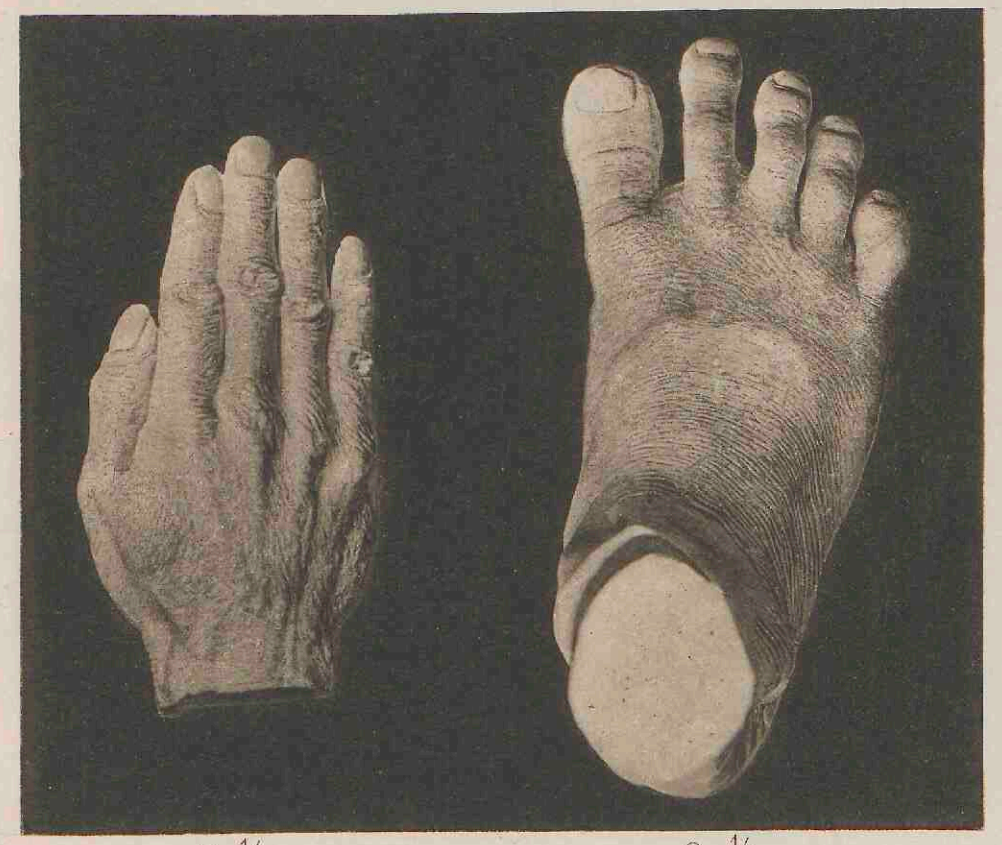




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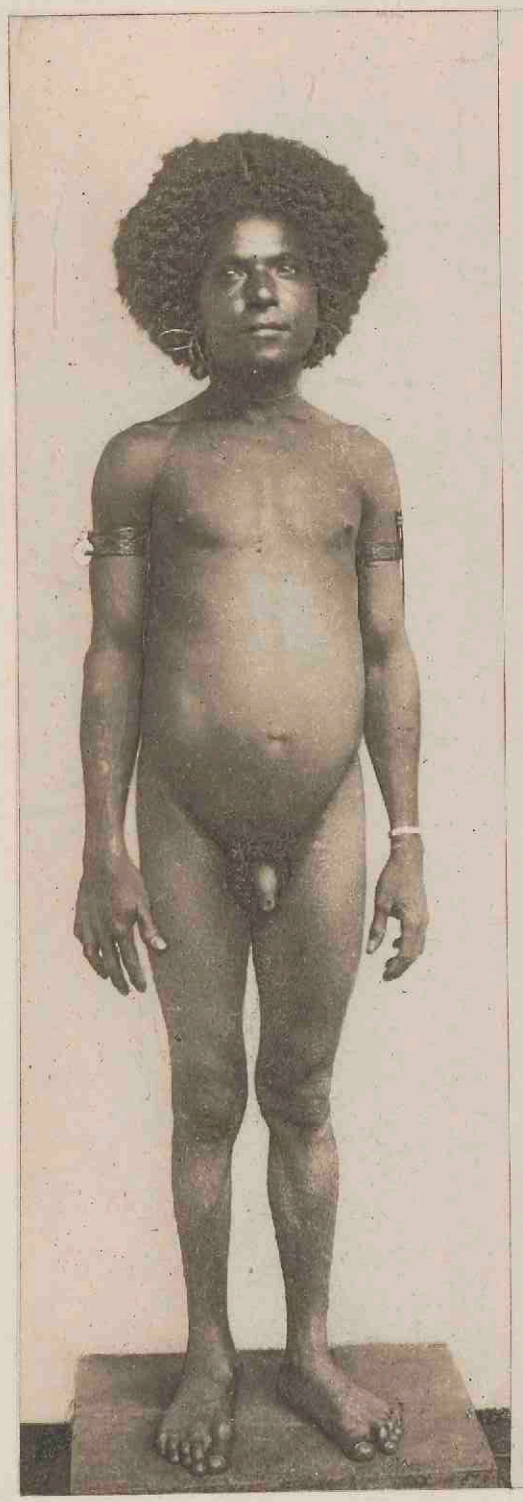


Fig. 1. Kabwă, Ajápo. (1.)



Fig. 2. Kabwă, Ajápo (1)

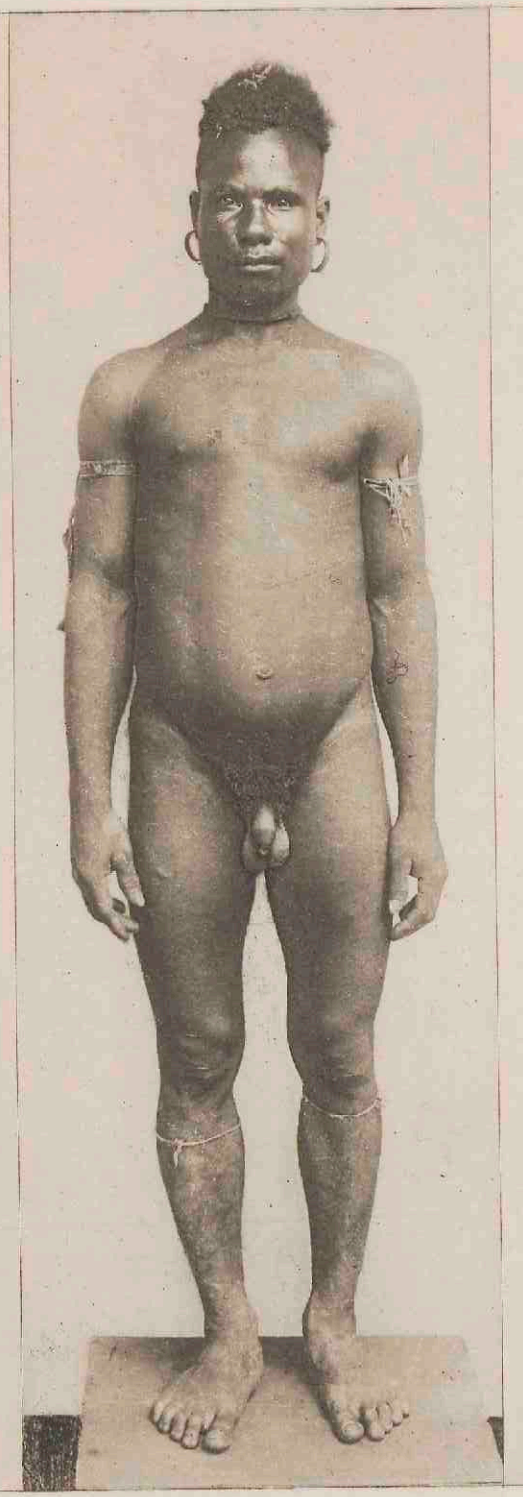


Fig. 3. Antjówa, Ajápo (2)

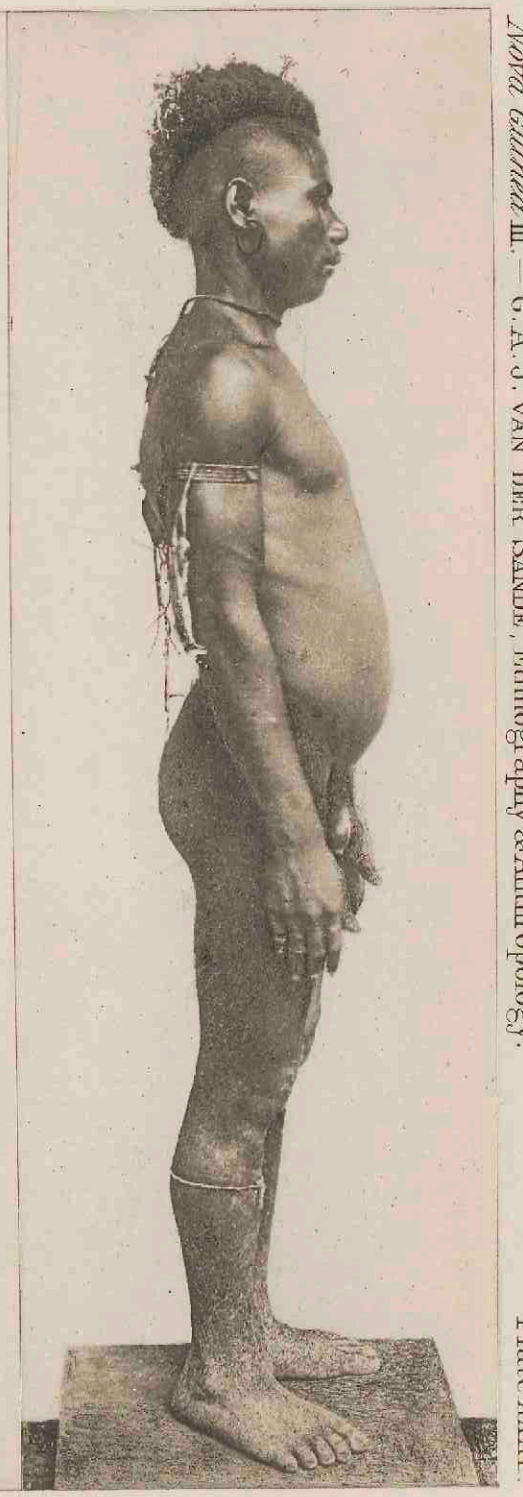


Fig. 4. Antjówa, Ajápo (2)

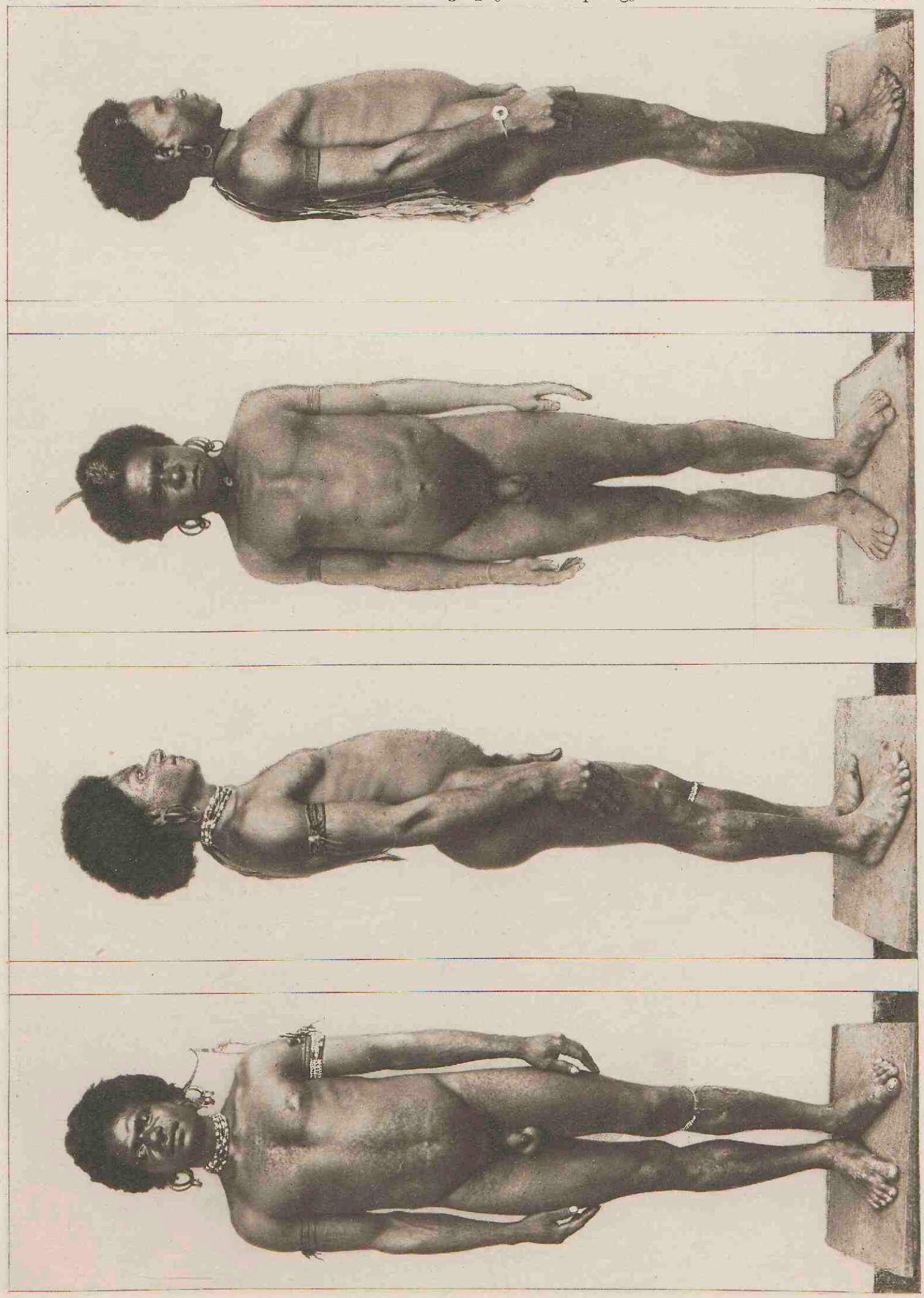


Fig. 4 Taai, Ajápo. (4)

Fig. 3 Taai, Ajápo. (4)

Fig. 2 Pörew, Asé. (3)

Fig. 1 Pörew, Asé. (3)



Fig.1 Pondu, Asé.(5)



Fig.2 Pondu, Asé.(5)

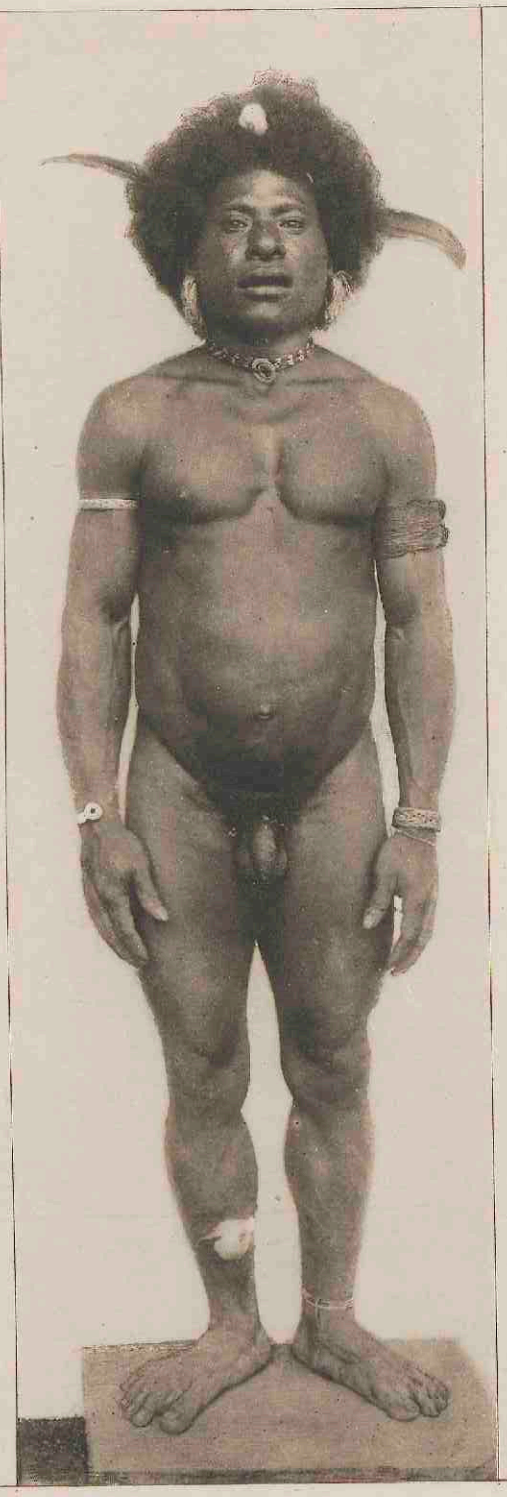


Fig.3 Ahoi, Ajápo (6)



Fig.4 Ahoi, Ajápo (6)

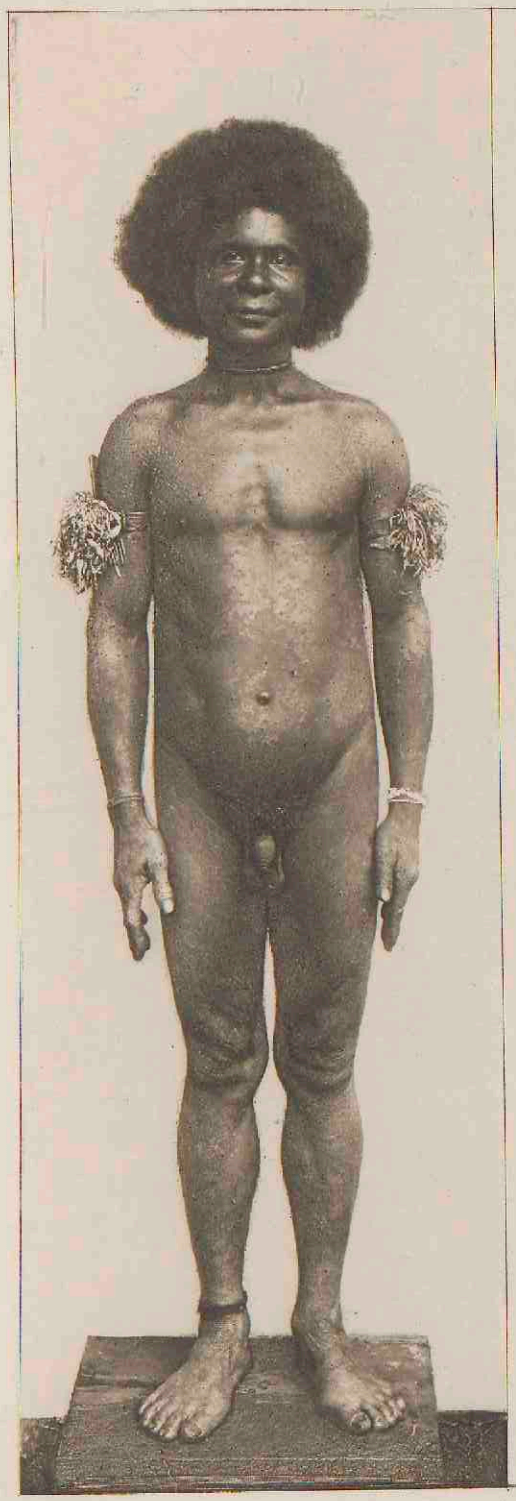


Fig.1 Tŏru, Ajápo.(7)



Fig.2 Tŏru, Ajápo.(7)

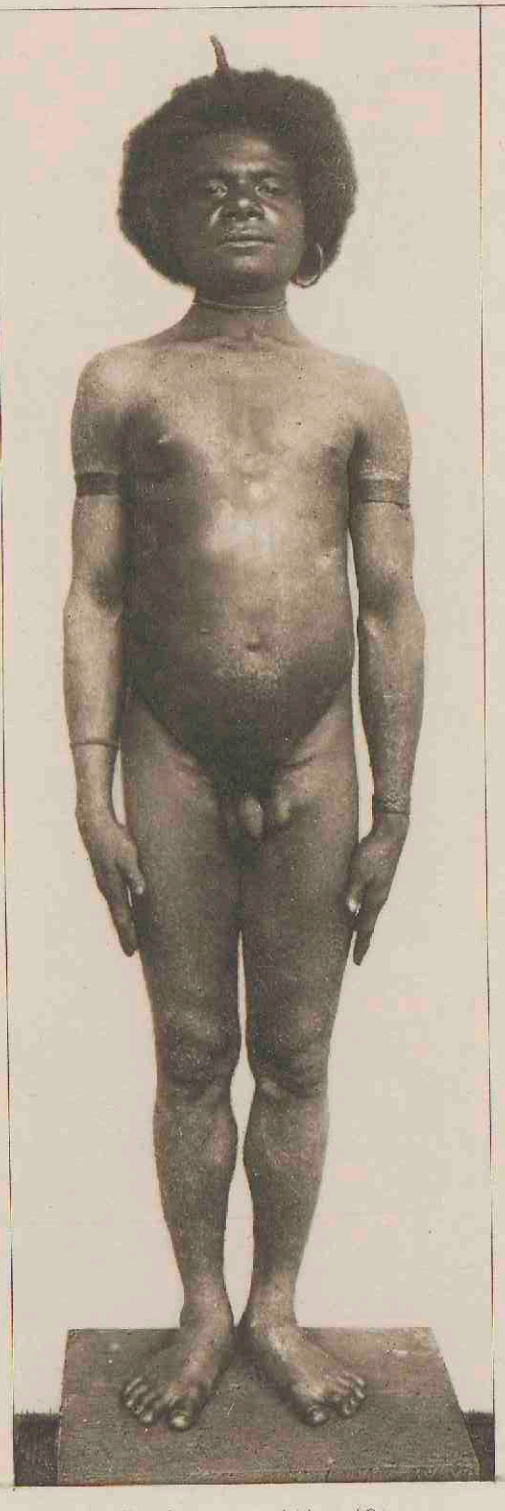


Fig.3 Jŏrew, Ajápo.(8)

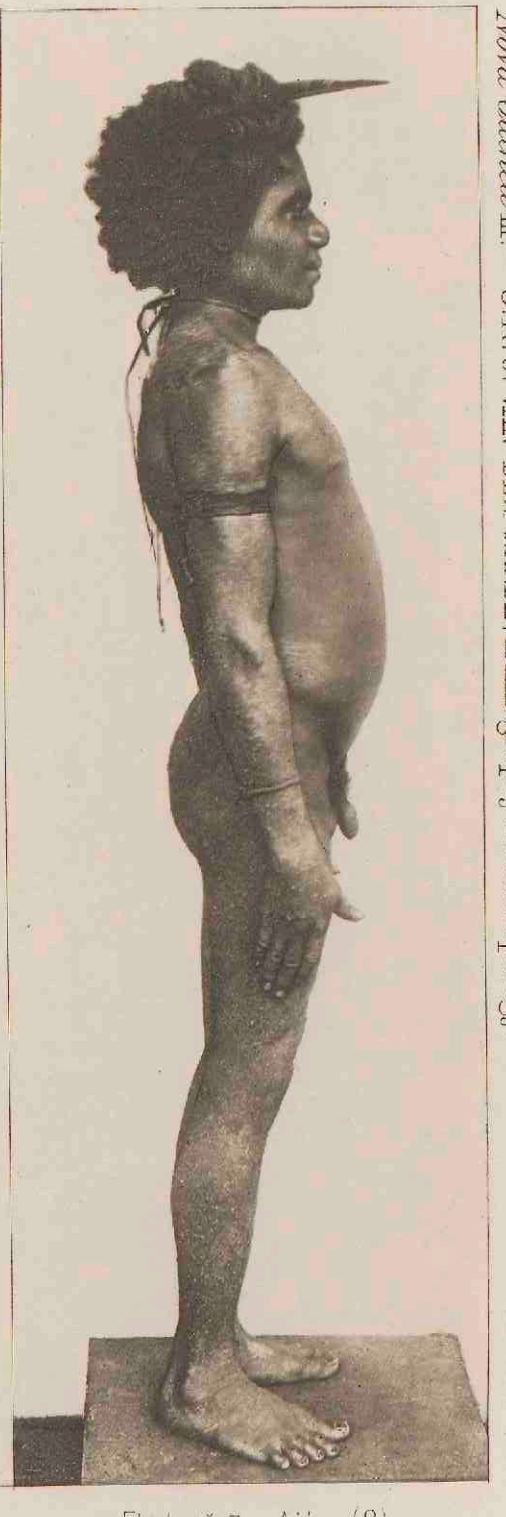


Fig.4 Jŏrēw, Ajápo.(8)



Fig.1 Tödèdëbă ; Ajápo.(9)



Fig.2 Tödèdëbă, Ajápo.(9)

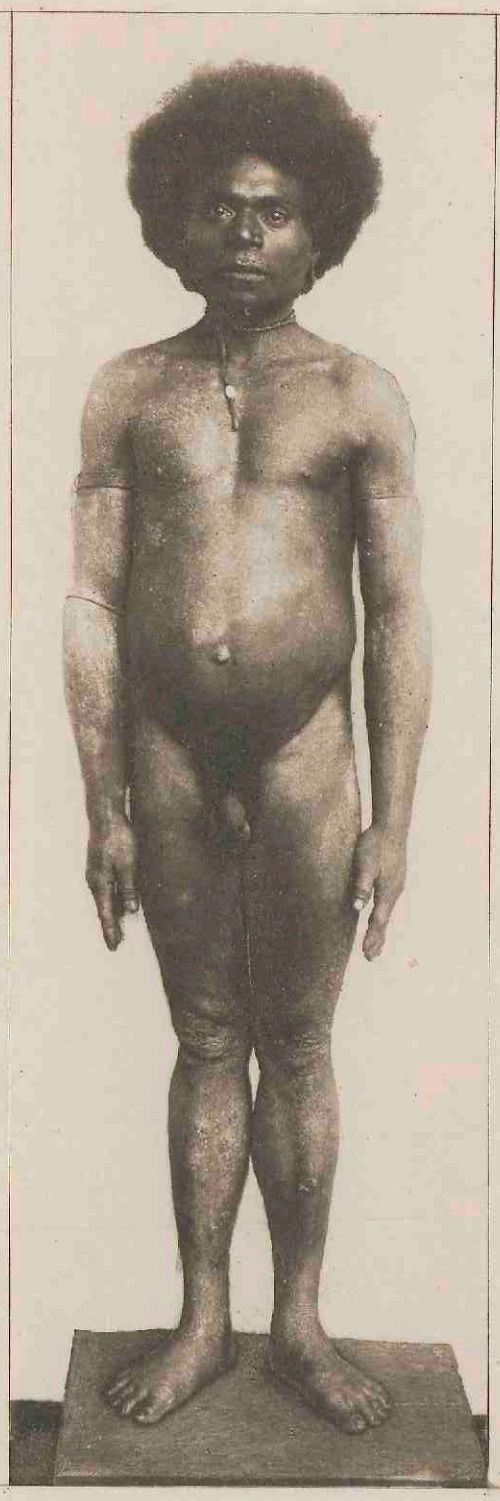


Fig.3 Arŏ. Ajápo.(10)



Fig.4 Arŏ, Ajapo.(10)



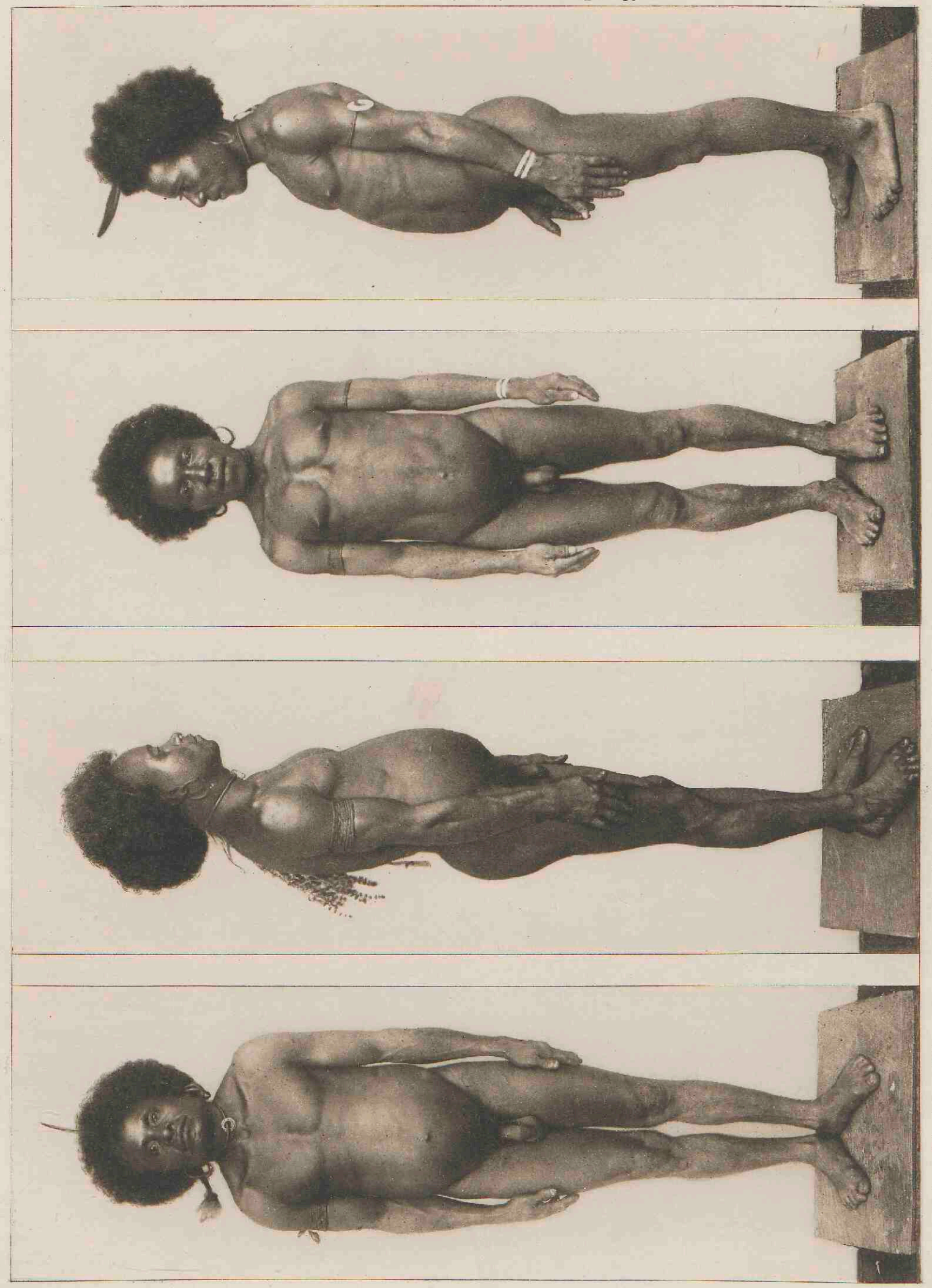


Fig.4 Jahöridëw, Ajàpo.(12)

Fig.3 Jahöridëw, Ajàpo.(12)

Fig2 Aukähâ, Ajàpo.(11)

Fig1 Aukähâ, Ajàpo.(11)

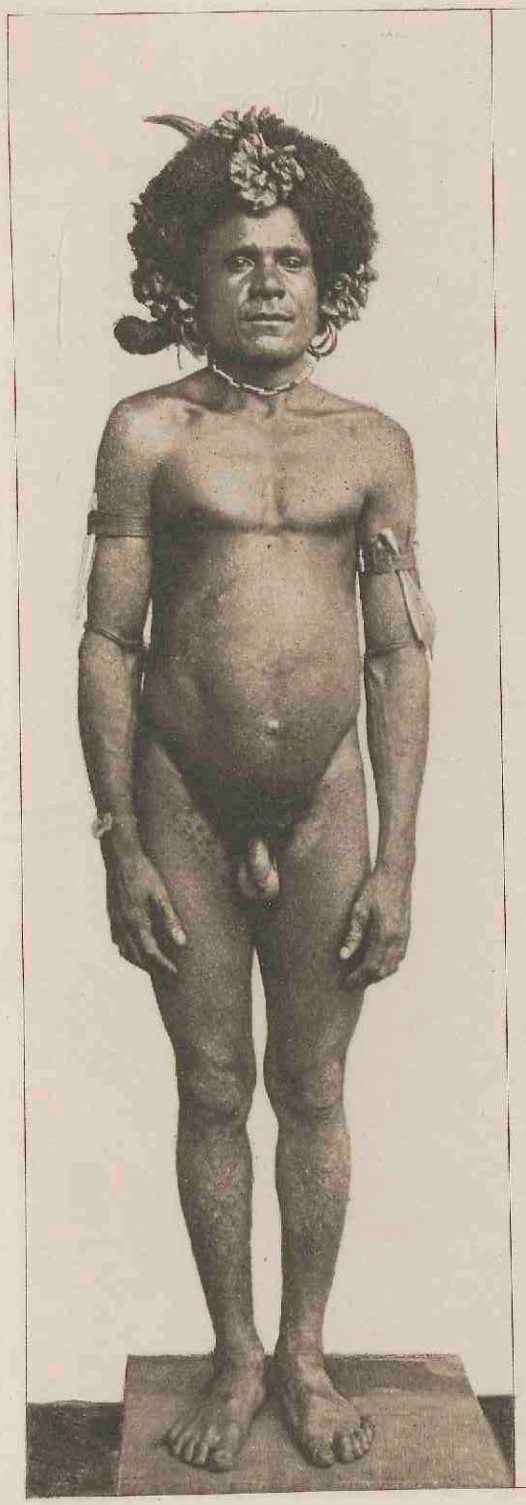


Fig.1 Töhidi ; Ajápo.(13)

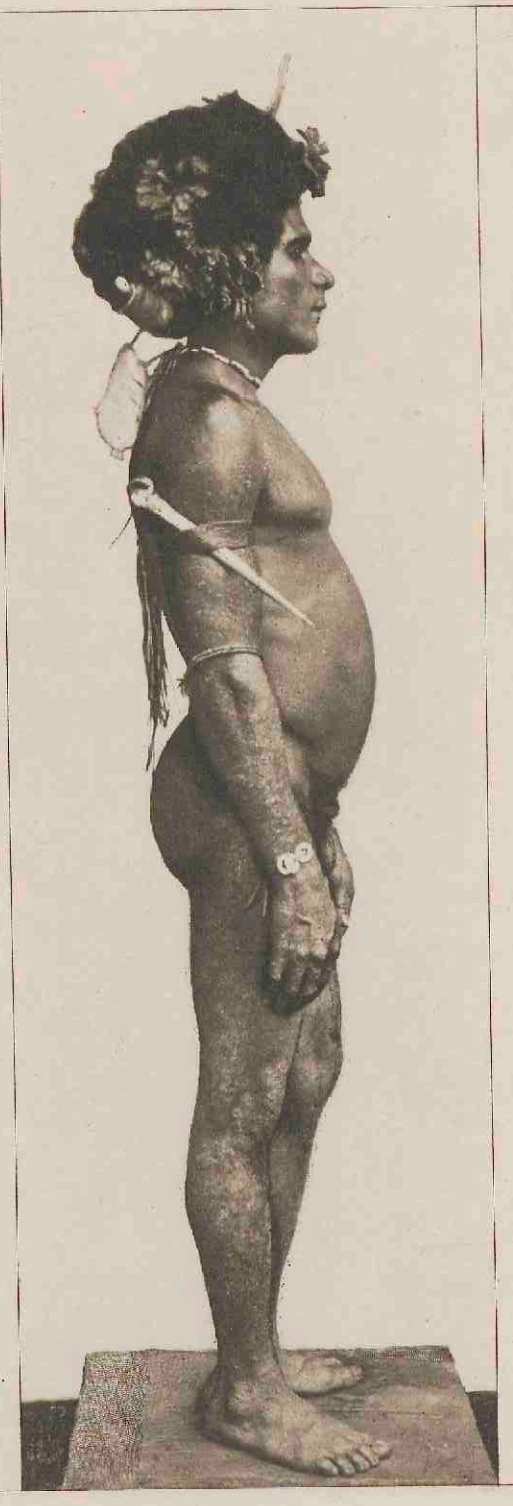


Fig.2 Töhidi ; Ajápo.(13)

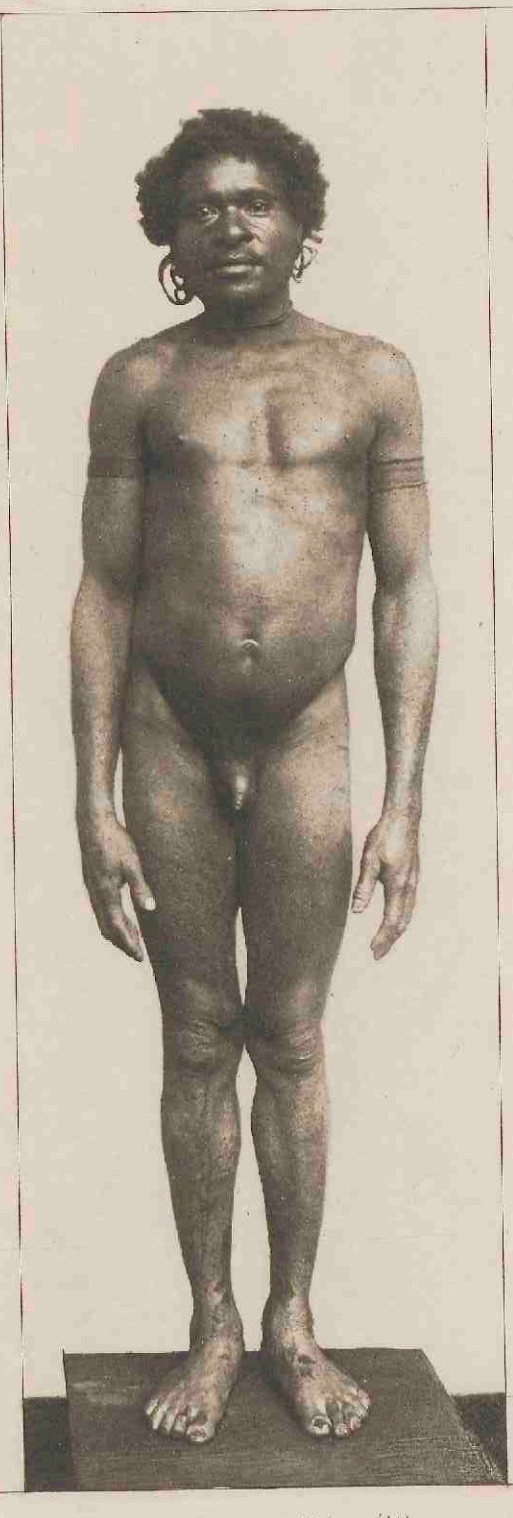


Fig.3 Wära ; Ajápo.(14)

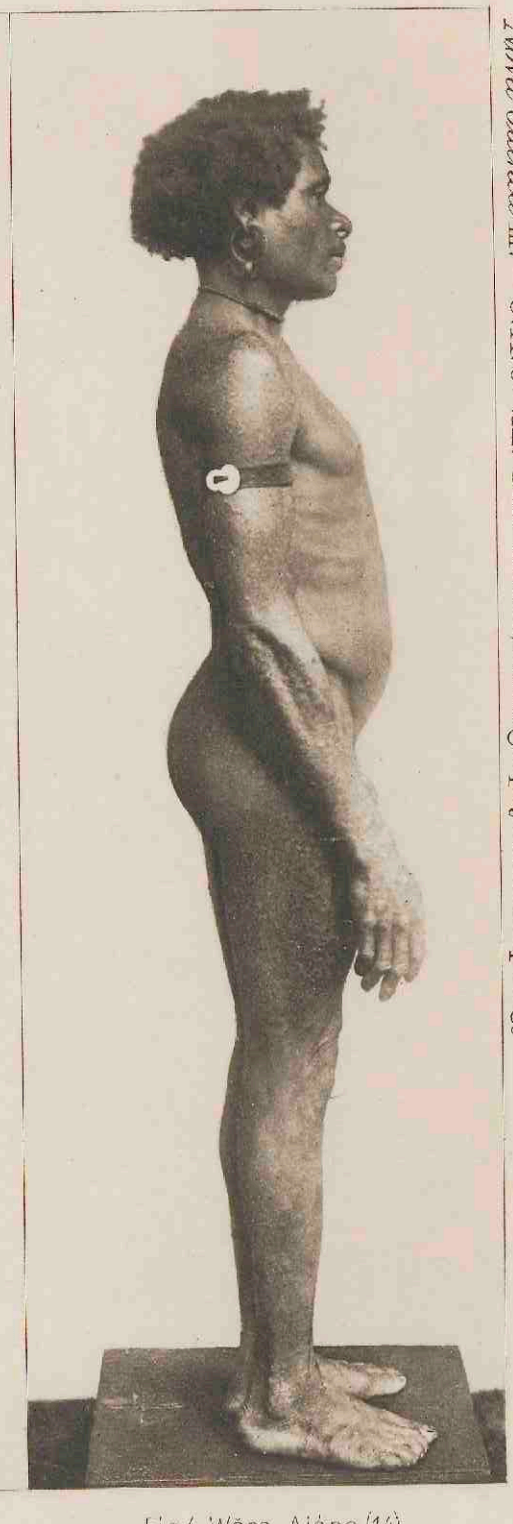


Fig.4 Wära ; Ajápo.(14)

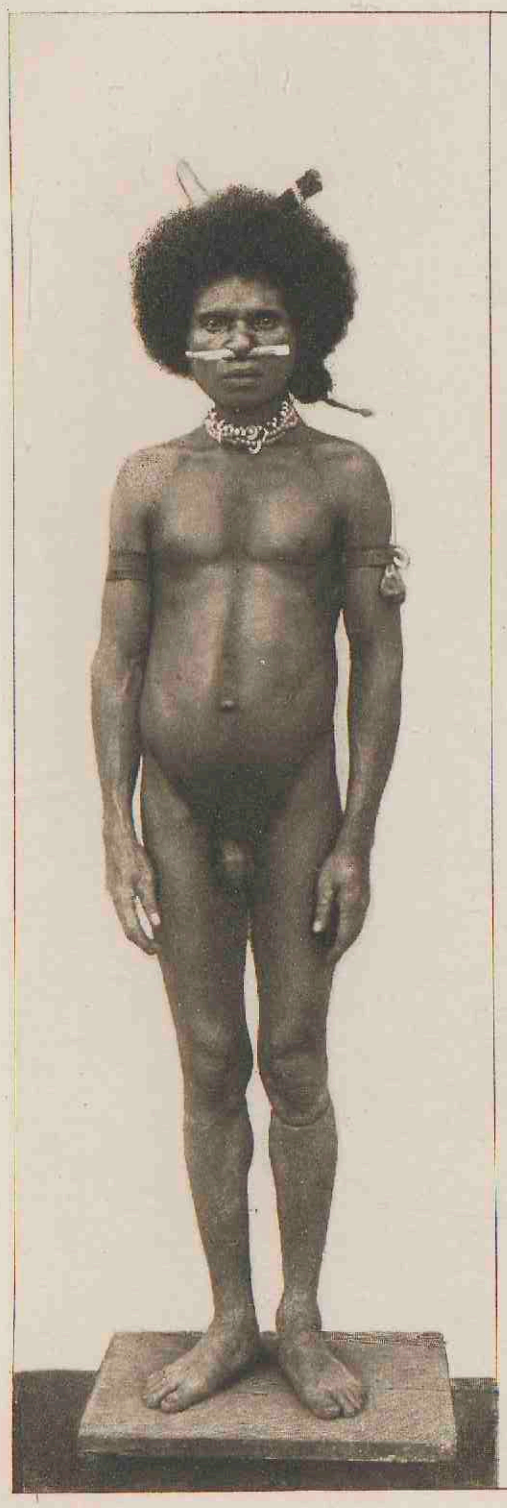


Fig.1 Krönju, Asé.(15)



Fig.2 Krönju, Asé.(15)

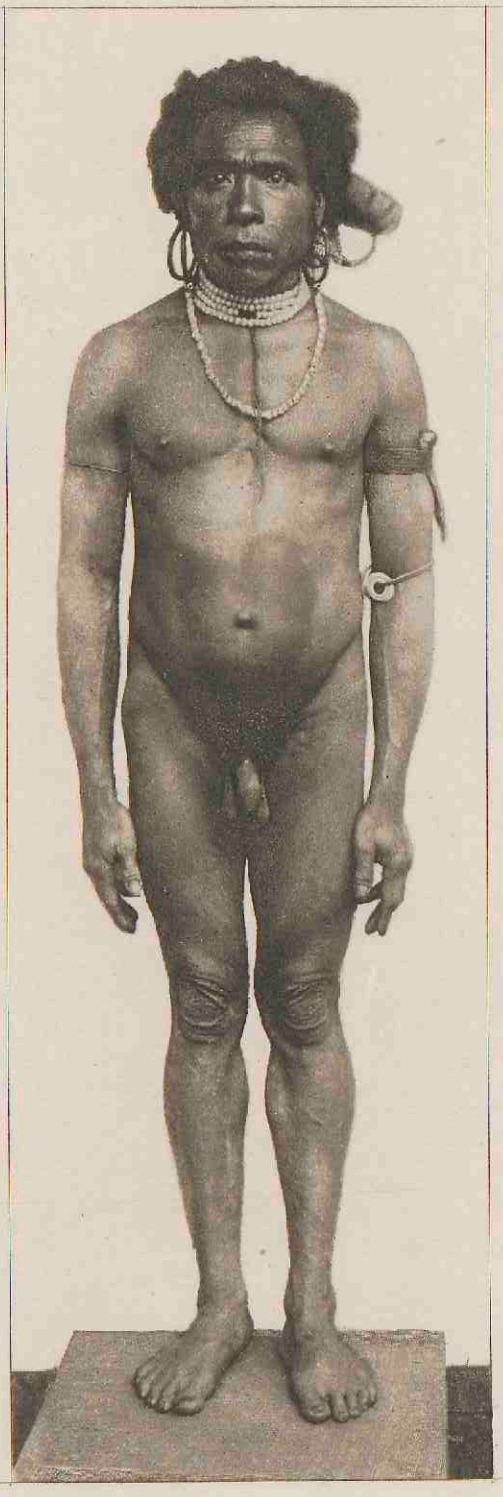


Fig.3 Taci, Asé.(16)

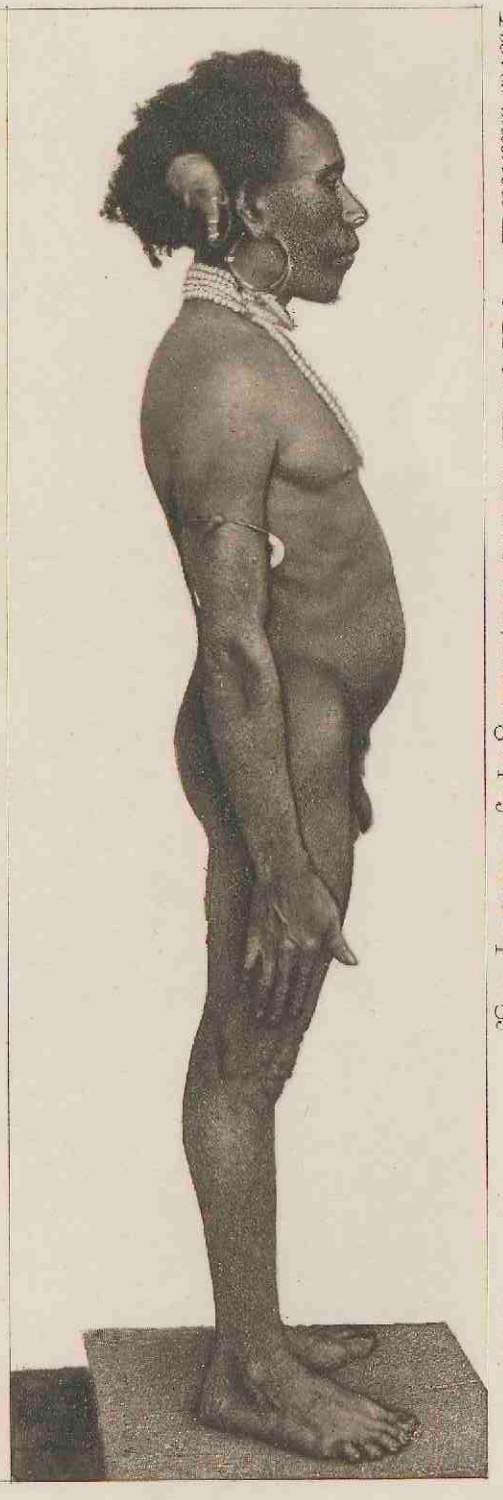


Fig.4 Tadi, Asé.(16)

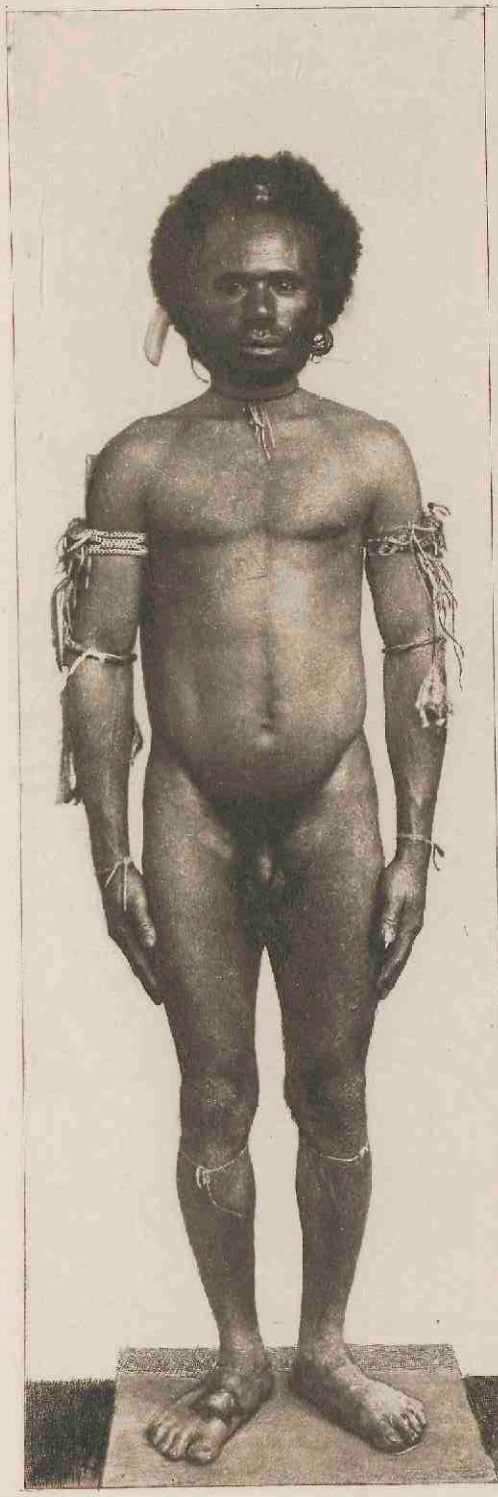


Fig.1 Sărēw, Ajápo.(17)



Fig.2.Sărēw, Ajápo.(17)



Fig.3 Ngibă, Ajápo.(18)

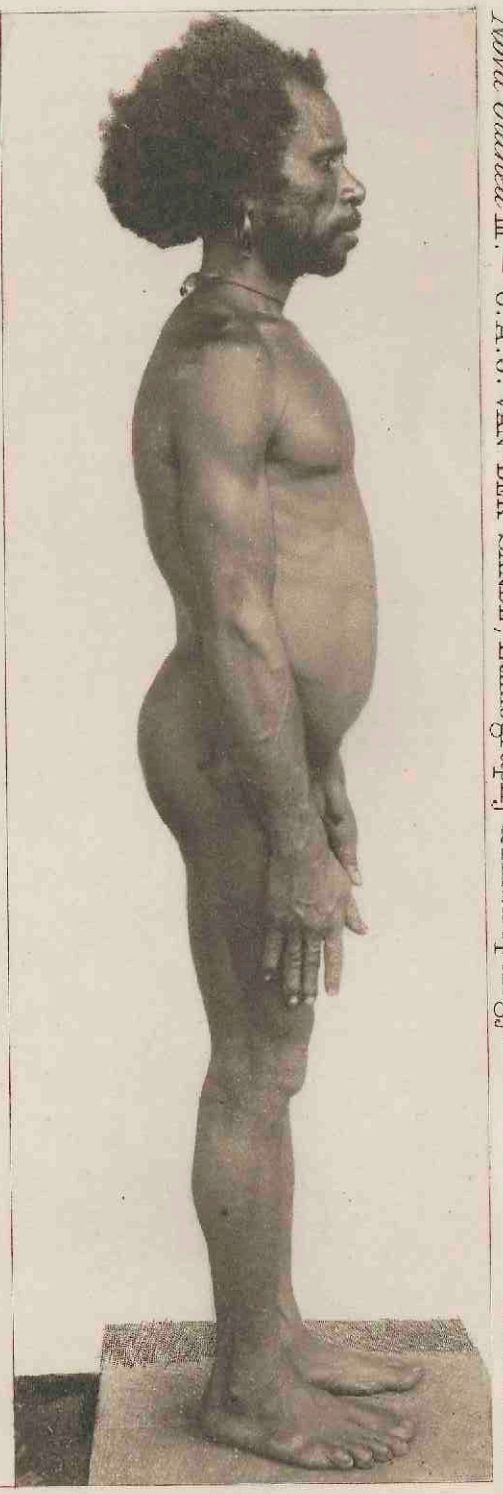


Fig.4 Ngibă, Ajápo.(18)

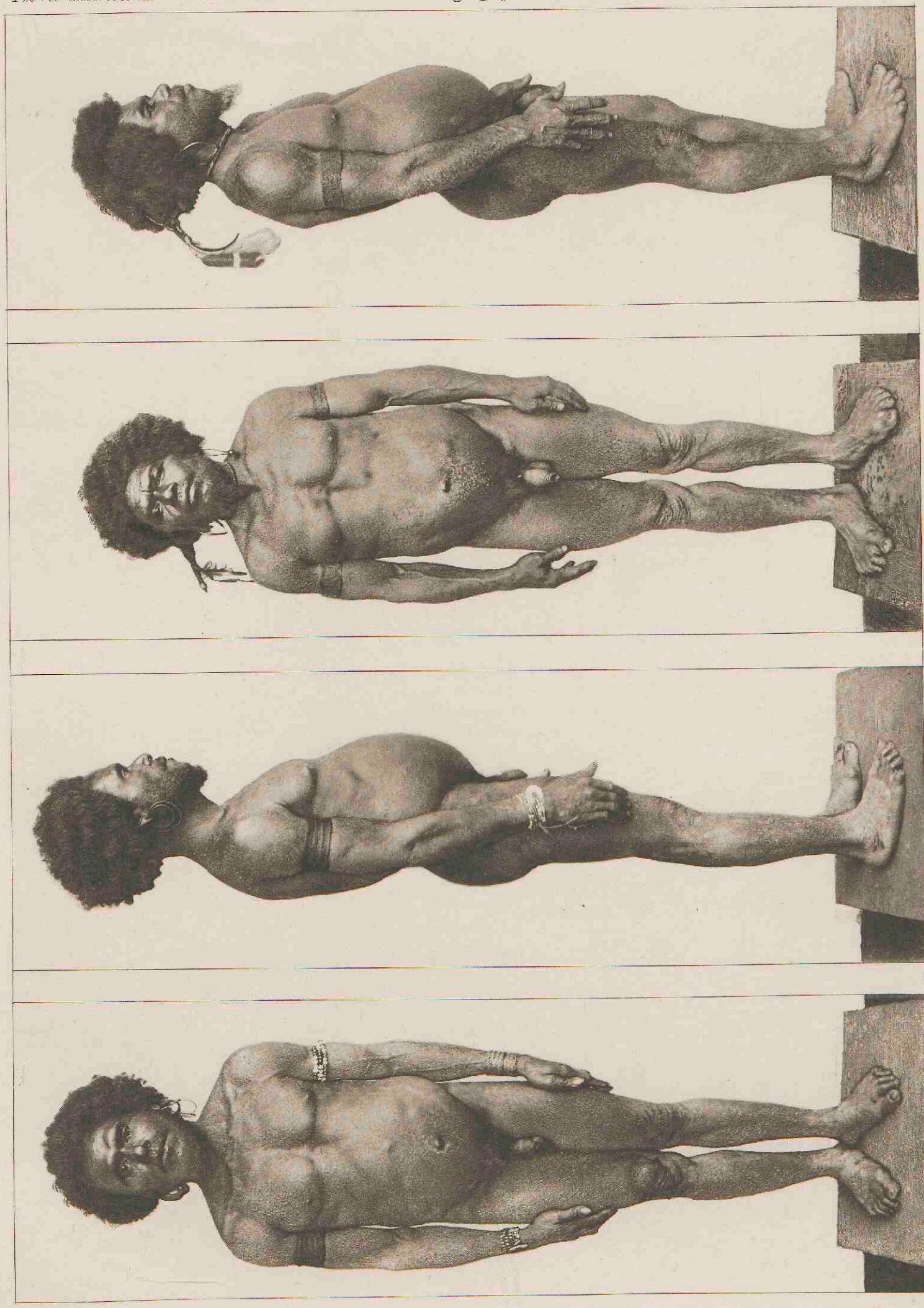


Fig.4 Sŏri, Ajápo.(20)

Fig.3 Sŏri, Ajápo.(20)

Fig.2 Kambu, Ajápo.(19)

Fig.1 Kambu, Ajápo.(19)

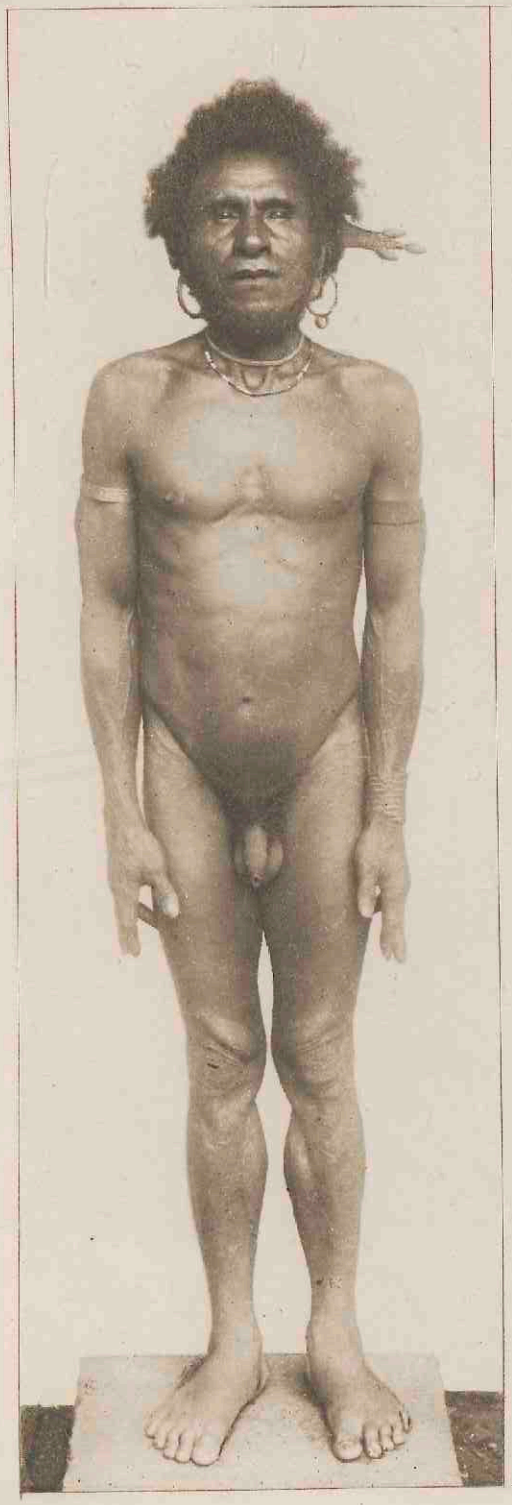


Fig.1 Mărĭū ; Ajàpo.(21)



Fig.2 Mărĭū ; Ajàpo.(21)



Fig.3 Hombŏ ; Ajàpo (22)



Fig.4 Homŏ ; Ajàpo.(22)

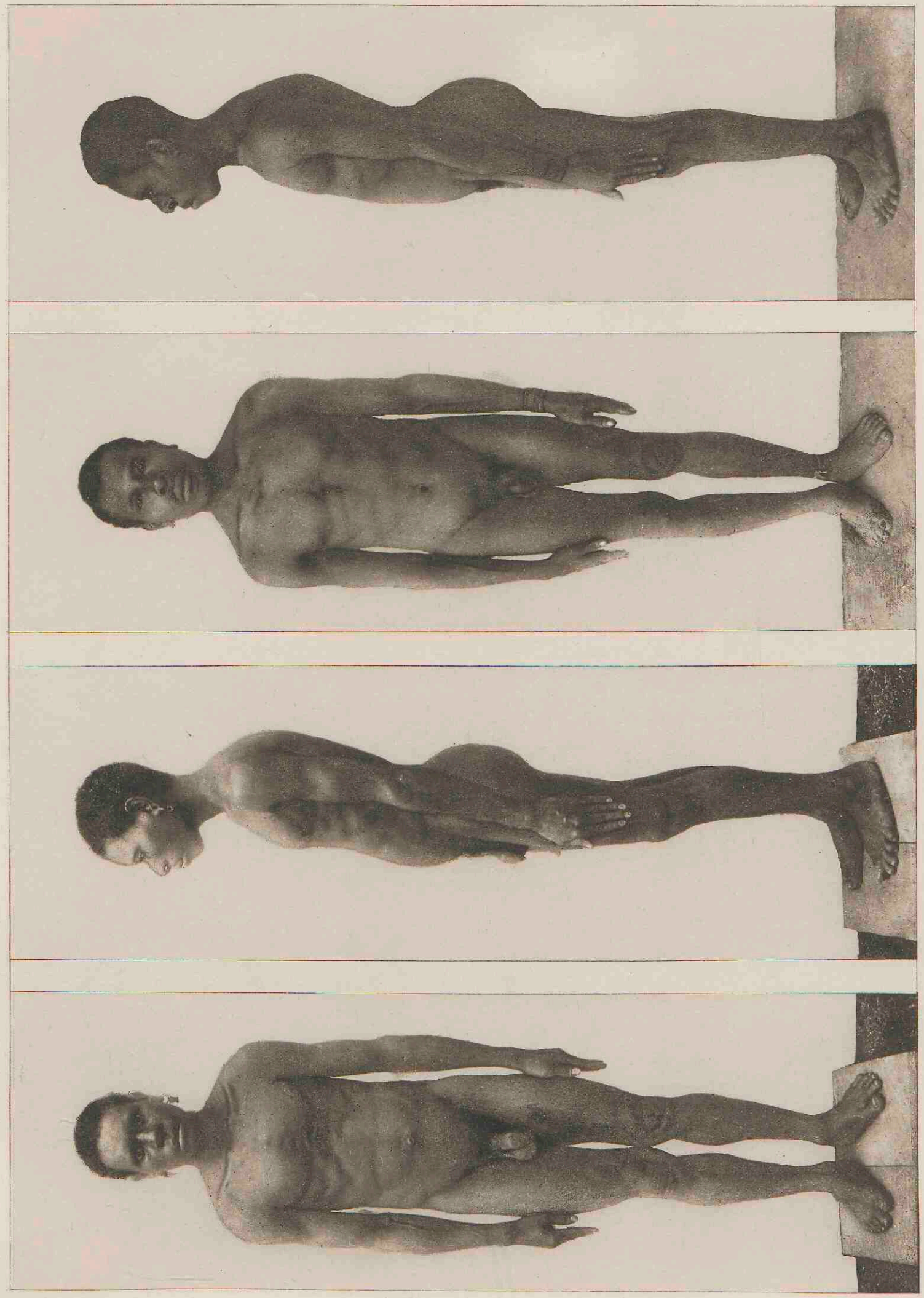


Fig.4 Jèn, Tobàdi.(29)

Fig.3 Jèn, Tobàdi.(29)

Fig.2 Mètrau, Tobàdi.(25)

Fig.1 Mètrau, Tobàdi.(25)

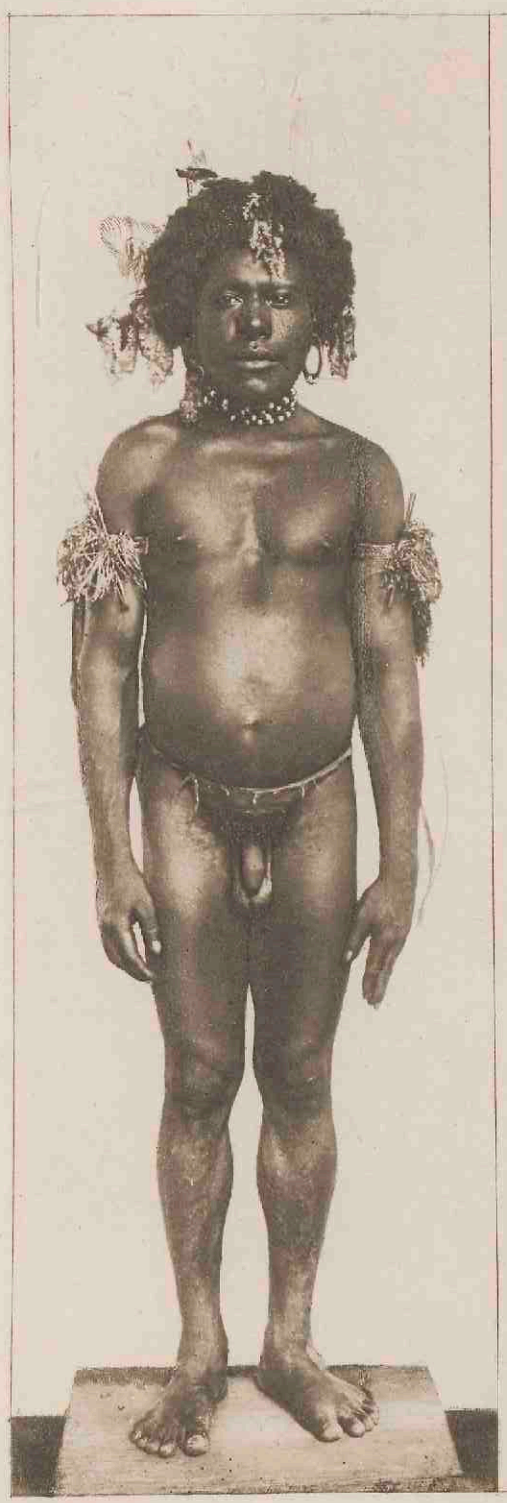


Fig.1 Kărèra , Jngrås.(30)

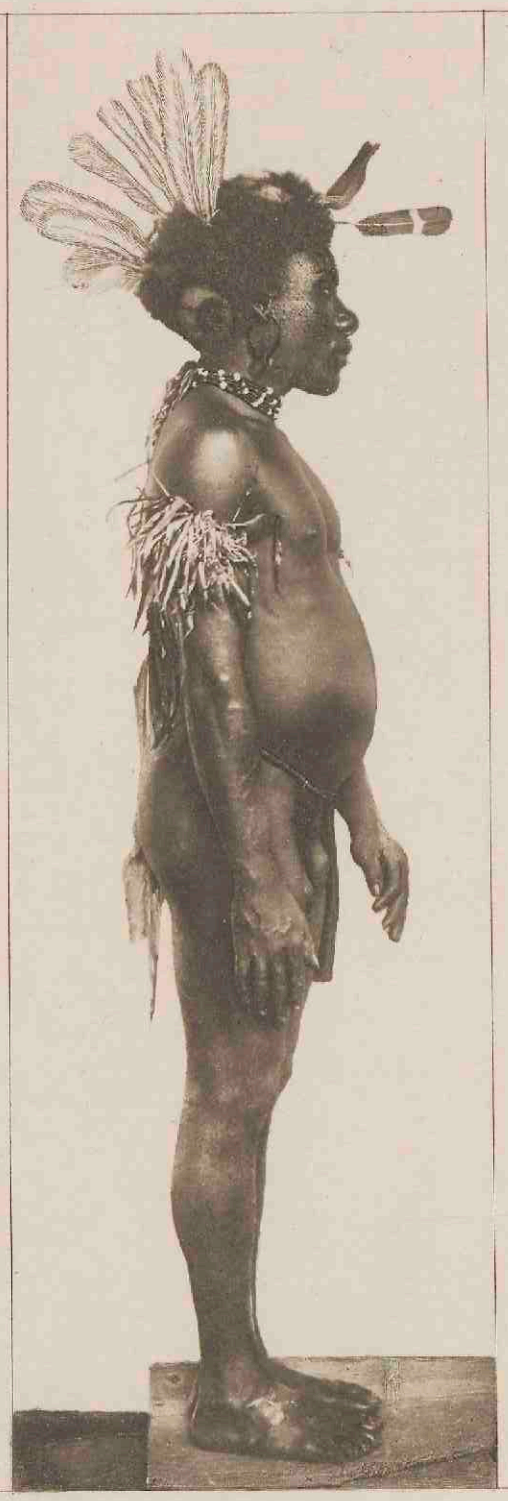


Fig.2 Kărèra , Jngrès.(30)



Fig.3 Kòra , Kajò Entsàu.(32)



Fig.4 Kòra , Kajò Entsàu.(32)

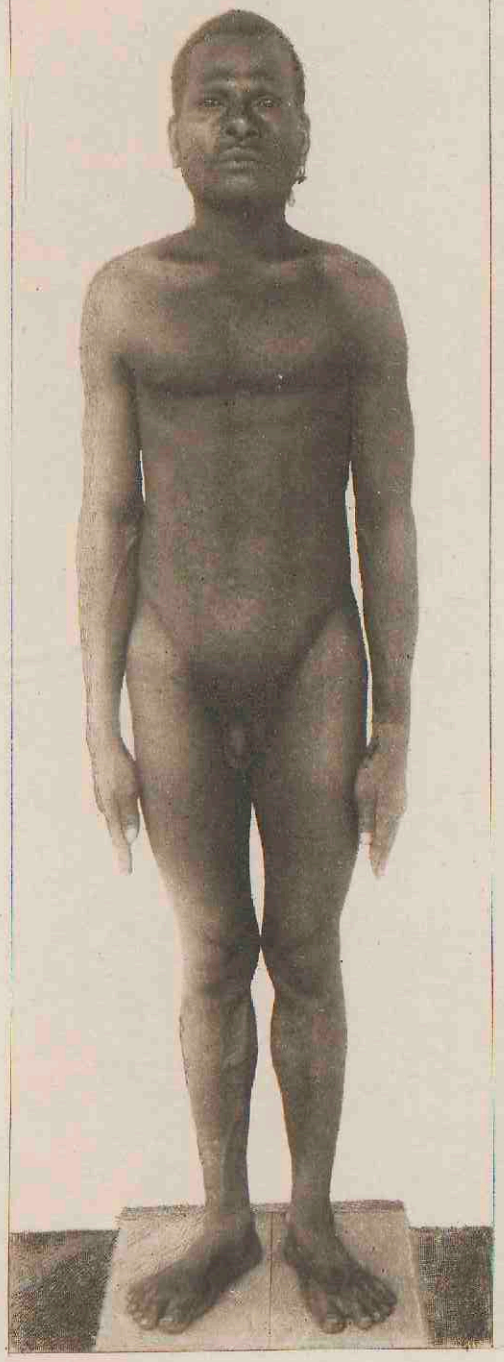


Fig.1 Tråwar, Tobàdi.(35)

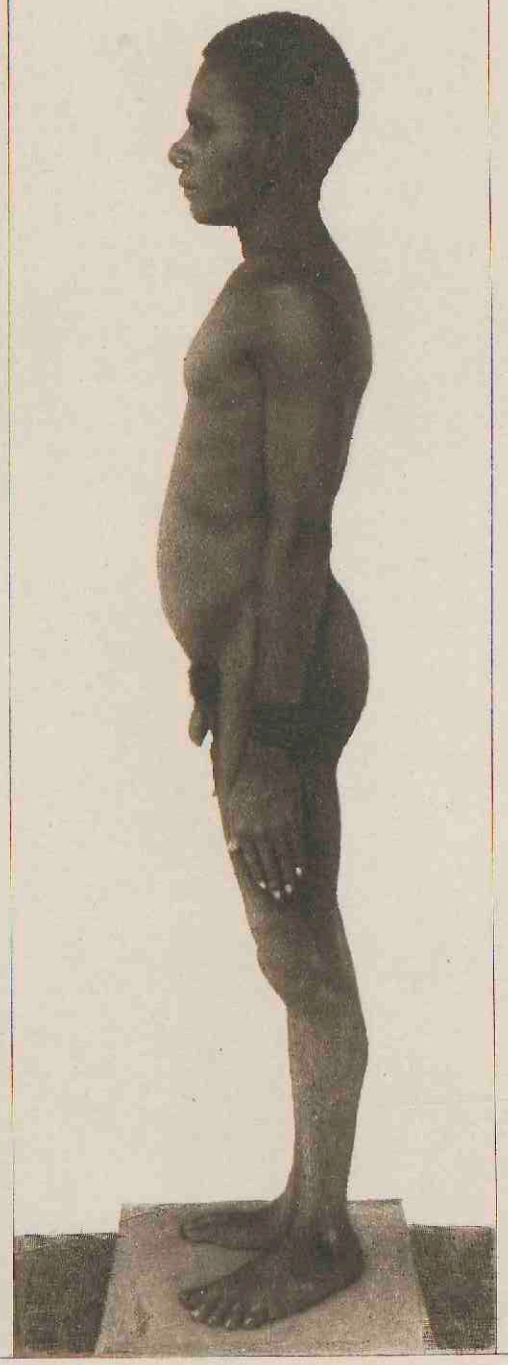


Fig.2 Tråwar, Tobàdi.(35)



Fig.3 Kruwè, Tobàdi.(37)

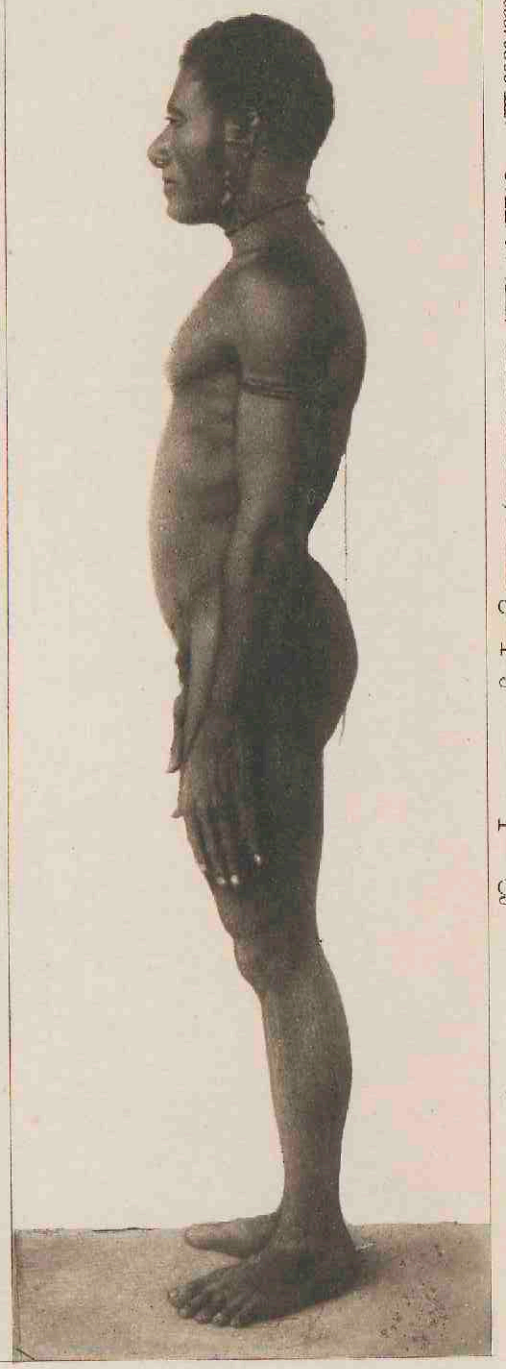


Fig.4 Kruwè, Tobadi.(37)

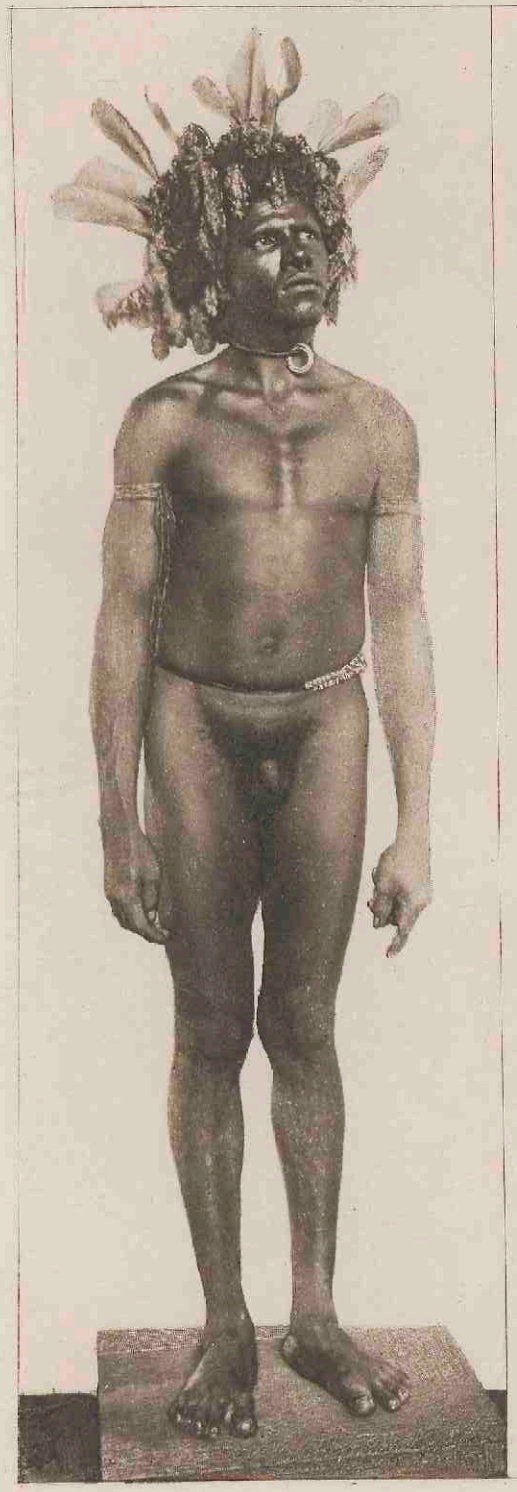


Fig.1 Laisi ; Kajò Entsau (33)



Fig 2 Kurŏ, Jngrâs (38)



Fig.3 Kurŏ ; Jngrâs (38)

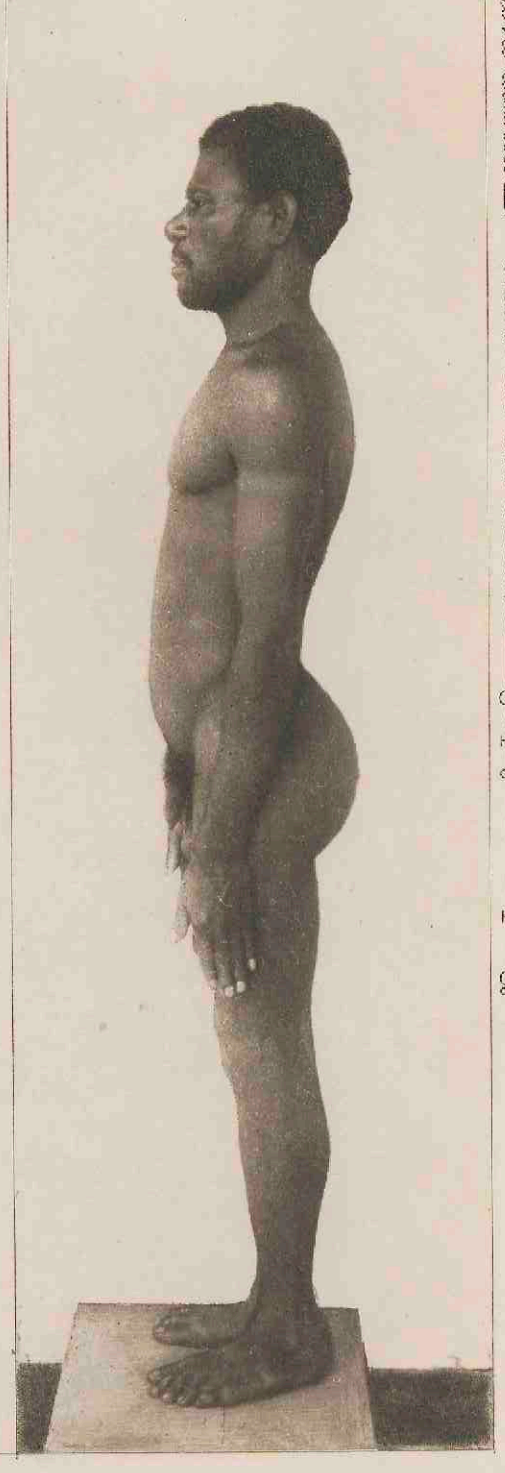


Fig.4 Pītjān ; Jngrâs (33)

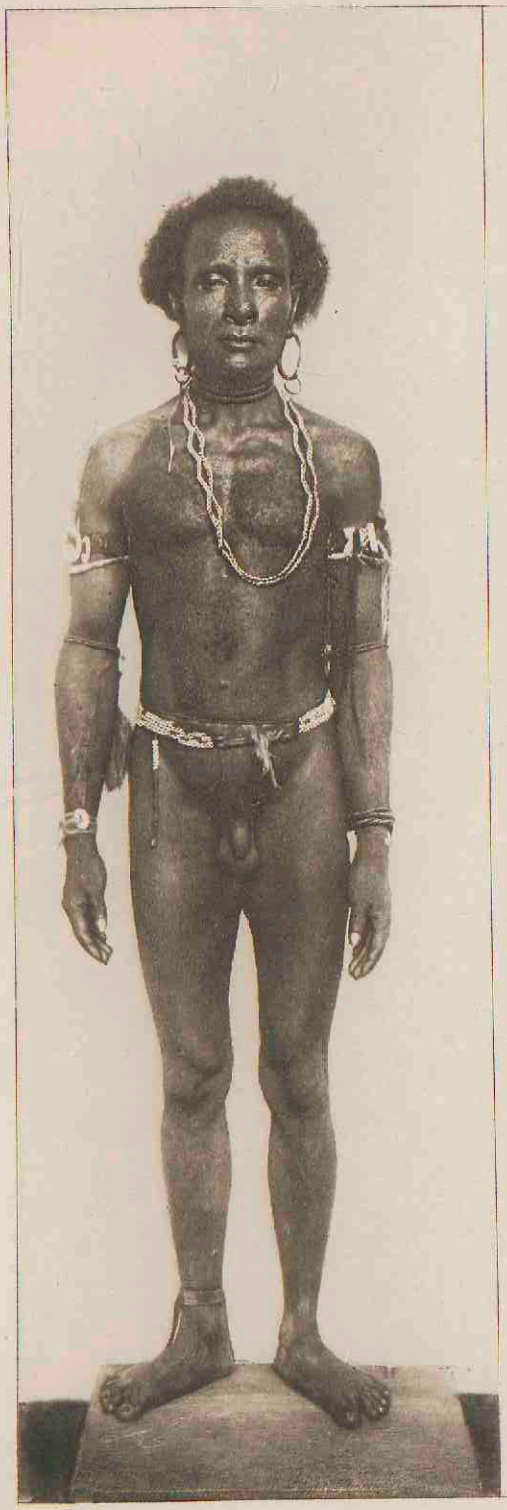


Fig.1 Mĕsaudŏ ; Tobád .(40)



Fig.2 Mĕsaucŏ ; Tobádi.(40)



Fig.3 Kiram ; Asé.(41)



Fig.4 Kiram ; Asé.(41)



Fig.1 Ugai, Jngrås.(43)



Fig.2 Ugai, Jngrås.(43)



Fig.3 Ugai, Jngrås.(43)



Fig. 1 Jtjoi, Tobádi. (45)



Fig. 2 Jtjoi, Tobádi. (45)



Fig. 3 Jtjoi, Tobádi (45)

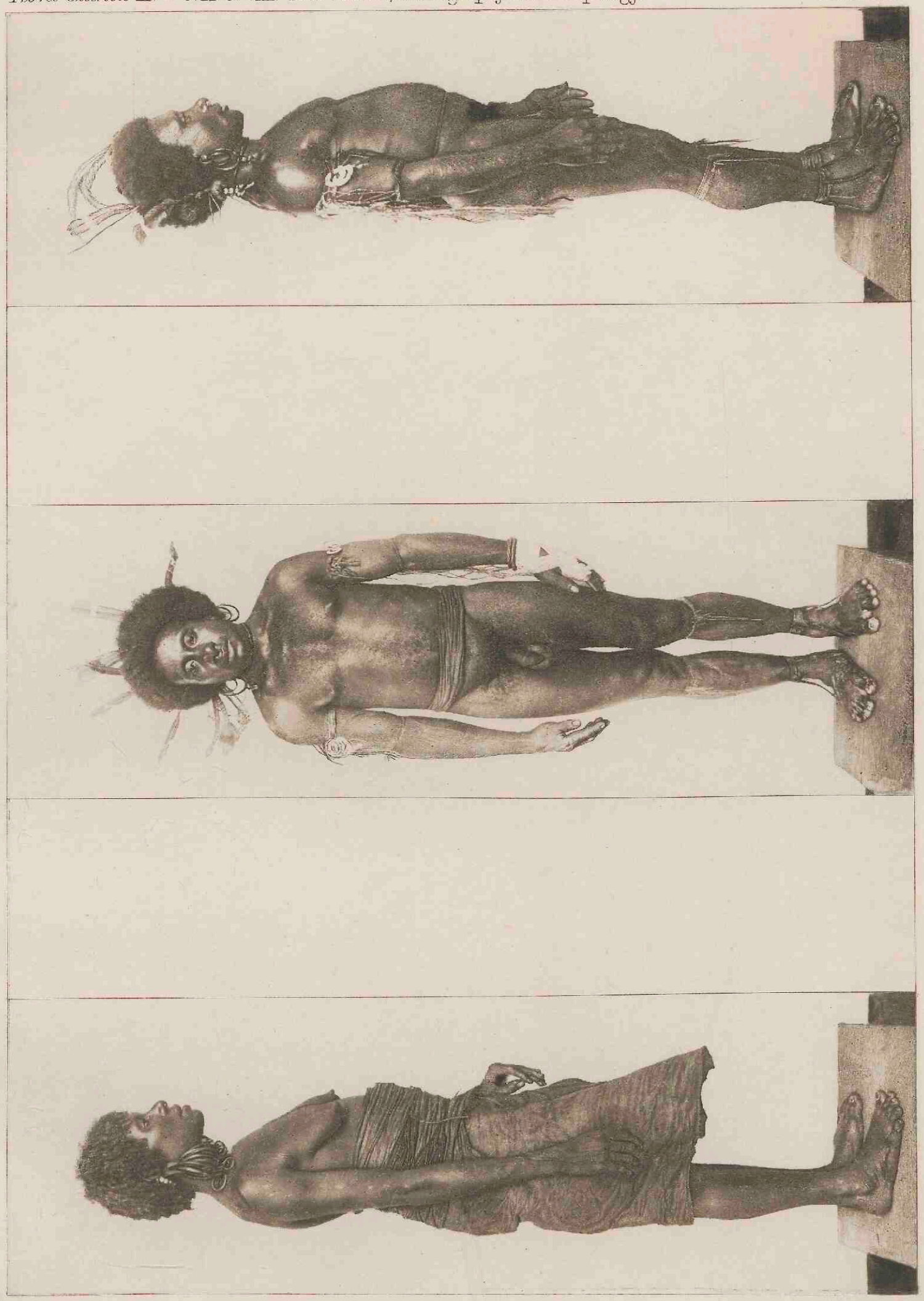


Fig.1 Mâra ; Tobâdi. (44)

Fig.2 Mèr ; Tobâdi.

Fig.3 Mèr. Tobâd'.

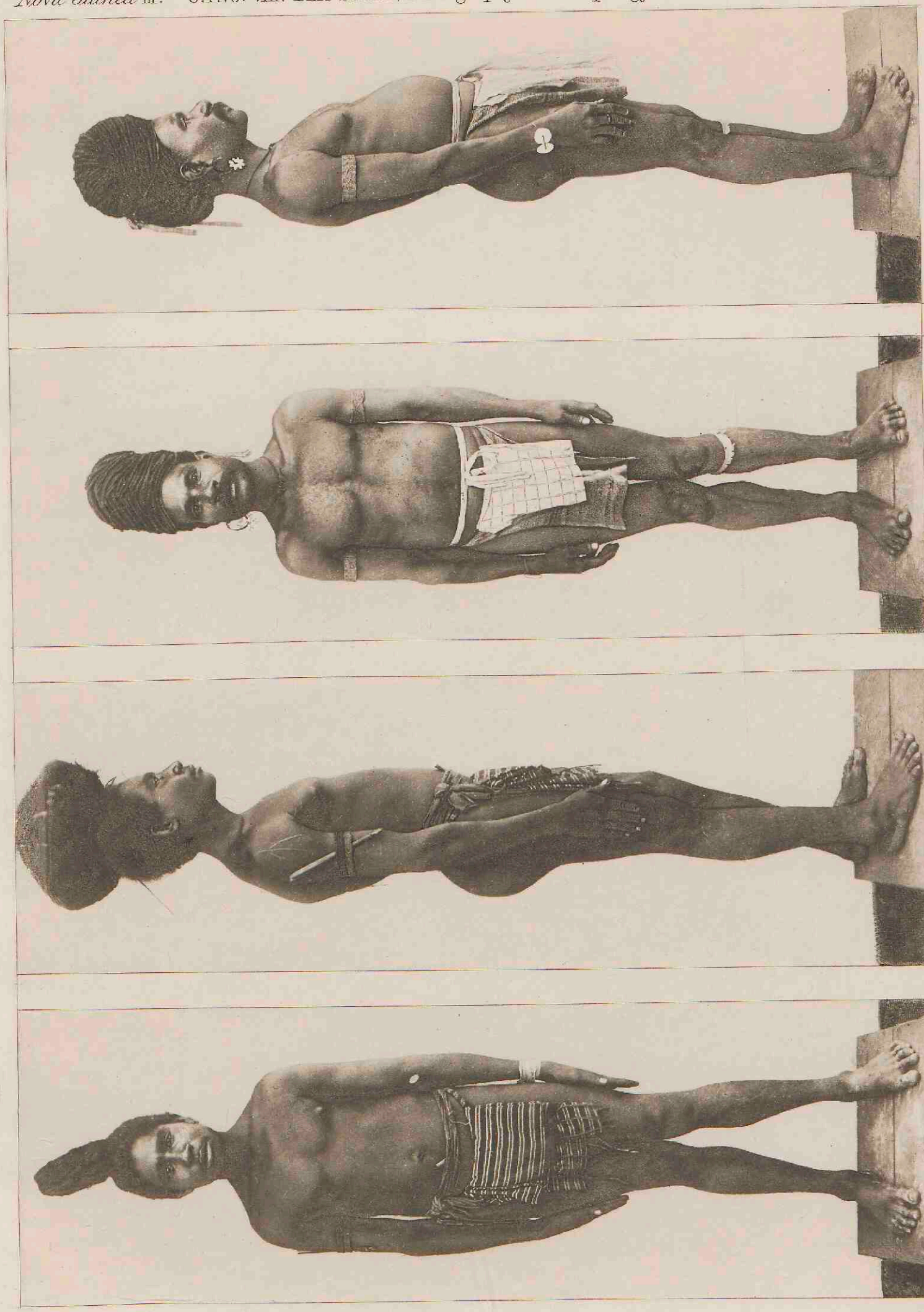


Fig. 1 Mĕrăsimă; Tarfia. (46)

Fig. 2 Mĕrăsimă; Tarfia. (46)

Fig. 3 Man; Mawes.

Fig. 4 Mar; Mawes.

NORTH NEW GUINEA.

Scale 1 : 3.000000.

0 10 20 30 40 50 100 150 K.M.

Scale 1 : 750000.

STILLE OCEAAN

GEELVINK BAAI

MACCLUER-GOLF

WALCKENAER-BAAI

MATTERER-BAAI

ISIS BAAI

TANAH MERAH-BAAI

HUMBOLDT-BAAI

SCHOUTEN-EILANDEN

SUPIORI

WIAK

JAPEN

SAAR

TAKAR

BONGGO

MARENGH

NIMBURAN

UAI

ADI

SAWE

KAPTIAU

TRAMBUAI

MUTIS

JAKARI

CYCLOOP-GEBERGTE

SEKANTO

MOSO

MAPIA-EILANDEN

Fanelteu

Fanerimanak

Boras

Lagune

Pegim

1: 500 000.

Ajawi

Aifondi

Naunfur

Padaaido-Eilanden

Mios Num

Abraï

Mios Inai

Amberpön

Warfondi

Mios Auri

Mios War

Rön

Straat Numamuran

Kombul

Anggar Mios

Nau

Kaap d'Urville

Armoa-(Kumamba-)Eilanden

Lamsum

Miau Moar

Pamai

Mainai

Mamberamo

Podena-Eilanden

Mediterran-Baai

Tanah Merah-Baai

Humboldt-Baai

Sentani-Meer

Nimburan

Uai

Nabur

Kolur

Nuluri

Kamaka Walar

Etna-Baai

Nautilus-Straat

Tambu Tambu (Vogel-Eiland)

Kaap Bonpland

Kaap Hakaru

Oinake

Moso

Sekanto

Jotefa-Baai

Nafri

Ingrüs

Sentani-Meer

Jaffen

Poé

Abar

Jaga

Ajdipo

Ase

Ibaiso

Dojo

Sisiri

Seisara

Siabuai

Kaiwawe

Kaiai

Netuk

Siabuk

Jamboe

Mebbo

Fanabue

Fnae

Tami

Lami

Matanti

Nachoibo

Jomeu

Tabaruasa

Torrare-Baai

Orum-Baai

Sageisare

Seisari

Torrare

Hipwogo

Dafonsero

Kaap Cailli

Kego

Tobadi

Inrüs

Mabo

Inasahari

Jamekarenun

Kistimanata

Koba

Modif

Trambuai

Kaptiau

Suma

Mawes

Somnoiari

Tawarin

Borimai

Seigisai

Bäb

Rebi

Marc

Armo

Ayamaru

Aiduma

Kajumwai

Lakania

K. Bakia

Omba

K. Mariki

Namatote

Tambaai

Argüni-Baai

Mairi

Waigeu

Batanta

Salawati

Misool

Waigeo

Arfak-Gebergte

Ajamaroe

Angi-Meren

K. Oransuari

Woriap

Stari

Horna

Mapar

Sakaumi

Wasiduri

Wendesi

Jop

Dusner

Jauh

Kaiamosa

Kaiamanawai

Karwari-Baai

Ninggi

Nau

Utaina

Sirisiro

Ratewo

Kaiamo

Kaiamanawai

Kaiamosa

Jauh

Kaiamanawai

Kaiamosa

Jauh

Kaiamanawai

Kaiamosa

Jauh