

SMOKING AND TOBACCO PIPES IN NEW GUINEA

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[Plates 1-6]

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INTRODUCTION

The smoking of tobacco was recorded for various parts of New Guinea when those areas were first visited by Europeans. Travellers have expressed different opinions with regard to the presence of a native species of tobacco and whether tobacco smoking was an aboriginal custom, or had been introduced comparatively recently by Malays or other foreigners. There has been so much uncertainty about these and other aspects of tobacco smoking in New Guinea that it seemed worth while to study them more minutely, especially as they bear upon ethnological problems, such as the diffusion of culture, independence of invention, styles of decorative art, and other matters of theoretical interest.

The descriptive section is based upon some 250 specimens of tobacco pipes from New Guinea in the Cambridge Museum of Archaeology and Ethnology and upon the large number of pipes in the British Museum, but numerous other collections have been drawn upon. Undoubtedly the description and illustration of many specimens in other museums would have added considerably to the information here presented, but for various reasons such an addition has not been practicable. It is also probable that

hitherto undescribed material, when it is made available, will necessitate a revision of some conclusions. It is to be hoped, however, that the data provided in this study will give students a fairly comprehensive knowledge of the subjects dealt with.

For obvious reasons special areas of New Guinea are much better represented in certain museums than are others, and no museum contains an adequate series of pipes from all the main ethnical or cultural areas. Anyone who examines the collections of pipes in the larger museums will be struck with the large number of specimens which are without an exact provenance. Some pipes are labelled as coming from a particular area, and too frequently this allocation was not given by the collector or donor, but has been supplied by the curator or by a visitor to the museum. Such a provenance may be correct or incorrect, though, if correct, it was given by inference, and has not the value of a collector's authority. As I know from personal experience, a pipe may be collected at a given village though it was not made there; therefore a pipe may be labelled correctly as having been obtained at a definite locality, but nevertheless it may be suspect. A traveller rarely makes inquiry from the vendor as to whether the pipe is of local manufacture, and, even if interrogated, the vendor may himself be ignorant of the exact provenance or lacking in appreciation of the importance of precision. The name of the collector and the date when the specimen was obtained are of definite value. Even the date by itself when a pipe was acquired may have some importance. In relatively early days there was usually little, if any, intercourse between natives of different localities, except within certain restricted areas, but, during the last forty or fifty years, owing to the extension of Government influence, the recruiting of constabulary to serve in alien districts, and the transference of plantation labourers from one area to another, there has been much opportunity for pipes to be brought away from their native locality. There is also the possibility of an individual or of individuals copying the technique or patterns of an alien people. Examples of all these possible sources of error are mentioned in the following pages.

Despite these complications, a reasonable amount of reliability can be obtained, especially when a competent collector's name is given with the date of collection. It will be seen that to a large extent techniques, styles and motives have a limited distribution, and in most cases it is possible from an examination of technique, of the layout of the decoration, and of the designs or patterns themselves to be reasonably sure that a given pipe must have come from a particular locality. Suspicion is legitimate when these characters are markedly out of place in the locality whence a given pipe was obtained, and further investigation then becomes necessary. These uncertainties have been taken into consideration in the preparation of this monograph.

As far as was practicable, the illustrations have been drawn from the pipes themselves, but some had to be drawn from photographs, from sketches, or from rubbings. With but few exceptions, which are severally noted, the drawings were made by Mr A. C. Himus, to whose skill and patience I feel greatly indebted. They have been made with great care, but manifestly it is impossible to reproduce every small irregularity in a pattern; in a few cases the treatment has had to be somewhat diagrammatic.

The beauty of many pipes is largely due to the colour of the natural skin of the bamboo contrasted with the colouring of the pattern or its background. These effects

cannot be conveyed in line drawings, and therefore no uncoloured drawing, however carefully made, can represent the beauty and artistic feeling of the original.

Miss Julia Webber (Mrs Robertson) mounted on sheets of brown paper the very numerous rubbings which I have made of pipes and other decorated objects from New Guinea, and she also assisted me in a preliminary description of various types of pipes from Papua. I am deeply indebted to her for her ungrudging help in this long and often tedious labour. Mrs Lock has given me valuable assistance during the later stages of this monograph, and I am particularly indebted to Miss Ethel Fegan for help in the final revision and in preparing the work for publication.

I also take this opportunity to thank the very numerous friends who have helped me in my studies. Directors and assistants in museums have afforded me every possible facility for study, and in some cases have provided me with photographs and additional information. I owe a great deal to His Excellency the late Sir Hubert Murray, K.C.M.G., Lt.-Governor of Papua, and to the Honourable H. W. Champion, C.B.E., the Government Secretary. Resident Magistrates and other officials in the Papuan Service have been most kind in giving to me, a stranger to them, valuable well-documented specimens and information. Mr F. E. Williams, the Government Anthropologist of Papua, has repeatedly given me invaluable assistance. Mr E. W. P. Chinnery, who was formerly in the Papuan Service and later was Government Anthropologist in the Mandated Territory of New Guinea, has rendered me much help. Miss Beatrice Blackwood has kindly given me information and photographs (reproduced in figures 211–218) concerning the people of the upper Watut river. More precise acknowledgements will be found in the appropriate places in this monograph.

For the convenience of students I have given the museum number of most of the specimens to which reference has been made. To save space the terms 'length' and 'breadth' have usually been omitted, thus — × — signifies the length and the average diameter of a pipe. The measurements are given in the metric system.

References are made to the following museums, with abbreviations given in several cases: Aberdeen; Amsterdam (Am.); Basel, Museum für Völkerkunde (Bs.); British Museum (B.M.); Cambridge, Museum of Archaeology and Ethnology (Cm.); Chicago, Field Museum of Natural History (Ch.); Dover; Dublin, Nat. Mus. of Ireland; Edinburgh, Science and Art Museum; Exeter, Royal Albert Memorial museum; Farnham; Glasgow, Art Galleries and Museum; Hamburg, Umlauff Collection; Horniman Museum, Forest Hill, London; Leiden, Rijkmuseum voor Völkerkunde (L.); Liverpool Public Museum; London Missionary Society Museum; Manchester Museum; New York, American Museum of Natural History; Oxford, Pitt Rivers Museum; Port Moresby; Rome, Museo preistorico et etnografico; Rotterdam Museum voor Land- en Völkerkunde en Maritiem Museum Prins Hendrik (Rt.); Sydney; Tilburg; Truro; Vienna.

The terms S. lat. and E. long. are omitted as unnecessary.

D., Ph., S., R., mean Drawing, Photograph, Sketch and Rubbing respectively.

PART I

METHODS OF SMOKING IN NEW GUINEA

The simplest method of smoking tobacco is by the direct employment of the leaves of the tobacco plant rolled up in a narrow bundle or wrapped in a leaf. It may be termed a cigar when there is no wrapper or the wrapper is a tobacco leaf, but, when a different kind of leaf or a piece of paper is used as a wrapper it may be termed a cigarette. In cigarettes the tobacco leaf may be broken into small pieces or crumbled.

In north-west Netherlands New Guinea tobacco is smoked as cigarettes as well as in pipes or in holders. Throughout the northern part of the country and definitely east of Cape D'Urville as far as Humboldt bay and Lake Sentani men and women smoke cigarettes, and pipes are unknown. The same applies to the north coast of the Mandated Territory of New Guinea and inland to the middle and lower regions of the Sēpik river. Higher up the Sēpik, where the influence of the mountain peoples is felt, holders are also used. In the regions of Astrolabe bay and most of the Huon peninsula cigarettes are smoked, though in the Sattelberg mountains holders are used as well. On the upper waters of the Waria river huge cigars are smoked, and in the valley of the Kau, a tributary of the Waria, a short reed or thin bamboo is inserted into the base of the cigar and used as a mouthpiece when smoking; holders are also used.

A leaf-screw, used with a pipe, but sometimes called a cigarette, is a piece of banana or other leaf which is rolled into a funnel to contain the teased or crumbled tobacco (figure 1).

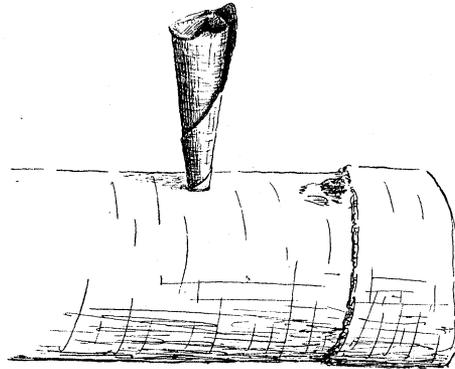


FIGURE 1. Leaf screw in pipe (F.E.W.). Top of leaf screw 4.4 cm. above pipe. Piece of dry old banana leaf, 7.6 × 6.4 cm., rolled into funnel with teased tobacco inside. Pointed end screwed into dorsal hole, loose ends tucked in.

A tube, the holder, is employed in many places; one end holds the tobacco, whether this be in the form of leaves thrust into the tube or a cigarette or a leaf screw; the other end is put in the mouth of the smoker. The holder is made from one internode of thin bamboo; one septum is invariably cut away and frequently also the other septum. When one septum is retained, it is usually a short distance from that end, and it is this end that is put in the mouth. The use of holders is almost restricted to the mountaineers of the central main ranges of New Guinea.

In the extreme north-west of New Guinea there are numerous varieties of tobacco pipes which apparently are smoked in the same manner as we smoke pipes. These

are described in the earlier parts of the section dealing with Netherlands New Guinea (pp. 15–19).

The characteristic Papuan pipe consists of a long or short section of usually stout bamboo. One end is closed by a septum, the other is widely open or when there is a septum at this end it is pierced. When a pipe consists of two internodes, the central one is also pierced. A hole, the dorsal hole, is bored in the side of the pipe at a variable distance from the closed end; into this hole is inserted a tubular bowl (figure 6) or a leaf screw (figure 1), into which the tobacco is put. When the bowl or the leaf screw is charged with tobacco it is inserted into the dorsal hole of the pipe, but the bowl usually is charged when in position, the tobacco is then ignited and at the same time the mouth of the smoker is applied to the open end of the pipe, and he fills the pipe with tobacco smoke by suction. When the pipe is filled with smoke, it is removed from the mouth and one hand is placed over the open end so as to retain the smoke. Usually when a bowl is used the mouth is also applied to the upper end which contains the glowing tobacco and additional smoke is blown into the pipe. Rarely the leaf screw is treated in the same manner. The bowl or the leaf screw is removed and the smoke is inhaled through the dorsal hole.

For the sake of brevity I have conformed to the universal practice of terming this piece of smoking apparatus a pipe, though it is not strictly the same kind of instrument that we know as a pipe. The first stage of the Papuan method of smoking is very similar to our method of smoking, but the subsequent inhalation is something very different. This clearly shows that the pipe is used solely as a container or cooling receptacle, from which the smoke is inhaled; I am not acquainted with any similar instrument elsewhere.

In certain areas in New Guinea the holders are employed not so much for actual smoking as for a means of blowing or conveying tobacco smoke into a container from which the smoke is inhaled. The container may be a gourd or a section of bamboo without a dorsal hole (figures 196, 197), as in the area of the Sēpik river west of about $141^{\circ} 50'$ and north of $4^{\circ} 30'$. A similar two-piece apparatus consisting of a holder and a section of bamboo has been recorded for natives from the Muiu river, an eastern tributary of the upper Digul river (see the section of South Netherlands New Guinea). West of the Fly river from approximately 9° to about 400 miles up the river, a bracer or arm-guard is used as a container (figure 32) when a man is away from the village and the usual pipe is not available. Under similar circumstances a bracer is used in the western area of the Western Division of Papua, that is, west of the Mai Kussa river, but here, if a man does not use his bracer, he may make a flattened tube from the spathe of a banana tree or may form a tube out of a strip of *ti*-tree bark; thus, as F. E. Williams says, 'some kind of container is in native estimation essential to a satisfactory smoke'.

In using the two-piece apparatus there is some difficulty in making a reasonably airtight connexion between the two elements; this seems to be effected usually, if not always, by cupping the hand around the ends which are in contact.

I describe a new type of holder (figure 31) from the Awin who inhabit the country east of the Tedi, the most westerly tributary of the upper Fly river. Two short sections

of bamboo are connected by a bent bark tube bound round with bast and covered with black gum. One section of bamboo corresponds with a holder and the other with a container; the intermediate tube makes an airtight connexion between the two. This is the only example known to me of a smoking apparatus of this kind; it does not seem to have any connexion with the Papuan pipe.

Assuming the Papuan pipe to be definitely related to the two-piece apparatus, it might have arisen from the bamboo container and holder which now are found on the Sëpik. It is stated that both have a perforated septum at one end, and it is these ends which are placed in contact when the apparatus is being smoked. All that would be necessary is that, instead of the septum of the container being perforated, the septum should remain intact and the hole should be made in the container. This would get rid of the awkward connexion of the two elements by the cupping of the hand of the smoker. Observers in the Sëpik area state that the smoker sucks the smoke through the container; it is not definitely stated whether the act of smoking is similar to that of our method of pipe smoking or whether the smoke is inhaled, as is frequently the case in the European method of cigarette smoking. There is a similar ambiguity as to whether the smoke is inhaled in the Upper Watut river area in the Morobe district of the Mandated Territory of New Guinea. Among the mountain peoples of the hinterland of the Delta Division, in those places where the Papuan pipe is used, it appears that when the leaf screw is removed the smoke is inhaled through the open, or aft, end and not through the dorsal hole; but it is not quite clear whether or not the smoke is inhaled when holders are smoked, as in the Erave valley.

It is evident that a more drastic inhalation is effected when the smoke is inhaled through the dorsal hole; the pipe, which may be very long, very thick, or both, contains a large quantity of smoke which when inhaled causes a strong draught through the dorsal hole and thus forces the smoke into the lungs of the smoker. This is the typical method of smoking in Papua.

The tubular bamboo bowl of the Papuan pipe may be regarded as a holder which no longer is used for direct smoking. Its use extends from the mountain axis down the west side of the Fly river to the estuary of the Bamu and Torres Straits and thence into Cape York peninsula. It is also employed in south Netherlands New Guinea, south of the Nassau and Oranje ranges. Some of the bowls are very large and heavy, but they vary greatly in length and to some extent in thickness throughout the area in which they occur. There is one example (figure 20) of a bowl being packed into the dorsal hole with bark cloth. The only recorded occurrence of the bowl west of the Fly river is its use among the Manki of the upper Watut river (figure 191A).

Tobacco is put directly into the mouth of the bowl or it may be wrapped in a leaf screw which is then inserted in the bowl. Alternatively, in south-west Netherlands New Guinea and among the Manki, and perhaps elsewhere where bowls are used, the leaf screw may be smoked directly in the dorsal hole. Throughout Papua east of the Fly river a leaf screw is inserted into the dorsal hole of the pipe and removed therefrom when the smoke is inhaled through the dorsal hole.

In very many parts of New Guinea the natives have adopted wooden pipes supplied by Europeans and may also smoke European cigarettes in addition to their own method

of smoking. It is probable that in some places the natives have copied European cigarettes, using leaves as wrappers, though they prefer newspaper when they can get it.

I have assumed that tobacco smoking was originally introduced, directly or indirectly, from Portuguese or Dutch sources. On this assumption, cigar smoking or the use of holders or of true pipes in the most northern parts of New Guinea presents no difficulty.

In the western area of the Sēpik river and south of the main ranges a new element makes its appearance, the container. This, in the vast majority of cases, consists of a section of bamboo, which, south of the main ranges, is characterized by a closed septum at one end and by the addition of a dorsal hole; this form of container is the typical Papuan pipe.

I have indicated how the Papuan pipe could have arisen from the two-piece apparatus—holder and container—of the western Sēpik, but it is the container that presents the real problem. Why should the Papuans have thought it desirable to cool the tobacco smoke (and, incidentally, to economize tobacco) by means of a container? It is difficult to see how this could have come about unless there was some existing instrument, or how a Papuan could deliberately have invented it.

In this connexion the possibility of the introduction of the water-pipe into New Guinea must be considered, however improbable it may be, as it has a cooling chamber between the bowl and the mouthpiece.

Except where otherwise stated the following information is taken from Laufer (1924). The water-pipe, *hooka*, *huka*, was invented in Asia. It 'is based on the desire to neutralize, as much as possible, the poisonous properties of tobacco by permitting the fumes, before being inhaled, to pass through water. In this manner a proportion of the nicotine is absorbed by the water, and the smoke is purified, cooled, and moderated in strength.' In India this type of pipe is called *hooka* (*huka*), Anglo-Indian hubble-bubble. Early in the seventeenth century the water-pipe was used by the Persians, and it is possible that the instrument was invented in Persia. The first description and illustration of it is found in *Tabacologia* by J. Neander, Leiden (1626): 'The two pipes figured by Neander correspond exactly to the modern Persian *ghalian*, and are expressly credited by him to the Persians. . . . The Chinese report that the water-pipe made its first appearance at Lan-chou, capital of the province of Kan-su, in the beginning of the eighteenth century. . . . The Chinese, however, received merely the impetus from Persian or Turki Musulmans', for their water-pipe is convenient, simple, and graceful compared with the clumsy apparatus of Persia and India.

Hoega or *hoeka* is given by the Dutch as the native word for short wooden pipes that are smoked in the Arfak mountains in Vogelkop peninsula. This word is so like the Indian *hooka* and the Arabic *huggah* that one suspects that it is due to foreign influence. The water-pipe has not been recorded for New Guinea, and I have not found any explanation concerning the introduction of the word *hooka* nor why it should have been transferred from one type of pipe to another.

In parts of New Guinea, more particularly west of the Fly river and in the Upper Watut area, the Papuan pipe or container may be filled with shredded leaves or fibre

in order to purify the smoke; another use of the container is to cool the smoke. In these respects, but in these only, the container is analogous to the water-chamber of the water-pipe; it is, however, very difficult to see how there could be any historical or geographical connexion between them.

DECORATION OF PIPES

With but few exceptions, which are considered in their appropriate places, the tobacco pipes of New Guinea are made from lengths of bamboo—cylinders with a hard, smooth, glossy skin of a pale yellow colour. The objects described are identical in material and differ only in size.

Orientation of pipes. If one end of a holder without a septum is habitually placed in the mouth and the other contains the tobacco, a proximal and a distal end may be distinguished, otherwise the cylinder is featureless and has no orientation. The only external feature in a tube in which one septum has been retained which might determine a scheme of decoration is the slight encircling low ridge which marks the position of the internal node or septum and the accompanying leaf-scar.

The mere addition of a hole in the typical Papuan pipe for the insertion of a bowl or leaf screw gives rise to new possibilities in the scheme of decoration and also affords the opportunity for a nomenclature, based on orientation (figure 2), which is requisite for descriptive purposes. As the bowl or the leaf screw must necessarily be vertical, the side of the pipe which is bored for the bowl-hole becomes the dorsal side and the hole is thus the dorsal hole. We may adopt the convention that the end in which the dorsal hole occurs is the fore end. On looking down on a pipe from above, a right and a left side can be distinguished.

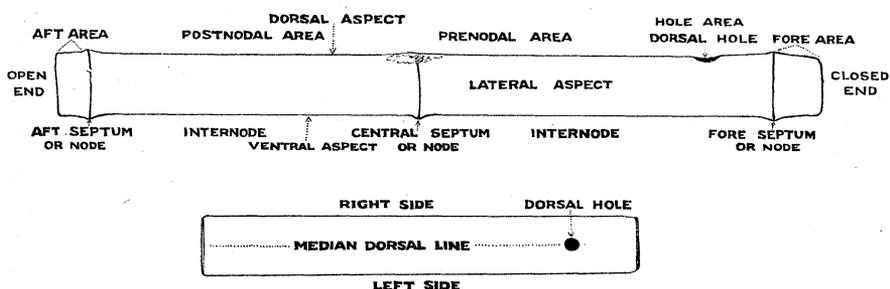


FIGURE 2. Papuan pipe; orientation for descriptive purposes.

This type of pipe may have two, or three, external transverse slight ridges marking the septa and a corresponding number of leaf-scars; these scars are alternately on opposite sides of the bamboo. Usually the leaf-scars are scraped, which increases their size and importance.

It will be shown later how in the various districts of New Guinea the scheme of the decoration of the pipes has been affected by this orientation and the external features of the bamboo. Most of the pipes are decorated in techniques and styles that differ according to the locality.

Technique of decoration

Carving. The nature of the material of bamboo does not lend itself readily to deep carving, and the few pipes I have seen in this technique, for example, figure 78, do not give pleasing results. The smooth light skin of the bamboo does, however, admit of several techniques which give very satisfactory results.

Incision. Patterns may be formed by simple lines which are scratched or more or less deeply incised on the surface of the bamboo.

The lines forming the designs or patterns in some areas are jagged or punctate and are produced by special movements of the graving tool. The jagged lines (figure 3) may be very fine, coarse, or very coarse; in the last case they resemble in effect zigzag lines, but they cannot be regarded as zigzags. It is difficult to describe the variations in the punctate lines; one type of them is shown in figure 4. The few observations which have been made as to the method of making these lines will be found in the appropriate places.

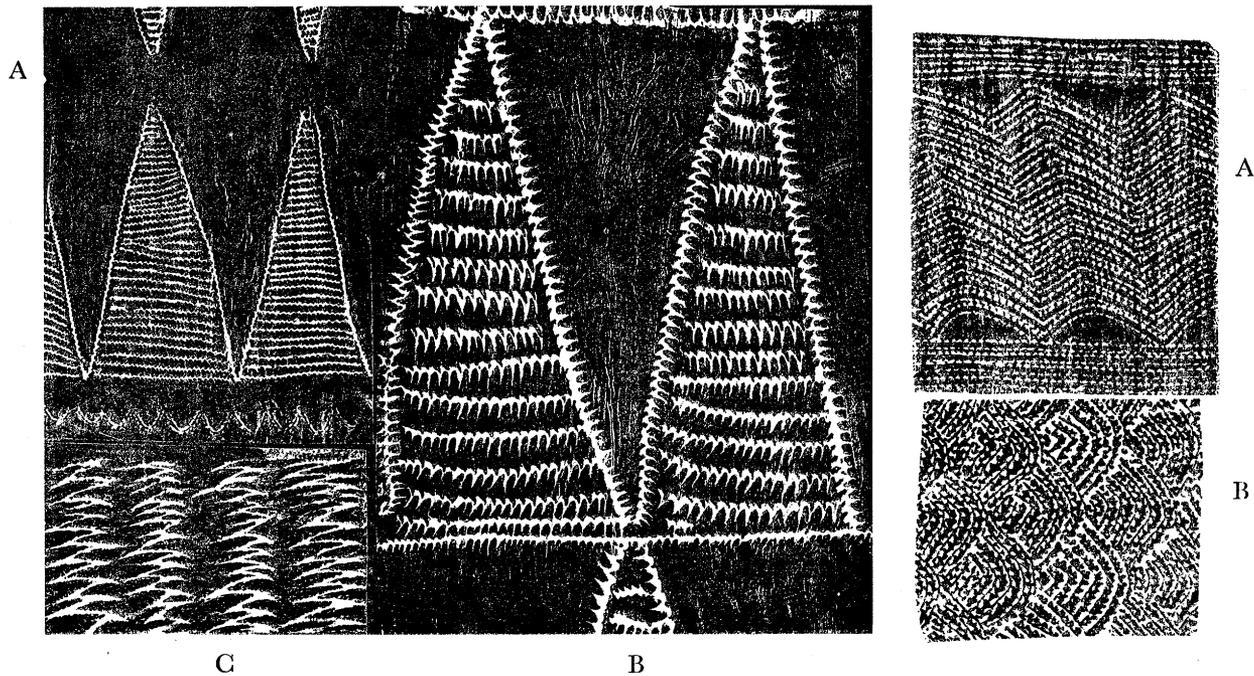


FIGURE 3

FIGURE 4

FIGURE 3. Rubbings, jagged line technique on pipes. Nat. size. A, very fine, 'Cape York', but certainly Torres strait workmanship, B.M. B, coarse, Erub. B.M. 46.7.312. C, very coarse, Fly river, Dresden 4489 (from Haddon, *Decorative Art of British New Guinea*, p. 14).

FIGURE 4. Rubbings, punctate line technique. Nat. size. A, part of band pattern on pipe, Mawata, B.M. 9978. B, from bowl of same pipe. See figure 65 (*ibid.* p. 15).

Burning. In some districts the surface of the pipe is decorated by burning fine or broad lines or areas. The burning of the areas may be incompletely done by spots or streaks, but in most cases it is complete. Patterns may be made solely by burning, or the patterns are first outlined by incised lines and then burnt. The lines may be only superficially burnt or they may be burnt deeply so as to produce lines which might

almost be described as incised. There is also a technique which combines incision with burning.

Scraping. In some localities it is a common practice to scrape off the skin of the bamboo in transverse bands or over a considerable portion of the surface, thus leaving bands or panels of whole skin which are decorated in the local manner. In some areas rough patterns are formed by scraping (figures 35, 46, 76A). The scraped portions have a different kind of surface from the unscraped, and are readily darkened by use and dirt. The scraping of more or less extensive areas of the skin of pipes produces a dull surface which tends to bring into greater prominence those areas in which the skin is retained. In most cases scraping is confined to a fore-and-aft band and frequently with an additional central band. In pipes with two internodes the whole of the after-node may be so treated. In some pipes there is a dorsal and a ventral median scraped band. In a few pipes from Torres Straits the fore-internode is so scraped as to leave longitudinal decorated panels of whole skin.

Intaglio. Simple or intricate designs and patterns may be produced by carefully scraping away the skin of the bamboo so as to uncover the softer, more fibrous under-surface; this is stained usually with a reddish brown, or sometimes a yellow, pigment. In some pipes the scraped surfaces form the pattern, in others they constitute the darker background which emphasizes the light designs or patterns. The usual meaning of the term intaglio is wider than that in which it is here employed, but I have adopted it for this particular technique.

Decorative motives

The following remarks to some extent are based on suggestions by J. L. Myres and others (1908, 1912, 1929), and I have made use of some terms employed in heraldry (St John Hope 1913), but I am concerned here only with those decorative motives which are found on bamboo tobacco pipes.

The elements of which any decorative scheme is composed are conveniently described as 'decorative motives'. They may be wholly, or parts of, human beings (anthropomorphs), animals (zoomorphs), or plants (phytomorphs). They may be objects or phenomena in the physical world (physicomorphs), or designs which are demonstrably due to the structure and material qualities of manufactured articles or which are reminiscent of them (skeuomorphs). All these are usually more or less conventionalized and are often so altered and simplified, or combined into fresh designs, that only by tracing them through a long series of examples can their significance be recovered.

Very numerous motives collectively termed 'geometric' can in most cases be regarded only as pleasing combinations of straight or curved lines or areas. It is, however, a common experience that in every part of the world when questions are asked about the significance of a given geometric pattern the inquirer is told that it represents some object, to which only a faint, if any, resemblance can be traced. In such a case there is often a grave doubt whether it is a traditional explanation or whether the informant gives an explanation which occurs to him on the spur of the moment. If a number of people quite independently give the same explanation, it is

reasonable to suppose that it is traditional, but casual information must be received with great caution. It has often been found that the same simple geometric design is interpreted in different ways by different persons of the same community; it may be that all are correct and that the interpretations need not be mutually exclusive. It is quite certain that it is futile to make guesses about the significance of geometric designs.

Very characteristic of the decorative art of New Guinea is the drawing of bands to contain the patterns. Most frequently bands are transverse, sometimes they are longitudinal either for an internode or within a broad transverse band. Occasionally bands take a spiral or semi-spiral course along the length of the internode.

The longitudinal bands, more particularly those within transverse bands, may contain a continuous pattern or there may be various patterns separated by lines or spaces, which may be termed panels. The patterns of transverse bands may be similarly interrupted. Analogous panels are isolated on some pipes. The terms transverse and longitudinal are used in relation to the pipe and not to any particular panel.

Bands, especially transverse bands, are very frequently filled with triangles in series. The triangles may result from a zigzag line the apices of which abut against the sides of the band, or triangles may be formed as such (figure 5 (1), (2)).

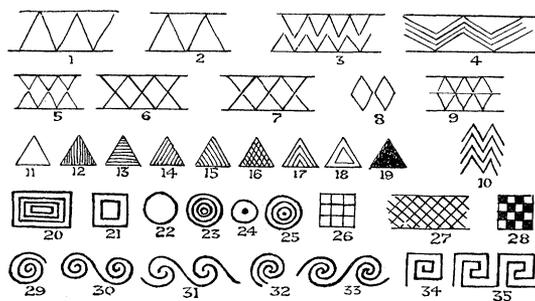


FIGURE 5. Simple decorative motives: 1, triangles formed by zigzags; 2, triangles formed as such; 3, zigzag formed by two rows of alternate triangles; 4, formed as such; 5, lozenges formed by opposed triangles; 6, by crossed lines; 7, by oblique and supplementary short lines; 8, formed as such; 9, lozenges formed by opposed triangles based on a line; 10, herring-bone. Enhancement of triangles: 11, plain; 12, vertical hachures; 13, horizontal or transverse hachures; 14, hatched from left; 15, hatched from right; 16, cross-hatched; 17, concentric or chevrony; 18, with frame or border; 19, by burning; 20, rectangle enhanced concentrically; 21, rectangle with border; 22, circle or ring; 23, concentric circle; 24, circle with centre; 25, concentric circles with centre; 26, right-angled cross-hatching; 27, oblique cross-hatching; 28, chequer; 29, spiral or coil; 30, reversed spiral or coil; 31, reversed spiral interlocked in series; 32, loop-coil; 33, continuous loop-coil; 34, squared spiral; 35, fret or continuous squared spirals.

Equally frequent are two rows of opposed triangles within a band (figure 5 (5)). These triangles may be formed as such; resultant lozenges are then produced which often appear as if they were intended to be the desired pattern. Definite lozenges may be made within a band by crossed lines (figure 5 (6)). Occasionally lozenges are formed by a series of oblique lines across the band and by supplementary short oblique lines in the opposite direction, the resultant lozenges being often irregular

(figure 5 (7)). Lozenges may be formed as such (figure 5 (8)). Occasionally lozenges are produced within a band by chevrons or by opposed triangles based on a median line (figure 5 (9)).

Within a band there may be two rows of alternate triangles or two rows of zigzags, leaving a blank zigzag of variable breadth in the centre of the band. On the other hand, a broad zigzag may be drawn within a band and it may be enhanced by serial repetition (figure 5 (9)).

Simple motives, such as triangles, may be plain or enhanced, that is, filled in by hatching, cross-hatching or solidly (figure 5 (11–19)). The hachures may be left or right; triangles are said to be hatched from the left or from the right (that is, when viewed with their base downwards and their apex upwards) for the reason that the 'generating line' of the hachures is the left or the right side of the triangle to which they are parallel. Hachures may be vertical or horizontal (transverse). A triangle may be enhanced by repetitions of the sides (chevrony or concentric). The sides of the triangle may have a frame or border. A triangle may be enhanced by burning which may be complete or incomplete. Lozenges are enhanced in similar ways.

Rectangles may be square or oblong; they may be enhanced by internal repetition (concentrically). The outline may be a frame or border and this may be enhanced (figure 5 (21)).

Circles or rings are simple or concentric and may or may not have a centre.

Cross-hatching is either right-angled (checky) or oblique (lozengy). A chequer results when the alternate squares of right-angled hatching are filled up or enhanced solidly.

Herring-bone consists of two or more rows of closely repeated chevrons.

Spirals or coils may be single or combined, as in the reversed coil or spiral (sigmoid spiral); the reversed coils or spirals may be interlocked. A loop coil consists of a continuous double line and this may be single or continuous. Squared spirals may be single, reversed, or continuous, when they are usually termed a fret.

Scheme of the decoration of pipes

When the pipe is a simple tube or holder without a septum there is no feature which could suggest or influence the lay-out of a pattern. When there is one septum in the holder, or when there are two or three septa, as in the typical New Guinea bamboo pipe, the external ridge of the septum suggests the delineation of transverse bands. As previously noted, the dorsal hole gives a definite orientation which may or may not affect the scheme of decoration. The leaf-scars frequently affect the decoration in their neighbourhood.

I have seen several pipes which are fully decorated, but the dorsal hole had not been pierced. In very many pipes the dorsal hole was pierced after the decoration had been more or less completed. It is quite evident that the scheme of decoration of many pipes was planned with regard to a dorsal hole (whether then present or not) as there are dorsal and ventral lines and lateral areas, but even when the decoration has been carefully planned the dorsal hole may be pierced excentrically and without regard to the symmetry of the decoration. In a few pipes the original dorsal hole has been

plugged and another hole pierced; this may be more or less on the dorsal surface or on the original ventral surface, which thus becomes the dorsal surface when the pipe is smoked.

The dorsal hole may form the centre of a simple or composite design, the remainder of the pipe being undecorated, or about the hole may be grouped designs which bear no definite relation to the rest of the decoration.

On glancing through the accompanying illustrations it will be seen that the whole surface of the pipe may be covered with decoration or that only portions are decorated, thus leaving blank spaces. One has the feeling that the artist really appreciated the value of blank spaces, or 'areas of repose' as they have been termed. In pipes with two internodes the fore internode may be covered with decoration, while the aft internode may be left blank or decorated in a lighter or at all events a different manner than the fore internode. These and other variations will be referred to as they occur in the following section. Some pipes are quite plain or have a very little decoration at the ends; these appear to be much more frequent in the west of Papua.

While it is not possible to recover what was in the artist's mind or to what extent he had a conception of the decoration of a pipe before he began to work upon it, it is possible in some instances to determine the order in which the parts of the decoration were made. There is no evidence of a complicated scheme of decoration being sketched or roughed out on the bamboo previous to the actual decoration.

The aesthetic quality of the decoration can be appreciated only through a study of the individual pipes. In many pipes the decoration, though conforming to the traditional technique and patterns, is carelessly executed. This may be because the artist was technically inexpert or simply because he was slovenly in his work and had no acute feeling for correctness of form or for symmetry in the lay-out of the decoration. Many pipes show that the artist evidently had a tidy mind which manifested itself in symmetrical arrangement and in careful execution of the patterns. In some pipes there are vagaries in the decoration which may be due to unskilled technique, to individual idiosyncrasy, or to influences which can or cannot be traced. While it is true that there are what may be termed local schools of art to which most of the artists conform to a large extent, yet there are artists who give scope to their individuality, though always within limit.

It would manifestly be impossible to describe or figure all the variations in the decoration of the pipes that occur in a particular district. I have selected for description and illustration those specimens which I regard as typical in technique and style whether for large or very small areas. In many instances the material at my disposal was so very limited that I cannot be certain whether that specimen or the very few specimens really represent the characteristic style of that group of people. An investigation of this kind is unavoidably based upon imperfect information and often scanty material, therefore later information and more ample material may lead to modification of certain statements here made.

PART II. DESCRIPTIONS OF PIPES

NETHERLANDS NEW GUINEA

- (i) North Netherlands New Guinea. The area north of the Nassau and Oranje ranges and the neighbouring islands.
- (ii) Nassau and Oranje ranges.
- (iii) South Netherlands New Guinea. The area south of the Nassau and Oranje ranges.

The general order of descriptions, where information is available, is from west to east.

- (i) *North Netherlands New Guinea. The area north of the Nassau and Oranje ranges and the neighbouring islands*

The extreme north-west of New Guinea between Geelvink bay in the east and McClure gulf in the south is called 'Vogelkop' by the Dutch. De Clercq and Schmeltz (1893, p. 71) say that at Seget, near Cape Sele, the most westerly point of Vogelkop, tobacco is called *sabak*, and that on its north coast most of the tobacco is grown at Amberbaken. The leaves are not cut but torn off and dried; they have a dirty light green appearance and are traded in that state. Van Nouhuys informs me it was reported in 1877 that the Karons in the mountainous coastal region of Amberbaken get the tobacco from the Gebars high up in the mountains, who themselves never leave their country. This tobacco is then bartered away oversea as far as the islands of Jobi and Biak in Geelvink bay.

The island of Waigiou (Waigeoe) lies north-west of Vogelkop. De Clercq and Schmeltz (1893, p. 71) say that very little tobacco is planted on the island, not enough for their own use.

In the interior of the island of Misol, which lies west of Vogelkop according to de Clercq and Schmeltz (1893, p. 71), a tobacco of poor quality is planted in small quantities by the Me and Biga stocks; this is not chewed, but is cut up very roughly, rolled up in pandanus or nipa leaves and then smoked. This statement was made by de Clercq (1893, p. 189) for the Kalana Fat, the district of the 'Vier Radja's', which includes Waigeoe, Salawati, Misol, and Waigama, where bamboo receptacles for tobacco, *tabaka*, are called *ban tabaka* and small boxes made of pandanus leaves for tobacco, *lopa-lopa*. The natives of the interior of Misol are said to be pure Papuans.

Onin peninsula. South of McClure gulf.

D'Albertis (1881, 1, 213) records that a little tobacco is grown at Kapaor in the Onin peninsula, south of McClure gulf, Telok Berau. According to de Clercq and Schmeltz (1893, p. 71) tobacco is cultivated in the forests of Roembati at the southern entrance to McClure gulf and in other places (including Pekar) along the south coast of the gulf, but the leaves are cut off too early and so the tobacco is of poor quality. In the small island of Argoenoeng tobacco is called *anane*, and *tabaka* at Roembati (de Clercq 1893, p. 453).

Van Dissel (1904, p. 958) refers to a quid of tobacco, *mahi*, as being sometimes chewed with betel at Fakfak, on the south of the Onin peninsula.

Arfak mountain area of Vogelkop.

The village of Manokwari, formerly Doré (Doreh, Dorei), now a Government station, is at the north-west entrance to Geelvink bay, and is also on the north side of Doré bay, which looks eastward. In the bight of this bay is the village of Andai. South of Andai are the Arfak mountains. Pokembo is on the northern spurs of the Arfak mountains. The Masiema district lies south of Andai. To the west of the Arfak mountains is the district of Hatam, with the village of Hatam. Putat village is about half-way between Hatam and Andai. Mapar is to the south of the Arfak mountains, the inhabitants belonging to the Manikion tribe (Van der Sande 1907, p. 19).

The tobacco of the Arfak mountains has long had a good reputation and serves as an article of barter on a large scale (Van der Sande 1907, p. 15).

The Hatam cultivate tobacco more than the Andai, and both take great pleasure in smoking with crudely carved, stemless, wooden pipes, *hoega*, which they carry, together with a small bag for tobacco, round the neck (Rosenberg 1875, p. 103; Meyners D'Estrey 1881, p. 139). According to de Clercq (1893, p. 642) the Hatam smoke tobacco in a short pipe, *hoega* (cf. Indian, *hookah*); a tobacco-bag, *'mnaja*, is slung from the neck with a cord. Mantegazza (1877, p. 79) gives *hoga*.

D'Albertis (1881, 1, 86) says that the natives between Andai and Putat villages are always provided with 'cigars' consisting of a small quantity of tobacco rolled in a piece of pandanus leaf, which they carry in the perforated cartilages of their ears and nose. At Putat, in 1872, he saw tobacco under cultivation (p. 94). The Hatam natives grow tobacco, 'which, from being cut while still green, is far from being as pleasant as from its quality it ought to be' (p. 110).

Krieger (1899, p. 429) refers to the excellent tobacco plantations in the northern Arfak mountains and says that tobacco is smoked in a wrapper of banana or pandanus leaf.

Three pipes collected by D'Albertis in 1872 are figured by Mantegazza (1877, pl. 9, 717, 718, 720); he speaks (p. 79 of reprint) of 'Tre pipe di legno, di Altam. Son dette *robiantobaco*, in Atam si chiamano *hoga*'. D'Albertis (1881, 1, 72-145) figures these pipes (p. 132) made and used by Arfaks in records of the Andai-Hatam area; Altam must be a misprint for Hatam.

There is a great diversity among the pipes in the neighbourhood of the Arfak mountains; the pipes are quite different from any others in New Guinea.

(1) *Pipes with a bowl into which a stem is inserted.* Lewis (1924, pl. ii, fig. 6) illustrates a bowl from the Arfak mountains (figure 7E).

He describes it (p. 6) as 'a wooden bowl, made out of a section of a limb of a tree, with a hole on the side for the stem'. He informs me that the surface colour of the upper part is a dark brown, and the wavy lines are scratched so as to remove the epidermis. The lower grooved portion is lighter in colour. I do not know of another pipe with this method of decoration.

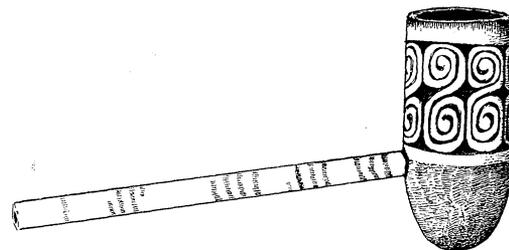


FIGURE 6. Pipe, bamboo bowl (4.8 × 2.1 cm.) and reed stem (1.8 cm.). Coll. 1925, Hatam, Dr P. B. de Rautenfeld, Cm. 38.388.

In figure 6 the bowl is made from the lower end of an internode of a thin bamboo. The greater part of the surface consists of a plain band decorated with sigmoid spirals in relief. The skin is removed from the lower part of the pipe, which is cut to a rounded end. A narrow long reed forms the stem; it is decorated with four scraped reversed spirals.

Meyners D'Estrey gives (1881, pl. p. 132) an illustration of a Hatam man smoking a pipe with a globular bowl; the stem is so thin that it is probably an inserted reed.

(2) *Pipes with stem and bowl cut out of a single piece of wood.* Figure 7A has a very European appearance, except for the scroll-work handle. Analogous pipes with a

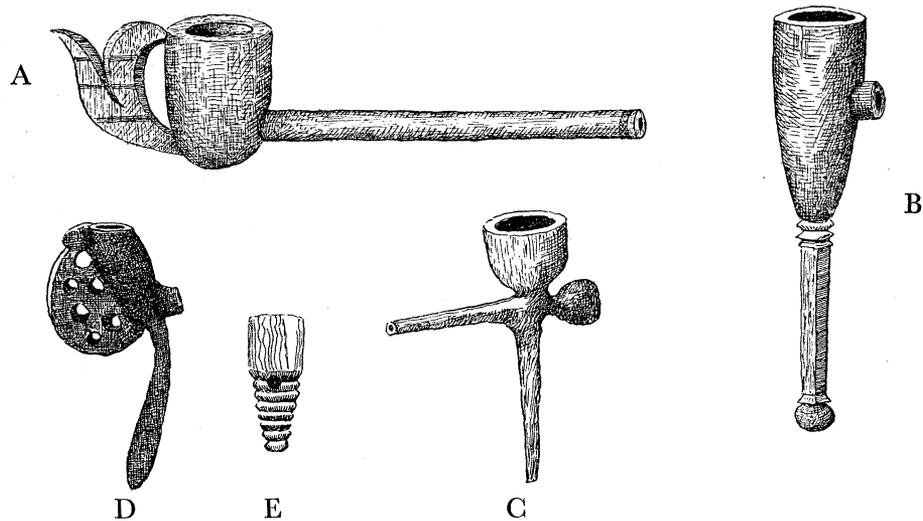


FIGURE 7. Pipes, Arfak mountains. A, B, Hatam; Mantegazza, 1877, pl. 9, 717-18; Florence. C, 'Arfaks', Wallace, 1869, 2, 310. D, E, Arfak mountains; Lewis, 1924, pl. ii, figs. 5, 6, and ph.; Ch. 151284, ht. 15.5 cm.; 151282, ht. 5.5 cm.

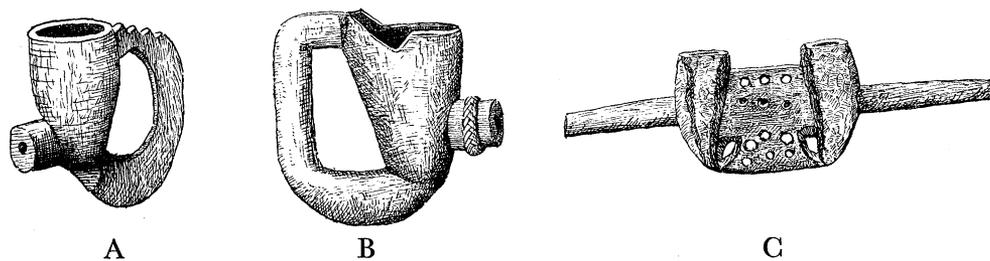


FIGURE 8. Pipes, Arfak mountains. A, *Hoega* or *hoeka*. Hatam; de Clercq and Schmeltz, 1893, p. 73, pl. xiv, fig. 7; l. 384 cm., ht. 9 cm. B, Hatam ('Altam'); Mantegazza, 1877, pl. 9, 720; ht. 8.5 cm.; Florence. C, double pipe; Lewis, 1924, pl. ii, fig. 3, and ph.; l. 27 cm., ht. of bowls 7.0 and 7.5 cm.; Ch. 151285.

short or very short stem and a looped handle to the bowl opposite to the stem are shown in figure 8A, B. The first one is very similar to the rather indistinctly drawn pipe illustrated by Rosenberg (1875, pl. xiii), who made this drawing in 1869 or 1870 of a 'Hattam' man with the pipe suspended from his neck. The handle in figure 9A is angular and may be intended to represent a bird. There is a sketch of the Dublin

specimen (figure 10A) in Partington and Heape (1895, pl. 154, no. 10). Professor Giglioli had an analogous pipe from Hatam in his collection. This type of pipe seems to be confined to the Hatam.

Three wooden double pipes from the Arfak mountains (figures 8C, 9B, 10B) are variants of this type. The Dublin specimen has such short stems that one must suppose that a bird's bone or other tube was added as a mouthpiece. It is not recorded how these pipes are smoked, nor do we know the significance of the two bowls.

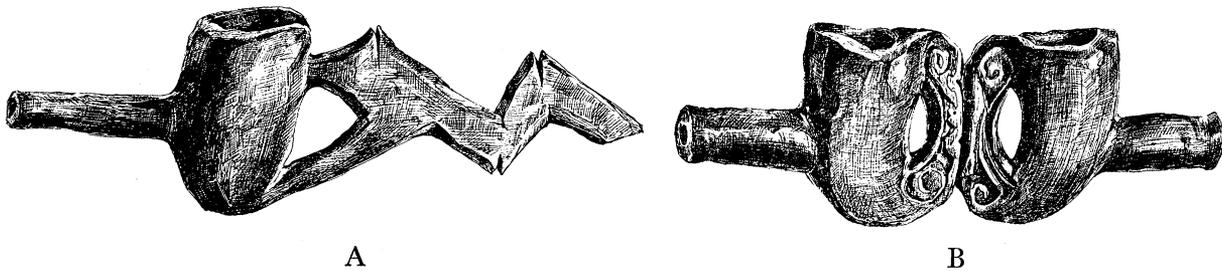


FIGURE 9. Wooden pipes, Arfak mountains, Rt. A, 11030, 17.1 × 5.6 cm. B, double pipe, 11029, 14.6 × 5.7 cm. Kindly drawn by Dr G. W. Locher, formerly Rt. Museum.

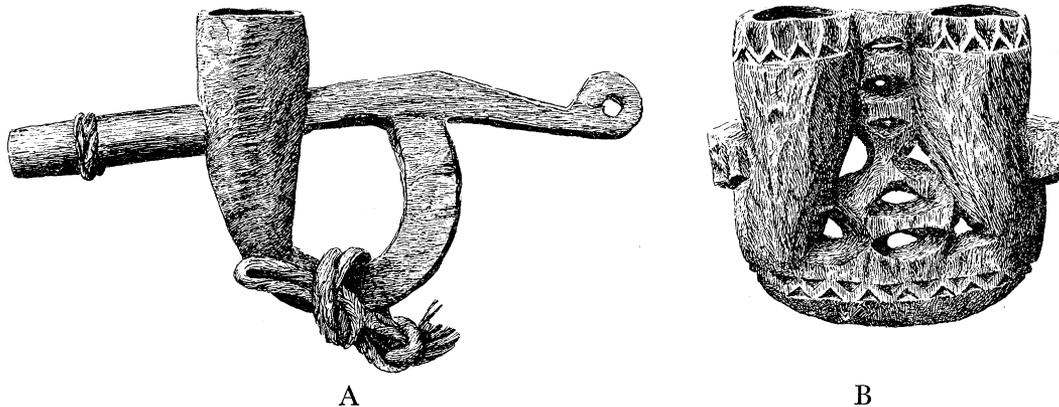


FIGURE 10. Wooden pipes, 'Dutch New Guinea'. Dublin. A, 1891.700; ht. 8.9 cm., l. 17.2 cm. B, double pipe, 1891.701; ht. 9.2 cm., l. 9.8 cm. Kindly photographed by Dr A. Mahr.

(3) *Pipes in which the base of the bowl is prolonged into a handle.* The first published illustration of this type of pipe is that given by Wallace (1869, 2, 310) who says that the hillmen or Arfaks of a village behind Dorey 'smoked tobacco of their own growing in pipes cut from a single piece of wood with a long upright handle'. This pipe (figure 7C) has an exceptionally long stem.

In the majority of pipes of this class the bowl is elongated and the stem very short. In many a flattened projection at about the base of the bowl opposite to the stem may be decorated with a deeply incised spiral (figures 11B, 12). In one pipe (figure 7D) the projection is broad, flattened and perforated, and is conterminous with the bowl. The projection may thus be the equivalent of the horizontal handle of the previous type. The handle may taper to a point (figure 11D); Van der Sande figures one (1907, pl. iv, fig. 30, p. 32), '*Aipiè*, Pokémbo, Arfak Mountains', in which the handle is

square in section and tapers to a point, with two beads below the bowl; it bears some resemblance to figure 7B, but this specimen has a button at the end. In many pipes the handle is flattened and somewhat scimitar-shaped; several pipes in the Amsterdam museum have the end enlarged or reflected, as in figure 11E.

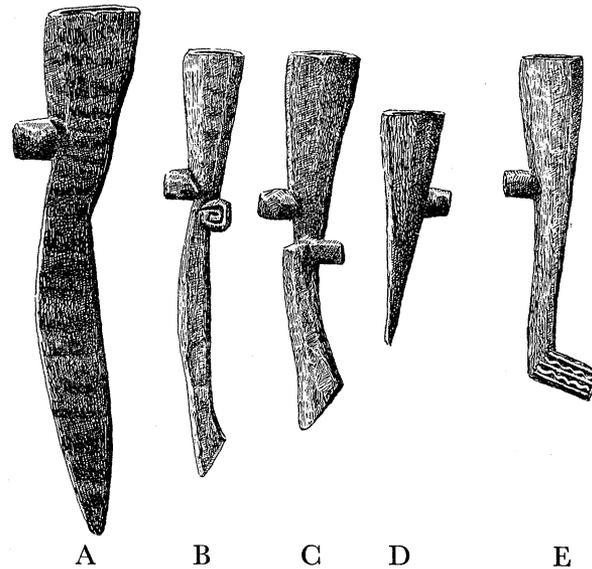


FIGURE 11. Wooden pipes, vertical handle below bowl. Am. A, A 622*a*, Doré. B. l. 21.5 cm. B, 669.16, Alifuru mountain people, Wandamen, Manokwari, coll. 1931, l. 17.3 cm. C, A 622*b*, Mapar, headwaters of Jakale Mluri river flowing into McClure gulf; l. 15.3 cm. D, A 622*c*, Mapar, Mauribree tribe, l. 9.8 cm. E, 555.71, Arfak, l. 14 cm.

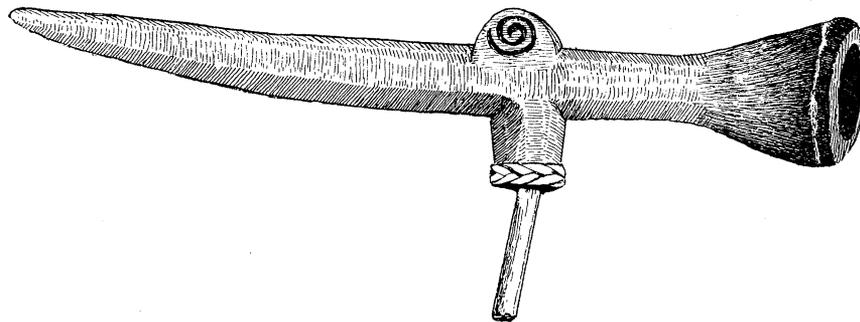


FIGURE 12. Wooden pipe, Fanidi, foothills of Arfak mountains. Coll. Dr P. B. de Rautenfeld. Cm. 38.389.

A pipe of this type (figure 12) has the reed mouthpiece 2.7 cm. long; there is a cane band round the end of the short wooden stem. This is the only specimen out of a considerable number of pipes of this type that I have seen in various museums that has a mouthpiece, and thus it explains the extreme shortness of the stems that characterizes pipes from this region. Figure 13 is the only photograph known to me that illustrates the way in which this kind of pipe is held when it is being smoked. There is good evidence to show that this type is characteristic of the Arfak mountains and especially so of the Manikion district south of the mountains.

Van der Sande (1907, p. 19) says of the pipe of Pokembo: 'When not in use, it is stuck in the upper armlet. The Manikion do the same thing [all these pipes belong to my type III], thus differing from the Hatam people, who let the pipe [of my type II] hang from a string round the neck in front of the chest. I have not noticed that the pipe was allowed to circulate here.'

De Clercq and Schmeltz (1893, pl. xiv, fig. 7) illustrate a small tobacco bag, 'mnaja, of plaited bark, the long bark-string loop of which passes through the looped handle of a pipe (figure 8A) and is thus suspended from it.

Van der Sande (1907, p. 19) states that 'Instead of the piece of smouldering wood with which the Humboldt Bay man lights his cigarette, a tinder box is used here, consisting of a small bamboo cylinder, on which a piece of superior earthenware, probably of Chinese origin, . . . is struck in order to set fire to a small piece of tinder, all these things being carried inside the cylinder. . . . The tinder of the two tinder boxes of the collection is derived from *Lycopodinaceae*—mixed with very fine fibres of charcoal.' He describes the method of striking the bamboo with the piece of porcelain, and adds: '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, p. 95) on the Arfak Mountains, a flint was used, and it is reported that no tinder, but picked and sundried bark is used.' Van der Sande (1907, pl. iv, fig. 29, p. 32) gives an illustration of a Marpar bamboo tinder receptacle with a septum at one end; near the open end is a cross-hatched band.



FIGURE 13. Man smoking pipe of figure 12. Ph. Dr de Rautenfeld.

Geelvink bay area.

In the Geelvink bay area (de Clercq and Schmeltz 1893, p. 71), a little tobacco for home consumption is planted at Windesi on the west coast of Wandamen bay. At Mawoi, on the Wandamen coast, tobacco grows well, but has small leaves; the people cut it roughly with a number of green leaves. At Jaoer, in the south-west part of Geelvink bay, the tobacco is cut entirely green. In the Mor islands (Ter Schelling or Ratewo, etc.) tobacco is called *sambaoe* and is not much planted. In the Waropen area, on the east side of the bay, tobacco is prepared even worse; it is both chewed and smoked. At Korido, on Soepiori island, each family has about ten plants behind the compound for its own use; tobacco is usually obtained from Amberbaken via Doré. The inhabitants of Wiak island also cultivate small quantities of tobacco. On Manoepa, the highest of the islets lying off Ansus island near the south coast of Japen, much tobacco is cultivated. Coastal inhabitants of Japen also get tobacco from the mountain peoples of the interior; for example, at Surui the tobacco comes from the Turu.

Van der Sande (1907, p. 18) saw on lake Jamur, south of Geelvink bay and east of 135°, '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'.

Basin of the Mamberamo river.

The great Mamberamo river (*c.* 138°) as a single stream starts from the lake-plain, 'Meer-vlakte', and passes through the Van Rees mountains on its way north to the sea. Its southern affluents are noted on p. 22.

Concerning Mamberamo tribes, Moszkowski (1911, p. 336) says inland Papuans are extraordinarily heavy smokers and generally carry in one ear a wooden or bamboo receptacle for tobacco. The Koassa Kamboi-Ramboi who inhabit the northern slopes of the Van Rees mountains pass down the river in the rainy season to about 100 km. from the coast. In the dry season they live in the mountains, where the women cultivate their gardens. He found it strange that they do not grow tobacco, but the farther inland Borumessu, Tori, and South river stocks do; the central mountain stocks are unacquainted with tobacco and threw away the cigarettes he gave them with disgust after the first pulls. Betel chewing is very common, but is unknown on the South river. These 'central mountain stocks', whoever they may be, thus appear to differ from all other mountain peoples in their ignorance of tobacco. The statements by Moszkowski are not very clear to me. It is possible that the 'central mountain stocks' were not unacquainted with tobacco, though evidently they did not like Dutch cigarettes.

District between Cape D'Urville and Humboldt bay.

'To the east of the Amberno [Mamberamo] River' (Van der Sande 1907, p. 18) 'tobacco is smoked in the form of cigarettes by both men and women; pipes are equally unknown as in K. W. Land [Mandated Territory of New Guinea].'

On the island of Jamna, one of the Arimoa or Koemamba islands, 139° 12', de Clercq and Schmeltz (1893, p. 71) say little tobacco, *sabka*, is grown; the natives smoke cigarettes with dried banana leaves as wrappers, but on the opposite mainland pandanus leaves are used. De Clercq (1893, p. 1004) says that tobacco and other small things are carried in bags, *baba*, made of Kalapa leaves.

A cigarette (figure 14) is illustrated by de Clercq and Schmeltz (1893, pl. xix, fig. 1), as smoked in most places.



FIGURE 14. Cigarette, tobacco rolled in leaf tied with bark string. Netherlands New Guinea; de Clercq and Schmeltz 1893, pl. xix, fig. 1, l. *c.* 28 cm.

Van der Sande (1907, pp. 15, 16) says that, everywhere, however much natives appreciated European tobacco they cultivated and smoked their own. (He says that in 1903 Dutch shag was very much liked, but Van der Goes (1862, p. 18) found in 1858 that cut tobacco was declined by the Papuans.) In a great many places, as at Tarfia, Matterer bay, 140° 5', and Tanah Merah, 140° 20', there is a trade in tobacco between the peoples, coastal and interior. De Clercq and Schmeltz (1893, p. 71) state that the people of Papoea talandjang, south of Tanah Merah bay, obtain their tobacco from the tribes living inland, as do those of Humboldt bay, where tobacco is known as *sabachai*.

Humboldt bay and Lake Sentani.

De Clercq (1893, p. 994) says that a little tobacco is grown in Humboldt bay and bruised leaves are smoked in pandanus leaves. Van der Sande (1907, p. 16) says that large quantities of tobacco are never seen in the houses, and the small quantities which the people of Humboldt bay and Lake Sentani carry about with them generally consist of loose leaves or sometimes of five to nine leaves.

'In Humboldt Bay smoking by the young men in the temple is not allowed, on Lake Sentani however, the boys smoke as soon as they serve in the watch-houses. . . . Young children with tobacco or pipes, as noticed from other parts, are never seen here. . . . 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' (Van der Sande, p. 18). Van der Sande (p. 16) says that tobacco leaves are never used as wrappers. The young pandanus leaf is used in the west and in coastal districts of Mandated New Guinea (where fresh leaves of *Hibiscus* are also used); between these two areas the banana leaf is used as a wrapper.

'Extremely curious is the custom, also reported from several other places in New Guinea, to hand the cigarettes now and then to others, who also have a few pulls. In Humboldt Bay as well as on Lake Sentani it actually belongs to the good manners, and Bink (1897, pp. 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 nowadays exactly as in 1858 (Van der Goes 1862, p. 89); after handing over your cigar, it is generally passed all round' (Van der Sande, p. 18).

Receptacles for tobacco.

In eastern north Netherlands New Guinea tobacco is carried in small plaitwork bags or more rarely in netted bags. In some places a pandanus leaf basket with a lid is used to store tobacco. Several bark tobacco holders are described by Van der Sande from the Humboldt Bay area (1907, p. 29), and one is illustrated by him (pl. iv, fig. 6). At Abar, Sentani Lake, this *marā huwā* is a strip of prepared bark, folded up and made into a bag by sewing it with a continuous two-ply string of fine fibre. It is rolled up and contains loose tobacco leaves, *sabēgai* or *sachēbai*, and a dried banana leaf as a wrapper. A similar bark bag from Ingrās, Humboldt Bay, contains two bundles each of seven tobacco leaves, *chēbāchai* or *sābāchei*, their stalks being tied together with vegetable fibres, and pieces of dried banana leaf for wrappers.

Tobacco baskets are used exclusively by men of the Humboldt bay area; some are made out of two strips of the stalk of a palm of which the blades are split lengthwise and

twisted together (Van der Sande, p. 29; pl. iii, fig. 17). Other tobacco baskets are more elaborate. Netted bags are also employed.

Bamboo cylinders of two groups (Van der Sande, p. 17) are the best holders of dry tobacco leaves, which are thus protected from being crushed and turned into powder.

In Geelvink bay and its neighbourhood a number of the receptacles have a bamboo cover, as often occurs east of Humboldt bay in Mandated New Guinea. The receptacles are decorated in the technique and style so characteristic of the Geelvink bay area. Van der Sande (p. 17) says the human figure according to Uhle (1886) is seldom found; he illustrates one from Wari and another from Kwatsiore (pl. v, figs. 5, 6). The cut-out parts are often smeared with very dark red or black pigment. The bamboo receptacles from lake Jamur are decorated entirely in the style of Geelvink bay, although the lake district belongs by language and intercourse to the south-west coast.

The receptacles of the second group have no bamboo cover and generally the whole surface is decorated with boldly cut spirals, loop coils, circles, zigzags, and other designs. Rarely are the cut-out parts of the designs coloured. In some receptacles there are bands of incised lines or of cross-hatching. Van der Sande says that nowhere did he see the receptacles so generally used as at Lake Sentani. The natives there make them for barter, and they are exported to the Humboldt bay area. The receptacle is carried under the arm, or contained in a bag, the open end of the receptacle being closed with a plug of bark or leaves, or some other material. In all these areas the bamboo receptacles are carved, the patterns are never burnt in; but Van der Sande (p. 21) describes how patterns are burnt on lime gourds at Lake Sentani.

The only records for chewing tobacco that I have been able to find are at Fakfak (p. 14), and Waropen (p. 19). Van der Sande (p. 20) states that tobacco is never chewed in Humboldt bay.

(ii) *Nassau and Oranje ranges*

From the northern slopes of the Nassau range, from west to east, rise the tributaries of the Rouffaer, Daalen, and Swart (Dika or Ilim) rivers, the combined waters of which form the Willigen or Tari Koe river. This with the large east to west-flowing Idenburg river unites to form the Mamberamo in the lake-plain, 'Meer-vlakte'. The Nassau range, or Snow mountains, has several prominent peaks of well over 4000 ft., such as Carstensz Top and Wilhelmina Top.

From the southern slopes of the Nassau range, numerous rivers arise, such, from west to east, as the Mimika, Utakwa, Bloemen, Noord West and the western affluents of the Lorentz.

The eastern affluents of the Lorentz river and the Eilanden rise from the Oranje range.

The peoples on the northern aspect of the mountain ranges will be considered first and then those on the southern flanks, in both cases beginning in the west.

(1) *Peoples on the northern flanks of the Nassau range.*

An American-Dutch Expedition led by M. W. Stirling investigated the 'Nogullo Negritos' who, in large numbers, live in the previously unexplored mountain region of

the upper Rouffaer river, north of the Nassau range, and immediately to the north of the sources of the Mimika and Utakwa rivers. According to a popular article by Stirling (1928) and personal information received from him, the pygmies are an agricultural people living in permanent villages. Tobacco is grown extensively in small garden patches around the houses. It is dried by hanging the leaves over the rafters of the house, where it receives some smoke from the fire, which is habitually kept burning in the evenings. When properly cured the leaves are rolled into ropes which are wound round a stick into a compact spindle-shaped bundle; this is wrapped with pandanus leaves and is stored or traded in this form. Tobacco is smoked as cigarettes and in pipes. The cigarettes are made by breaking off a sufficient quantity from the end of one of these rope bundles, partially pulverizing the tobacco in the hand and wrapping it in a quadrangular piece of pandanus leaf about the size of an ordinary cigarette paper. Tobacco pipes are made by hollowing out acorns and fitting to them stems made from hollow reeds or the lower portions of bamboo shoots. Pipes apparently are smoked only by the men, whereas men, women and children alike use cigarettes; even very small children at about the age of five or six enjoy smoking. It is purely a social custom.

In the village of Tombe, tobacco is called *yeet*; pandanus cigarette wrapper, *gō-bwě*; cigarette, *gō ba'chē*; pipe, *chē dā wāk*. On the lower Rouffaer river tobacco is called *mibina* and, on the Mamberamo river in the Van Rees mountains, it is called *sawuk*.

The Awembiak (A) live on the northern slopes of the western end of the Nassau range about the western affluents of the upper Rouffaer river. The Dem (D) live on each side of its main eastern tributary, north of Carstensz Top.

There are several nut pipes in the Amsterdam museum collected in 1926 from these two tribes. The pipes, *bomoni* (A), *djidoak* (D, figure 15), consist of a nearly straight or more usually of a curved stem, *udiè* (D), which is generally a portion of the hollow stem of what Dutch botanists identify as a climbing mountain bamboo. One end is inserted into a bowl, *soja* (A), *kibiau* (D), composed of a fruit that resembles an areca nut, in which is excavated a small cavity for the tobacco. In most pipes the junction of the stem and bowl is strengthened by being wrapped round with a piece of pig's bladder or intestine, but the membrane in some pipes extends over a great part of the stem and even over the bowl (figure 15A, D). In one or two pipes the junction is further strengthened by a plaited ring.

There is some variation in the character of the bowl, the nut of which it is made may be globular with a nodulated surface (figure 16C), or globular with a smooth surface, or ovoid with a smooth surface (A).

Three pipes in the Leiden museum from the upper Rouffaer area are described and illustrated by le Roux (1939, pl. xxii, figs. 6–8). In two of them the bowls are attached to the stem by means of pig's gut; one of them is strengthened by a plaited ring. He illustrates (pl. xxii, fig. 9) a coiled-up long cord of twisted dried tobacco leaves which is called *taguja* (A), *jit* (D), and (pl. xxii, fig. 10) a somewhat oblong bundle, *taguja tendi gawa* (A), *jit buk* (D), of coiled-up tobacco packed in pandanus leaves and bound with a length of thin rattan. They are cured by smoke, being hung up over a fire.

The physical characters of the Timorini, who live in the Swart valley north of Wilhelmina Top, have been carefully studied by Bijlmer (n.d., after 1920, pp. 1-42). They are closely allied to other peoples of short stature who inhabit the western part of the central mountains of New Guinea. Bijlmer considers it erroneous to speak of them as pygmies, and the same holds good for the Tapiro, Pěsěgěm, and similar peoples. He argues that there is an intimate relation between Negrito and Papuan, and states (p. 84) that 'In my opinion, the Negritic element, apparently more prominent in the pigmoid tribes, but constituting the principal substratum of all the Papuans, is by no means conform[able] with the old-fashioned "typical" Pigmy.'

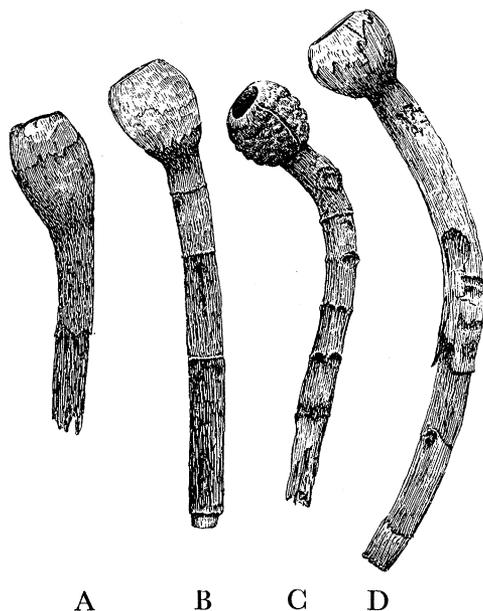


FIGURE 15. Nut pipes, upper Rouffaer river, north of Carstensz Top; Am. A, 514.12, l. 12 cm.; B, 514.10, l. 18 cm.; C, 514.8, l. 17 cm.; D, 206.5, l. 19.9 cm.; Bs. probably coll. Wirz from upper Swart river. In A and D pig membrane covers most of bowl and stem; in B and C membrane almost worn away.

H. J. Lam (1927-9, p. 344, fig. 82) saw two Timorini women smoking pipes like those of the Pěsěgěm (Nouhuys 1913, pl. i, fig. 3), but they were not wound round with twine. He thinks the bowl is the nut of *Elaeocarpa*. Tobacco is also made into a kind of cigarette, and is put into a green leaf and then smoked, or it is made into a thick, long egg-shaped packet bound round with pandanus leaf and neatly tied up with a spiral strip of rattan. The tobacco is not fermented and it has a very sharp taste. The pipe illustrated by him is like figure 15C.

Dr P. Wirz investigated in 1921-2 the mountain people (? Timorini) of the upper waters of the Ilim (Swart) river, north of Wilhelmina Top. He says they have a variable short stature, but cannot be strictly termed pygmies, though their culture is closely allied to that of neighbouring so-called 'pygmies'. They have the same kind of cuirass (Wirz 1924*a*, pl. xii, fig. 5) as that described by Haddon and Layard (1916, pl. i, fig. 11) for the Utakwa pygmies. For a reference to their 'stones of power' see Haddon (1928, p. 50). Wirz (1924*a*, p. 92) says that the tobacco plots are always

placed in the neighbourhood of the settlements, especially near the men's houses, either separately or in large plantations. The plucked leaves are effectually dried by hanging them on the walls or on the loft under the roofs of the houses; later they are twisted or plaited (*verflochten*) into long cords and then rolled into balls, or the leaves are stowed direct into spherical or spindle-shaped packets of pandanus leaf (figure 16D). These packets are traded not only among their own allied stocks but also with the foreign peoples of the lake-plain. Tobacco, *tavo*, is generally smoked as cigarettes, but pipes, *yoruo* (?), are also employed. The cigarette wrappers are of leaves collected in the bush and are carried in net bags. The small pipes consist of a bored piece of the

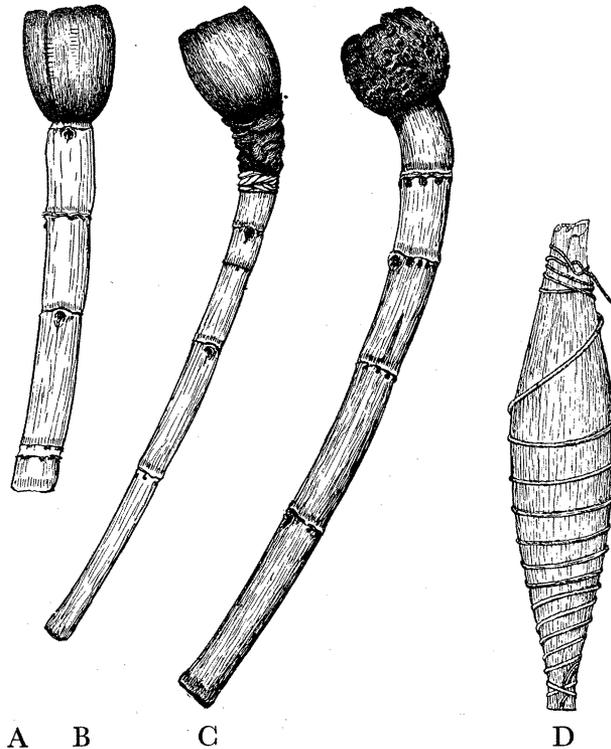


FIGURE 16. Nut pipes, upper Swart river; Bs. A, vb. 5999, l. 15 cm.; B, vb. 5991, l. 21.6 cm.; C, vb. 5863, l. 23 cm.; D, packet, pandanus leaves bound with rattan strip and containing rolled up cord of tobacco leaves, *tavo*; package used for barter; Wirz, 1934*a*, pl. iii, fig. 3.

stem of a kind of *Saccharum*, with a bowl made of an acorn ('Eichel') or of the hard nut of *Elaeocarpus* (pl. iii, figs. 1, 2). In the explanation of his pl. iii, Wirz says that the connexion of the bowl with the stem is overlaid with a piece of animal skin, probably the bladder of a pig. Both sexes, old and young, are all great smokers. Tobacco is never chewed. Wirz (1924*a*, p. 133) gives the following names in addition to *tavo* for the different kinds of tobacco grown in the Swart valley: *anun*, *arimena*, *barenin*, *beitaram*, *givirelu*, *kelonkue*, *kelorina*, *monuanua*, *obarelu*, *urina*. The natives of the Mamberamo river call tobacco *tavora* or *savora*. He (p. 138) makes the following statement: 'Central New Guinea [Swart river], *yoruo* (?) tobacco pipe, *al'pop*. Pěšchem, *bob*. Section of the aerial root of a pandanus, covered with the skin of the bladder of a pig, it serves as a tit for babies. Men smoke roasted pig's testicle in it. The word also means to smoke, to suck.'

In the Basel museum there are four nut pipes collected by Wirz in 1921 from the upper Swart river. Three of these are illustrated in figure 16. In A the bowl is smooth and is nearly choked with tobacco ash, only a small concavity being left. The end of the stem is fibrous, presumably by having been chewed when smoked. In B the bowl is smooth; its lower end and the upper internode of the stem are covered with a rather thick membrane, below which is a narrow plaited cane band. In C the nut which serves as a bowl has a thin burnt irregular edge.

Similar pipes in the Rotterdam museum from the same area are almost completely covered with membrane. There is the same variation in the character of the bowl as in the Basel pipes and in those in the Rotterdam museum from the upper Rouffaer river.

Wirz (1924*b*, p. 188) states that there is an intensive barter trade carried on between the tribes inhabiting the northern slopes of the Nassau range and those of the Mamberamo valley. Sometimes regular expeditions are undertaken merely to exchange for cowry shells. He says that tobacco of course (*natürlich*) had been brought in from the south comparatively recently [!], but found such favour that smoking has almost entirely driven out the doubtless older betel chewing. Tobacco, *tavo*, thrives here [in the mountains] excellently and is cultivated largely. It has been proved that a brisk trade is carried on with the tribes of the southern side of the range, and that a regular pass over the central chain, at an extreme height of 4200 m., is used by the natives.

In the Leiden museum there is a black pipe, 1917, 239, made of the lower end of the stem of a small bamboo, the thick root end of which has been hollowed out like a funnel; much of it is wrapped round with a piece of pig's bladder (figure 17). It was collected in 1915 from the Willigen river, which flows along the lake-plain, but we must regard it as a variant of the type of pipe characteristic of the northern mountain people.

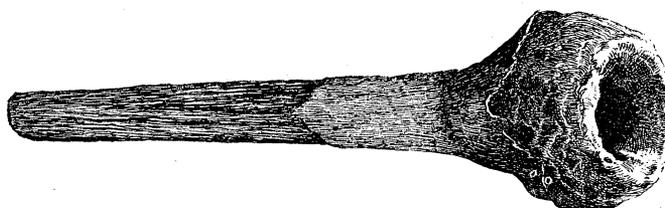


FIGURE 17. Bamboo pipe, Willigen river; l. 30 cm., diam. stem 2.4–3.5 cm., bowl 7.5 cm. L.

(2) *Peoples on the southern flanks of the Nassau range.*

The Mimika river rises in the Wataikwa mountains, south of Mount Leonard Darwin, Nassau range.

Wollaston (1912, p. 89) says: 'The Tapiro pygmy people, who live in the mountains, cultivate tobacco and exchange it with the Papuans of the upper Mimika who grow none themselves.' He also states (p. 202) that nearly every man of the pygmies carries a supply of tobacco in his larger bag. 'These people cultivate tobacco in sufficient quantities to be able to supply the Papuans of the low country. The leaves are dried and neatly rolled up into long bundles weighing three or four pounds; the flavour is strong and rather bitter, but it is not unpleasant to smoke. The Tapiro smoke tobacco chiefly as cigarettes, using for the wrapper a thin slip of dry *pandanus* leaf. When, as is

often the case, the wrapper is very narrow and the tobacco is inclined to escape, the man smokes his cigarette in a peculiar manner; he holds the unlighted end in his fingers and with his mouth draws out the smoke from between the edges of the wrapper in the middle of the cigarette, this he continues to do until the cigarette is about half consumed when he puts the end in his mouth in the ordinary way.

'The Tapiro also smoke tobacco in a pipe in a fashion of their own. The pipe is a simple cylinder of bamboo about an inch in diameter and a few inches in length (figure 18A). A small plug of tobacco is rolled up and pushed down to about the middle of the pipe, and the smoker holding it upright between his lips draws out the smoke from below. The Tapiro never make large cigars like those of the Papuans of the Mimika, and the Papuans never smoke pipes, nor did they take readily to those that we gave them.'

Rawling (1913, p. 260) gives a similar account of the smoking of cigarettes by the Tapiro. He says: 'only one pipe did we see. It was made from a single piece of hard wood, short and stumpy, and the bowl a prolongation of the stem.'

In the Amsterdam museum there is a bamboo smoking tube, 1024.4, from the Mimika river, presumably from the Tapiro, which is very similar to figure 18A; the

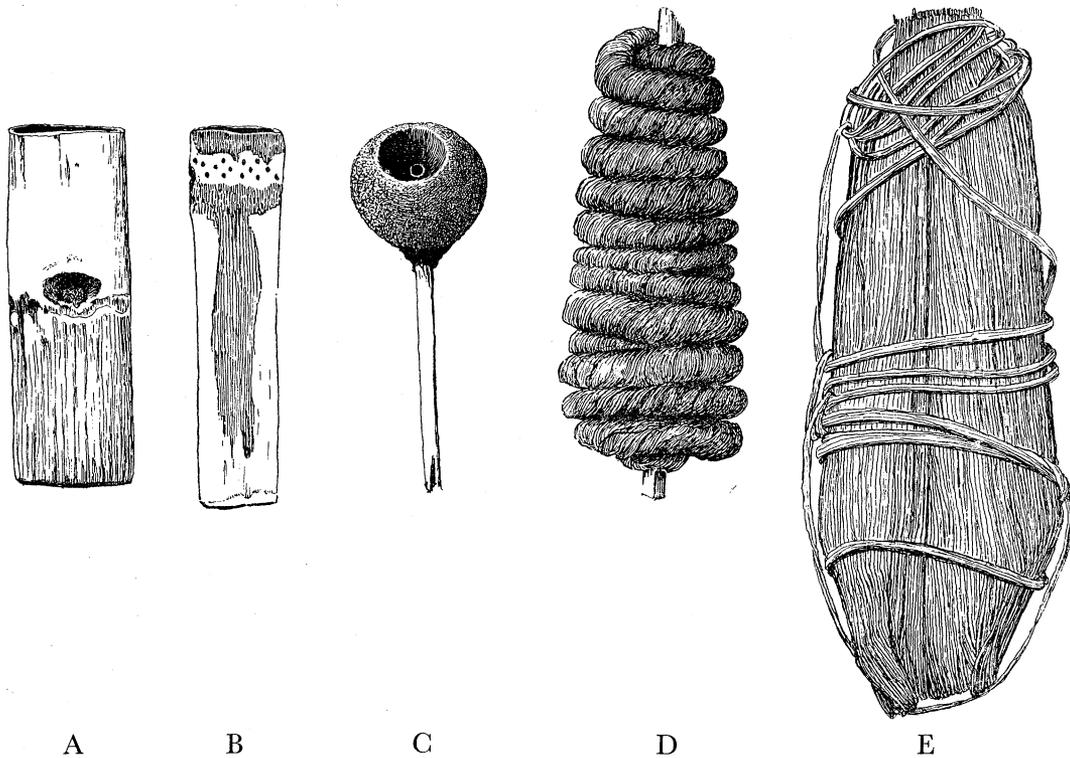


FIGURE 18. Pipes and tobacco, Snow mountains. Cm. A, tubular bamboo, central perforated septum, one half scraped; 24.1173, 7.4×2.5 cm.; Wollaston, 1912, pl. p. 222, fig. 7, Tapiro. B, tubular bamboo, perforated septum close to one end which is scraped except for band with dots, skin peeled off part of rest of pipe; 25.468, 7.6×2 cm., Uta kwa. C, nut pipe, bowl bored nutmeg, stem bird-bone, junction of stem and bowl beeswaxed; 14.231, l. 8.6 cm., Uta kwa. D, roll twisted tobacco leaves round stick; 25.469, 10.1×3.6 (average) cm., Uta kwa. E, tobacco roll in pandanus leaf, bound with bast; 14×4.5 (average) cm., Uta kwa.

central septum is pierced. It also has one half of the surface scraped; the other half with a clear yellow skin is nearly full of inspissated tobacco. 14×2.6 cm.

In the notes of his second expedition of 1912–13, Wollaston (1933, p. 152) says that the Utkwa pygmies seem to live at an altitude between 4000 and 6000 ft. [at the sources of the Utkwa river on the slopes of the Hanekam mountains, south of Carstensch Top, Nassau range]. ‘They call the Snow Mountains “Ingki-pulu”, but we cannot discover what they call themselves. . . . Tobacco in some quantities (*arenyum*); the leaves rolled into a long rope then coiled into a neat twist; flavour not at all bad. They made cigarettes, using pandanus as wrapper, and sometimes they smoke from the side—if the wrapper is not wide enough to go all the way round. They also smoke pipes made from plain straight bamboo with a hole at the bottom. Women and children all smoke.’

Haddon and Layard (1916, p. 10), on the authority of Wollaston, state that ‘The Utkwa roll the tobacco leaves up into a rope which is coiled into a neat ball, and then dried and wrapped in leaves. They are usually smoked as cigarettes with a wrapper of banana or pandanus leaf. Pipes are rarer.’ One nut pipe, no. 220, has a bowl made of a bored nutmeg and attached in a direct line with beeswax to a bird’s bone (figure 18C). Two others are bamboo holders (figure 18A, B). Tobacco is rolled into a rope and a pandanus leaf wrapped round it with a strip of bast (figure 18D, E) as among the Tapiro. These bundles are traded.

The Pěšěgēm or Pěšěchēm live on the southern slopes of the Wichmann mountains, south of Wilhelmina Top, on each side of the Oroh tributary, one of the western headwaters of the Lorentz river, about $4^{\circ} 30'$. H. W. Fischer (1915, f.n. p. 145) says that the spelling Pěšěchēm, not as formerly customary Pěšěgēm, is adopted from *Bulletin* no. 68 of the ‘Maatschappij’ in which Lieut. L. A. Snell has published a few notes on the manners, customs and language of these people. It should be noted, however, that in the accompanying vocabulary the *ch* sound is entirely absent. I follow most Dutch authors in adopting Pěšěgēm.

J. W. van Nouhuys (1913, p. 11) says that tobacco, *bali* or *mbali*, is grown near the houses, but he did not see it growing wild. The leaves undergo no treatment and in a half-dried condition are carried in very small numbers in the net bags. If the leaves are too damp to use they are set by the fire for some time and then made in a simple manner into a kind of cigarette. He does not know what kind of leaf serves as the wrapper. Dutch cut tobacco was immediately in great demand, and a cigarette often passes from mouth to mouth, finally returning to the original proprietor. Cigarettes are often smoked in small holders, *bob*, of reed or bamboo or of the axil of the inflorescence of a banana (figure 19B). A pipe (figure 19A) has a curved stem bound round with twine, and fitted on to it in the same line is a bowl made of the pierced kernel of *Elaeocarpus*. On p. 31 he refers to a cigarette holder, 5.5 cm. long and

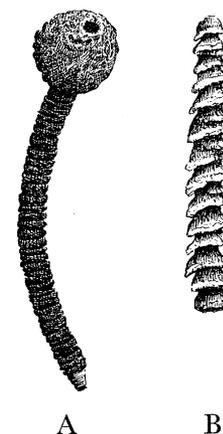


FIGURE 19. Nut pipe and cigarette holder, Pěšěgēm. A, nut pipe; *bob*, stem served with twine, l. 13 cm. B, cigarette holder made of axil of banana inflorescence, l. 8 cm.; Nouhuys 1913, pl. i, figs. 3 and 4.

6 mm. in diameter, consisting of a single piece of reed (*Rohr*), the central node of which is bored through, and here the holder is bound in a very primitive manner with a strip of rattan; it is evident that both ends were used in smoking. This holder is analogous to those shown in figure 18A, B. Nouhuys did not see either women or children smoking. Tobacco chewing is not customary among the Pěšěgěm. He says that tobacco is not known on the lower course of the Lorentz river.

H. W. Fischer (1915, p. 152) refers to three pipes with round or elongated nut bowls, length 10–15.5 cm. He says that Lieut. L. A. Snell calls them *donggob* and van Nouhuys *bob*.

The pipes of the Pěšěgěm are similar to those of the natives of the Swart valley. This is not surprising, as van Nouhuys informs me that the Dutch expedition in 1909 found footpaths leading over the ridge or pass at a height of 3900 m. (see Nouhuys 1913, map pl. iv). It has been mentioned previously that Wirz records a trade route across the mountains in this region. Otherwise, so far as my information goes, this type of pipe is confined to the northern slopes of the Nassau range.

(iii) *South Netherlands New Guinea. Area south of the Nassau and Oranje ranges*

There is a marked difference in the smoking apparatus of the natives of the north Netherlands New Guinea from that employed in the south.

With a few sporadic exceptions tobacco is not smoked in the south-western area west of about 140° from the Nassau and Oranje ranges to the south coast.

South-western area.

Prince Roland Bonaparte (1885, pp. 15–23) states that Oldenborg, writing in 1881 about the natives in the region of Cape Steenboom (between the mouths of the Mimika and Utakwa rivers), says they know the word tobacco, but had never seen cigars. At the time of Carstensch (c. 1623), on the authority of Van Dijk (1859), they did not even know about tobacco. Wollaston, however, on his first expedition in 1910 (1912, p. 88), found that tobacco was grown extensively by the inhabitants of Obota, a few miles up the Kapare affluent of the Mimika, but the neighbouring folk of Wakatimi, on the Mimika, do not cultivate the soil. At Obota the seedlings are planted out and sheltered by a low roof of bent sticks covered with leaves to protect them from the sun and rain. ‘Almost every native smokes, men and women, and very often the children. A small handful of the dried leaves is taken and very carefully rolled up in the form of a cigar, and then wrapped round with a *sirih* leaf, which has been previously warmed over the fire; the ends are bitten square, and sometimes the leaf is tied round the middle with a thread of fibre to prevent its unrolling. The tobacco is strong in flavour, but not at all unpleasant to smoke. The only other place, except among the pygmy people of the hills, where we found cultivation was at Atuka, a few miles up the Keaukwa river, a few miles to the east of the Mimika River.’ (On the authority of Rawling 1913, p. 248.)

Van Nouhuys (1913, p. 11; 1931, p. 76; and personal information) explicitly states that the population of the plains of the lower course of the Lorentz river did not know

anything about the smoking of tobacco or the chewing of betel. The ignorance of tobacco among the peoples of the coast and plains of the hinterland from the Mimika southwards was established by the Dutch expeditions of 1907 and 1909–10. This makes it difficult to understand the statement by Wirz (1924–5, p. 128) that offerings of betel and tobacco are made on the lower Lorentz river to certain wooden images.

Throwing lime from a bamboo tube. Wilhem Joest (1888) gives details from early records of a curious custom in the south-west and west of Netherlands New Guinea of natives waving bamboo cylinders containing lime which comes out in clouds resembling smoke. Of these records those by Cook, Banks and Solander were the earliest. They landed in 1770 on Vleermuis eiland (Bat island) which lies off the south coast east of the entrance to Marianne strait. Cook relates that he saw fire and smoke come out of the short hollow cane but he did not hear a report; Banks and Solander mention smoke only. D. H. Kolff of the *Dourga*, when at the western entrance of the strait in 1826, saw a man with a thick bamboo from which now and then he threw some dust into the air, which seemed to him to be ash. Salomon Müller, in 1828, saw the same practised by natives of the Utanate river district, and he gives a drawing, which is copied by Joest. The natives used a bamboo, of the length of a man's arm, from which they threw a fine dust into the air, which from a distance looked like a cloud of smoke; he was told that it was a method of signalling. J. Modera, a companion of Müller's, saw smoke and fire coming out of the bamboo, but an interpreter said it was a mixture of lime, ash, and sand.

J. C. van Eerde (1909) refers to the custom of blowing lime into the air by natives of Duke of York island, Bismarck archipelago, as an action to exorcise evil influences, and concludes that the custom in New Guinea may be interpreted in a similar manner.

Wollaston (1912, p. 219) says that when they were on Island river (Merauke district), a short distance from its mouth, 'Crowds of people lined the river bank and some of them, holding short bamboos in their hands, jerked them in our direction and from the end came out a white cloud of powdered lime, which looked like smoke. This custom was noticed by Rawling when he first visited the village of Nime [Nime is at 136° 33' on the small Keaukwa river] and it was recorded by some of the early voyagers, but the meaning of it has not yet been explained. The suggestion that it is a means of imitating the appearance of fire-arms is ingenious, but it can hardly be seriously considered.'

Joest suggests that if, as he thinks he has proved, these mysterious instruments were not used as firearms or for signalling purposes, they must have been tobacco pipes, and evidently he thinks that Cook and Modera really did see fire. He picturesquely imagines the Papuans enjoying their smoke and being disturbed by the sudden appearance of strangers; they must have jumped up, rushed about aimlessly, throwing into the air their spears or whatever they held in their hands, in this case the tobacco pipes. One would have seen smoke and also fire where the cigarette end had not been removed in the agitation of the moment.

Unfortunately, Joest had no means of knowing that these Papuans did not smoke tobacco. From the statements of Wirz it is very improbable that 150 years ago the

natives of Bat island could have known about tobacco smoking, and we have positive information that the Papuans of the rivers that flow into the Arafura sea never use tobacco pipes.

South-eastern area.

The south-eastern area of South Netherlands New Guinea lies east of about 140° and south of the eastern end of the Oranje range and of the western end of the Star mountains, and southward to the south coast. The northern portion contains the middle Digul and its northern tributaries. The southern portion is drained by rivers that flow southward into the Arafura sea (Alfoerenzee). This is the country of the Marind, the Yee, the Kanum, and the Arka and other peoples of the basin of the Torassi river.

The upper Digul has three main affluents; from west to east these are the Miku, the Kao, the Muiu, Moyu or Moio. The ethnic relations of the tribes inhabiting the regions watered by these three rivers have not yet been determined. Wirz informs me that similar pipes, drums, and cuirasses are common to all three rivers, but the Miku people alone carry shields. It is known that linguistically and in some other traits of culture the people of Muiu have affinities with the natives about the Tedi river, upper Fly.

Wirz has shown (1922, p. 23) that the main Digul river is an ethnic frontier. Although between the Marind and their western and eastern neighbours there have always been occasional friendship and trading relations, these were never the case between the Marind and the tribes beyond the Digul, and there are great uninhabited stretches of country between these two groups of peoples.

The Marind-anim inhabit the area between the Digul and the sea and, roughly speaking, between the Bulaka river and its most eastern tributary in the west and the middle Maro in the east. As *anim* signifies 'people', it may be omitted when referring to the various peoples.

The Kanum live between the Maro, or rather a few miles to the east of that river, and the British boundary. Allied to the Kanum are the peoples about the Torassi (Bensbach river) and the Yavim (Morehead river), both of which are in Papua. The Yee live to the north of the Kanum about the headwaters of the Maro, i.e. north of 8°, and extend beyond the British boundary.

Muiu and Miku tributaries of the upper Digul.

A. P. Lyons (1922, p. 122), when on the upper Fly, met some natives from the Muiu river who smoked in the following manner. The apparatus consisted of a short narrow tube of bamboo and a short internode of a bamboo of which only one septum was retained; this was pierced with three small holes. In smoking, rolled-up tobacco leaf was inserted into one end of the tube and ignited, the other end of the tube was inserted into the open end of the pipe, the hand being cupped around it in order to prevent the smoke from escaping. The smoker drew the smoke into the pipe by placing the septum end in his mouth. A design was incised on the pipe. On p. 132 it is stated that the same language is spoken by the natives of the Muiu and those of the Tedi (Alice river). The Muiu name for tobacco is *abuk*.

Leo Austen (1923, p. 161) says Kandam is situated near the headwaters of the Muiu river close to the boundary of Papua and also close to the Birim river, a western tributary of the Tedi. The Birim river languages are very similar to those of the upper Muiu and are allied to those of the western Tedi people: tobacco, *tau* at Kandam, *apuk* at Anu on the lower Muiu (p. 162). In a letter (June 1928) Wirz informed me that on the Miku tobacco is called *auk*, on the upper Miku *waniek* and on the Kao *apuk*.

Two pipes in the Basel museum collected by Wirz on the Miku affluent of the Digul have a motif that is very characteristic and executed in the intaglio technique.

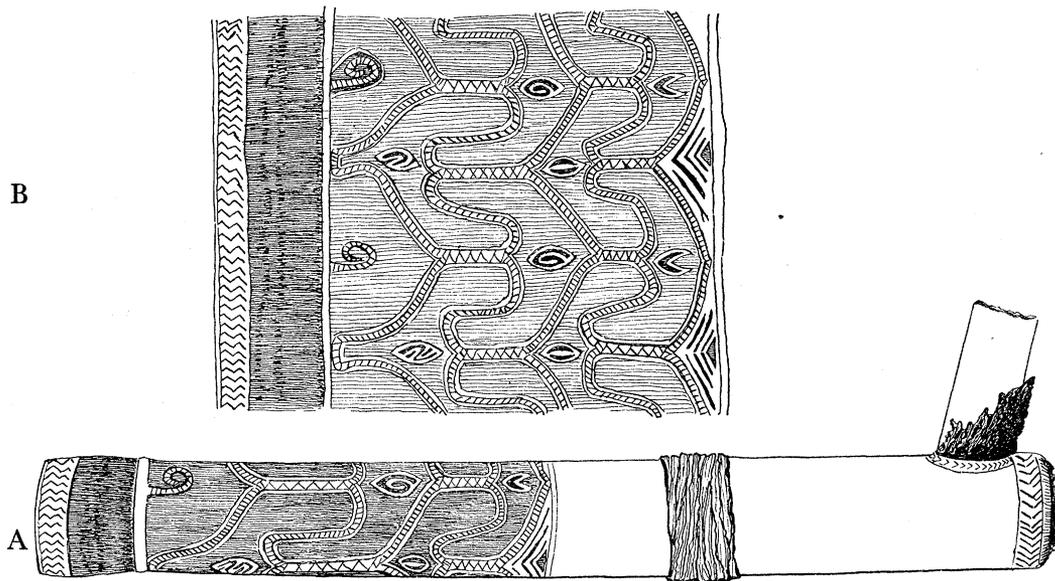


FIGURE 20. A, Pipe with fixed bowl, Miku river. B, displayed pattern, intaglio technique. Ph., S., R. Bs. Vb. 6044.

Pipe Vb. 6044 (figure 20), Miku, has a thick tubular bowl, fixed with a forward inclination and packed into the dorsal hole with bark cloth. There is a row of burnt chevrons around the dorsal hole. The fore septum is coated with wax into which coix seeds are inserted. There is a band of burnt chevrons at each end of the pipe. Near the aft end is a 3 cm. scraped band covered with strips of bast. The remainder of the pipe has the skin entire except where it is scraped to form the background of the pattern. The pattern occupies a 17 cm. band and is of a yellow colour which shows up clearly against the rich reddish brown stained background. The main pattern consists of stylized human figures with spirals, ovals or cleft ovals for heads; the limbs are joined together. The bands forming the bodies and limbs have strongly burnt submarginal lines, between which are short straight lines in the limbs, and zigzags or crossed lines in the bodies of the figures. There is a spiral design below the dorsal and the ventral aft figures. 41×5 cm.; bowl 6×2.8 cm.

Pipe Vb. 6046, Miku, has a dorsal hole for a bowl and is scraped for 11.5 cm. at the closed end and for 10 cm. at the open end. At the fore and the aft ends of the patterned area are two encircling narrow bands, the inner containing oblique lines and the

outer rough chevrons or crossed lines. The leaf scar in the centre of the dorsal surface is scraped to form a lozenge, and continuous with it is a narrow scraped band that encircles the pipe at the central node. The median dorsal line is carelessly indicated: in the prenodal area there are two longitudinal scratched lines enclosing irregular oblique lines suggestive of a herringbone pattern; in the postnodal area there are two bands consisting of longitudinal lines enclosing irregular chevrons and crossed lines. The rest of each prenodal and postnodal area is filled up with four longitudinal rows and seven transverse rows of carelessly placed lozenges enhanced with transverse coarse jagged lines. Each lozenge appears to have been drawn separately, the outline being incised. The intermediate lozenges are plain. The pattern is emphasized with a reddish brown pigment. The poor lay-out of the pattern and the slovenly executed decoration of this pipe seems to be alien to the district; the style and the use of jagged lines are indicative of relation to the art of the upper Kumbe and Maro river districts. 75.5×5.8 cm.

In the Amsterdam museum is a very heavy pipe, A. 519, with a large dorsal hole, from 'South New Guinea', 1906 Expedition. The skin is entire except aft of the aft septum where it is scraped. The pattern forms a 13 cm. band in the aft third of the pipe and is bordered by narrow cross-hatched bands. The technique of the pattern is in the typical upper Digul style; it consists of double scrolls apposed to one another. 61×4.5 cm.

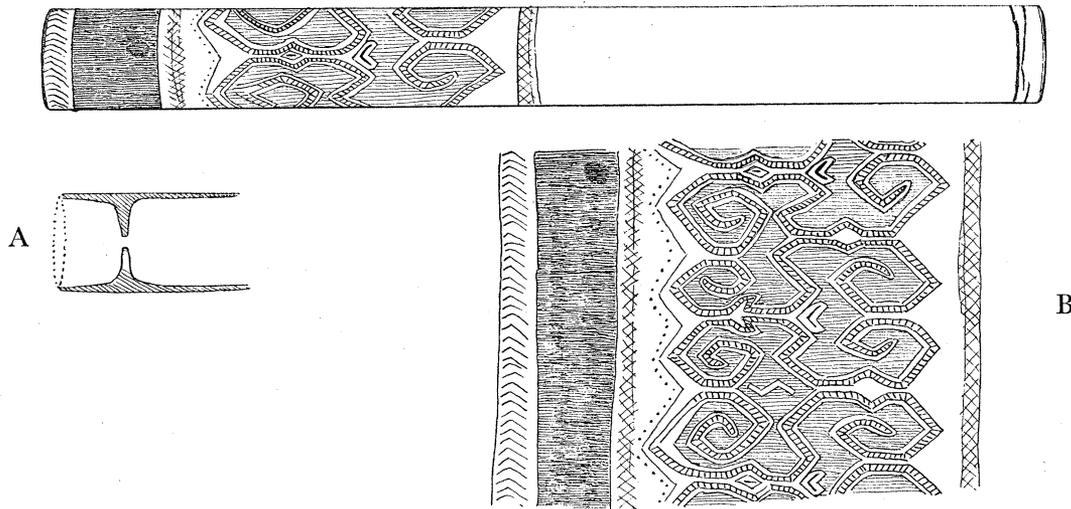


FIGURE 21. Bamboo tobacco tube or holder, Muiu river. A, section of patterned or mouth end. B, displayed pattern, intaglio technique. Ph., S., R. Bs. Vb. 6051.

A tube or holder, in the Basel museum, Vb. 6051 (figure 21), has the same technique as the pipe of figure 20. There is, however, no dorsal hole. The perforated septum (figure 21A) is 3.6 cm. from the scraped or mouth end; there is no septum at the other end; it is widely open and is charred internally. The (presumably human) figures are much stylized and show as light yellow against the scraped background which has a dull yellow ochre colour. It is half filled with fibre. Wirz informed me that it came from the Muiu. 41×4.1 cm.

Two tubes or holders from the upper Digul in the Rotterdam museum were collected in 1916; both are filled with some sort of fibre and neither has a dorsal hole.

Holder 23393 (figure 22A) has the skin entire except at one end and for the background of the pattern, which is in Miku technique though the motif is slightly different. The design has been illustrated by Loebèr (1919-20, fig. 90). 50 × 4.5 cm.

Holder 23394 (figure 22B) is scraped at the septum at one end. The incised and scraped lines of the pattern are coloured dull yellow ochre. The elongated spirals of the main design bear some resemblance to the decoration of the holder from the Tedi river (figure 30). Loebèr (1919-20, fig. 95) illustrates the spiral on the other side of the pipe.

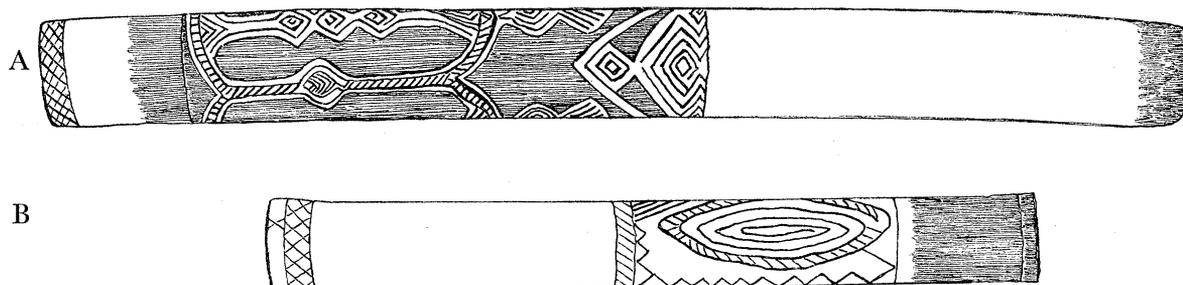


FIGURE 22. Holders, Upper Digul river. Ph., S., R. Rt. 23393, 23394.

Loebèr (1919-20, fig. 93) gives the decoration of a tobacco pipe from the upper Digul which, though characteristic, is much simplified.

A pipe from Okaba in the Marind country, decorated in typical upper Digul style and intaglio technique, is mentioned later.

The Marind, Yee, and Kanum. Basin of the Torassi river.

Wirz (1922, p. 96) says that smoking is not customary and never has been on the upper Bian, but betel is chewed. He says (1928, p. 146) that the Marind are now addicted to chewing trade tobacco with betel, but it is never smoked. If tobacco is given to smoking tribes, they smoke it in the same way as they do their own tobacco. It is an open question whether smoking was formerly a custom among the coastal Marind, although Wirz thought it was the case; they are extraordinarily fond of betel chewing, and nowhere is the tobacco plant grown by them. The Kanum (1922, p. 96) chew the betel, but only moderately, and the Yee do so occasionally, but both peoples perpetually smoke, even the women and children, and tobacco is grown in every village. Wirz (1928, pp. 95, 108, 331) states that tobacco is used as trade on the upper Maro and on the Kumbe. The native tobacco is almost as good as the foreign. The inland tribes chew neither betel nor tobacco; they are ardent smokers and always carry a pipe about with them. Imported tobacco is gradually replacing the native-grown plant.

The Kanum grow tobacco in small plots near their houses. The leaves are dried very carefully over a fire or are fastened by their stalks to a stick which is stuck in the thatch inside the house and left there until completely dry. For trading purposes the Yee plait their tobacco (*temuku*) leaves into long twists when they are half-dried and

make these into a hank or ball. The tobacco leaves are treated in a similar manner by the inland natives, though the leaves are seldom plaited but are twisted into a cord (Wirz 1928, p. 146).

The pipe is of the ordinary Papuan type. The tobacco is placed in a screw of a green leaf, or in a small piece of the inner bark of the eucalyptus, which is inserted into the end of a tubular bowl made of thin bamboo; failing a tube the screw is inserted in the dorsal hole of the pipe. Wirz (1922, p. 96) says the indigenous tobacco has a strong stupefying effect on the smoker, although but a small quantity is rolled in the wrapper and but two pulls taken. When a pipe is full of smoke it is quickly passed to a neighbour who takes a pull and passes it on, and so the pipe makes the round until it has to be refilled with tobacco smoke.

It appears that tobacco smoking is largely indulged in by the Yee and the Kanum, and that it gradually diminishes in extent among the Marind and seems to be entirely lacking west of the Bulaka.

Van Nouhuys informs me that the pipe he saw used at Merauke in 1907 had no bowl, but the thin end of a formidable cone of tobacco wrapped in a big leaf was inserted in the dorsal hole of the pipe. The man sat down in the shade in a lonely spot a little distance from the village. He lit the tobacco with a glowing piece of firewood and filled himself up with smoke. After some moments the saliva was running freely from his mouth and the smoke curled continuously from mouth and nostrils, then rolling on his side he remained for hours as if lifeless. It appeared to van Nouhuys that the subject did not consider it an agreeable pastime. This does not seem to be at all a general practice, and was indulged in only once in four or five days.

The Marind. Two pipes and a holder from Okaba, a coastal village 25 km. west of the Bian river, have incised patterns only.

An old, much worn, heavy pipe in the Rotterdam museum, 19091 (figure 23), has a lateral longitudinal leaf or feather design, but the whole surface is covered with chevrons. In the dorsal and the ventral median line is a very narrow plain band which splays out into a plain triangle at the fore end only; that on the dorsal side contains a large bowl-hole.

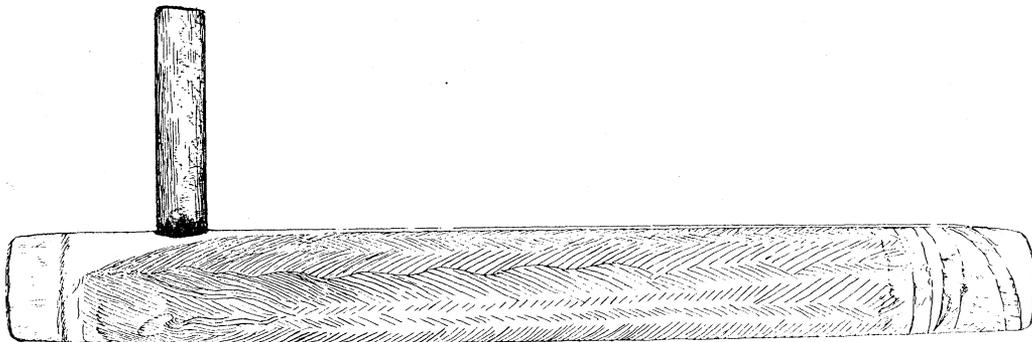


FIGURE 23. Pipe with bowl, Okaba, Marind. Ph., S., R. Rt. 19091.

A very heavy cigarette holder in the Leiden museum, 1685.10, has the whole surface scraped except for a long narrow leaf-like strip of whole skin which extends along the length of each side; this is filled with incomplete chevrons. The septum end

is reddened and is probably the mouthpiece; the septum is perforated. The other end is charred. 38.5×5 cm.

A Leiden pipe, 1685.9, consists of a single internode and has a large dorsal hole. It is encircled at varying distances with somewhat narrow bands enhanced with chevrons and cross-hatching. One of the broader bands of chevrons has the alternate spaces between the chevrons left blank and the others are enhanced with short straight lines. The execution is irregular. 50×4.7 cm.

There is in the Leiden museum a holder, 1685.8, from Okaba, which is scraped all over except for the details of the pattern; this is quite in the Miku style, though not quite like any other known to me. It is an old tube and the pattern is much worn down. It must have come originally from the upper Digul. 40.4×4.2 cm.

Schmeltz (1904, p. 235) gives *bonkě* for bamboo tobacco pipe, and (p. 239) *subakě* for 'bamboo' [? tobacco]; south-east [Netherlands] New Guinea. *Tamoekoe* (*tamuku*) has also been recorded for tobacco at Merauke.

Several pipes have been collected in the neighbourhood of Merauke and the Maro river. One or two are quite plain, as in the *ba-nggě* from Merauke, in the Leiden museum, 1854.5 (1913), illustrated by Fischer (1913, p. 44; pl. vii, fig. 7), 39×4.5 cm.; bowl 6.5×2 cm.

Other pipes have incised simple decoration. Schmeltz (1905, p. 195; pl. iii, fig. 4) illustrates a *bange*, probably from Merauke, which has a band of oblique lines and chevrons at the dorsal hole. Length 41 cm. De Jong states (Schmeltz 1905, p. 195) that 'the dried tobacco leaf is rolled in a piece of leaf and stuck in the hole near one end; the flat hand is placed at the other end; it is used by old people'.

Schmeltz (1895, p. 156; pl. xv, fig. 9) illustrates a pipe with three narrow incised bands fore of the dorsal hole and three about halfway between the dorsal hole and the aft end. The bands are enhanced with chevrons, and in addition one band has Y-shaped designs and another V-shaped designs, the ends of which are curled over inwardly. 70×4.7 cm.; bowl 10 cm.

Loebèr (1919–20, p. 13) draws attention to a pipe from Merauke which is covered with irregular geometric patterns. Not only are coarse jagged lines employed, but lines are also formed by interlocking V-shaped incised dashes (chevrons) and by analogous chevrons united by a central incised line. He points out that jagged-line decoration is more common in the adjacent British territory. He compares this pipe with one (his fig. 85) from the Torassi river.

In the Rotterdam museum are two pipes from south New Guinea, 1909. In no. 17026 there is a fore, central, and aft broad scraped band, and bordering the two unscraped portions are narrow bands enhanced with chevrons and cross-hatching. 88.5×4.9 cm. In no. 16130 there is a band of whole skin at each end and a narrow band with incised chevrons in the centre. The prenodal area is scraped except for a longitudinal band on each side of the dorsal hole and for one on the left side and another on the ventral median line. The postnodal area is entirely scraped. 48.5×3.8 cm.

In the Leiden museum is a pipe, 1476.37, from Merauke (figure 24A). On the dorsal side at the fore end there is a somewhat spindle-shaped prolongation, the skin

of which is entire. The pipe is scraped all over except for two longitudinal dorsal bands, which are cross-hatched aft of the dorsal hole and are separated by a very narrow scraped strip. Fore of the dorsal hole the two bands are combined into one and are plain. 45.3×5.3 cm.; length including prolongation 56.5 cm. The dorsal hole is 2.8 cm. in diameter.

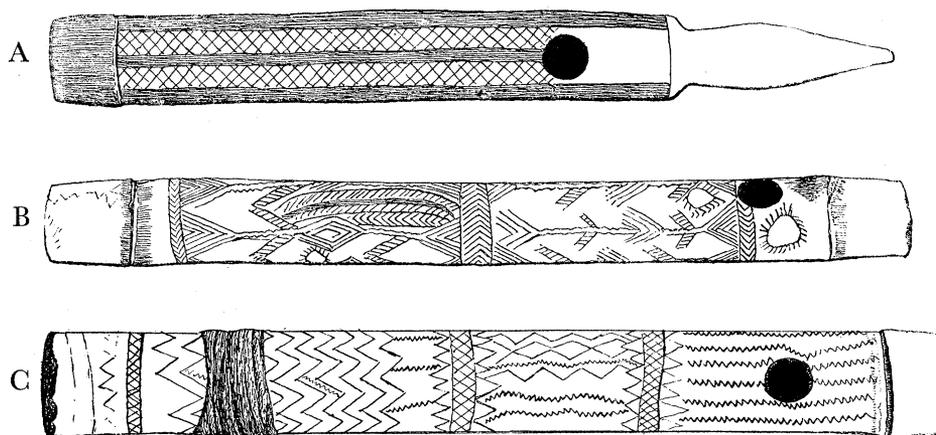


FIGURE 24. A, pipe with fore-dorsal prolongation, Merauke, L. 1476. 37. B, pipe, Sĕnegi village, Gavur-anim, a division of the Marind, L. 1718. 1. C, pipe, Yee-anim, L. 1718. 25. Ph., S., R.

A pipe, *banggĕ*, in the Leiden museum, 1718. 1 (1909), has the decoration shown in figure 24B. The skin is entire and the designs are in apparently burnt lines, and they show an affinity with those of figure 25 and more remotely with some of the upper Digul designs, though in these the technique is entirely different. The fringed circles are a new feature. The pipe came from Sĕnegi village, which in Wirz's map (1922) is about halfway between the Kumbe and Bian rivers at about $7^{\circ} 56'$ in the district of the Gavur-anim, a division of the Marind. There are a few carelessly executed concentric lozenges in the aft part of the pattern on the side of the pipe other than that illustrated. 39×4 cm.

A pipe in the Rotterdam museum, (1909) 17162, was obtained at Merauke in 1909 (?), but, judging from the decoration (figure 25), it is very probable that it came from some distance up the Maro river. The skin is entire. The decoration is carefully executed in incised lines. The narrow longitudinal bands which end in concentric triangles or lozenges may possibly be a further degeneration of the human form. The band of concentric lozenges is a pleasing feature. On the dorsal aspect of the aft area are incised the foreparts of a centipede and a crocodile. 48×4.7 cm. The bowl is decorated with faint longitudinal zigzags and is considerably choked up with tobacco. 16×2.2 cm. The decoration of this pipe is illustrated by Loebĕr (1919-20, fig. 91), and this was copied by Fuhrmann (1922, pl. O. xvi, fig. 69).

Dr Carl Schuster gave me a photograph of a Marind-anim pipe in the Tilburg museum. The ends are scraped and darkened. The skin is entire in the internode; behind the dorsal hole is a band with chevrons; at the aft end are a narrow band with chevrons and a band of cross-hatching, on the fore side of which are bands of triangles

enhanced chevrons and with two spurs at their apices. On the dorsal surface is a large crocodile with its tail towards the dorsal hole; it is enhanced with spots. The decoration appears to be in incised lines.

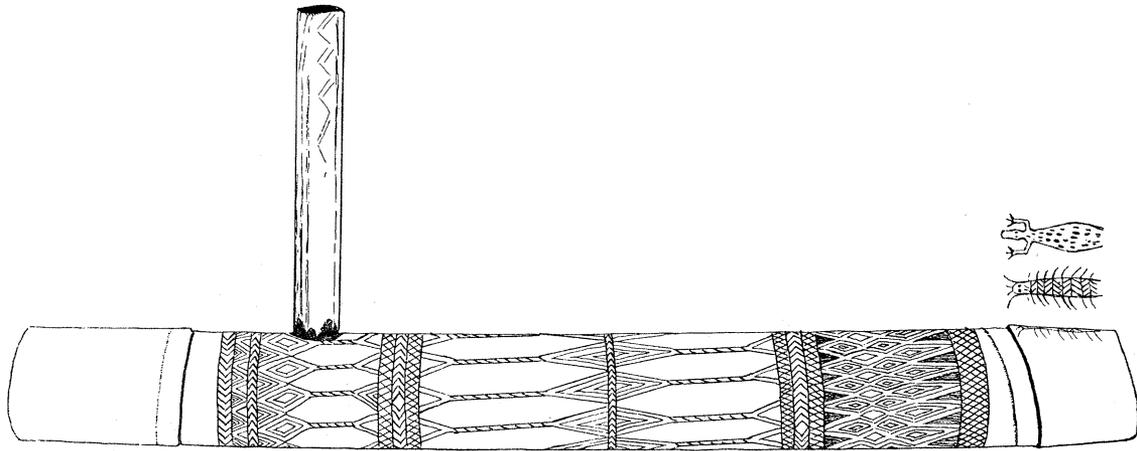


FIGURE 25. Pipe with bowl, 'Merauke', probably from mid-Maró river. Ph., S., R. Rt. 17162.

The Yee. A pipe in the Leiden museum, 1718.25, from the Yee, upper Maró area, has the skin entire; it is decorated with elementary geometrical designs mainly in simple incised lines, but there are also coarse jagged lines (figure 24C). The patterns in the two central bands were perhaps suggested by patterns similar to those in the central bands of the preceding pipe; but they are very degenerate. Strips of bast or bark cloth are bound round the pipe near its aft end. It was collected in 1909. 40 × 5 cm.

The Kanum. An exceptional pipe (figure 26), in the Leiden museum, 1971.1535, is labelled as coming from north-east of Merauke; probably it came from the Kanum. It consists of two internodes and the skin is entire. On the dorsal side of the prenodal area are two designs, which I cannot identify, and a fish, and on the ventral surface a

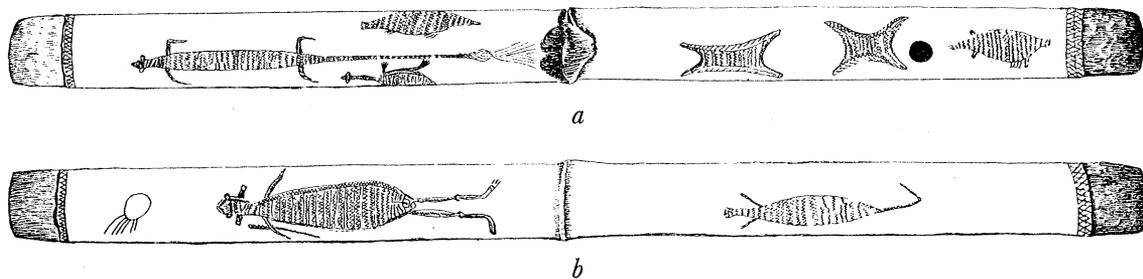


FIGURE 26. Animal designs, dorsal-ventrals urfaces of pipe, probably from the Kanum. Ph., S., R. L. 1971.1535.

lizard. On the dorsal side of the postnodal area is a lizard, on the sides are a fish and a long-necked fresh-water tortoise, and on the ventral surface a man holding a bow. The figures are drawn in outline and enhanced with transverse jagged lines, which in some figures are alternate with simple transverse lines. 78 × 5.3 cm.

A Kanum pipe in the Basel museum, Vb. 5234 (figure 27), is a new pipe that does not appear to have been used. The skin is entire, and the aft end has been cut off square after the pattern had been drawn. Four sets of four curved stripes radiate from the dorsal hole, each stripe consisting of two incised lines enhanced with transverse jagged lines. Two similar transverse stripes at the centre of the pipe are interrupted on the dorsal surface. In the median dorsal line aft of the dorsal hole are a crudely drawn man and a much smaller woman; they are drawn in jagged lines except for the bodies, which are incised lines. The rest of the pipe is covered with scattered irregular coarse jagged lines, usually within incised lines which enclose ill-formed wavy stripes and other irregular areas. Most of the lines are emphasized with a reddish brown pigment. The dorsal hole is 2.1 cm. in diameter and splays out to 3 cm. 38 × 4.8 cm.

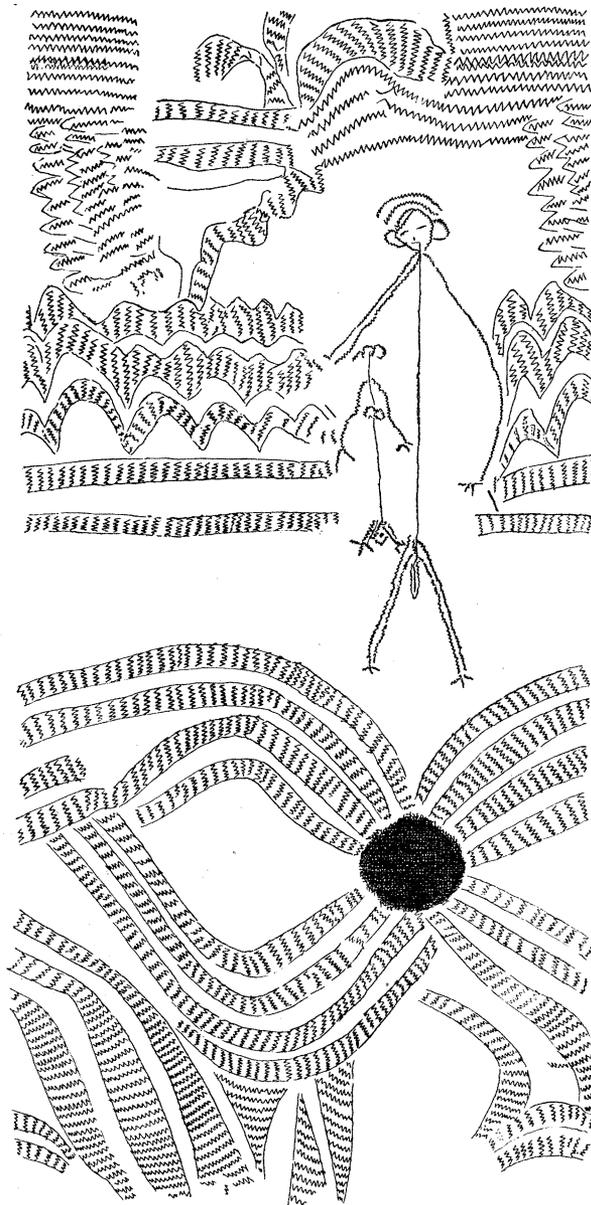


FIGURE 27. Pipe decoration, Kanum-anim. S., R. Bs. Vb. 5234.

Two pipes in the Basel museum, collected by P. Wirz from the Kanum, are decorated with the leaf design that is characteristic of the middle Fly region.

A very fine old pipe of good workmanship, Vb. 4866, has a pattern closely resembling that of figure 44 from Setavi, Semariji country, Western Division of Papua; many of the unscraped areas have a median row of dots. There is a very large dorsal hole, 3.3×3.1 cm. At the aft end of the entire skin are seven or eight irregular lines encircling the pipe. The skin is entire except for the background of the pattern and at a 2.4 cm. band at the aft end and including the aft septum. 67×5.8 cm.

In pipe Vb. 5233 there is a broad decorated band at the bowl area. The dorsal hole is in a central transverse band of whole skin with two or three encircling scratched lines. The leaf-like areas which radiate from this band have a central strip of two scratched lines enhanced with transverse lines; they are contained in quadrangular scraped areas. The pattern is poorly executed. The skin is entire except for the background of the pattern. 48 cm. long.

Basin of the Torassi river. The three following pipes, *tiepie*, in the Leiden museum are from the Arka, who live on the upper Torassi (Bensbach) at about $8^{\circ} 35'$, and belong to the Semariji linguistic group of Williams (1936, pp. 34-6).

One pipe, 1718.38 (figure 28A), has three scraped bands: fore, median and aft. There is a ventral projection, 12 cm. long, at the fore end. In the median dorsal line of the forepart of the pipe there are two longitudinal bands of parallel broad shallow lines enclosing a jagged line. The bands diverge to form a lozenge around the dorsal hole and splay out fore and aft. Fore and aft of the unscraped areas are narrow bands outlined by scratched or jagged lines and enclosing dots, which are in one, two, or three rows. At the aft end are triangular spaces bordered by lines, some of which are enhanced with short lines. 87.5×5.2 cm.

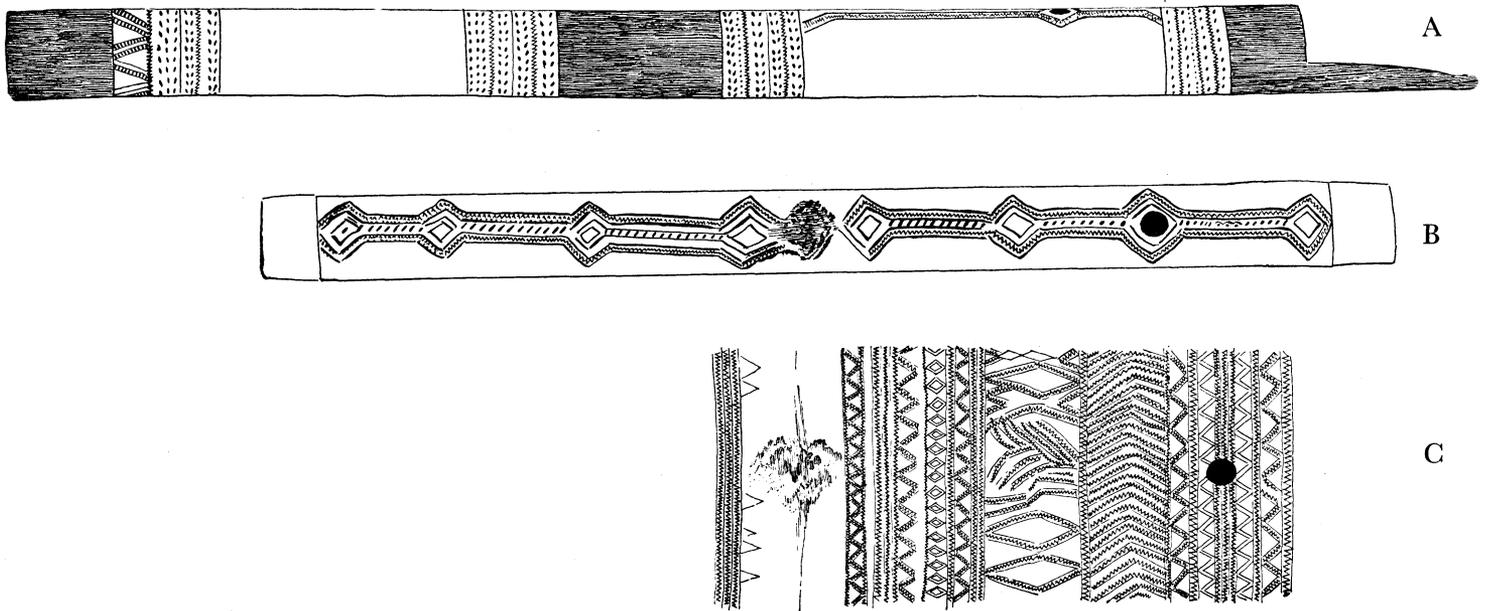


FIGURE 28. Pipes, Arka people. Upper Torassi river. L., A, 1718.38; B, 1718.36; C, 1718.37. Part of decoration. S., R.

Another pipe, 1718.36, has the skin entire. In the median dorsal line of the pre- and postnodal areas is a design (figure 28B), which is somewhat similar to that on the forepart of the previous pipe. 63.5×5 cm.

The third pipe, 1718.37, has the skin entire. The bowl and prenodal areas have the patterned transverse bands shown in figure 28C. These are outlined by scratched lines; the narrowest contain a jagged line, several others contain zigzags outlined by scratched lines and in most cases enhanced with jagged lines. The other devices seen in the figure need not be detailed. Aft of the central septum is a band of three jagged lines and scattered incised triangles. 79.5×5.1 cm.

Loebèr (1919-20, fig. 85) gives an illustration of decoration of a pipe in the Breda museum from the Torassi river which has a distinct resemblance to that shown in figure 28C.

In the Amsterdam museum is a carelessly decorated pipe, A. 1667, from the Torassi. In the median dorsal line of the prenodal area is a longitudinal band bordered by jagged lines enclosed in incised lines, which expand to form a lozenge round the dorsal hole. On the ventral surface of the prenodal area is a rectangular network of jagged lines which is partially flanked on each side with an irregular zigzag of double incised lines; the zigzag on the right side encloses a jagged line. There are other zigzags and chevrons. 83×5 cm.

A second pipe in the Amsterdam museum, A. 1668, has no definite provenance, but it almost certainly came from the Torassi. The postnodal half is scraped. The fore end has rude triangles enhanced with transverse lines, all the lines being jagged. Aft of the dorsal hole is a large design consisting of two bowed chevrons, composed of three jagged lines, which meet in the middle line; this is analogous to a design in Loebèr's

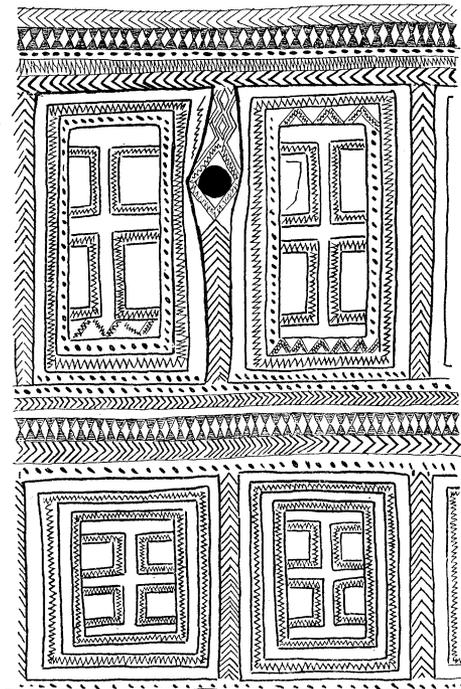


FIGURE 29. Part of pipe decoration. Garembo, lower Torassi river. L. 1718.39.

fig. 85. The remaining decoration is indistinct and is also composed of jagged lines. 66×4.9 cm.

A third Amsterdam pipe, A. 1669, has no ascribed locality, though most probably it came from the Torassi. The postnodal half is scraped and plain. The prenodal half is decorated with three longitudinal bands of close-lying jagged lines and one band in which the jagged lines are interrupted. Between these four bands are very numerous transverse tree- or plant-like designs in jagged lines. The significance of the decoration is obscure.

In the Leiden museum is a pipe, 1718.39 (figure 29), from the Garembo, who live on the lower Torassi at about $8^{\circ} 50'$; they belong to the Gambadi linguistic group of Williams. The pipe has two internodes. There are three 9 cm. scraped bands: fore, central and aft. In the prenodal and postnodal areas are dorsal and ventral median longitudinal bands of incised chevrons. The transverse bands contain chevrons, coarse jagged lines, dots and lozenges; the background of the lozenges is scraped. The rectangular designs which form so marked a feature of the decoration are formed by two parallel incised or scratched lines enclosing a jagged line. This technique is found on certain pipes (figures 40–43) from the Gambadi and Semarigi countries between the Torassi and the Yavim (Morehead) rivers. The decoration of the aft half of the pipe is essentially similar to that illustrated. Length 89 cm.

Summary.

It has to be borne in mind that here, as elsewhere in New Guinea, a pipe may have been collected at a given place, but it by no means follows that it was made there. Thus pipes have been obtained on the south coast which from their distinctive decorative style or technique probably came from the Miku affluent of the upper Digul river, from the central district of the Fly river, and from the Yee.

There is a distinct resemblance between the decoration of some pipes of the 'upper Digul' and those of the Tedi (Alice) affluent of the Fly (figures 22B, 30).

The central Fly technique and style, even to identity in the details of the design, is found on two pipes from the Kanum (p. 40) and also on pipes farther east in the country around the Morehead river, Papua.

Designs and patterns on pipes formed by simple incised lines, jagged lines, or a combination of both techniques, are found in the southern portion of the south-eastern area of Netherlands New Guinea.

Such decoration is seen in its simplest form on the pipes of the Marind, but it becomes more elaborate in the pipes of the Yee and Kanum and especially so in those of the Garembo of the lower Torassi (Bensbach) river. In Torres Straits and various parts of Papua, particularly about the estuary of the Fly, in the Mekeo district, and in the Rigo district, the same technique is well developed on pipes, as will be referred to later.

Various objects, other than pipes, are decorated with the same technique. An ear ornament from Merauke, Leiden 1854.74 (Fischer 1913, fig. 23), has an irregular lattice-work pattern of incised bands enhanced with cross-hatching. A bamboo tube, Leiden, 1670.7, has three transverse bands of similar technique and one of large

triangles also enhanced with cross-hatching. An ear ornament from the Torassi district, Leiden, 1718.34, is decorated with longitudinal irregular incised ovals, the interspaces between the ovals being enhanced with transverse jagged lines or lines of elongated dots. An ear ornament, Basel, Vb. 5101, is very similar to the last; it is labelled 'Marind'. In Basel, Vb. 5100, are ear ornaments, *suba*, for boys, 'Marind stock', which have U-like designs in jagged lines with the ends coiled inwards and also borders of jagged lines (Wirz 1922, pl. 15, fig. 4). All of the foregoing are small bamboo cylinders.

Wirz (1922, 1, 23) states that the Yee and the Kanum are not related to the Marind, but belong to an older stratum of the population. The Yee are a powerful tribe who, compared with their non-Marind neighbours, still retain much of their original culture. The name Kanum is given to scattered remnants of various peoples who formerly lived from the Torassi river in the east to the Kumbé river, and probably farther, in the west. The original people were decimated and scattered by Marind head-hunters.

According to Wirz (1922, 1, 24) the speech of the Marind, which has numerous dialects, has nothing in common with the languages of the various neighbouring tribes. Ray (1923, p. 357) has indicated a linguistic affinity between the Marind and the natives of Lake Murray, and there are other cultural relations between the Marind and the inhabitants of the region of the middle Fly (Haddon 1920, pp. 238, 239, 242; 1921, p. 17). Wirz (1922, 1, 123) was told that the abode of the spirits of the dead of the eastern Marind is on the farther side of the Fly. From this we may suspect that the main stock of the Marind came thence. Wirz (1922, 2, 25) admits that the Marind of the present day are by no means homogeneous in speech and culture. A brief account of the Marind is given by Haddon (1935, pp. 251-65).

It seems reasonable to suggest that the incised technique on the tobacco pipes is to be attributed to the original non-Marind population.

A warning should be given that the foregoing suggestions concerning the tobacco pipes of Netherlands New Guinea are based upon somewhat scanty material. I have examined the pipes in the three great museums in Holland and have seen most of the literature on the subject, but other material may yet come to hand which may necessitate some modification of the views here expressed.

PAPUA

The Territory, formerly termed the Possession, known as British New Guinea was officially styled Papua in 1905. I have found it convenient to adopt the following geographical order for the description of the pipes.

Upper and middle Fly river. Western Division west of the Fly. Torres Straits. Cape York peninsula, Queensland. Daudai and Dudi. Estuaries of the Fly and Bamu rivers. The Gogodara. Region between the Bamu and Kiko rivers. Delta Division. Gulf Division. The mountainous interior north of the Delta and Gulf Divisions. The main range of the south-eastern peninsula of New Guinea from the boundary southward. Mekeo, Kuni, Fuyuge, and Nara. Central Division from Redscar bay to Kapakapa, including the Koiari-speaking peoples and other mountain tribes. Rigo

district. Cloudy and Amazon bays. Massim district: mainland; southern Massim islands; D'Entrecasteaux group; northern Massim, Trobriand islands to Murua. Goodenough and Collingwood bays. North-eastern and Northern Divisions.

The region of the upper Fly river

There are several affluents of the upper Fly. The prefix *ok* means 'river', and as it is applied to most rivers of the region it may be omitted. The most westerly affluent, the Tedi (Alice river), flows south from the Star mountains and joins the Fly at D'Albertis junction. It has a tributary, the Mart, flowing from the north-east; higher up, the Tedi is joined by the Birim which rises in the Star mountains to the west of the source of the Tedi; north of its junction with the Birim the Tedi is known as the Ti.

Above D'Albertis junction, the Fly, or Ok Birak as it is called locally, flows in a general south-westerly direction and receives an eastern tributary, the Elevela. At Palmer junction the Fly has a more or less north to south course; in the northern mountain country it is known as the Feneng; here it is joined by an east to west tributary, the Bol, which rises on the west side of mount Faim in the Dap range. The Feneng has its source east of the Hindenburg range of the Star mountains and west of mount Kafani (Tabletop mountain), which is the most south-westerly spur of the Victor Emanuel range. The lower Palmer river joins the Fly at Palmer junction flowing from the north-east. At Thomson junction are the Wai Miu (Tully river), which receives several affluents coming from the north, and the Palmer river, some tributaries of which, including the Black river, rise in the Blücher range to the north-east. The Luap (upper Palmer river) rises on the east side of mount Faim.

The Wungop (upper Strickland river) rises east of Kafani (Tabletop mountain) and flows easterly along the valley between the Dap range to the south and the Victor Emanuel range to the north and then turns in a southerly direction between the Blücher and Müller ranges and finally enters the Fly at Everill junction.

On the north side of the divide, the Takin (the most southerly portion of the upper Sëpik) rises in the western flanks of the Victor Emanuel range and receives an affluent, the Lutap, which has its source on the western side of mount Kafani.

It is significant for the migration of cultural influences that the Fly, Strickland, and Sëpik rivers have their source within a very few miles of each other. Here, in the map published by Karius and Champion, there is marked a pass between the Hindenburg range and mount Kafani.

Karius (1929, p. 313) and Champion (1932, pp. 193-5), who were the first explorers to ascend the Fly and descend the Sëpik, discovered a route at an altitude of 9000 ft. across the divide; it proved to be a very difficult jagged limestone, waterless area. Nevertheless, there is sporadic communication between the people of Bolivip of the Bol and the Feramin of the Takin. Doubtless the pass just mentioned would afford easier transit.

What information we have about the natives of the area of the Tedi is mainly due to Leo Austen. The Iongom inhabit the country on the west of the Tedi from the Fly river to the Birin. The Kaikaruk live along the north bank of the Birim. Beyond them

on the Ti are the Worom. The Awin inhabit the country east of the Tedi opposite to the Longom. All these names have *karuk* added to them, which signifies 'people'.

The Unkiamin live on the foot-hills of the southern flanks of the Hindenburg and Dap ranges along the rivers Bol and Luap.

Leo Austen (1923, p. 137, and MS.) says that the Tedi river people chew betel with lime. *Gamada* (kava) grows wild, but he could not find out if the people cultivated or drank it. Native tobacco, *a-up*, is cultivated, but not to such a large extent as along the upper Fly. The leaf is dried on a rack, *dam*. The tobacco is wrapped in a small piece of leaf of the *begot* tree and inserted into one end of a straight or curved piece of a species of small bamboo, *benget*, from 9 to 18 in. (22·8–45·7 cm.) in length and from $\frac{1}{2}$ to $\frac{3}{4}$ in. (1·3–1·9 cm.) in diameter. The smoke is drawn through the other end. 'Teased sago-leaf fibre is pushed down the pipe through which the smoke is drawn to purify it before it reaches the mouth. Natives were seen inhaling the smoke through the nostrils and blowing it out through the mouth, but this is not usual.' The native words are in the Longom language; tobacco introduced from Netherlands New Guinea is called *tamuk*. The *benget* is really a cigarette holder.

Austen (1923, pp. 160, 161) gives *aup* for tobacco at two places on the western side of the Tedi and *sikube* at a few miles east of the Tedi, about $5^{\circ} 57'$.

Brandes (1929, p. 293) gives a photograph entitled 'A pygmy takes a smoke. He wraps his tobacco in a bit of banana leaf and inserts it in this mammoth cigarette holder.' The holder is slightly curved. The village of these 'pygmies' is on the Fly just below its junction with the Ok-Tedi (p. 306).

Leo Austen collected and gave to me in 1923 a true tobacco pipe, 23.1466 (figure 30), from Ambiriwam, Worom tribe on the Ti or upper Tedi river. It is made from one internode, and though slightly thicker it is shorter than some of the bowls of the pipes from the middle Fly. $33 \times 3\cdot6$ cm.

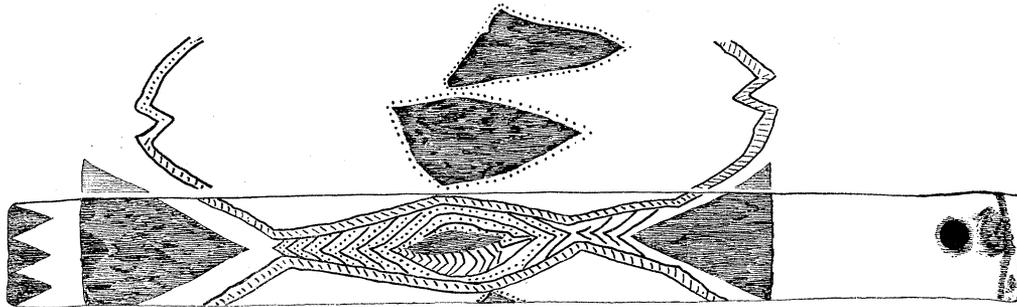


FIGURE 30. Pipe, Ambiriwam village, Worom tribe. Ti river (upper Tedi). Cm. 23.1466. Pattern displayed, partly in crude intaglio.

On the dorsal side are two longitudinal curved stripes (each consisting of two incised lines and enhanced with incised transverse lines) which form an elongated oval; the ends splay out fore and aft and are continued round the pipe till they join their fellows; at the junction there is a V-shaped projection. The interior of the oval is partly enhanced with concentric dotted chevrons; the small central ellipse is scraped. There is a

large scraped triangle between the splayed ends of the ladder-like bands, and there are two scraped triangles bordered by dots on the underside of the pipe. At the aft end of the pipe the skin is dog-toothed and the triangles between the teeth are scraped. All the scraped surfaces have been coloured with a reddish brown pigment which is very dark, except where it is worn away; this is a crude intaglio technique. A design formed of ladder-like bands is characteristic of the upper Digul river (see p. 32), and this pipe evidently belongs to the same general artistic area. The languages of the two areas are allied.

Leo Austen obtained a tobacco pipe from a Worom man on the Ti, the upper Tedi, which was quite different from the *benget* of the lower Tedi, as it had very crude incised markings (Austen 1925, p. 28). He says (p. 36) that tobacco in the trade language of the Tedi is called *sibuk*, *tamuk* or *sok*; it is grown locally.

A new type of holder (figure 31) was collected by M. J. Healy, A.R.M., from the Awin people, about 141° and $5^{\circ} 30'$, and presented by the Papuan Government to the Cambridge museum, 37.1535. It is V-shaped and consists of two pieces of pale bamboo connected externally by a black gummy substance. The bamboo that forms the bowl measures 10.4×3.8 cm.; at 1.3 cm. from the margin is a section of bamboo 5.1 cm. in length, the upper part of which is a perforated septum. This inner tube fits tightly into the outer tube and is charred and incrustated by use. The mouthpiece measures about 9.5×3.9 cm. The two terminal bamboos are connected by a piece of bark rolled to form a bent tube; this is bound round with bast and covered with the black gum. The whole of the cavity of the connecting portion is filled up with vegetable fibre. Healy says that a 'cigar' is inserted into the hole of the inner bamboo tube, the outer bamboo is only slightly charred. The greatest length of the holder is 42 cm.

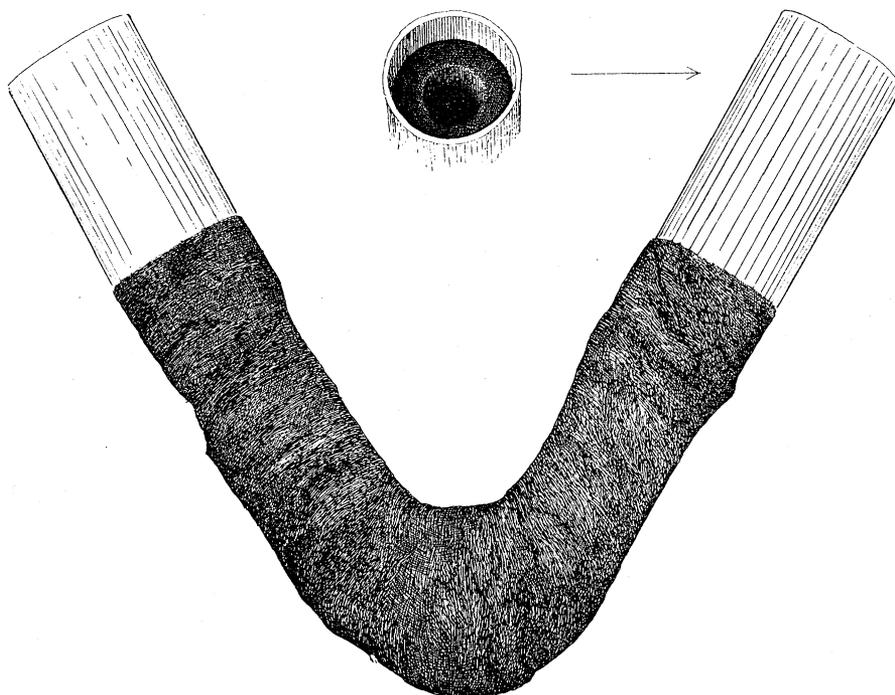


FIGURE 31. Holder of unusual shape. Awin people, east of Tedi river. Cm. 37.1535.

This is the only specimen of its kind known to me, and it is unlike any other recorded smoking apparatus. I describe later the two-piece smoking apparatus from the upper course of the Sēpik river which seems to indicate the genesis of this particular type. If this be so, what I here term the mouthpiece is really equivalent to a container, though not smoked as such.

Ivan Champion (1928, p. 108) visited Bolivip village, of the Unkia tribe, which is close to the Bol river and a few miles south of the pass over the divide. Some of the men were smoking tobacco (*sauk*) leaf rolled into cigarettes and inserted into bamboo tubes about 6 in. long and a quarter of an inch in diameter (15.2 × 0.6 cm.). This is a cigarette holder. Up the Palmer river the word for tobacco seems to be *sekupe* or *sekupo* (p. 117). Champion (1932, p. 88), in a description of Bolivip, speaks of 'cigars of native tobacco rolled in leaves or thrust into small cylindrical pieces of bamboo'.

A short distance up the Black river from where it joins the Palmer river, Champion (1932, p. 29) says of a community house, 40 × 30 ft. built upon slender poles 10 ft. from the ground, 'Round the house were tobacco plants enclosed by fences'.

MacGregor (1890*b*, p. 58) in 1890, at about 141° 40' on the Palmer river, found growing under a 20 ft. square house on piles 12 ft. high, several plants of tobacco with a remarkably small leaf of which he collected seeds. In a footnote he adds: 'This tobacco—the occurrence of which on the Fly river 570 miles from its mouth is a mystery—has been successfully sown in Brisbane, and has been pronounced by London experts as of extraordinary value on account of its fitness as cigar-wrappers.' He also states that 'the natives met with from more than 180 miles below this did not appear to know anything of tobacco'.

The region of the middle Fly river

At a village on the Strickland river at about lat. 7°, Massey-Baker (1911, p. 193) saw 'several fine tobacco plants growing near the dubu...*soukabata*, tobacco; *boubaka*, native pipe or boubou' (*ou* should be written *au*).

The region of the middle Fly river may be taken to extend from about 7° to somewhat south of where the Strickland river joins the Fly river at Everill junction; it includes Lake Murray. The people have a distinctive culture characterized by men's ceremonial houses, trophies of stuffed human heads, large hourglass-shaped handled drums, stone-headed clubs with elaborately carved open woodwork (*baratu*) above the stone heads, and a distinctive style of decorative art in which plant forms appear to play a great part, often combined with spirals. Tobacco is smoked and betel chewed. J. H. P. Murray (1918, p. 49) gives for the natives of Lake Murray: native tobacco, *kagai*; pipe, *mokova*.

Captain G. F. W. Zimmer informed me in 1929 that tobacco is called *kara* at Tinung lagoon, which is on the left bank of the Fly about 40 miles north of Everill junction, and *karai* or *kara* as far north on the Fly river as Kaiakaia village, about 400 miles from the mouth, and possibly farther north, and also as far as Kaundoma, the most north-easterly village on Lake Murray, and as far south as the village of Gumak

on Suki creek about 100 miles south of Everill junction. The tobacco pipe is called *karai-manga*; bamboo is called *faif* or *faifa*. 'The name of the smaller bamboo or cigarette holder is *pefa*'; this is what I term the bowl. At Suki lagoon tobacco is called *karea*.

The method of smoking by means of a bracer or arm-guard, *posiki*, was first described and illustrated by Zimmer (1930, pl. H). The cigarette is inserted into one end of a narrow bamboo tube or cigarette holder, *pefa*, some 9 in. in length (figure 32D). The cigarette is placed against a burning log or glowing brand; when thoroughly alight the end of the tube containing the burning cigarette is placed in the mouth and the other end is inserted into the wider end of the bracer (C) which has been removed from the smoker's left arm; this end of the bracer is closed by the right hand, the tube going between the fingers. The narrower end of the bracer is closed by the left hand. The smoke is blown into the bracer, the tube removed, and the smoke inhaled by slightly moving the left hand (figure 32A, B). The bracer thus serves as a container, as does the true Papuan pipe.

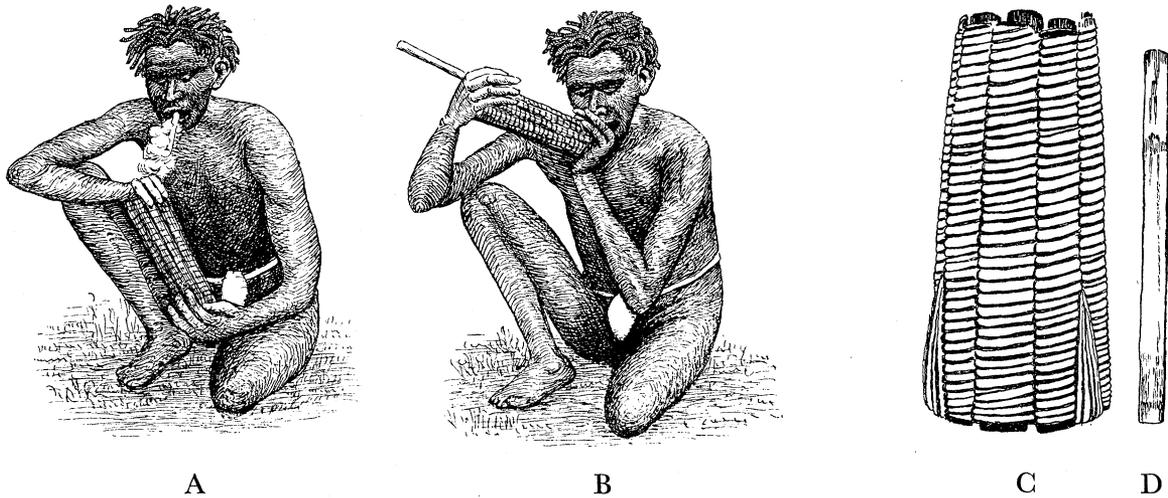


FIGURE 32. A and B, smoking by means of bracer, middle Fly river. Ph. Zimmer. Bracer smooth, probably made of sago palm spathe. Other types also in daily use. C, bracer, 25.4 × 10–12 cm. (elbow), 8–9.5 cm. (wrist). D, cigarette holder, 23 × 13 cm.

This method of smoking is usually employed while out hunting or when away from the village by natives who normally smoke the ordinary pipe. It is used as a common practice by bush natives on and to the west of the Fly river from about 400 miles up the river to approximately 9°; this area includes the Strickland river and Lake Murray. It is practised for a radius of 100 miles, taking Everill junction as a centre.

Two pipes, *karai-manga*, from Maravu village in the south-west corner of Lake Murray, were given to the Cambridge museum by G. F. W. Zimmer, who collected them in 1929. One pipe, 31.802, is an old specimen, most of its surface being of a reddish brown colour which is probably due to age and use; even the unscraped parts are darkened through use. The decoration consists of a patterned band (figure 33A), which runs round the bowl area. The band is bordered by transverse incised lines. On the lateral surface of the pipe in a line with the dorsal hole are four very narrow

unscraped transverse stripes which, together with widely spaced narrow unscraped longitudinal ellipses, form quadrangular areas which contain unscraped dice-box-shaped designs with concave ends, the interior of which is marked with pairs of short incised lines. The background is scraped and coloured dark brown and is thus in intaglio technique. The rest of the pipe is plain and looks as if it had been partially scraped. There are two incised lines round the aft end. As the pipe showed a tendency to crack, two bands of bast were wrapped round its centre and a band of *Varanus* skin was fastened aft of the patterned band. Most of the pipe is filled with a fibrous matter. 64.7×6.1 cm. The bowl (figure 33B), has a simple decoration at the end where it is inserted into the hole. 35.5×3 cm.

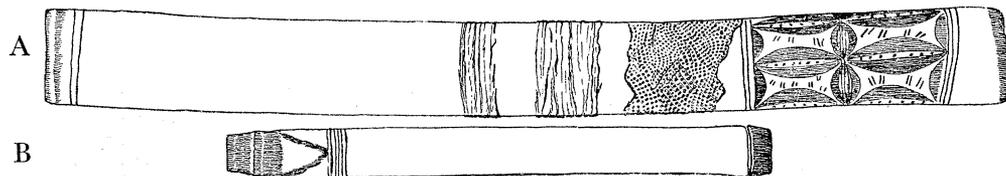


FIGURE 33. A, pipe (*karai-manga*). B, bowl. Maravu village. Lake Murray. Cm. 31.802.



FIGURE 34. Pipe (*karai-manga*), Maravu village. Cm. 31.803.

The other pipe from Maravu, 31.803 (figure 34), is a rather new pipe, so the pattern shows up very clearly, but it is not carefully executed. The pattern is similar to that of the previous pipe, but the 'dice-box' elements are much broader, being almost square, and their sides are deeply emarginated. The extreme ends of the pipe are scraped. The pipe is filled with fibrous matter. 38×5.2 cm.

When the pattern of these two pipes is displayed, as in figure 35, there can be discerned three quatrefoil rosettes, the transverse leaves of which serve for two rosettes. These rosettes appear more distinctly on rubbings. They also can be identified in the following pipes from Mangata.

Rubbings, sketches, and photographs were made by me on Daru in 1914 of four pipes (*a*, *b*, *c*, *d*) which had just been brought from Mangata, middle Fly. The skin is entire except the background of the pattern which is in intaglio technique. The patterned band is in the region of the dorsal hole, but it is broader than in the Maravu pipes, and in one pipe (*d*, figure 36) it extends over most of the surface. There are three (*a*), four (*b*, *c*), or five (*d*) transverse bands of incised lines, which in two pipes (*c*, *d*) are cross-hatched. The dorsal hole is about 3.4×2.9 cm. in diameter; in one pipe (*c*) it bears no relation to the scheme of the pattern. In all of them there is a median dorsal and ventral longitudinal row of two (*a*), three (*b*, *c*), or four (*d*) unscraped ellipses with a scraped border, and beyond this a narrow bowed unscraped stripe; the ellipses extend from one transverse band to another (figure 36). Thus there is left a quadrangular area between the dorsal and ventral ellipses and the bands. The interior of

this space is scraped. There is, however, in three pipes (*a*, *b*, *c*) an unscraped bowed stripe which springs fore and aft from the bands. Further, in the four pipes there is an oblique lanceolate band of whole skin from a fore corner to an aft corner of the quadrangular area. This is plain in two pipes (*a*, *b*), but in the other two it has a

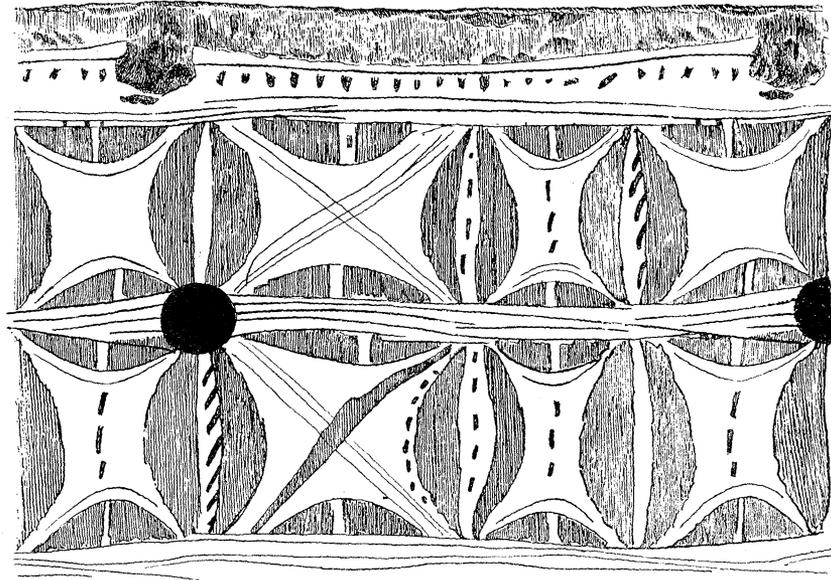


FIGURE 35. Displayed pattern on pipe, figure 34. Very like Cm. 31.802.

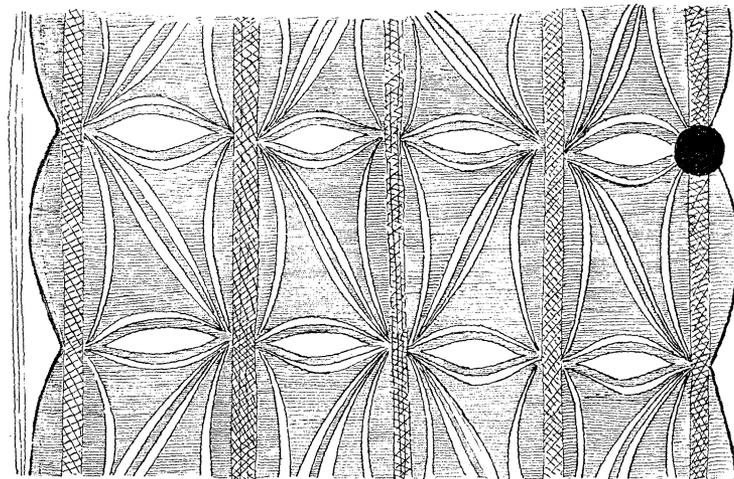


FIGURE 36. Displayed pattern of pipe (*d*) from Mangata, middle Fly river. R.

central scraped line running along its length. In one pipe (*a*) the narrow unscraped stripes that form the pattern contain dots. A large part of the aft half of one pipe (*c*) is covered with *Varanus* skin. All the pipes contained fibrous matter. (*a*) 66×6.4 cm.; (*b*) 56×5.1 cm.; (*c*) 64.8×5.1 cm.; (*d*) 73.7×6.4 cm.

Several pipes were collected in 1876 by D'Albertis in the middle region of the Fly which are in the ethnological museum in Rome.

In pipe 2524 (figure 37A) the dorsal hole is contained in a lozenge; the pattern of the band of the bowl area consists of emarginated dice-box-like designs between which

are narrow ellipses; the background of these elements is in intaglio. This is followed by a similarly patterned band. The patterns are bounded by narrow transverse bands with scratched lines. The very broad central band of the pipe is scraped except for a lateral punctate elongated spindle-shaped design. Near the aft end of the pipe is a double band of deeply incised crescents. 58×3.7 cm. Pipe 2525 is very similar. 55×3.5 cm.

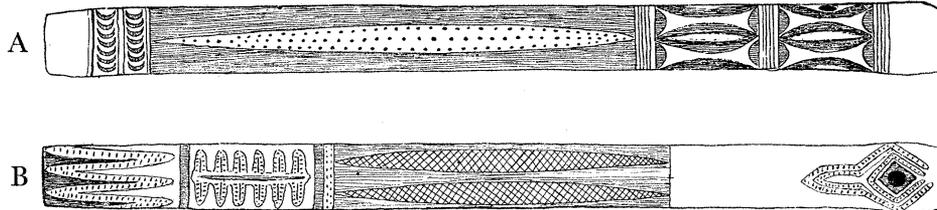


FIGURE 37. Pipes, middle Fly river. Coll. D'Albertis. Rome A, 2524; B, 2522. R., S.

At the fore end of pipe 2522 (figure 37B) is a broad plain band; the dorsal hole is surrounded by concentric lozenges of incised lines, which are produced into a chevron aft of the hole; the spaces are enhanced with very short lines. The central band is 22 cm. broad and has elongated spindle-shaped designs enhanced with cross-hatching; the spaces between them are scraped and coloured brown. A narrow plain band containing a double row of elongated dots separates this band from an 8.2 cm. band containing a dorsal and a ventral looped design, each of which consists of a continuous incised line forming paired loops on either side of a scraped median line; within each loop is a central line bordered by dots. The aft band contains elongated triangles on a scraped brown background; concentric to the sides of the triangles is an incised fringed line. 58×3.9 cm.

In pipe 2520 there is a very broad central unscraped band containing longitudinal incised lines with cross-hatching between all of them. At the aft end is a band of plain triangles with punctate margins and an intaglio background; the apices of the triangles reach nearly to the end of the pipe. All the rest of the pipe is scraped. 56×4.5 cm.

There are three or four other pipes collected by D'Albertis, the patterns of which consist of more or less leaf-like elements and ellipses with a few other motifs. A rubbing of no. 2529 (figure 38) shows a median row of ellipses aft of the dorsal hole, analogous to those of figure 36. This pipe is noteworthy for its spirals; spirals are also found with leaf-like elements on the large-handled drums of the region of the middle Fly (Haddon 1894, pl. v, 82, 83; 1912, figs. 361, 362). The pattern of nos. 2528, 2530, 2531, like that of 2529, are so confused that it is difficult to determine what the artists were trying to do.

Unfortunately, it is not possible to say more precisely where these pipes were collected by D'Albertis.



FIGURE 38. Reduced rubbing, part of pipe decoration. Rome 2529.

Summary of the middle Fly area.

The decoration of the Maravu and Mangata pipes has been described in detail, and it is evident that they are designed on similar lines. The quadrangular spaces of three Mangata pipes (*a, c, d*) have within them four bowed unscraped stripes and a diagonal unscraped band. If the area between these bowed stripes had been left unscraped, there would result the 'dice-box' elements of the Maravu pipes and it is interesting to note that the fore and aft ends of four of them are incised as if to indicate bowed stripes and two of the 'dice-boxes' have diagonal bands (figure 35). Thus the 'dice-boxes' may be regarded as modifications of the treatment of the quadrangular spaces; the same applies to figure 37A. The elongated longitudinal ellipses are prominent in all the pipes with this scheme of decoration. Emphasis is laid for the most part on the unscraped elements of the pattern in the Maravu pipes and in some of the pipes collected by D'Albertis, but in the Mangata pipes this is weakened and the intaglio portions come into at least as much importance. In dealing with the pipes of Delta and Gulf Divisions we shall see that in some pipes the unscraped elements constitute the design, whereas in others it is the intaglio elements that are the more important.

The patterns just referred to form a transverse band in the region of the dorsal hole. In those pipes with more elaborate patterns the remainder of the pipe is undecorated, except perhaps for a band at the aft end. In most of those pipes with pronounced 'dice-box' elements the rest of the pipe is decorated with simple incised designs and parts of the surface are scraped.

I have dwelt at length with certain patterns of the region of the middle Fly, as these reappear among the Kanum of south-east Netherlands New Guinea and in the extreme south-west of Papua.

Western Division of Papua west of the Fly river

The district under consideration extends from the Netherlands boundary to the estuary of the Fly, and from about 8° and south of the Fly to the coast (see Plate 7). This large district may be divided into smaller ethnographical areas: (1) Western area, from the boundary to the Mai Kussa; (2) Central area, from the Mai Kussa to the Binaturi; (3) Eastern area, from the Binaturi to the Fly river; it includes the Daudai and Dudi districts. It is, however, convenient to deal with the pipes of Torres Straits after those of the central area and before those of the eastern area.

East of the Netherlands boundary is the district described by Williams (1936) which extends from the Bensbach (Torassi) to the Mai Kussa (Togi). The Gambadi and Semariji countries lie mainly between the Bensbach and the Morehead rivers. The most important other areas are those of the Keraki to the east and of the Wiram in the north.

On the coast east of the mouth of the Togi or Mai Kussa is the village of Bugi. About 1897 the Government established here the scattered remnants of several tribes from Strachan Island and the neighbourhood which had been nearly exterminated by the Tugeri (Marind-anim). Beaver (1920, p. 108) refers to the liability to disease and feeble stamina of the people. Ray (1907, p. 295) says that the language of the Bugi-lai

has many words similar to that of the Miriam [Eastern islanders, Torres Straits]; previously (1897, p. 141) he stated that the language showed some connexion with that of the Dabu-lai.

The coastal district between Bugi and the Paho (Pahoturi) is said to be now uninhabited. Inland to the east of the streams flowing into the Mai Kussa is the country of the Mikud, and doubtless there are other unrecorded tribes.

The language of the Dabu-lai, who live a few miles west of the Pahoturi, about ten miles from its mouth, is said by Ray (1897, p. 141) to have more agreement with the eastern language of Torres Straits than with any of its nearer neighbours. Formerly the Dabu and the Togu lived on the coast, but were driven into the swampy land of the interior by the Tugeri. They smoked the bamboo pipe with a tubular bowl. An excellent general account is given by Austen (1921) of the Yende who live at the headwaters of the Pahoturi.

At the mouth of the Pahoturi is the granitic hill of Mabudauan, the only rocky eminence in the whole south-west of New Guinea. Opposite its mouth is Saibai, one of the Torres Straits islands. Farther east is the country drained by the Binaturi and Oriomo; this area is vaguely termed Daudai by the natives. The west or right bank of the estuary of the Fly, but probably not far inland, is generally known as Dudi; it may be regarded as extending from Baramura and Tirio to Sui.

Williams gives a very good account of the country of the western area of this large district and its inhabitants. Information about the eastern area is less systematic, though there are more or less valuable accounts of various peoples in numerous Government Annual Reports, Papua, and in a few books, such as that by Beaver (1920). A brief general account of the ethnography of the whole district is given by Haddon (1935, pp. 209–61). According to all accounts most of the people have a poor physique and low culture. There is a widespread belief in the region around the Oriomo and westward that the original inhabitants lived in trees and were in a miserable condition, eating poor food and being without the knowledge of fire. They were liberated by a hero who came from the north and taught the people improved ways of living and gave them better food plants. Various tribes have tales that they originated from maggots or grubs. Thus from the mouth of the Fly westwards there is a vague recollection of an indigenous population with an extremely backward culture who were taught more civilized ways of life and were instructed in new cults by immigrants from the north.

It may be taken for granted that these southerly spreads of culture took place before the introduction of tobacco smoking which is not referred to in the legendary tales.

There are, however, traditions of relatively recent westerly movements from Kiwai island along the coast to Turituri and Mawata. The ethnology of these coastal Kiwaians has been fully studied by Landtman (1917, 1927) and to a less extent by Riley (1925). Various characteristics of their sociology have been described by Haddon (1935, pp. 210–36, 264, 265).

(1) *Western area of the Western Division, from the boundary to the Mai Kussa.*

Wirz (1928, p. 178) says that at Bapir, which is near the coast between the Torassi (Bensbach) and the Yavim (Morehead), the men employ themselves with the cultiva-

tion of tobacco which is smoked in long bamboo tubes. Women and men smoke; the pipe, so to say, is never out of their hands. Betel chewing is not known. At Bapir, tobacco is called *dimba* and the pipe *bontanikave* (Wirz, MS.).

Beaver (1920, p. 125) says that in the neighbourhood of Tabaram and in the Keraki country, 'A very interesting feature is the skilful cultivation of tobacco, which is of fine quality although the larger leaves become coarse and ribbed. Every village contains many beds of the plant, old house sites being selected for the purpose, possibly because of the well-manured soil. The walls are removed before planting and the plot is well dug and mixed with ashes. The roof is left. As the seedlings become stronger the roof is gradually removed until only the frame remains. The leaves are collected and dried in the sun and in the houses; they are then packed in plaited rolls, ranging up to six feet or so in length.'

The most connected account of the use of tobacco by the western trans-Fly peoples is that by Williams (1936, pp. 424, 425) who says that native tobacco grows in almost every village of the Morehead district, though more plentifully in the west than in the east. 'A striking fact is that in all the dialects from Kiwai Island to the Bensbach tobacco is known by one word, *sukuwa* (in various dialectic forms), the sole exception appearing among the Wiram natives, where it is called *kagai*. The fact that the plant is so much commoner among the Semariji and Gambadi than among the Keraki may have some significance: Keraki informants on one occasion denied that it was known to their ancestors and ascribed it to their northern neighbours, the Wiram; but the distribution of this name *sukuwa* throughout a mosaic of differing languages presumably argues the comparatively recent distribution of the tobacco habit from some common source; and that source seems most likely to be in the west. Keraki informants showed me a wild leaf called *komakoma* which was said to be a bygone and inferior substitute for *sukuwa*.

'Tobacco is cultivated principally in the village clearings, where the seed is sown in patches. The only precaution is the tiny fence which may encircle the seedlings to guard them against careless feet. The dried leaves are rolled and twisted into a three-ply rope, *nganda-nganda*, which may be 1 in. broad and 2 or 3 ft. long.'

The smoking apparatus, according to Williams (pp. 424-5), is the ordinary Papuan pipe, *dengwe*, an internode 12 in. or more in length and 2 in. or more in diameter, and a bowl 'cigarette holder', *waha*. The smoker rolls his leaf of tobacco, using as a 'cigarette paper' a piece of dried banana leaf; this is placed in one end of the *waha*, the other end being inserted into the dorsal hole of the pipe. He lights the cigarette by applying a glowing ember and blows upon it, and then places the end of the *waha* with its lighted cigarette right inside his mouth and blows the smoke into the pipe. He then withdraws the *waha* and hands the pipe to his friend who draws the smoke out at the dorsal hole or at the terminal hole of the pipe. 'With constant use the holder [bowl], *waha*, accumulates in its interior a mass of small fragments, a kind of deposit of tobacco. It may then be heated in the fire and poked through with a stick, so that its unclean contents pass into the interior of the *dengwe*. When the *dengwe* has become too old for use it is broken and scraped, and what must be a very poisonous mixture may be actually smoked again.

'The above-described method belongs to the Keraki and to the Mikud and Semariji people on the east and west; but the Gambadi use a simpler apparatus. The bamboo tube (Gambadi, *dimba*) has the same two holes, but the smoker places his cigarette direct into the [dorsal] hole and applies his mouth to the [terminal] hole to draw the smoke into the tube. He then removes the cigarette and hands the tube to his friend.

'Some kind of container is in native estimation essential to a satisfactory smoke. In the absence of a *dengwe* he will use his bow-bracer, closing either end with his hand; or will tear the thick spathe from the stalk of a banana, doubling it over on the concave side so as to form a sort of flattened tube; or, as a last resort, will somehow twist into shape a strip of the ubiquitous ti-tree bark.'

Williams (1936, pp. 140-5) describes the ceremony of an exchange marriage in Keraki, and adds (f.n. p. 143): 'A further rite may be performed in some cases. Each bridegroom prepares a smoke in the bamboo pipe and offers it publicly to his bride, who takes a draw and then hands it back for him to do the same. This, however, does not belong to the Keraki ritual of marriage. It is said to be a Boigu fashion recently introduced *via* Tuj' (Tug). After a child is born and until it is doing well, the father, among other taboos, 'denies himself the joy of tobacco, for the smoke might affect his infant's eyes by getting into his own' (p. 175). 'Again and again we find that wordy quarrels and even stand-up fights end in reconciliation, in eating together and smoking together' (p. 260).

F. E. Williams has recently given me the following information about this area. The patterns incised on the bamboo are usually made with a broken wallaby tooth, one corner of which provides the graving point. The tooth is sometimes set in a hollow bone for a haft (figure 39), or else the jaw containing the tooth is used as a handle. The jagged lines are made by using a very small tooth broken off square and still remaining in the jaw. The artist presses forward with this, bearing down on the surface of the bamboo and slightly wobbling the hand as he pushes the graving tool along; thus a regular zigzag results; the smaller the tooth the smaller the zigzag. Rats' teeth are said to be used for fine work. He was told that the sharp edge of the shell of a bivalve mollusc is also used for graving. The dots are also made with the graving tool.



FIGURE 39. Graving tool (from wallaby incisor set in bird-bone) used for carving pipes.
9.5 cm. Cm. (F. E. W.).

With regard to the scraped or intaglio technique Williams says that at Kundarisa (which is east of the Bensbach, nearly opposite to Kuarakari, in the Semariji country) there grows the particular kind of bamboo used by the Wiram for their decorated pipes. Thus, when his Rouku carriers were quartered there they spent the time in making pipes. One man named Durui, who learnt the technique at Setavi, was a real artist, making six pipes in one day. In addition, he made one for Williams in about twenty minutes, but this was not up to standard and was rejected. Later he made a good one which Williams kept. Of the six other men only one came anywhere near

Durui for finished and accurate work, the others doing passable or very bad work. Learning is simply by watching, and so far as Williams could see there is no proprietary right in the pattern and certainly there was no fee for teaching. The artist tries for himself, and if he has a good hand and likes the work he continues.

The cuts are now made with a trade knife, but formerly with the edge of a shell. The bamboo is revolved and the knife kept as steady as possible. The pattern is not outlined previous to the cutting. The scraping is done with the tooth of a wallaby or pig. Great care is taken in scraping not to go too deep. The bamboo must be strong and thick or, as it dries and shrinks, it will collapse inwards. The work is done quickly and with much concentration.

Having been cut and scraped, the whole bamboo is rubbed with burnt ant-heap, which acts as emery powder. Then it is rubbed with a fig leaf, *yenna*, which serves as a sandpaper. When treated with coconut oil the scraped parts turn a rich brown and the unscraped portion turns yellow.

Only the lower part of the internode is decorated; this is apparently softer, for when growing it is sheathed with leaf. The pipe is here called *tawam*.

Seligman and Strong (1906, pp. 227–9) in 1904 visited Tivi, a poor village of the Toro, where they saw a number of the usual type of tobacco pipes. The natives did not care for trade tobacco; their own tobacco was light coloured and seemed extremely mild. Beaver (1920, p. 128) says the villages of the Toro are situated about seventy or eighty miles up the Bensbach; he regards the Toro as ‘semi-Tugeri’. The Cooke-Daniels expedition gave five Tivi pipes to the British Museum.

Pipe 1906, 10–13.743, has two internodes; there is a scraped 9.5 cm. foreband, a 9 cm. central and a 6.5 cm. aft band. The decoration shown in figure 40 is typical of the area. 69 × 4.7 cm. Pipe 742 has four rows of simple rectangles in the prenodal area and three in the postnodal. Between each band is a narrow transverse band consisting of a coarse jagged line and one, or two, series of chevrons, all enclosed within scratched lines. 68.8 × 5 cm. Pipe 702 has four narrow transverse bands in the prenodal area and five in the postnodal area, most of which consist of a coarse jagged line with two scratched lines. In all but the two aft broad bands there are longitudinal lines of the same technique which divide the bands into rectangles; these contain two transverse chevrons, also in the same technique, which may or may not meet in the centre. In the two aft bands the chevrons are longitudinal and continuous. 78.3 × 5.4 cm.

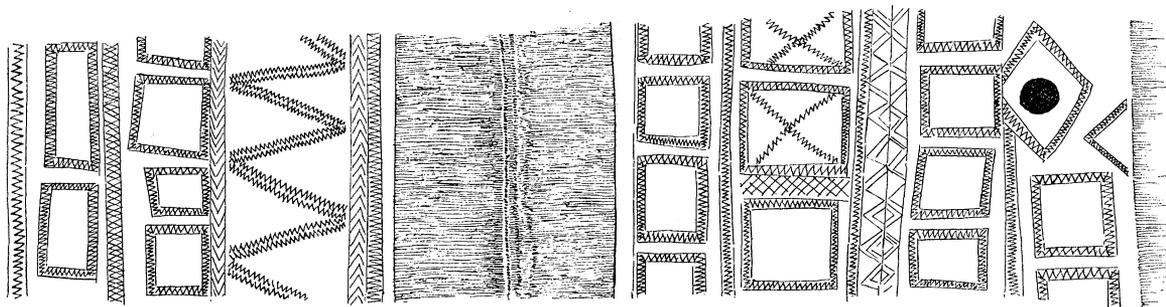


FIGURE 40. Decoration. Gambadi pipe, Tivi village, Toro tribe. B.M. 1916, 10–13.743. Drawn from R.

In pipe 1906, 10-13.1173, only the ends are scraped. In the prenodal and post-nodal areas is a 25 cm. band, which is bisected by a coarse jagged line within two scratched lines. Each band thus formed contains large lozenges, formed as such, and the confluent triangles are enhanced with coarse transverse jagged lines. 78.3 × 5.4 cm. The decoration of pipe 1172 is most carelessly executed. The lozenges have become very irregular longitudinal stripes. In the aft band of the postnodal area are longitudinal patterns of incised chevrons, lozenges, and oblique lines as well as jagged lines. 72.7 × 5 cm.

F. E. Williams has sent to me rubbings of four designs (figure 41) on a pipe from Meramer; this village is in the south-west corner of the Semariji country, where a tributary flows into the Torassi (Bensbach river). He says that the surface of this and other pipes was liberally sprinkled at random with semi-pictorial incised designs, such as human figure, bird, lizard, crocodile, butterfly, cicada (?), leaf of ginger-plant, etc. They made no design as a whole. He saw a number of such pipes on the Bensbach. The style admittedly belongs to the people west of the river. This is corroborated by a pipe in the Leiden museum (figure 27).

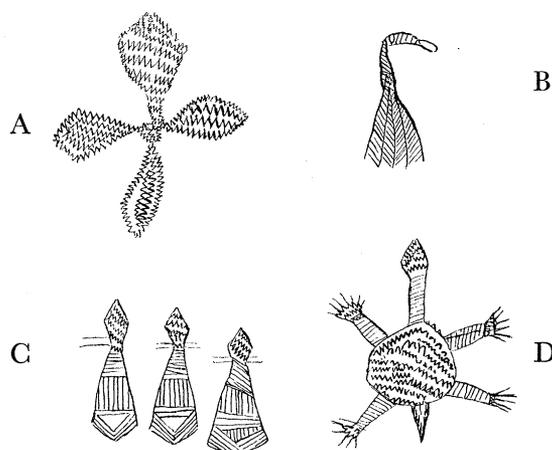


FIGURE 41. Scattered designs, incised and jagged technique, Semariji pipe, east bank Bensbach river. R. by F. E. W., who says they represent A, *gar* or swamp-taro (probably leaves); B, *wera* or native companion (note bird's head); C, *tingai* (fish); D, *tathabam* (freshwater tortoise).

I am indebted to Williams for three other rubbings of pipes: two from Rouku in the south-east of the Semariji country west of the Morehead river and one from Setavi a few miles to the north, at about 8° 30'.

One rubbing from Rouku shows that the dorsal hole is in a panel within a transverse band, the remainder of the band being decorated with scraped dots, as in the contiguous band. The nature of the pattern is shown in figure 42. It is formed by straight and curved bars outlined by scratched lines and containing a jagged line. The spaces are enhanced with longitudinal or transverse finely scratched lines. Between the elements of the pattern are fine chevrons in longitudinal series.

The rubbing of the other Rouku pipes gives only a small portion of the decoration. This consists of oblongs enclosing four concentric oblongs, all formed by a jagged line

within two fine incised lines. Concerning one of these pipes, Williams states that 'it shows the true Keraki technique for decorating bamboo pipes as contrasted with the intaglio method which belongs really to their neighbours on the north and north-east. It is from an unusually good specimen. Most of the Keraki incised pipes are very poor—plain scratching and jagged lines.' Apparently Williams draws no distinction between the incised decoration of the Semariji, Gambadi, and Keraki pipes. The scheme of decoration of the second pipe is similar to that of a pipe from Garembu, lower Torassi (figure 29). There is a marked resemblance in the technique of what may be termed the framework of the patterns in the two Rouku pipes with that of pipes from the neighbourhood of the Torassi (figures 28, 29).

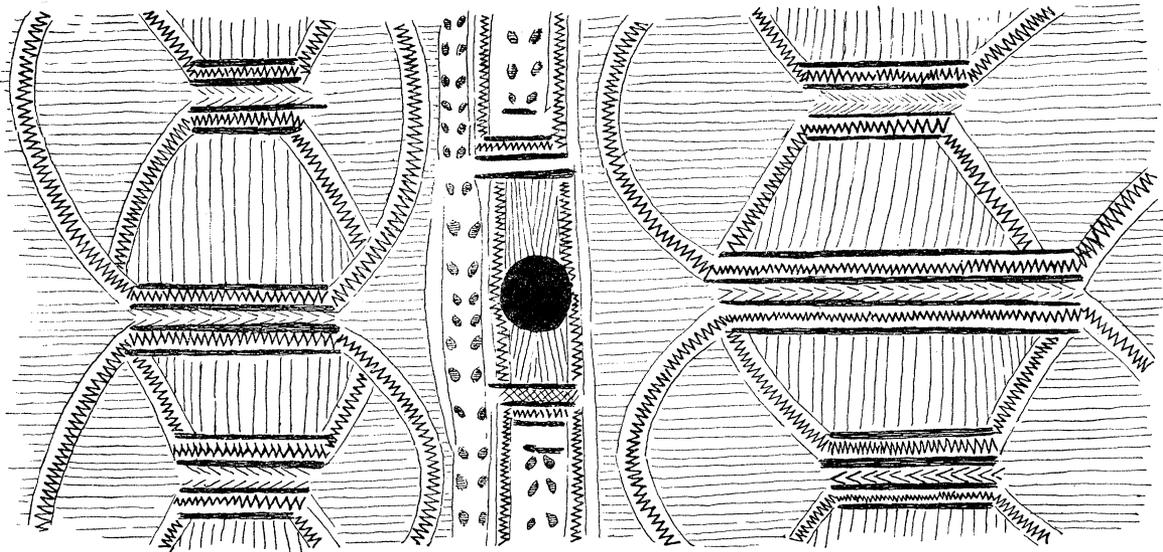


FIGURE 42. Part decoration, Semariji pipe, Rouku village, near Morehead river. R.S. (F. E. W.)

The pattern of the Setavi pipe (figure 43) has quite a different character, and evidently it is related to that of three bands of the 'Merauke' pipe (figure 25); but it more closely resembles a pipe in the Amsterdam museum which has no number or locality, and probably came from the neighbourhood of the Torassi river.

Captain G. F. W. Zimmer informed me in 1924 that when on a recent patrol from the west of the upper Bensbach to the Fly he constantly saw near Suki creek tobacco pipes, the majority having the same design as he found on Lake Murray and the middle Fly. At the village of Setavi, in the Semariji country, he asked an old man where they got the designs from, but all he could say was that they had always had them. He procured a pipe at that village, which he sent to me; it is now in the Cambridge museum, 31.801 (figure 44).

This old large massive pipe is of a dark colour; though the unscraped parts are lighter in colour, this appears to be due to age and use and not to be intentional, in this respect resembling pipe 31.802 from Maravu, Lake Murray. The skin is entire except where it has been scraped to form a background for the pattern. There is a broad band with three incised lines fore and aft of the pattern and one of five lines at the aft end of

the pipe. The band pattern (figure 44) is essentially similar to that of figure 36. 57.5×6 cm. The large bowl (figure 45), 45.5×3 cm., weighs $8\frac{1}{4}$ oz. This massive and heavy bowl must be most inconvenient when smoking. The weight is mainly due to the bore being choked by inspissated tobacco, as described by Williams.

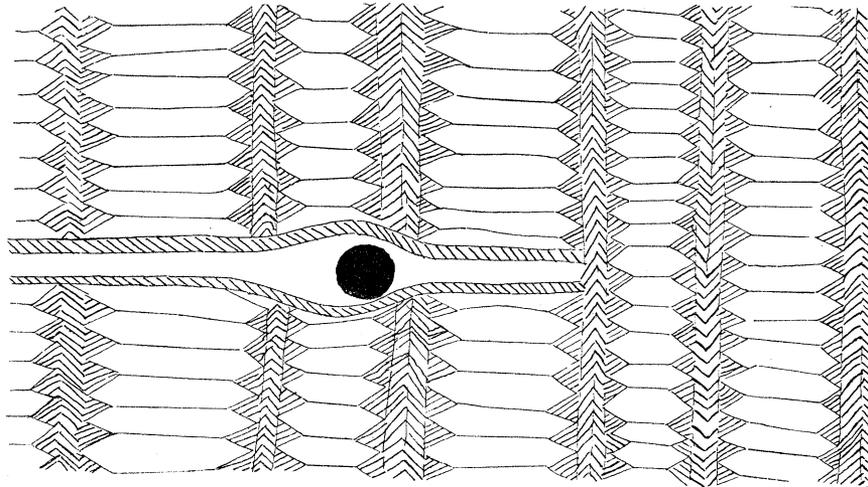


FIGURE 43. Part decoration, Semariji pipe, Setavi village, upper Morehead river. R. (F. E. W.).

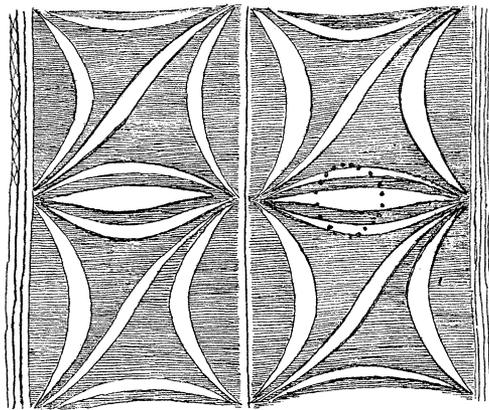


FIGURE 44. Ventral surface decoration, Setavi pipe. Dotted ring gives position of dorsal hole on other side of pipe, pattern better on ventral side. Cm. 31.801.

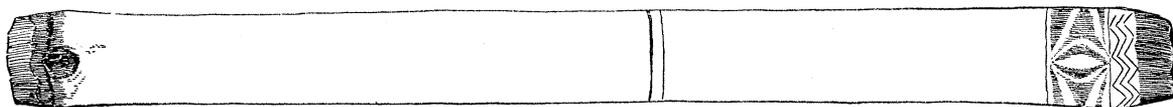


FIGURE 45. Bowl of pipe, figure 44.

F. E. Williams has lent me two drawings (figure 46) of portions of two pipes from the Karigara country which are of the same scraped technique as that of the Cambridge pipe from Setavi. The motive of A agrees with that of figure 42. The second pipe, B, has the same motive, but the treatment is more ornate, and in this respect differs from any pipe from the area that I have seen.

A drawing by Williams of a pipe from Garamudi village, Wiram country (figure 47), needs no description. Williams (1936, p. 425, and fig. 20) says that the pipes of the Wiram and also of the Semariji are often decorated in this manner. The similarity of these three pipes with one type of pipe from the middle Fly region is obvious; they are smoked with the usual tubular bowl.

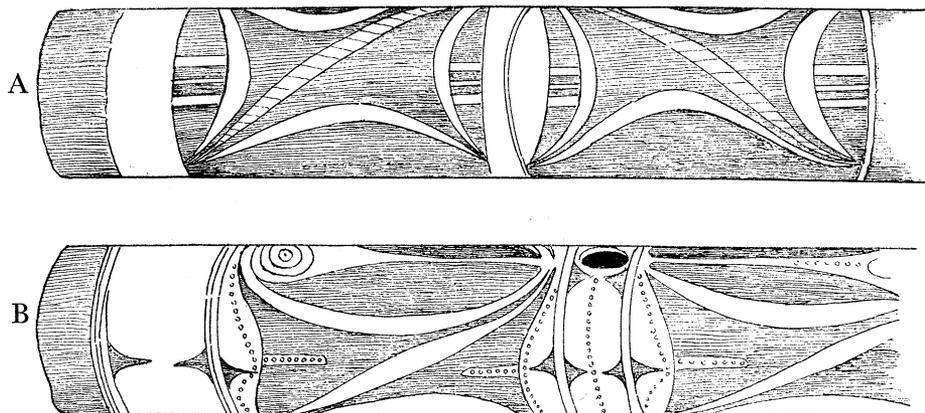


FIGURE 46. Decoration, two Karigara pipes. D. by F. E. W., Sept. 1926.

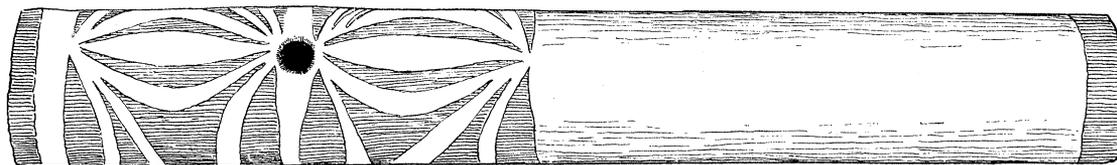


FIGURE 47. Typical Wiram pipe, Garamudi village. D. by F. E. W., 1926. Scraped parts yellow ochre.

(2) *Central area of the Western Division from the Mai Kussa to the Binaturi.*

There are six pipes from Bugi in the British Museum, collected in 1904 by the Cooke-Daniels expedition, one of which is quite plain. As previously stated, the inhabitants of Bugi village belong to several tribes, but the decoration of the pipes may be regarded as characteristic of the neighbourhood. Landtman (1927, p. 42) gives *dengu* for the pipe and *terka* for the bowl.

Pipe 1906, 10-13, 678, has a 2.5 cm. band of whole skin in the prenatal area; the rest of the pipe is scraped. Fore of the dorsal hole are a broad and two narrow rows of short longitudinal scraped stripes within scratched lines (figure 48); there are four similar narrow bands aft of the dorsal hole which divide the surface into two unequal transverse bands. There is a transverse jagged line on a level with the dorsal hole and another 7.5 cm. aft of it. The fore transverse band is decorated with enhanced spaced triangles many of which are double-outlined. In the aft band are two longitudinal rows of outlined lozenges, between which are scattered designs, some of which are indeterminable animals; it is doubtful if the swastika-like design has any special significance. 54.5 × 4.8 cm.

Pipe 697 is very old and much worn. Fore and aft of the dorsal hole is a band of lozenges on a burnt background. In the dorsal line of the broad central band is a scraped crocodile, which may have been also burnt, and longitudinal rows of small burnt lozenges on the lateral surfaces. Fore of the aft septum is another row of lozenges on a burnt background. 58.8 × 4.6 cm.

Pipe 698 has a scraped fore area and a scraped band about the aft septum. The decoration is shown in figure 49; the postnodal area has a very different type of

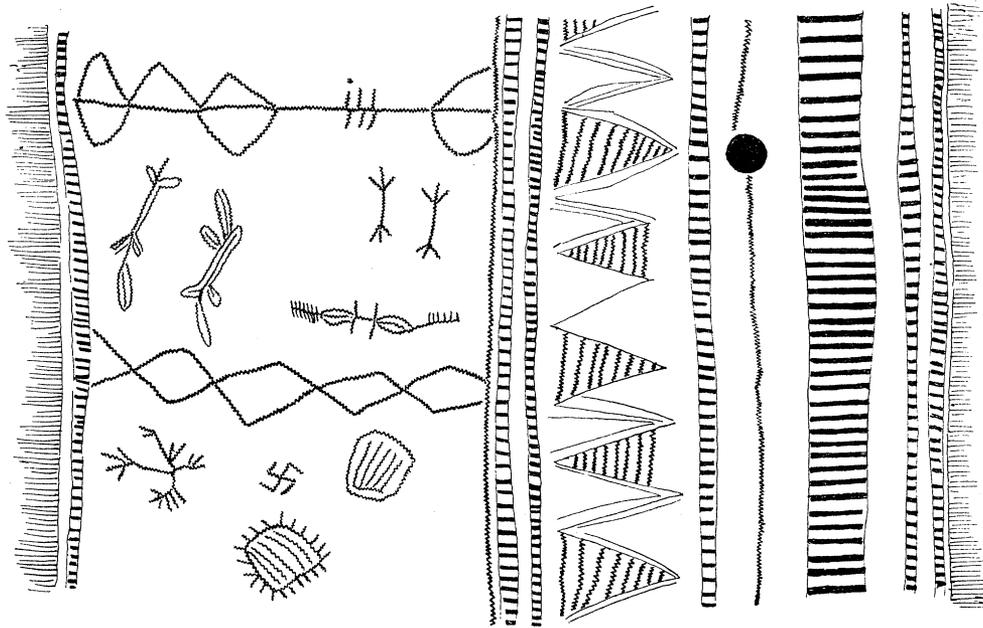


FIGURE 48. Decoration, Bugi pipe. R., B.M. 1906, 10-13. 678.

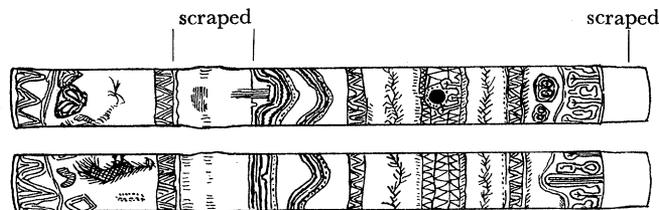


FIGURE 49. Dorsal and ventral views, Bugi pipe. D. by Dorothy Epps, B.M. 1906, 10-13. 698.

decoration from the prenodal area, and in this respect it is analogous to some of the Torres Straits pipes. The wavy central band is composed of three scratched lines; in the space between the fore and central lines is a row of dots and a jagged line, but only a jagged line is between the central and aft lines. The band at the aft septum is very similar, but the row of dots is enclosed between two scratched lines. All the decoration is in fine jagged lines except for the faces which have the outline and eyes incised. The cassowary and other designs in the postnodal area are outlined with incised lines; most of these designs are unrecognizable to me. 56.3 × 5.3 cm. It has a plain bamboo bowl. 28.2 × 1.2 cm.

Austen (1921, p. 115) says that the Yende at the headwaters of the Pahoturi grow large quantities of tobacco, *sakop*, round the various villages, mostly for trade. The

leaves when fully grown are plucked and placed between a split pole and hung in the houses over the fireplace to catch the heat and smoke. When well dried the leaves are plaited into long strings as much as 20 ft. in length, and rolled in bundles.

About two miles inland north of Mawata live the Masingara (Masingle) whose forefathers were the original inhabitants of the district, including Mawata, and thus may be regarded as belonging to the original bush stock. A short account of the Masingara and Dirimu is given by Haddon (1935, pp. 241-7).

According to Landtman (1927, p. 42) the pipe is called *waduri* (*waduru* or *wadöro*) and the bowl *druku* or *truku* at Masingara, Dirimu, and Jibu, all of them inhabited by 'bush' peoples.

There is a pipe in Rome collected by D'Albertis in 1875-7 at Mawata on the 'Kataw river' (Binaturi). The skin is entire and is coarsely incised with various irregularly disposed designs outlined with dots, some of which are shown in figure 50. I cannot identify them; the middle one may represent a nose. As they do not conform to the designs on other pipes from Mawata or from Daudai we may regard this pipe as having been decorated by a 'bushman' and not by a Kiwaian colonist. The technique recalls that of figure 37B from the middle region of the Fly. 60 × 4 cm.

There are several Masingara pipes in the British Museum collected by the Cooke-Daniels expedition in 1904, which fall into two groups: those with burnt decoration and those without.

Pipe 1906, 10-13.677, has the skin entire to 19 cm. from the end, the rest is scraped. In the fore area is a line, and behind this are two transverse parallel lines with a few longitudinal lines between them; the spaces fore and aft of this band are burnt in a spotted manner. Fore and aft of the dorsal hole is a transverse band outlined by a line and divided into rectangles by longitudinal lines. Two of these rectangles on the dorsal surface of the fore band are divided by a transverse line as are all the rectangles of the aft band; in this band there is an imperfectly executed effort to make chequers of spotted burning of the alternate small rectangles. All the intermediate bands contain irregular burnt spots. There is a transverse line near the aft end of the whole skin. All the lines are burnt jagged lines. The artist had a definite scheme in his mind, but failed to carry it out successfully. 60.5 × 4.8 cm.

Pipe 694 (figure 51A) has two internodes; the skin is entire to 29.4 cm. from the fore end, and the rest is scraped. The transverse lines and two rows of lozenges are incised, the other lozenges and triangles being in fine jagged lines, except one lozenge in coarse jagged lines. All the interspaces are filled in with irregular burnt spots. 61.8 × 4.6 cm.

In pipe 706 (figure 51B) the skin is entire to 23.7 cm. from the fore end; the rest is scraped. Scratched lines form five bands. The first band has five longitudinal scraped bars. The triangles of the second and the lozenges of the fifth band are formed by

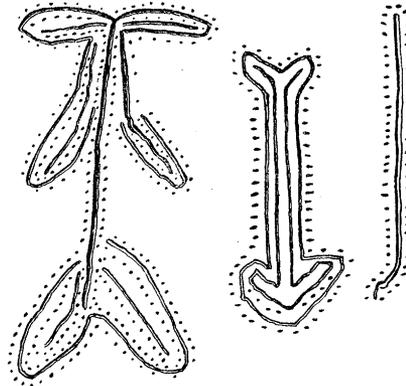


FIGURE 50. Designs, pipe, Binaturi ('Kataw river'). Rome.

crossed lines. The second and the fourth band have longitudinal, very coarse jagged lines. There is a good deal of spotted burning which is not done consistently, though there is an attempt at alternation. In some plain areas are burnt dots in simple arrangement. 49.7×3.2 cm.

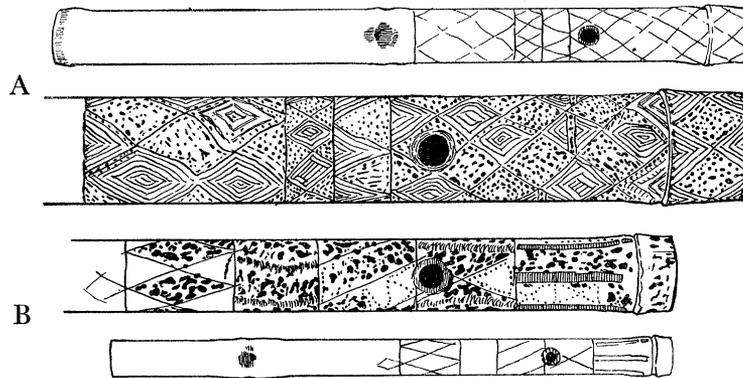


FIGURE 51. Two Masingari pipes. D. by Dorothy Epps, B.M. A, 1906, 10-13.694; B, 706.

Pipes without burnt decoration: 1906, 10-13.696 has the skin entire to 27.3 cm. from the fore end, the aft portion is scraped. There are two transverse very coarse jagged lines in the fore area. Aft of the dorsal hole there is a transverse scratched line; each half of this broad band has several longitudinal very coarse jagged lines, some of which fall short of the scratched line and others extend beyond it. 68.5×4.7 cm. Pipe 676 has the skin entire to 33.5 cm. from the fore end, the aft portion being scraped. Aft of the fore septum three transverse scratched lines divide the surface into four bands which contain large triangles outlined in scratched lines; these, with the exception of the first band, are enhanced with transverse fine jagged lines, as are the triangles in the fore area. 67×5.5 cm. Pipe 693 has much the same scheme of decoration as 676, but it is more carelessly executed and the transverse enhanced jagged lines are coarser. In the two central bands there is a double-lined zigzag, all the triangles of which are enhanced. 74.8×4.9 cm.

The pipes of Torres Straits will be dealt with next, as they are as much allied to those of the western and central areas as to the pipes of the eastern area.

Torres Straits

The islands of Torres Straits fall naturally into: (1) a western hilly group of igneous formation, (2) a central group of low coral islands (though such islands are not confined to the central group), and (3) an eastern group of volcanic islands which support a rich vegetation. Ethnically the islanders are western Papuans. The evidence points to the eastern islands having been populated by a fairly uniform stock from the mainland west of the Fly river. The ethnic history of the western islands is more complicated. The temperament and general behaviour of all the islanders are distinctly 'Papuan' and not 'Australian'. The language of the Eastern Islanders is definitely 'Papuan', but that of the Western Islanders is 'Australian', while that of the Central Islanders is essentially western, though there are influences from the east (Ray 1907;

Haddon 1935, pp. 289–91). The evidence of the material culture of the islanders is in conformity with that of their physical characters, as also are the general character of their social institutions and to a very large extent their ceremonial culture. According to tradition there have been numerous cultural spreads to Torres Straits from Daudai and between the islands themselves. Very few influences have come from the Cape York peninsula and these for the most part are reflex movements, as originally the cultures in question came to North Queensland from Papua through the Straits (Haddon 1935, pp. 266–74).

There can be no doubt that the islands of Torres Straits were originally populated by migrants coming from that part of Papua which lies to the west of the estuary of the Fly. It was only in recent times that Kiwaians definitely colonized Turituri and Mawata, and the inhabitants of these mainland villages, especially Mawata, have always had friendly relations with certain Western and Central Islanders. The Eastern Islanders in the olden days had a circuitous trade route to Papua; thus a trader from Mer was said to have gone to Erub, and thence to Uger, Damut, Tutu, Mawata, Turituri, Parama and finally to Kiwai (Haddon 1935, p. 183), but it is probable that there was some direct trading of the Eastern Islanders with the islands of the estuary of the Fly, and occasionally Fly river men brought canoes for delivery and spent some months among their island friends. Since the coming of the white man intercourse between the mainland of Papua and the islands has been facilitated.

Thus it is to be expected that the style and decorative motifs of the tobacco pipes should show affinities with those of the Western Division of Papua west of the Fly and of the Kiwaians of Mawata and Kiwai island. There can be little doubt that tobacco pipes were exchanged occasionally, and so we may expect to find a few Torres Straits pipes in Papua and Papuan pipes in the islands, but as a matter of fact there are but few in either areas which can definitely be regarded as alien.

I have dealt (1912, pp. 141–3, 377–83; and for decorative patterns and designs, pp. 343–61) at such length with tobacco smoking and tobacco pipes in Torres Straits that I need give here only a summary, which, however, includes all the matter relevant for comparative purposes.

We know that tobacco was grown and smoked in bamboo pipes in Torres Straits a hundred years ago. Brockett (1836, p. 22) says that in Mer, ‘After the tobacco is dry they plait it like a three-yarn sennet’, and Captain Lewis (1837, p. 754) states that ‘They also cultivate the tobacco plant, which they prepare for smoking by drying the leaves and twisting it up into “figs”.’ Macgillivray (1852, 2, 36) saw on Nagir some small plots of ground prepared with more than usual care for what evidently was tobacco; the young plants were protected from the sun with matting. Probably tobacco was cultivated only to a very small extent in the western islands as the soil was poor. MacFarlane (Haddon 1935, p. 91) states that in Masig, one of the central islands, in the old days a spot was selected where a tree had been burnt down leaving plenty of good white ashes; it should be on level ground or the rain would wash the ashes away. The seed was sown in the rainy season and it came up like grass. It might then be looked at, but not approached too closely or ‘the smell of your body make it die’. Later the young plants were transplanted. In the dry season, when the plants

were about 18 in. high, juice from the cabbage tree was sprinkled over the leaves 'to make it taste good by and by'. After testing whether the leaves were ready, the leaves were picked and laid on the roof of a house, or elsewhere, to dry. When dried they were made into a rope, coiled up and stored.

Charms, *sokop madub*, made of a narrow slab of wood carved to represent a man were stuck in the ground in tobacco gardens at Mer (Haddon 1908, pp. 207-9) to make the tobacco grow more quickly. Sometimes they were tied on to a stick so that the tobacco should grow to the same height. *Madub* were also employed on Masig (Haddon 1935, p. 91) and probably on other islands.

According to J. Bruce (Haddon 1935, pp. 303, 304), the owners of tobacco gardens in Mer took a great pride in them and vied with each other in producing the best quality. On an appointed day, when the leaf was well ripened, a visit was paid to the various gardens and judgement passed on the crops. When a tobacco crop was ready in Mer, a man invited his friends to come and smoke. His ambition of hospitality was to make his guests sick from over-smoking. A special pipe, called *tere zub*, was made for this occasion. The closed end was cut to represent the open mouth of a king-fish; this was ornamented with shells and feathers. An incised line encircled the middle of the pipe. The fore, or jaw, half was termed 'sea' and the aft half 'land'. Bruce's note is not very clear; he says that only the land half was decorated (perhaps he meant with patterns), but he mentions, under 'Sea division', engravings of a turtle, sea-snake, shark, sting ray, star-fish, etc. The pipe of figure 64 has a similar scheme of decoration.

It seems to have been the common practice for a pipe to be handed from one man to another, and frequently the pipe was filled and refilled with smoke by a woman for the use of the men. Solitary smoking may have been indulged in, but smoking appears to have been a social habit. Pasi of Mer told MacFarlane (Haddon 1935, p. 304) that smoking together constituted a definite act of friendship; he said, 'But suppose a man smoke that pipe along you and me, he must be a friend for us; he can't fight you and me, or make trouble.'

Smoking is not referred to in the tales and legends of the islanders, with one exception; this looks as if they were older than the introduction of tobacco. In several versions of the Malu-Bomai myth a pipe for mutual smoking was given as a sign of friendship (Haddon 1908, p. 40). It is not possible to say whether the mention of tobacco smoking is a recent addition to the myth.

The result of the native method of smoking is apt to be severe, as even after a single inhalation the smoker appears dazed; occasionally a man is rendered nearly senseless, with perspiration streaming (Haddon 1912, p. 142). The natives, however, greatly enjoy smoking and have a craving for it.

Tobacco is called *sukuba* or *suguba* by the Western Islanders and *sokop* by the Eastern. The pipe is called *sukub morap* (W), *zub* (E), and the bowl *turku* (W), *tarkok* (E). The dry leaf of the banana used as a cigarette wrapper is called *taugoi* (W) and that of the *Mimusops*, *ubarau ris*.

The Mabuiag terms for smoking are (Haddon 1912, p. 142): *gamu widai*, light it; *ngalkai*, blow or suck (smoke into the *morap*); *sukuba wani*, swallow tobacco (smoke);

wai, exhale (smoke). Ray has recently sent me the following terms for Mer: *derseri*, make cigarette or funnel; *ekos tarkok-e* [*e=ge*], insert in bowl; *e dituk*, he lights it; *e iruar*, he sucks; *e tarkok dikiamur*, he takes out bowl; *sokop kēmur iruar*, tobacco smoke he drinks; leaves, *lam*, for wrapper: *gulam*, banana; *enau lam*, *Mimusops*; *mikir lam*, *Terminalia*; *sobe lam*, *Eugenia*; *ome lam*, *Ficus*; *waiwi lam*, mango.

Brockett (1836, pl. iii) was the first observer to give an illustration of Papuan tobacco pipes and of a man smoking (figure 52). He says (p. 23): 'Before and after smoking, they pronounce the words: *Sips, sips, sips buggeree mess, buggere mess*. . . the native name for tobacco is *soogoob*, and they call the pipe-stem *soogoob-mar*.' These terms most probably were obtained at Mer. *Zip* is a wood used for the fire-drill; *bageri*, look round; *mes*, coconut husk or fibre.

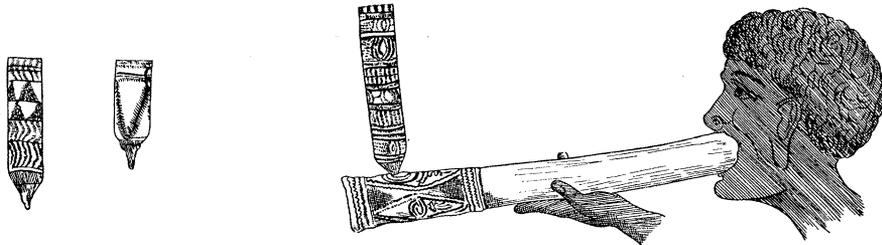


FIGURE 52. Filling pipe with smoke, and two decorated bowls. Mer, from Brockett (1836, pl. iii). Earliest representation of Papuan pipe.

Our friend Pasi of Mer compiled in the native language a short account of his island in 1900, in which he wrote: *Abele mer peike ese le sogob iruuar* (this word this when man tobacco smokes) *abele* (this) *zub* (pipe) *kabi* (hole or small; *keb*, hole) *turika* (knife) *madira kabi turik moranagedana utu Nagedana* (*nadeger*, you burn) *gaborono* (*gabo*, side of nostrils) *Mina suguba* (*mena* often; but *mine suguba* is the Mabuiag term for good tobacco) *taugarama* (*taugoi* is a leaf wrapper in Mabuiag) *ibeta murana* (*murar* in Mabuiag means a clay pipe) *Pi* (ashes), *sina* (enough) *pesemuda* (finish). I have to thank Ray for the transcription and translation; he admits he 'cannot make much sense of it'. We did not hear any tobacco song when in Mer, but that does not imply that the old custom was obsolete.

The pipe typically consists of two internodes of thick bamboo, but a few may have only one internode. The length ranges from about 34 to 95 cm., though the majority range between 63 and 87 cm.

The bowl is generally made of a piece of thin bamboo, the lower end of which is trimmed so as to fit into the dorsal hole (*gud*, W). The length ranges from 10 to 22.5 cm. Many bowls are quite plain, but some are decorated in the manner characteristic of the pipes. Three bowls from Mer are illustrated by Brockett (1836, pl. iii) (figure 52), and one by Partington and Heape (1890, pl. 318, 3). A wooden bowl in the British Museum, 1937, 11-12.16, was collected on Erub by the Rev. Harry Scott in about 1885 (figure 53). It is dark in colour

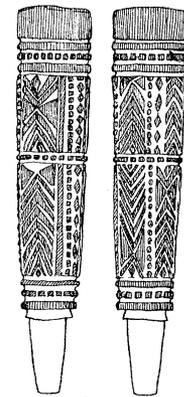


FIGURE 53. Two sides of conical, carved wooden bowl. Erub. D. by Dorothy Epps, B.M.

through much handling, and the deep carving is variously coloured; $20.3 \times 3.8-1.2$ cm. I refer later to two massive wooden bowls presumably from the estuary of the Fly.

A tubular bowl is characteristic of the south-west of New Guinea west of the Fly river, but including the estuary of the Bamu. A leaf screw or funnel to contain the tobacco and used without a bowl has not been recorded for Torres Straits; it is invariably used east of the Fly, and has been recorded in the extreme south-west for the Marind (p. 35), but evidently is not common. Jukes (1847, 1, 187) says of the Erub people: 'In smoking their own tobacco [which is of a light brown colour], they break off a piece from the plait into which the leaves are twisted, and wrap it in a green leaf to prevent it setting fire to the wooden bowl.' The substitution of the green leaf wrapper for the bowl could thus have come about quite easily.

At the present time most of the islanders have adopted a short clay or wooden pipe, or roll up cigarettes in bits of newspaper or dry banana leaf, as the case may be. Cigarette smoking is not indigenous. Betel chewing is not, and probably never has been, practised in Torres Straits.

There are several pipes from Torres Straits in the British museum and a few in various other museums that were collected between 1845 and about 1875. After that date, if not before it, the decorative art of the natives began to deteriorate, owing to intercourse with Europeans, though even twenty years later some good artistic work was done.

As most pipes are made from two whole internodes and short lengths of two others, there are three septa or nodes which are visible on the surface as slightly raised rings. In making a pipe the leaves on the stem of the bamboo have to be removed; thus an oval scar is left at each node, the consecutive scars being on alternate sides of the pipe. The node and the scar are usually smoothed as far as possible, but in a few pipes the scar is increased by scraping to form a triangular area. The contiguous patterns may or may not be affected by the leaf scar, but frequently they are deflected round it. It is evident that the artists repeated these encircling lines of the nodes so as to break up the intervening spaces of the internodes into areas that could be easily dealt with when patterns were to be made. Thus there were provided a number of bands of varying width running round the pipe.

As a rule there are marked differences in the patterns of contiguous bands, as, for example, in figure 54. The pipe shown in figure 54B exhibits a definite balance in the patterns of the prenodal area; indeed, this pipe may be regarded as one of the most skilfully decorated objects that have come from Torres Straits. In both of these pipes there are bands in which the patterns run longitudinally, but this is not very common.

The patterns are formed by scratched or thin incised lines, jagged lines, and by punctate lines. Fine jagged lines are very characteristic of the islands and the adjacent part of Papua. The jags may be extremely small and close together, especially in Torres Straits (figure 3A), or they may be boldly rendered (figure 3B); all gradations between these extremes occur. In western Papua the jags usually are coarse and may be very large (figure 3C), but the latter is rare in Torres Straits. The punctate technique is especially characteristic of the islands.

The skin of the bamboo may be left entire on pipes, but in a great many it is partly scraped away and may be entirely removed. When there is partial scraping, bands or panels of whole skin are left which alone can be decorated. Designs or patterns are not made by scraping, as is found in some parts of Papua.

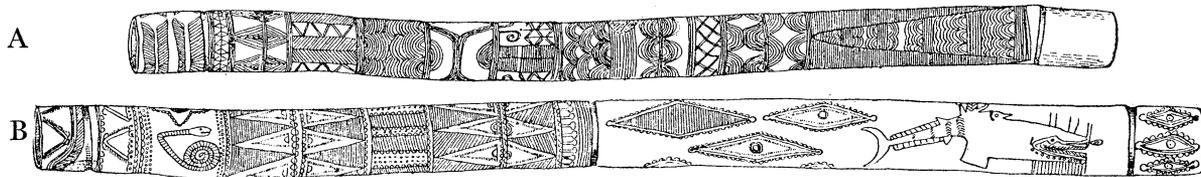


FIGURE 54. Scale sketches, two pipes, B.M.; they have two internodes, skin entire, decoration solely punctate lines. A, pipe E.a.4. No provenance. Careful decoration of concentric curved lines, and, in postnodal area, of very large triangles, alternately enhanced in different styles. Figure 57 shows detail of patterns of postnodal area. 80×4.8 cm. Bowl short. B, pipe 6520, 'Cape York'. Three grooves at septa coloured red. On each side of fore-septum a row of woman's breast scarifications (Haddon 1912, figs. 12, 13). Dorsal hole a four-rayed rosette with coiled snake on each side (ibid. p. 354, fig. 324) suggesting owner belonged to *tabu*, snake, totem clan (Haddon 1904, p. 168). Three next bands shown in detail in figure 57B. Postnodal area has scattered lozenges, large ceremonial mask on right, smaller mask on left surmounted by hammer-headed shark (Haddon 1912, fig. 256A, B). Two shoulder scarifications also drawn (ibid. fig. 28). 95×5.6 cm. Bowl 17 cm. long, decorated. Pipe coll. Lieut. R. H. Armit, R.N., about 1870, but doubtless made by a Western Islander; there was then a very active new pearl-fishery of the western and central reefs. Somerset, Albany passage, near Cape York was headquarters.

Only a very few pipes have the skin charred by burning limited parts of a pattern. It is doubtful to what extent this technique was practised in former times; during the past fifty years a few islanders have come into contact with peoples who employ a burnt technique.

By far the greater number of patterns consists of straight lines, chevrons, zigzags, triangles, and lozenges.

Triangles frequently appear to be merely the enhanced alternate bays of a zigzag, or they may be drawn as such. A noticeable feature is the drawing of lines between which the patterns are built up. In figure 55 it will be seen that in the centre there is a continuous transverse line upon which triangles are based; when, as in this case, the bases of the triangles coincide, a lozenge is formed. I have shown (1912, p. 345) that this method of producing a lozenge is found on objects other than pipes. Lozenges may be made as such (figure 57), but they are also made by the apposition of the apices of two rows of triangles or by the intersection of two more or less parallel lines with two other lines (figure 5 (5), (7)).

Frequently when triangles are in series those pointing one way are plain while the others are enhanced with transverse or oblique lines, or by internal repetition (chevrony) as in figure 54A (at the hole area), where they are built up into lozenges by the method just referred to. Alternate plain and enhanced triangles are very characteristic of the islands. Triangles enhanced with lines may alternate with triangles enhanced in a different manner.

A single or double curved line, or a series of concentric curves, frequently projects into a plain triangle from its base (figure 56). A series of similar concentric curved lines may project into a plain band (figure 57A). When these coincide on each side of a line a series of more or less round designs results. If, however, the ends of the bases of the opposite curves do not coincide, a wavy pattern is produced which bears some resemblance to a guilloche or rope pattern, but this incipient pattern does not appear to have impressed itself upon the artists, as no coherent pattern of this kind has been adopted in this area. Concentric curved lines may more or less fill a whole band or space, as in several bands of the pipe (figure 57A), and in a central band of figure 54A an imbricated scale-like pattern has been achieved.

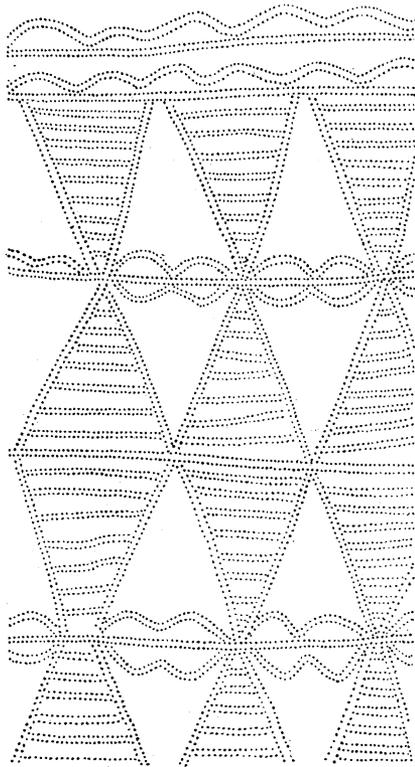


FIGURE 55

FIGURE 55. Pattern, punctate lines, on bamboo tobacco box. Doubtless decorated by an islander. Reduced by $\frac{1}{3}$. B.M. 6950 (1870). 'Cape York'.

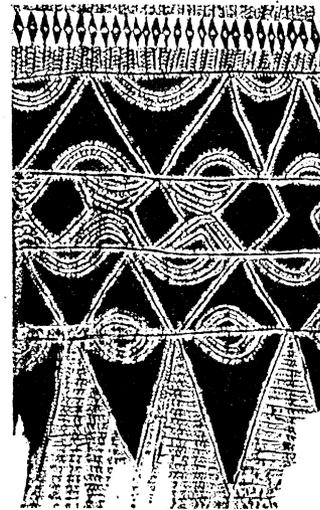


FIGURE 56

FIGURE 56. Rubbing, part of punctate line decoration, pipe, coll. at Mer, 1889. Pattern called *Kar*, a fence. Reduced to $\frac{1}{2}$.

Although, as seen in their pictorial designs, the natives can draw sigmoidal curves and spirals, there is a remarkable paucity of them in patterns. I do not know an example of the former, and there are very few spirals as in figure 89. They are, however, more numerous on scarifications (Haddon 1912, figs. 13, 19, 33; pl. iv, fig. 2), and it is quite possible that all the scrolls on pipes are derived from scarifications; several examples of such copying occur; for instance, the breast scarification designs at the fore-end of figure 54B. Only one scroll-like design is known to me; it is isolated and may be intended for a plant form (Haddon 1912, fig. 304).

Small and moderately large circles are fairly common; they may be concentric and often there is a central spot. In many examples they may represent eyes.

There is a considerable amount of variation in isolated lozenge-shaped designs (figure 54B); they may or may not have a central circle or 'eye' and the contained area may be enhanced. In some the two ends of the lozenge may be greatly prolonged so as to give a new form (figure 57C). A lozenge may be inscribed within a quadrangle, thus resulting in what may be described as a panel (figure 57D). There are several kinds of analogous panels. There is only one pipe (figure 60) the decoration of which consists solely of rectangles.

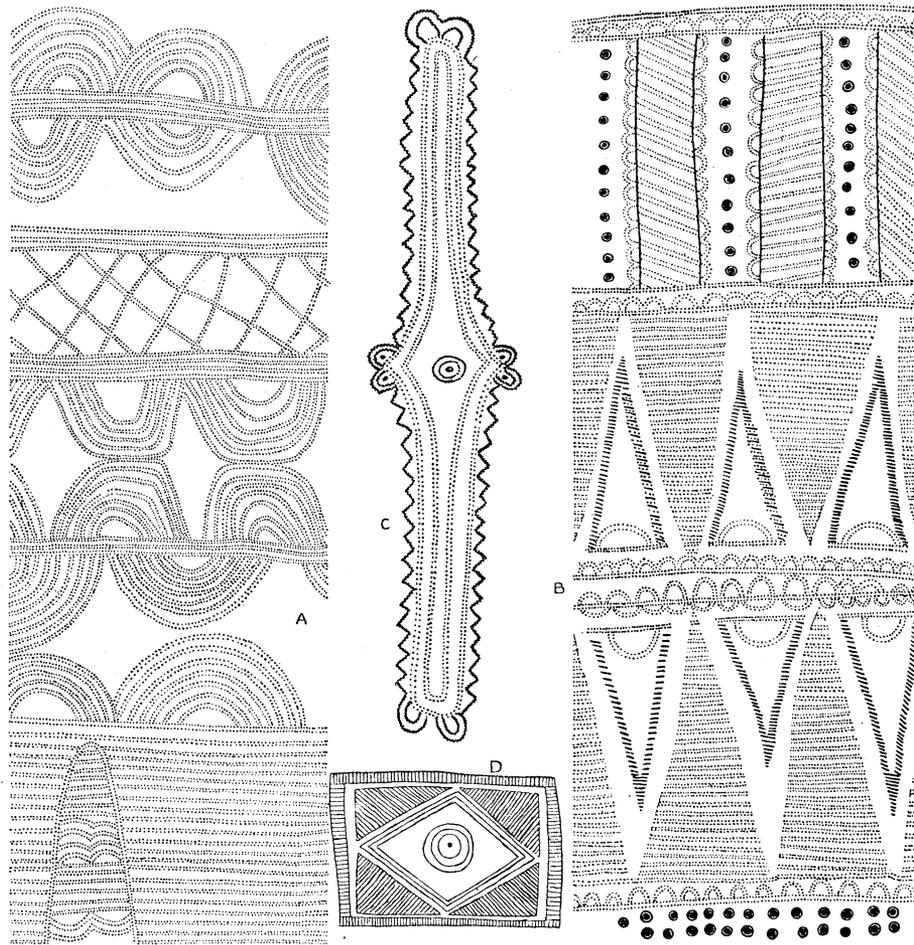


FIGURE 57. Pattern and designs, punctate lines, pipes in B.M. Reduced about $\frac{1}{3}$. A, see figure 54A; B, see figure 54B. Top of drawing aft on pipe; C, elongated lozenge; D, panel in very fine jagged lines. 'Cape York'.

The design shown in the upper part of figure 57B occurs on more than one object. It consists of an oblong area traversed by oblique lines; along the outer edge of each side is a series of semicircles which bear no definite relation to the enclosed lines.

Most of the other patterns on the pipes are simple.

A few pipes in museums are undecorated and may be scraped all over. Others have the surface scraped except for the fore area, where a geometric pattern is cut

deeply as in figure 58 A. I collected in Tutu in 1888 a very similar pipe (Haddon 1912, fig. 371). The amount of scraping varies considerably. In one pipe fore, central, and aft bands are scraped. In others there are one or more patterned transverse bands of whole skin, or there may be left lateral longitudinal panels of whole skin in the prenodal area on each side of the dorsal hole (Haddon 1912, fig. 373). Only a few examples of pipes with considerable scraped areas can here be noted.

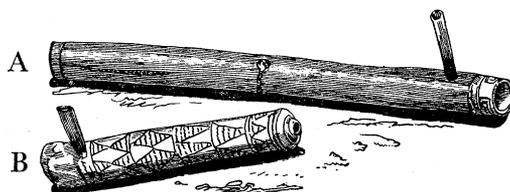


FIGURE 58. Two pipes coll. at Erub (1845), see Jukes 1847, 1, fig. 165. B.M. A, pipe, 47.8-9, two internodes, all scraped except fore and aft areas. Fore area simple characteristic grooved pattern (some grooves reddened), combined with jagged lines. Aft end red shallow groove and triangles enhanced with fine jagged lines. 87 × 5 cm. B, pipe, 46.7-13.2. Sketch gives only general idea. Decoration first scratched and then worked in jagged lines, mostly coarse, red ochre rubbed in, also on ends. 42 × 5.7 cm.

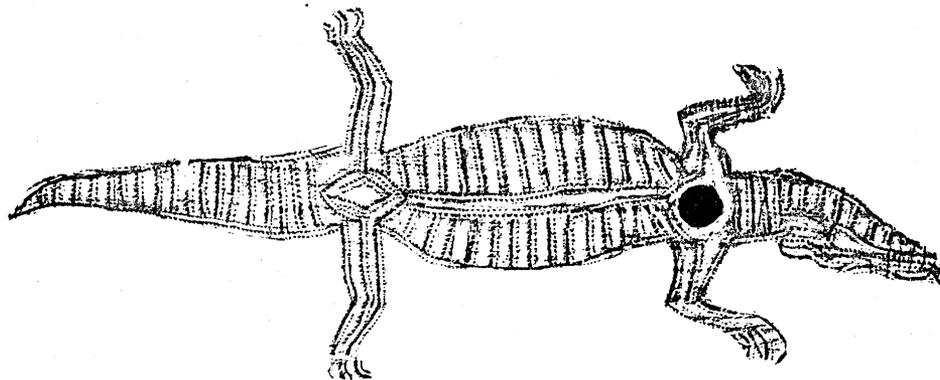


FIGURE 59. Crocodile, l. 25 cm. Punctate lines on Saibai pipe. Crocodile faces fore-end, head in profile, ventral surface shown. Reduced $\frac{1}{2}$. Cm. Z. 7998.

A very long and thin pipe, Z. 7998, obtained by me at Saibai in 1898, is scraped all over except for bands of double punctate lines at the fore end at the central septum, and also except for a 25 cm. crocodile (figure 59) in the prenodal area. The dorsal hole is at the shoulders of the crocodile. 86.5 × 3.4 cm.

A pipe in the Truro museum has the fore area, the postnodal and the aft third of the internode scraped. The skin is entire from the fore septum to a distance of 17.5 cm. About the dorsal hole is the pattern shown in figure 60. The concentric rectangles are made by fine jagged lines; the median dorsal line is emphasized by independent small squares. The pipe was almost certainly collected in Mer by Lieut. G. B. Kempthorne, Indian Navy, who presented it to the Royal Institution of Cornwall about 1840. This pipe is of especial interest as the pattern is unique (though it bears some resemblance to that of a pipe from the neighbourhood of the Torassi (Bensbach) river (figure 40),

and it was probably the first Papuan pipe to come to this country. Doubtless Lieut. Kempthorne's visit to Mer was in connexion with the loss of the *Charles Eaton* (Haddon 1935, pp. 8–11). The pattern consists of two transverse panels bounded by a line, one at the dorsal hole and the other aft of it. The panels are interrupted in the median dorsal line: the fore panel contains a row of concentric squares, each with a central ring; the aft panel also has a row of squares, but each contains two concentric triangles with a central ring or dot. In the median line there is a small concentric oblong fore and aft of the dorsal hole, and three oblongs in the gap of the aft band. The decoration

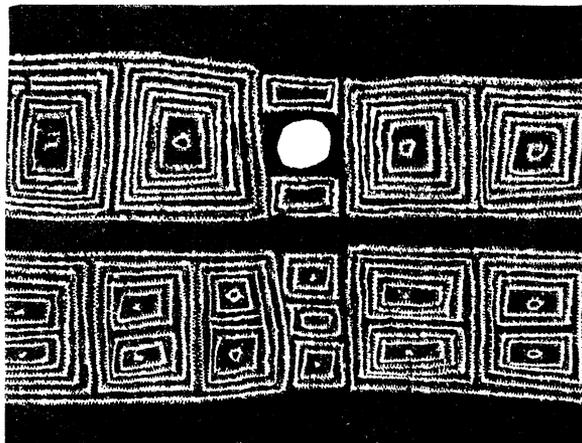


FIGURE 60. Rubbing, part decoration of pipe, Truro. Reduced $\frac{1}{2}$.

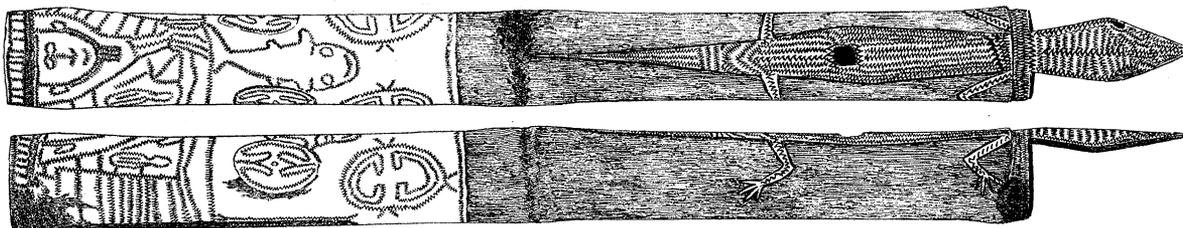


FIGURE 61. Dorsal and left aspects, very old pipe, probably from a Western island of Torres Straits or from Tutu. B.M. 1939, 2–10.1.

of this pipe is similar to that of a pipe from Rouku on the Morehead river and also to that of a pipe from Garembo on the lower Torassi river (figure 29). It is not possible to say how the pipe or the pattern reached Mer before 1840, as it seems improbable that it is an indigenous pattern.

A very old pipe in the British Museum, 1939, 2–10.1 (figure 61), has a dorsal lozenge-shaped 9.7 cm. projection at the fore end. The prenodal area, except for the crocodile, and the fore part of the postnodal area are scraped. On the dorsal aspect of the prenodal area is a crocodile enhanced with coarse jagged lines; the projection forms the head of the crocodile. The broad postnodal band of whole skin is divided by a transverse line into a fore and an aft portion. In the dorsal line of the fore portion is a shark, perhaps the tiger shark, *Stegostoma tigrinum*; on each side are two designs which apparently represent two kinds of the shoulder scarification, *koima*, of men. At the

aft end of the dorsal line of the aft portion is a bearded man's face; the rest of the portion is filled with irregular designs, except on the ventral surface, where there are transverse lines broken by a median scraped stripe that extends well into the fore portion, where it is bounded on each side by a line which divaricates at the end. All the decoration is in coarse jagged lines. 77.2×6 cm.; 67.5 without projection. The pipe may have come from one of the Western Torres Straits islands, or from Tutu. The pipe was acquired by the British Museum in 1939. It was collected by Major William James King, who died in 1860. He was in Ceylon from 1812 to 1816, but it seems highly improbable that it could have been obtained at that time. With the pipe there also came a few implements from Australia and the Pacific. In any case all these specimens must have been collected before 1860. This and the Truro and Exeter pipes appear to have been the earliest brought to Europe.

In the Exeter museum is a pipe with two internodes, Eth. 115.3. Except for a 30 cm. band of whole skin in the prenodal area the whole surface is scraped. In the median dorsal line, facing the hole, is a shovel-nosed skate (Haddon 1912, fig. 311). At the sides are a sucker-fish (*Echineis naucrates*), a small fish, and a long snake. All the designs are in fine jagged lines. There are also a few unrecognizable markings. There can be little doubt that this is a western pipe. The pipe was from the collection of Colonel Godfrey, who had been dead some years before 1866, when the pipe was presented to the museum. 44.5 cm. long.

A pipe in the Oxford museum, which I collected in Mabuiag in 1888, has the prenodal area partially scraped posteriorly; the unscraped part has a V-shaped aft end on the dorsal surface. The rest of the pipe is scraped. In other words, the fore end of the scraped portion extends obliquely downwards from behind the central septum on the dorsal surface to in front of the septum on the ventral surface. There are numerous transverse lines in the fore area, and on the dorsal surface aft of the fore septum is a somewhat complicated triangular design. On the right side of the prenodal area is a drawing of hills and trees, which apparently is meant for a representation of the island; below this on the ventral surface is a zigzag. All the decoration is in punctate lines.

This and an unscraped pipe evidently from Mer, Berlin, 1872, VI. 860 (Haddon 1894, p. 31; 1912, p. 346, fig. 302; von Luschan in Krieger 1899, figs. 52, 53, pp. 513, 514), are the only pipes known to me depicting landscape. Von Luschan illustrates the decoration of the pipe. The landscape is on the right side of the postnodal area, and on the left side are three flying frigate birds. The scroll is on the left side of the aft half of the prenodal area. The decoration is executed in very fine jagged lines.

I was told that a pipe, Cambridge, Z. 7997, from Mer, 1898, came from 'New Guinea', and there can be no doubt that it was imported from Kiwai as it closely resembles figures 74-77. The only difference is that the central band of whole skin has a narrow band containing a jagged line forming a zigzag at the fore and aft ends and in the centre. In this pipe the fore irregular lozenges were incised independently as such and the aft lozenges were incised as definite lozenges by means of crossed lines. The intermediate triangles are enhanced with transverse jagged lines. 34.5×7.6 cm.

I obtained in 1898 from a Queensland native at Yam an anomalous pipe, Cambridge, Z. 7992. There is an 8 cm. scraped band about the central septum. The

decoration is very carelessly and irregularly executed in coarse jagged lines, and consists mainly of triangles which are scratched and transversely enhanced. The only recognizable designs are a few palms. The original dorsal hole has palm-like designs radiating from it. A peculiar feature is a secondary dorsal hole; when this was made the aft end of the pipe was thickly coated over with black beeswax. The pipe thus has two closed ends and two dorsal holes, as in the characteristic pipes of the Gogodara (p. 99). The pipe was said to have been made by a Queensland native, and from its inexpert decoration this may very well have been the case, and it is evident that he was trying to copy Torres Straits decoration. 63×4.9 cm. Bamboo or wooden pipes with two closed ends and two dorsal holes occur on the western side of Cape York peninsula (p. 79).

It is mainly in the decorated pipes with entire skin that the artistic and technical skill of the islanders is best exhibited. The dorsal hole is evidently regarded as a definite feature in all those pipes which have been decorated by a skilful artist. In some it is within a rosette (figure 54B), or in the centre of one of a band of lozenges (figure 54A). In a few pipes it bears no relation to the decoration (figure 63).

The area of the dorsal hole, and in some pipes that immediately in front of it, may be treated apart from the rest of the prenodal area. In several pipes an animal is depicted on each side of the hole: a lizard, a snake, or a tree-frog. In three partially scraped pipes there is a highly conventionalized fish, a dugong, and in a British museum pipe the hole is at the junction of the tails of two fishes.

The whole pipe may be decorated with a simple pattern (figure 60), but more commonly the patterns are complicated (figure 54A). In several pipes the prenodal area is covered with patterns and the postnodal area is decorated with scattered designs; the reverse is seen in figure 64. The scattered designs include representations of men (very rare), dog, dugong, sea-eagle, frigate bird, crocodile, lizard, snake, turtle, various kinds of fish, starfish, jellyfish, feather headdress, *koima* scarification, Λ -shaped scarification on women's breasts, ceremonial masks, canoe with two mat sails, two-masted ship, dugong platform, and many others (see Haddon 1912, pp. 346-61, 383).

I obtained in Mer in 1898 a new richly decorated pipe, but of very poor workmanship (Z. 7996). No attempt has been made in figure 62 to indicate the technique of the various lines. The numerous transverse bands are incised, the interspaces being enhanced with double punctate lines, but the fore area, the broad band aft of the fore septum and the four bands fore of the central septum are in fine jagged lines. The only lozenges which have incised outlines are those in the band aft of the central septum. There is a tree-frog, *Hyla coerulea*, on the dorsal surface of the postnodal area. A pipe in the Oxford museum has a tree-frog on each side of the dorsal hole (Haddon 1894, pl. iii, fig. 32). The frog is nowhere a totem in the Straits. I was told in Mer that the *Beizam boai*, the most important group in Mer (Haddon 1908, pp. 172, 285), alone might decorate objects with the frog (Haddon 1912, p. 353). The aft 17.5 cm. of the pipe is not shown; it is quite plain. 75.5×5.2 cm.

The most interesting of the Cambridge pipes is Z. 7991. All the decoration is executed in fine jagged lines or in double punctate lines. At the fore end of the fore

area are numerous transverse punctate lines; in the dorsal line are three longitudinal rows of five small holes, into which cassowary feathers probably were inserted. The simple bands and other decoration of the pipe are shown in figure 63.

The prenodal area has in the median dorsal line and on the left side a device consisting of two separated longitudinal lines flanked by a looped zigzag, the loops having a central dot. Groups of transverse lines connect the two longitudinal lines at the ends and at spaced intervals along their length. I am not sure what this device represents. Possibly it is meant for the row of human lower jaw-bones and *Fusus* shells that originally extended from the head of the *kursi augud* in its shrine (Haddon 1904, p. 374, pl. xxii, fig. 2). Between the two devices on the left side of the pipe is a representation of a platform from which dugong are harpooned (Haddon 1904, figs. 175, 176), and some distance aft of it is a pandanus tree. On the ventral surface at the fore end of the prenodal area is a coconut palm with fruit, and aft and below it is what appears to be a mound on which palms are growing. The aft half of the ventral surface of the area contains a number of what I consider to be pandanus trees.

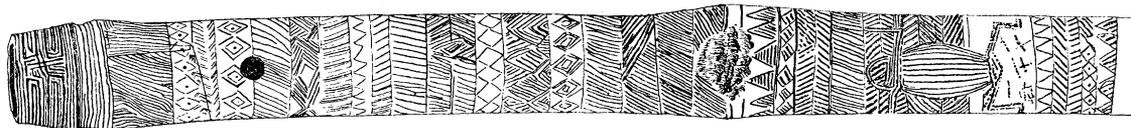


FIGURE 62. Richly decorated pipe, poor technique, made in 1898 at Mer. Cm. Z. 7996.

On each side of the postnodal area is a representation of a hammer-headed shark, *kursi*, which undoubtedly represents the *kursi augud* of Yam. The *kursi augud* in Yam was a turtleshell effigy of a hammer-headed shark in front of which was a turtleshell *pukai*, a kind of ray (which is also shown on the pipe). The effigy in this instance was called *augud*, which is the Western Islanders' term for a totem. The other effigy in Yam was of a crocodile. The effigies were representations of the animal forms of two culture heroes, Sigai and Maiau. Women did not know what the *augud* were like; they were aware of Sigai and Maiau, but did not know what their animal forms were; this mystery was too sacred to be imparted to the uninitiated. Although women may have seen this pipe, it is probable that they were not enlightened as to its significance. (For this cult, see Haddon 1904, pp. 64–66, 373–8; 1935, pp. 385–9.) This pipe was acquired about 1895; it has no provenance, but there can be no doubt that it came from Yam or from Tutu, as both islands belong to the same people. 87.3 × 6.2 cm.

An interesting pipe from Muralug (Prince of Wales island) in the British museum, 6521, is sketched in Partington and Heape (1890, pl. 318, 3). In the prenodal area are six bands of plain framed triangles; the borders of the bands and most of the frames were first scratched and then enhanced with very short fine jagged lines; the outside or bordering line of some triangles is a fine jagged line and the inner scratched line may be absent. The postnodal area contains a medley of marine animals executed in very fine jagged lines, but some were first outlined by scratched lines. Among the representations are: a jellyfish, sunstar, kingfish, sucker of a sucker-fish, two sea eagles, a canoe with two mat sails, and a *markai* (a man representing the spirit of a dead person). Most are reproduced in Haddon (1912, figs. 305A, B, G, 330, 340;

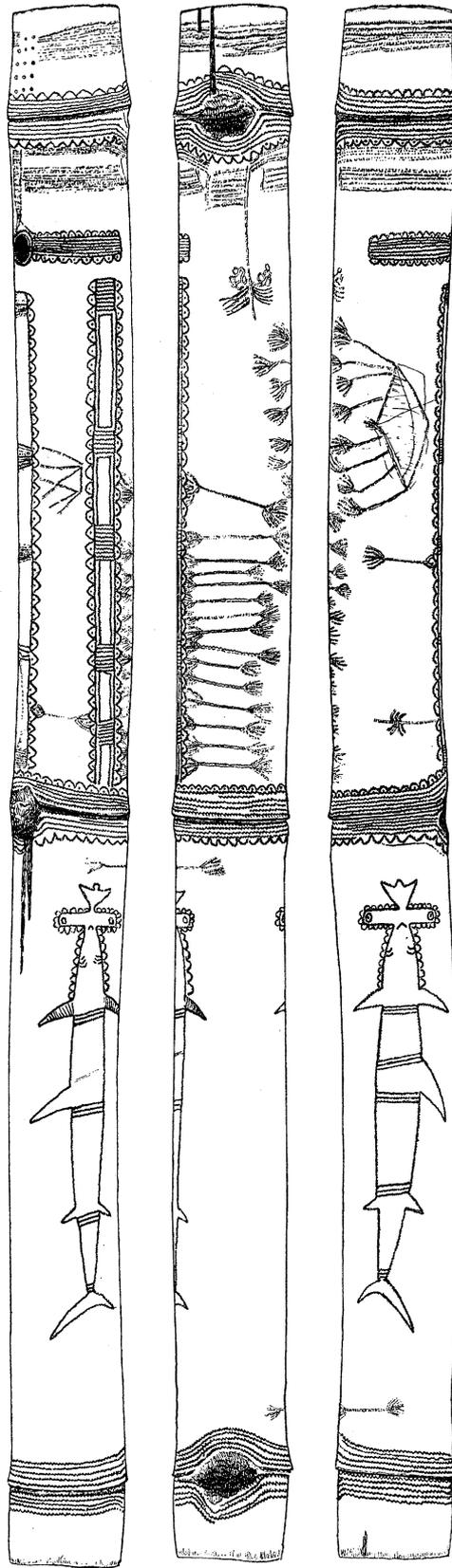


FIGURE 63. Right, ventral and left aspects, pipe, ? Yam. Cm. Z. 7991.

1904, fig. 40A). 77.4×5.3 cm. The bowl is 21.5 cm. long and is decorated with fourteen transverse patterned bands.

An interesting pipe in the Dover museum (figure 64) was collected in or before 1878 (Haddon 1912, p. 379). The decoration is in punctate lines, but parts of the contours of the sharks look as if they were incise. The prenodal area is occupied mainly by two tiger-sharks, *Stegostoma tigrinum* (Haddon 1912, p. 349). Above the head of each is a small dugong and on the ventral surface a devil-ray or eagle-ray, *Aetobatis*, and two small fishes which I cannot identify. The dorsal hole is an oval of concentric lines which is connected with a similar oval between the heads of the sharks. The abdomens of the sharks are connected dorsally by a band similar to that shown between the bases of their tails. The postnodal area contains several simple pattern bands; there is a band of large lozenges drawn as such and transversely enhanced, fore and aft of which is a band of coarse cross-hatching, like network (the islanders never made netting); there are also several problematic ovals between the tails of the sharks and fore of the aft septum. There can be no doubt that this pipe was made by a Western Islander. 78.8 cm. long.



FIGURE 64. Pipe, drawings of animals in prenodal area. Shark on right side of pipe has two gill slits. D. by G. Gray from R. Courtesy of J. Barnes, Hon. Curator, Dover museum.

The technique and style of the decoration of the pipes are common to all the islands and to a limited extent to western Papua, but the islanders have developed the technique in a characteristic manner and have elaborated patterns to a complexity very rarely attained on the mainland. More particularly they have decorated some of their pipes with representations of a surprising variety of objects, especially of animals. I have alluded (1912, p. 359) to the accuracy with which most of the animals are depicted. Almost the whole of the animal food of the natives is obtained from the sea, and consequently they have a considerable acquaintance with marine animals.

The totemism of the Western Islanders has been described by Haddon and Rivers (Haddon 1904, pp. 153–86). It was formerly customary for members of a clan to bear some distinguishing emblem of their totem; occasionally it was scarified on the person, and personal belongings might be decorated with the totem of the owner. When pairs of animals are depicted, we may feel fairly confident that they are totemic; examples are seen on a few pipes, but in the pipes from Mer this does not hold good as the Eastern Islanders are not totemic. There are, however, numerous representations of animals, the great majority of which are marine forms, that are not totems, and it may be supposed that the practice of representing totemic animals was extended to other animals that were constantly seen by these fishing folk (Haddon 1912, pp. 347–59).

The Eastern Islanders are non-totemic, but there are a few eastern pipes which have representations of animals. It can be accepted, however, that the delineation of animal forms was much more prevalent among the Western Islanders. Contributory

factors for the artistic ability of the islanders may perhaps be found in their ethnic mixture, energetic daily life, a usually abundant supply of food, and a lively interest in non-material matters.

The following facts indicate that one stock of the ancestors of the islanders were allied to some of the ancestors of the people who now inhabit the valley of the Torassi (Bensbach) river.

The jagged line technique extends on the mainland from the neighbourhood of the Torassi to the estuary of the Bamu. Scattered representations of animals are shown on a pipe (figure 26) from east of the Torassi and presumably from the Kanum, and on a pipe (figure 41) from the south-west of the Semariji country near the east bank of the Torassi.

The rectangular patterns and their technique of the Truro pipe from Mer (figure 60) are in what Williams terms 'the true Keraki technique' and are analogous to those of a pipe (figure 29) from the Garembo of the lower Torassi, but in the Mer pipe the jagged lines are not enclosed within scratched lines. There is a pipe in the British museum, 6521, from Muralug, illustrated by Partington and Heape (1890, pl. 318, 3), the bands of which are decorated with triangles and the sides made of two scratched lines with short transverse jagged lines between them, but the illustration is not very accurate.

North Queensland

It is convenient to intercalate here a few notes about tobacco smoking in North Queensland—originally tobacco was nowhere smoked in Australia, but it has been introduced into the Cape York peninsula in recent times by Papuans and Europeans.

Moseley (1879, p. 356) found that the most prized possessions of the Gudang of Cape York, North Queensland, were tobacco pipes which were 'procured by barter from the Murray Islanders'. They employed a small cone of green leaf, instead of a small bamboo tube, as a bowl. 'A man, or oftener a woman, then opening her mouth wide covers the cone and lighted tobacco with it and applies her lips to the bamboo all around it, having the leaf cone and burning tobacco thus entirely within her mouth. She then blows and forces the smoke into the cavity of the bamboo, keeping her hand over the hole at the other end and closing the aperture as soon as the bamboo is full.'

Roth (1901, p. 31) says that in North Queensland where European pipes and tobacco are scarce, segments of bamboo are used. One extremity is closed with beeswax if necessary and a small hole drilled close to it at the side. Tobacco smoke from any ordinary pipe is expelled into the open end of the bamboo and inhaled through the small hole by the other individuals to whom it may in turn be handed. The process may be reversed, the smoke may be expelled through the small hole and inhaled at the open end. Or the bamboo may be closed at both ends and two holes drilled laterally, one at either end, 'each answering its purpose as before. Whatever the variation, the segment acts as a reservoir, not only preventing waste, but also enabling several individuals to enjoy the benefits of one pipeful of tobacco. In addition to exhaling in the ordinary fashion—through the mouth—smoke is very commonly ejected through the nostrils.'

Recently Thomson (1939) has given an illustrated account of the tobacco pipes used in North Queensland and Arnhem Land and describes the method of smoking. The Arnhem Land pipes have a history which is very different from that of the North Queensland pipes, and it need not be considered here. I am indebted to him for some further information.

Two main types of pipe are in use in the Cape York peninsula. One of these, the *marapi*, is a Papuan type with a dorsal hole which has been adopted without modification. Thomson points out that it is not in reality a smoking pipe but is employed purely as a medium for passing smoke around and is always used in conjunction either with a wooden pipe, *paipo*, which may be a European briar pipe or a more or less crude model of one, cut out from a single piece of wood, or with a cigarette rolled in paper-bark (*Melaleuca*). The wooden pipe is used mainly on the eastern side of the peninsula and less commonly on the western side, where the cigarette is in more general use. The cigarette may be inserted in the dorsal hole and the pipe smoked in the typical Papuan manner, or it may be smoked as a cigarette. In this case, as also with the wooden pipe, the smoke is inhaled deeply, the mouth is applied to the open end of the *marapi* and the smoke is expelled into the hollow cylinder. Meanwhile one of those sitting nearest to the smoker applies his mouth to the dorsal hole and inhales the smoke, which he swallows and finally exhales through his nostrils. Thomson gives a photograph of a man blowing into the open end of a pipe and another man inhaling the smoke through the dorsal hole at the same time.

The other type is a modification which appears to have been developed on the peninsula; it has two dorsal holes and is much shorter than the former. It is used in the same manner. This type is confined to the western side of the peninsula and is the dominant type of pipe among the Wik-speaking peoples of the Lower Archer river district, where it is known as *tork*. Both types are made of bamboo or wood; the wooden pipes are always made from hollow branches of iron-wood or eucalyptus. These branches are not bored artificially, but the hollowing frequently occurs in a natural state.

Smoking 'is essentially a social or communal undertaking'. Thomson says: 'Although tobacco was never grown by the natives of Cape York Peninsula there is no reason to suppose that it has not been known in this region for a very long time. . . . The Koko Ya'o people of Lloyd Bay, which is the greatest stronghold on the Peninsula of hero cults of Papuan type, stated that the people from Torres Straits came frequently in big canoes to Mitirindji (Quoin Island) off the mouth of the Pascoe River, to obtain supplies of stone for their axes, and it is probable that tobacco was one of the important articles of exchange brought down during these voyages.'

Pipes with two dorsal holes are characteristic of the Gogodara, who live on the northern coast of the estuary of the Fly. There is no evidence for any connexion between the peoples of these two localities.

There are several pipes in the British museum labelled as coming from Cape York, and presumably from Somerset in Albany passage. I have no doubt that they were obtained there, but from the style of the decoration it is evident that they were made by islanders, probably of Nagir, Yam, or Tutu, who doubtless were visitors.

*Eastern area of the Western Division: Daudai and Dudi**Daudai.*

The ill-defined district of Daudai is the country drained by the Binaturi and Oriomo and extending to the coast. The original inhabitants are spoken of as 'bushmen' and belong to an old 'Papuan' stock.

There is good evidence (Haddon 1935, pp. 49–51, 270) that at an unknown date a long time ago marauders from Kiwai, and perhaps from other islands in the estuary of the Fly, so harassed the Hiamu of the island of Daru that they fled southward. Doubtless the Kiwaians made numerous expeditions to the western coast and islands during a considerable space of time. A movement about the beginning of the last century took place (Haddon 1935, pp. 211, 212) during which Turituri and Mawata were colonized by Kiwaians who had previously settled at 'Old Mawata' on the coast opposite to Daru. The country about 'Old Mawata' was originally inhabited by a very backward people; when I visited it in 1898 (Haddon 1901, p. 111) there were only a few temporary simple huts and apparently there was no permanent population of any size in the neighbourhood. I have given (1935, pp. 210–41) a brief account, with references, of the history of the area and a more detailed description of the great ceremonies of the Kiwaians, especially those of the Mawata group.

Gill (1876, p. 233), in 1873, found a flourishing tobacco plantation close by 'Toro-toram' (? Turituri); quantities of the seed were preserved on the verandah of the house of Auta, a 'chief'. Landtman (1927, p. 42) says the pipe is called *marabo* and the bowl *toruku* at Mawata and as far east as Parama, and also at Djibaru, a village in the bush west of the Binaturi.

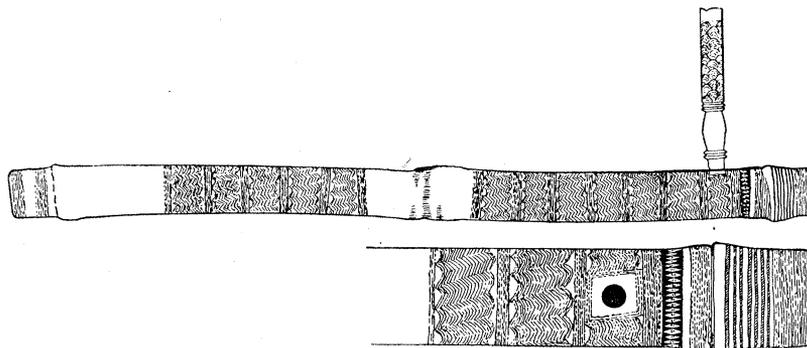


FIGURE 65. Beautifully decorated pipe with bowl. Dorsal surface of fore end also shown. D. by Dorothy Epps, Mawata, B.M. 9979. Rubbings of part of decoration shown in figure 4.

A beautifully decorated pipe in the British Museum, 9979, was obtained by the Rev. Dr W. W. Gill in 1872 at Mawata (figure 65). There is a scraped 11.4 cm. band about the central septum and another in front of the aft-septum. In the fore area are numerous transverse punctate lines followed by seven deeply cut transverse grooves which form six ridges. Aft of the septum are transverse lines and a band of small lozenges in relief; this is followed by seven bands, 36.2 cm. in total width, of numerous more or less rounded zigzags, separated by several transverse punctate lines. The unscraped postnodal area has five bands similar to the foregoing with a total width of

20.3 cm. The aft area has the skin entire, with transverse lines 0.84×5.1 cm. The bowl, 18.4 cm. in length, is carved as seen in the figure, the upper cylindrical part being covered with an imbricate pattern in punctate lines. A rubbing of part of the decoration of this pipe and bowl is shown in figure 4.

A Mawata pipe in the British Museum, 1906, 10-13.671, Cooke-Daniels 1904 expedition, has the skin entire. There are two broad bands in the prenodal area; in the fore band is the dorsal hole within a star and a heart-like design aft of it. On the left side is a dugong and on the right side what is probably the sucker of a sucker-fish (*Echineis naucrates*). In the aft band is a central scratched line upon which are built up enhanced lozenges that extend longitudinally across the band, the lozenges having a scratched outline. There are also four narrow bands with simple patterns. The decoration is mainly in jagged lines. 37.2×6.2 cm.

There are two pipes in the British Museum, 1906, 10-13.672, 673, from Turituri which are decorated in a manner characteristic of the estuary of the Fly.

I obtained two pipes in the temporary village of Old Mawata in 1898. One is decorated more or less in the Kiwaian style, whereas the other has distinct affinities with the pipes of certain 'bush' peoples.

Pipe Z. 8233 has the postnodal area scraped and also the aft part and the whole under surface of the prenodal area. Thus there is left a panel, 20.5 cm. in length, of entire skin on the upper half of the prenodal area. The decoration (figure 66A) consists of a series of incised transverse pointed plain ellipses, which may be regarded as modified lozenges. Most have a central jagged spot, but in three larger ones there is a central ellipse enhanced with jagged lines. The constricted interspaces are enhanced with coarse jagged lines and are so prominent that they might be considered as forming the real pattern. Along each lower border of the panel are two scratched lines between which are spaced enhanced triangles. 65.6×4.5 cm.

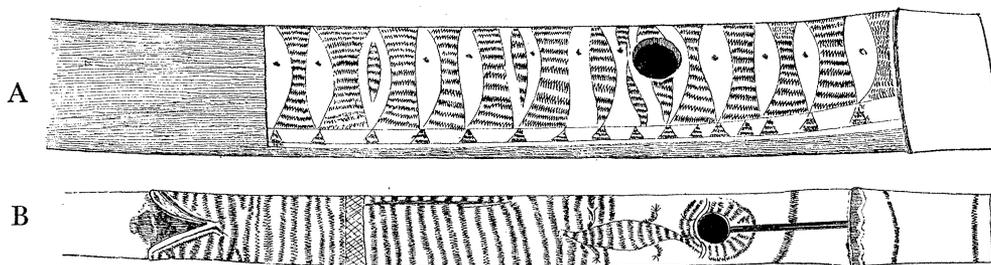


FIGURE 66. Decoration, fore ends of two pipes, Old Mawata. Cm. A, Z. 8233; B, Z. 8234.

Pipe Z. 8234 is long, thin and of a dark colour. The postnodal area is scraped, but the aft area has the skin entire with five transverse lines; the rest of the pipe fore of the central septum has the skin entire. Fore of the septum the skin is cut V-wise to embrace the dorsal triangular scraped leaf-scar (figure 66B). There are short radial lines surrounded by a circle around the dorsal hole, and aft of it is a crocodile facing aft, the body of which is enhanced with transverse lines. The crocodile is partly obscured by transverse lines which are continued to the aft end of the prenodal area. All the decoration is in coarse jagged lines, except for the scratched outline of the crocodile and a

narrow cross-hatched band. The scraped longitudinal lines in the internode are accidental flaws in the pipe. 71×3 cm.

There is one anomalous pipe, Cambridge Z. 8235, from Parama (Parem or Bampton island), an island off the south-east coast of Daudai. The fore and central parts of the pipe are scraped, leaving two broad bands of entire skin. The artist first incised transverse lines so as to produce secondary bands in the two unscraped bands; there are four of these in the prenodal band and five in the postnodal. Then triangles were incised in each secondary band in such a manner as to make the bases and apices in one secondary band coincide with those of the next band. The alternate triangles are well burnt. Thus the general effect is of white and black bisected lozenges, but it is evident that the lozenges were not drawn as such. The pipe has a striking appearance. There are no jagged lines. 74.2×5.5 cm.

In the British Museum is a pipe from Parama, given to the Rev. E. B. Savage in 1889 by the Miriam teacher then stationed there. Savage gave it to me and I gave it to the British museum. The skin is entire. The prenodal area is decorated with two bands of large lozenges enhanced concentrically by internal repetition and the triangular interspaces by horizontal lines interrupted in the middle. The style, and the coarse jagged lines (similar to figure 3B) point to a provenance from Dudi or the estuary of the Fly. The numerous isolated figures on the postnodal area are in punctate lines and represent two men with dugong harpoons; two dugong, one crocodile, sea-snake, shark, and hammer-headed shark, two ray, and two starfish (Haddon 1912, fig. 305C, E, F, I, J, K), are in the style of Torres Straits.

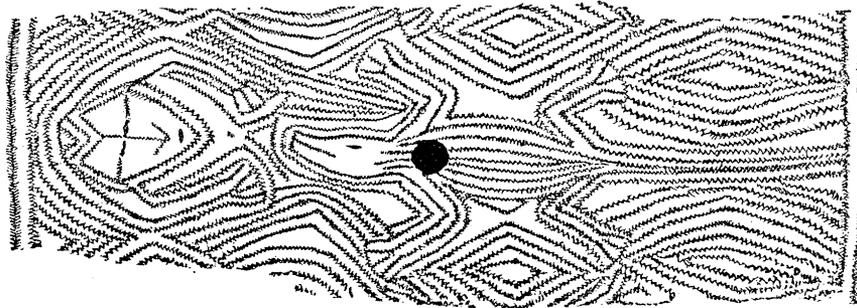


FIGURE 67. Reversed rubbing, part decoration of pipe. Dorsal hole at shoulders of one of the crocodiles, $\frac{1}{3}$ nat. size. Probably from Daudai. Liverpool 5010 M.

There is in the Liverpool museum a peculiarly interesting pipe, 5010 M, which has no provenance; it may have come from Daudai or even farther west. The skin is entire except for a scraped 3 cm. band at the fore end, a 2 cm. band on each side of the central septum and a 4 cm. band at the aft end. The whole of the decoration is in coarse jagged lines. There are two transverse lines fore and aft of each decorated area. In the median dorsal (figure 67) and the median ventral surfaces of the prenodal area is a human face with arms, and a crocodile. The interstices are occupied by concentric lozenges. Two narrow bands, of two lines each, divide the postnodal area into three subequal bands, except on the dorsal surface, where they are interrupted by a crocodile. In front of this crocodile is a human face with arms; the rest of this fore band is

enhanced with concentric chevrons, as is the central band on each side of the crocodile. These chevrons are so disposed as to form concentric lozenges about the narrow fore band on the ventral surface. In the aft band is a concentric lozenge under the curved tail of the crocodile and a face with arms on the ventral surface. The crocodiles face the central septum. All the faces look away from the septum except the ventral one of the postnodal area. 80×5.7 cm.

Dudi.

The west coast of the estuary of the Fly, but probably not far inland, is generally known as Dudi; it may be taken to extend from Sui to Tirio and Baramura.

A pipe from Sui, Farnham museum, 1085, collected by the Rev. E. B. Savage about 1890, has two internodes; the aft one is quite plain. There are toothed jaws at the fore end. The dorsal hole is in a broad lozenge formed by concentric coarse jagged lines. The rest of the decoration of the prenodal area consists of irregular concentric lozenges, their interspaces being filled up with concentric chevrons. The whole is carelessly executed in coarse jagged lines. The long bowl has a somewhat elaborate beading at its centre.

An old pipe from Sui, Horniman museum, 694, has two internodes. The median dorsal line of the prenodal area is scraped, as is the ventral surface and the postnodal area. At the fore end of the pipe are irregularly spaced lozenges with the intermediate areas enhanced with jagged lines. The lateral panels of the prenodal area are scratched to form alternate narrower and broader transverse bands, the latter from 1 to 1.5 cm. broad and enhanced with spaced longitudinal jagged lines. Ladder-like bands of this kind are found as part of the decoration in pipes from Ipidarimo. The bowl is 23.4 cm. long and has a carved central band. 73×5.5 cm.

Robert Bruce gave me in 1898 three pipes, Cambridge Z. 8236 (77.2×5.6 cm.), 25. 660 (80×5.1 cm.), and Z. 8237, from an unidentified village named Duari in Dudi. The first two are as alike as two pipes can be and bear a close resemblance to the Iasa pipe (figure 72A). The only essential difference is that in the main band of the prenodal and postnodal areas there is only one pattern instead of two.

A large pipe from Duari, a place that I cannot locate, Z. 8237, has the skin entire. In the fore area are two narrow bands, one with jagged longitudinal lines and the other with a zigzag; between them is a band of irregular plain lozenges formed by crossed scratched lines; the triangles are enhanced with jagged lines. In the middle of the prenodal area are three narrow widely spaced incised bands enhanced with short longitudinal lines and with zigzags in jagged lines; they enclose two broad bands which contain irregular lozenges and enhanced triangles of the same technique as in the fore area. Between this central decorated band and the central septum are M-shaped designs, mainly in jagged lines which may represent breast scarifications. In the postnodal area the leaf-scar is produced into a large backwardly projecting scraped triangle, at the apex of which is a double M of parallel scratched lines, with transverse jagged lines. On the ventral surface is a very crude representation of a two-masted ship with sails, and on the right side an anchor with its chain. The 26.5 cm. bamboo bowl has five prominent bands at its centre. 88×6.7 cm.

Two pipes collected by Landtman in 1910 at Ipidarimo, a village a few miles east of Madiri, resemble pipes from Kiwai. He says (1927, p. 42) that in Dudi the pipe is called *waduru* and the bowl *aturupo*.

Pipe, Cambridge 1912, 791.633, has one internode and the skin entire. There are two widely separated 5.5 and 5 cm. bands of incised lines, each containing a series of independent crossed incised lines. The triangles thus formed with the boundary line are enhanced with coarse jagged lines. The general effect of the decoration is of plain lozenges. 41 × 4.7 cm.

Pipe 1912, 791.639 is scraped at the fore end as far as the dorsal hole and for 4.5 cm. aft of the central septum. Aft of the dorsal hole is a band of two incised transverse lines with coarse short jagged longitudinal lines between them. The same motive is repeated twice at the fore end of the plain unscraped aft portion of the pipe. The main decoration consists of narrow plain stripes outlined by incised lines which form a band of large irregular lozenges, somewhat resembling those shown in figure 72B. The lozenges and interspaces are enhanced with very coarse jagged transverse lines. 56.2 × 5.2 cm. A pipe from Ipidarimo with something like the same decoration is illustrated by Landtman (1933, pl. xxvii, 665). Both ends of this pipe are scraped. The ladder-like transverse bands are found on other pipes from the estuary of the Fly and on a pipe (figure 79C) from the estuary of the Bamu.

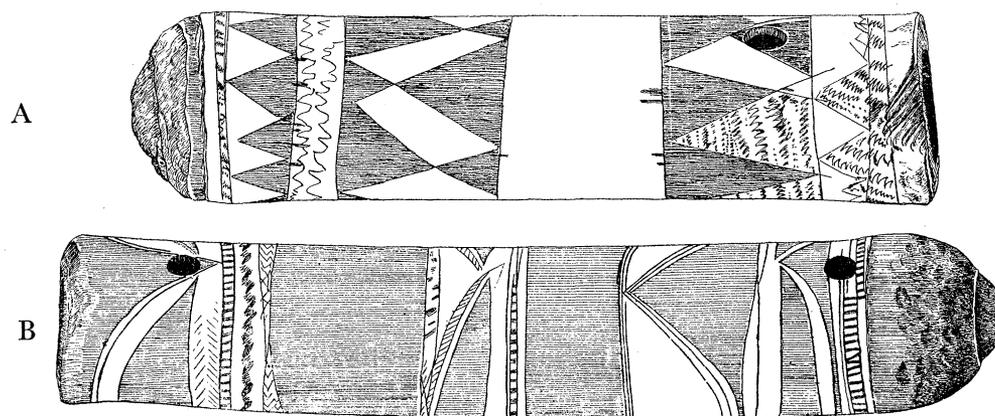


FIGURE 68. Pipes (coll. G. Landtman). A, Tirio, Cm. 1912, 791.642; B, Madiri or Tirio, Cm. 1912, 791.645.

Landtman gave to the Cambridge museum three pipes which he collected at Tirio and Madiri, two neighbouring villages. They are short and thick and consist of one internode.

Pipe 1912, 791.642, Tirio (figure 68A), has at the fore end small scratched triangles, either plain or enhanced with jagged lines. In the bowl area is a broad band of large triangles. Aft of the central plain band is a similar band partly of large triangles and partly of two rows of smaller triangles; owing to the irregularity in size of these the resultant spaces are trapezoids. Aft of this is a band of small triangles. All the triangles are incised and the alternate ones are enhanced by scraping and imperfect burning. The decoration is very carelessly executed. The upper surface of the pipe is disfigured by casual burning and scars. 32.5 × 7.5 cm.

Pipe 1912, 791.640, Madiri, has a large plain panel which covers nearly its whole surface. There is a deep V-indentation pointing inwards fore and aft on the dorsal aspect, the dorsal hole being near the apex of the fore indentation. The panel is surrounded by a double incised line filled in with various kinds of hatching. The ends of the pipe including the indentations are scraped. 43×6.2 cm.

Pipe 1912, 791.645, Madiri or Tirio (figure 68B). The background is lightly scraped; the darker colour and polish of the whole pipe are due to constant handling. At each end and in the centre there are narrow transverse bands of whole skin, with two incised transverse lines which are enhanced with short thick longitudinal lines, and at one end of the pipe the band is broader and also contains a zigzag in jagged-line technique. There are also narrow or broad, more or less lanceolate, slightly curved bands which mostly have lines along their borders; their apices in some cases meet in the dorsal median line. These bands or areas might possibly be a modification of the 'leaf' designs of the middle Fly (p. 51), though not executed in the same manner. Each end of the pipe is closed by a septum and there are two dorsal holes as in Gogodara pipes. There are some indistinct crossed scratched lines in the two broad scraped bands. 40.5×7.4 cm.

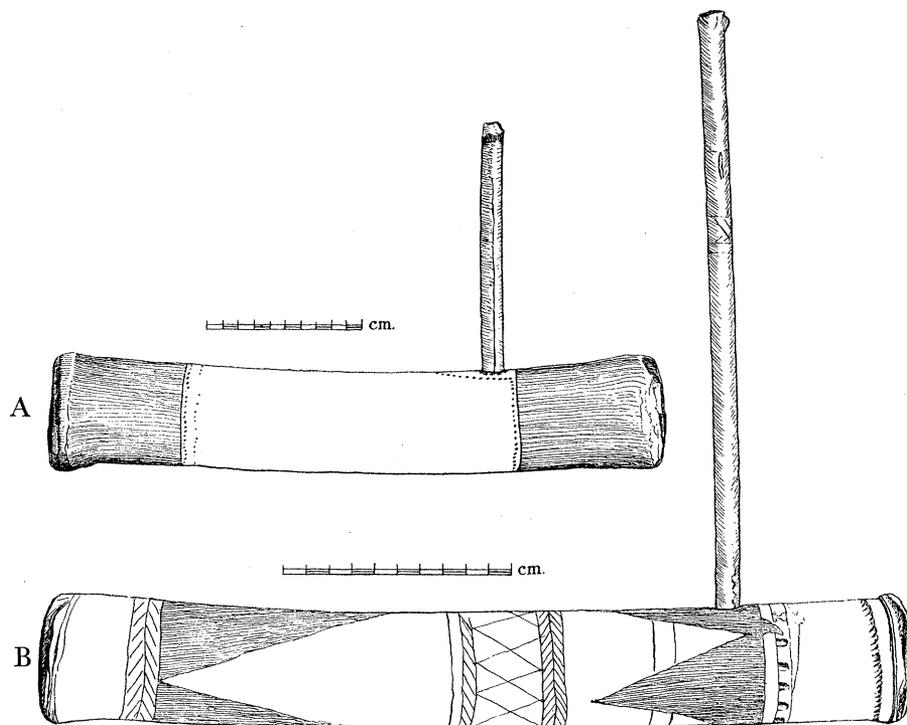


FIGURE 69. Pipes with bowls, Tirio, Ph., courtesy of A. B. Lewis. A, Ch. 142872; B, Ch. 142873.

There are two pipes in the Chicago museum from Tirio. One, 142873 (figure 69B) (and Lewis 1924, fig. p. 4), is of one internode. The scraped and unscraped portions are indicated in the illustration, as are the several scratched bands. The very long tubular bowl, 30.5 cm. in length, is trimmed below for about 2 cm. to fit into the dorsal hole. 38.5×5.5 cm.

The other pipe, 142872 (figure 69A), is also of one internode. The ends are scraped for some distance leaving a broad band of entire skin which has one fore and two aft

rows of dots near the border; there is a chevron of dots enclosing the dorsal hole. The tubular bowl, which is split on one side, is 18.5 cm. long. 41×6.5 cm.

Landtman (1933, pl. xxvii) illustrates two pipes, *waduru*, from Tirio. No. 667 has a broad band of whole skin from which project fore and aft long narrow triangles, the spaces between them and the ends of the pipe being scraped. A Gogodara pipe from Iu (p. 102) has a similar scraped dog-toothed band at each end. There are in the main band three concentric lines which form incomplete circles with a central hollow star, which also is incomplete; broken rings are characteristic of the decorative art of the

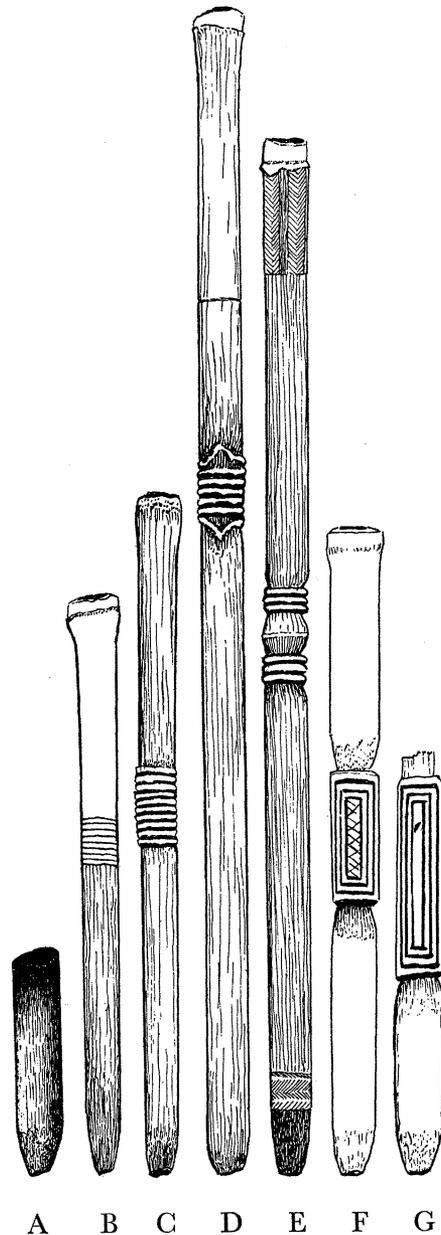


FIGURE 70. Bamboo bowls, *aturupo*, Fly estuary. Cm. A, O.H. 323A, 10×1.9 cm. B, 1910, 12. 171, 25.8×1.5 cm.; C, 25.241C, 30.4×1.6 cm.; D, 1910, 12.168, 51.5×1.7 cm.; E, 1910, 12.170, 46×1.5 cm.; F, 1910, 12.166, 28.8×2 cm.; G, 1910, 12.167, 18.7×2 cm.; B, D, G, presented by G. Landtman.

Gogodara. There is also a narrow longitudinal incised zigzag flanked above and below with scraped triangles in series.

No. 668 has a narrow band of whole skin at each end and a broad central band which has incised transverse lines and cross-hatching at each end. The two scraped bands contain unscraped disks with crescentic strips of unscraped skin around them.

These two pipes and 1912, 791. 645 have a style of decoration which is unlike anything found in the estuary of the Fly or west of it, but it is characteristic of the Gogodara pipes, as are the two dorsal holes. They may have been imported directly from Gogodara, but in any case they indicate intercourse between the two areas.

Estuary of the Fly

There are numerous pipes in museums labelled as coming from the 'Fly River'. They may have come from any of the large islands or from the banks of the estuary of the Fly, more particularly from the right bank. The following account is mainly concerned with those pipes which have a definite provenance.

Beaver (1920, p. 171) says that a considerable amount of tobacco is grown locally in Kiwai island, but most of it is imported from Daumori (Domori) island (at the apex of the estuary) or the mainland. He and Landtman (1927) describe the method of smoking; both allude to blowing down the bowl to fill the pipe with smoke. Landtman (p. 42) says that a small quantity of crumbled tobacco, wrapped in a little piece of banana or *seporo* leaf, is placed in the slightly enlarged opening of the bowl. A pipe is passed round to two or three men before being refilled. A pipe is generally prepared by somebody else for the benefit of the smoker or smokers as an act of attention. On p. 181 he says that offering a guest tobacco only and not food implies a hostile intention. The visitor, tired and hungry after his journey, is supposed to turn giddy when smoking and will be easily killed. With food it is different; that makes him strong and he can retaliate if attacked.

Landtman (1917, p. 87) narrates the legend of Bidedu, son of Baduame, the head man of the Bugamo or Kuru people, living at the sources of the Binaturi river, who provided the Mawata people with all kinds of fruit and other garden produce, including *gamoda* (kava) and tobacco.

Landtman (1933, p. 66) says that pipes are among the things placed on the owner's grave at his death. He also states that in the estuary of the Fly and along both banks the pipe is called *waduru* and the bowl *aturupo* (*aturupa*, *aturuka*, *aturuko*).

The typical bowl of the area is a bamboo tube of variable length (figure 70). Some are quite plain and usually short. The others vary in length and are partly scraped; the

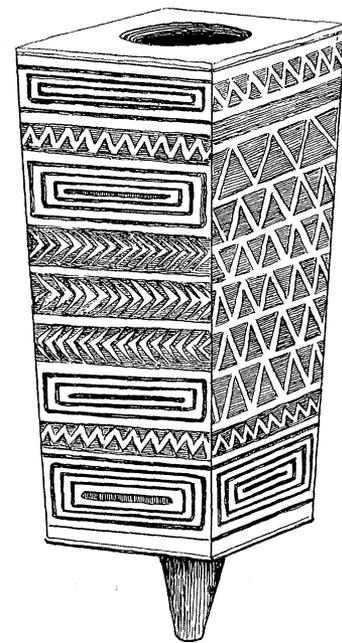


FIGURE 71. Massive quadrangular wooden bowl. Glasgow, 89. 67. du. S., R.

skin is entire at the central carved band or at the beads. Where the skin is retained elsewhere it is plain or may have simple incised patterns.

I know of two massive quadrangular wooden bowls with a conical projection at the base to fit into the dorsal hole of the pipe. One was given by R. Bruce to the Glasgow museum, 89.67.du; presumably he obtained it in Mer, Torres Straits, as it is labelled 'terkok' (*tarkok*). The deeply incised patterns on two sides are shown in figure 71. One of the other surfaces is like the left hand of the illustration; the fourth side is incised in a reticulate manner. The recessed spaces are variously filled in with red, white, and blue pigment. On my showing a sketch of this bowl in Mer in 1898, it was regarded by the natives as being a foreign type. Total length 18 cm.; length of bowl 14.5 cm.; about 5.5 cm. square above and 4.4 cm. below. The other bowl, which is in the British museum C.C. 94.120, is labelled 'aturupu, Mouth of the Fly', and probably was collected by James Chalmers. It is figured by Partington and Heape (1895, pl. 188, 1). It also is deeply cut; the triangles are alternately coloured red and white, as is the design on two sides, which I believe represents a nose, the background of which is coloured blue. 13.4 × 4.5–4.2 cm.

Pipes of group A.

There is a distinctive group of pipes which, as we shall see later, bear some resemblance to a group from the Mekeo district. The skin is entire in the typical examples.

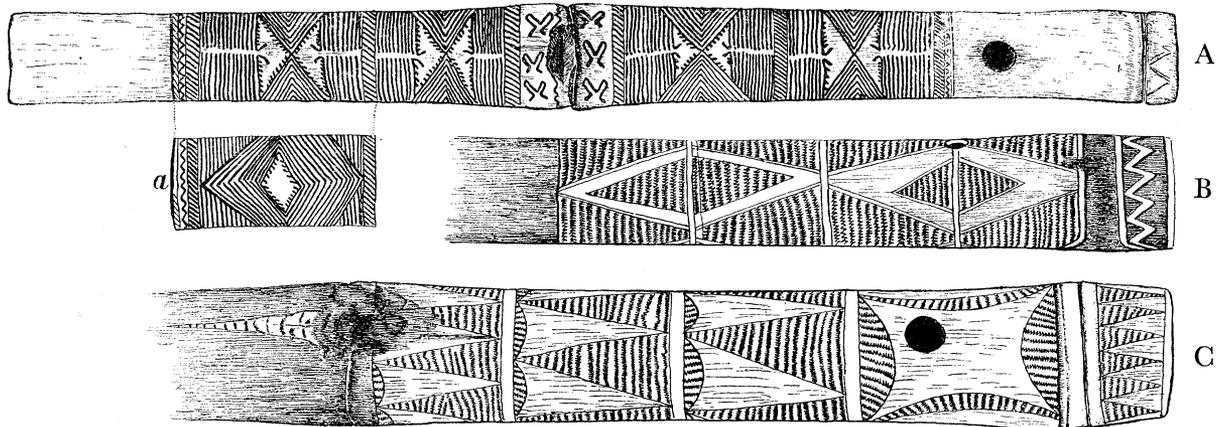


FIGURE 72. Pipes, Kiwai island, Cm. A, Iasa, but said to have come from Dudi, Z. 8244. 73.3 × 5.9 cm. *a*, aft band of same pipe. B, probably Kiwai Island, 25.241A, decoration extends 26.7 cm. from fore end, rest of pipe scraped. 68.3 × 4.3 cm. C, Kiwai island, Z. 8240, central septum, 35.5 cm. from fore end, rest scraped. 68.5 × 5.9 cm.

The Cambridge pipe, Z. 8244, which I collected at Iasa, Kiwai island, in 1898 (but it was said to have come from Dudi), may be taken as typical, 73.3 × 5.9 cm.; variants from it are noted. The bowl area and the aft end are plain (figure 72A). On each side of the central septum is a clear space decorated with representations of women's breast scarifications (Haddon 1912, fig. 11). In Z. 8249A there are instead transverse zigzags in jagged lines. The decorated parts of the prenodal and postnodal areas have

three narrow bands bounded by incised lines; the interspace is enhanced with oblique jagged lines, but they are transverse in most of the other pipes. Each intermediate broad band is decorated with lateral concentric chevrons the bases of which meet their fellows of the opposite side in the median ventral line, and form a definite lozenge (cf. figure 72B). In some pipes the bases of the chevrons are separated by a clear median ventral line. The apices of the chevrons meet on the median dorsal line. The area between the chevrons and the narrow transverse bands is partially filled up with transverse lines which are separated by a gap in the median dorsal line. Where there are clear spaces, as in the two dorsal triangles and the ventral lozenge, the bounding lines are provided with a fringe of short lines. The fringes are absent from Z. 8249 A and B and the fore pattern of 25.241 B, but are present in the aft pattern. In pipes 25.241 B (with only one internode), Z. 8249 A, and in the two Duari pipes 25.660, Z. 8236, there are only two sets of concentric chevrons with their ventral lozenges instead of the four shown in figure 72A.

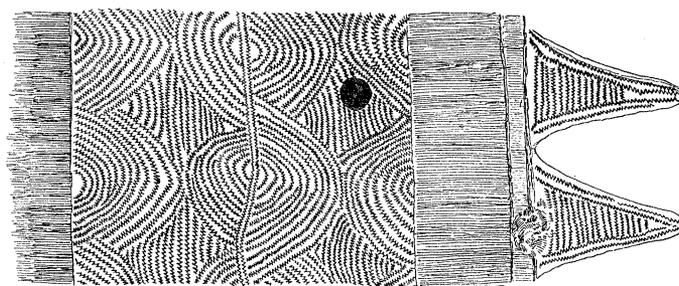


FIGURE 73. Decoration of pipe, 'Fly river'. Cologne museum 31356. R.

A pipe, Z. 8249B, collected by James Chalmers, belonging to this group has the postnodal area scraped. The prenodal area has lateral concentric chevrons in very coarse jagged lines. There are three dorsal and four ventral unfringed lozenges, which as they interdigitate leave no room for transverse lines. 70.8 × 4.5 cm. There is a pipe very similar to this in the Farnham museum, 1085, from Sui, but the decoration of the prenodal area is carelessly executed. The postnodal area is plain. At the fore end are toothed jaws. The long bowl has several beads at its centre. Neither of these pipes has narrow transverse bands.

A pipe in the Cologne museum, 31356, from the 'Fly river' is 79 cm. long. At the fore end are 9.5 cm. jaws without teeth and decorated with lines. There is a 7.5 cm. fore scraped band followed by an unscraped 22 cm. band. The rest of the pipe is scraped. The unscraped band is divided in half by two transverse lines (figure 73). On each side of these are concentric bowed lines arranged in such a manner as to give the effect of a guilloché or rope pattern, but evidently this was not intentional. A similar effect has been noted for Torres Straits (figures 56, 57A); in neither area has a definite pattern of this kind been evolved. The rest of the decoration needs no comment; all of it is in coarse jagged lines. This may be a Dudi pipe, and it appears to be allied to the foregoing.

The typical example of this group (figure 72A) was said to have come from Dudi, and on p. 83 reference is made to pipes from Duari, Dudi, which are very similar in

their decoration. It must be left an open question whether this type is common to both sides of the western mouth of the Fly or whether it had its origin in Dudi.

Pipes of group B.

There is a large group of pipes from the estuary of the Fly which bear a resemblance to some of the more simply decorated pipes from Torres Straits. They, too, may be wholly or partially scraped or not at all, but it is characteristic of the area that a large number of the pipes are more or less scraped. Decoration is by means of fine or more frequently coarse jagged lines within scratched or lightly incised lines. Punctate lines scarcely ever occur.

When the pipe is almost wholly scraped, the fore area has the skin entire and the typical decoration consists of lozenges bounded by two incised lines and connected by a plain transverse band; the interspaces between the lozenges are burnt (figure 74B), or the interior of the lozenges may be also burnt (figure 74A).

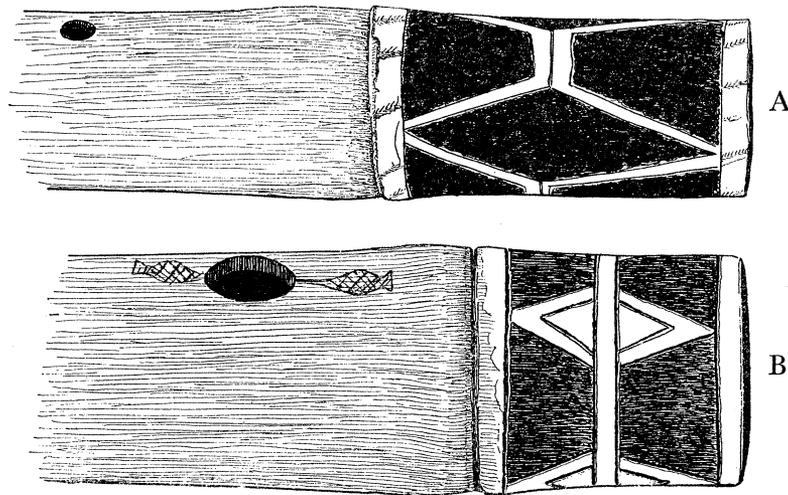


FIGURE 74. Fore ends, almost wholly scraped pipes; scratched figures of dugong or fish fore and aft of dorsal hole; designs on scraped areas are rare. A, Cm. Z. 8243, 64.5 × 3.9 cm. B, Cm. Z. 8245, 59.5 × 5.2 cm.

The postnodal area is wholly scraped in a few pipes, as in figure 72B, C. In a few pipes the fore and the aft areas and a band about the central septum are scraped (figure 77). In some pipes a broad central band of whole skin alone is left (figure 76A).

A pipe in the Dresden museum, (1883) 4489, from the 'Fly river' is scraped all over except for a narrow band of small lozenges in the fore area and for two 20.6 cm. longitudinal panels on each side in the fore part of the prenodal area; the panels are decorated with very coarse jagged transverse lines (figure 3C).

Several pipes have the prolonged fore end cut into jaws which are toothed in a pipe from Sumai in the Horniman museum, 694. One of the jawed pipes in the British museum from the 'Fly river', +3402 (Partington and Heape 1890, pl. 318, 2), has jaws 15.5 cm. long. A Cambridge pipe, 1912, 791.638, from Kiwai, collected by Landtman, has jaws 9 cm. long at the aft or open end; it is difficult to understand how it could have been smoked. There is a hole in the fore septum which is plugged with pith.

A Kiwai *waduru*, Cambridge, 1912, 791.632, has the fore area greatly prolonged; this elongation has a large oval perforation on each side (figure 75); on the ventral surface there is a scraped flying bird. The fore area and a central band are decorated with curved stripes; aft of the central band is a band with indeterminate designs. The other bands contain lozenges formed by crossed lines. 56.5 × 5.4 cm. There is a pipe in the British museum, 1906, 10-13.1176, with an analogous orifice, but it is toothed so as to look like jaws.

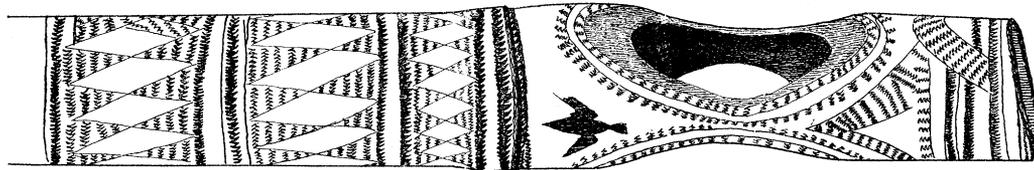


FIGURE 75. Pipe, *waduru*, fore end, with perforation. Kiwai island. Cm. 1912, 791.632; 56.5 × 5.4 cm. Coll. Landtman.

The fore area may be plain or have a band of triangles or lozenges in the usual incised and jagged technique. In a Cambridge pipe, 25.241 A (figure 72B), there is a bold raised zigzag on a scraped background within two transverse beads; the zigzag is obliterated in the median line at the ventral leaf scar, which is scraped to form a large lozenge; the aft bead bends up close to the fore end of the pipe.

The dorsal-hole area is generally treated as part of the prenodal area. Usually the dorsal hole bears no relation to the pattern. In a Cambridge pipe, Z. 8244 (fig. 72 A), the dorsal hole is in the lozenge-shaped space between large concentric coarse chevrons of jagged lines within a 12.5 cm. band. Near the aft end of this pipe is a 10 cm. broad band of irregular transverse zigzags of jagged lines. The technique of these two bands is similar to that of the pipes of group A. On each side of the scraped band about the central septum is a band of large triangles of the technique of group B. 73.3 × 5.9 cm.

With but very few exceptions the decorated areas of whole skin are divided into bands of various breadths by encircling incised or scratched lines. The broader bands, instead of being divided by mere lines, are separated in some cases by narrow bands of two or more lines; the space between the lines may be enhanced with longitudinal (transverse to the band), oblique or zigzag lines, or with chevrons, etc. Patterns formed entirely by simple incised lines are of very rare occurrence. In the broader bands the patterns are outlined in scratched or incised lines and enhanced with fine, medium or coarse jagged lines. It is evident that in decorating the pipes the artist when making triangles frequently considered each bordering line of a band irrespective of the other bands; thus the triangles of one band may not show any relation to those of another band, but there are pipes which show deliberate planning.

Lozenges are a definite feature in many pipes of this group, of which the pipe shown in figure 76A belongs to a definite type. A lozenge may be designedly built up by the base of one triangle on one side of a boundary line of a band coinciding with the base of a similar triangle on the other side of the line, as in figure 72B. In this pipe the border of the lozenge consists of a plain stripe between incised lines. Lozenges outlined

by a plain stripe, but within the one band, are found in a pipe from Ipidarimo (p. 84). In many pipes slanting scratched or incised lines are drawn in opposite directions from one side of a band to the other; the intersections of two successive lines sloping one way with two sloping in the opposite direction produce a lozenge (figure 5 (6)). Owing to lack of care the lozenges may be of different sizes and may be so distorted in shape as to become trapezoids (figure 77). The enhancement of the resultant triangles indicates that the lozenges are the pattern desired, but in a few pipes it looks as if the enhanced triangles were the desired pattern and the lozenges only secondary. Finally, lozenges may be definitely drawn as such, and if they do not actually touch one another the enhanced triangular interspaces may be continuous at their apices (figure 76A).

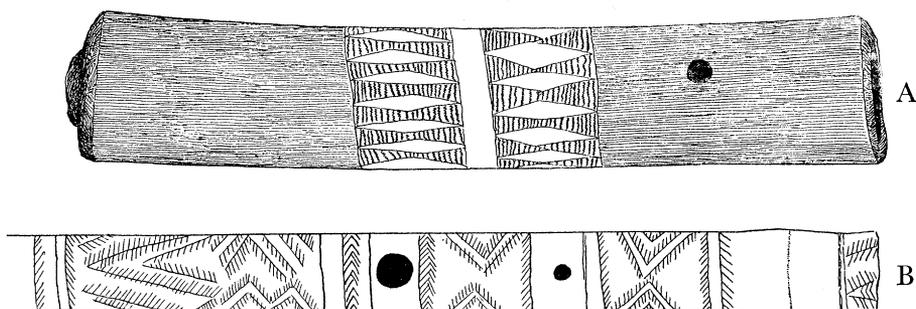


FIGURE 76. Pipes, Kiwai island. A, Iasa, Cm. Z. 8247, scraped save for broad central band, lozenges incised as such, interspaces enhanced with transverse fine jagged lines. Rather carelessly executed. 42×7.8 cm. B, Cm. 1912, 791.641, 49.5×2.8 cm.; portion of decoration drawn is 30 cm. long. Coll. Landtman.

There is in the British museum a pipe, 1906, 10-13.1146, without a provenance, which probably came from the estuary of the Fly. It somewhat resembles figure 76A. The central 16 cm. band of whole skin is divided into two by a line which was first incised and then burnt. Each band contains longitudinal designs outlined by an incised line and enhanced with varieties of punctate lines. Four of the designs are lozenges, the others are pointed ellipses provided with a fish's tail; only one fish is enhanced with jagged lines. As I have not seen an analogous decoration, it may be assumed that this was the expression of the artist's individual fantasy. The fishes evidently were suggested by the lozenges common to this type of pipe. 40.7×6.7 cm.

A peculiar feature of some pipes is the presence of what may be termed curved stripes; these consist of two approximately parallel scratched lines with spaced transverse jagged lines between them. In some pipes the boundary lines are not parallel but are wider in the centre than at their ends, as in the bowl area of figure 72C. Stripes are found on three Kiwai pipes collected by Landtman, Cambridge (figures 75, 77) (Landtman, 1933, pl. xxvii, 659). I made a note of the pipe, *waduru*, of the chief of Iasa, Kiwai, in the bowl area of which are curved stripes, the hole being in a lozenge-shaped clear area. Aft of this is a band with lozenges formed by crossed lines and enhanced transversely with jagged lines; the triangles are plain. Then follow two bands of plain lozenges formed by crossed lines, the triangles being enhanced transversely with jagged lines. An anomalous pipe with stripes is described on p. 82.

Curved stripes characterize pipes from Buniki (figure 80). A variant is seen in a Daudai pipe (figure 66A). A Kanum pipe (figure 27) has numerous irregular stripes, some of which are waved.

I obtained at Kiwai a pipe, Cambridge Z. 8241, scraped all over except for the fore area which is decorated in a manner somewhat similar to figure 74B, and for an 11.7 cm. unscraped transverse band in the middle of the postnodal area. This band is divided into five narrow bands by incised lines; in each band is a row of scratched triangles enhanced with transverse fine or coarse jagged lines. The bases of the triangles in the two aft bands coincide, so that the effect produced is of enhanced lozenges. 63 × 4 cm.



FIGURE 77. Pipe, richly decorated, Kiwai island. Cm. 1912, 791.643. Coll. Landtman.

A pipe probably from Kiwai, Cambridge 25.241 A, is scraped all over except for a 22.8 cm. band in the prenodal area. The raised zigzag at the fore area has already been noted. The unscraped band is divided into four bands by incised lines (figure 72B). In each band are triangles bounded by two incised lines close together, and within each triangle is a smaller one bounded by an incised line, or in some cases by two; these small triangles are enhanced with coarse jagged lines. The small triangles are so arranged as to produce lozenges. The large triangular spaces between the lozenges are also enhanced with coarse jagged lines. The fore end of the decorated portion is indented on the ventral surface to form a large scraped triangle at the leaf-scar.

One pipe from Kiwai, Z. 8240, has the postnodal area scraped; the other half of the pipe is decorated with triangles in the usual manner (figure 72C). There is an enhanced segment of a circle projecting from the incised aft boundary line into the base of each plain triangle, as is seen in some pipes from Torres Straits. On the dorsal and the ventral aspects of the bowl area is a panel made by similar enhanced segments of a circle projecting from the fore and the aft incised boundary lines and laterally by curved stripes, which are thick at one end and decrease to a point at the other. 68.2 × 5.8 cm.

The most richly decorated of all Kiwai pipes was given by Landtman to the Cambridge museum, 1912, 791.643 (figure 77), and is illustrated by him (1927, fig. 45*b*). There is a narrow scraped band at each end and one about the central septum. There are two dorsal holes at opposite ends of the pipe; the large one has been most used and at this end the septum has been perforated, but the hole is now plugged with a piece of pith, which suggests that the smaller hole was the original one; the septum at the other end is perforated. In the following description I assume that the large dorsal hole is at the fore end. The prenodal area is divided into a 19 cm. band, a narrower band, and a still narrower aft band. At the fore end of the first band are fringed double lines

which form triangles and a zigzag; at the aft end are three concentric curved lines most of which are fringed. Between these are scattered single- and double-bowed fringed lines, representations of feather headdresses, footprints of the cassowary in jagged lines, and on the ventral line a schematic lizard in jagged lines. The middle band has six concentric, mainly fringed, bowed lines springing from the boundary lines of the band; in five of these the dome-like centre of the curves is scraped and dark-stained. The third band contains plain irregular lozenges formed by crossed incised lines; the triangles are enhanced with transverse jagged lines. The postnodal area has two fore and two aft bands of lozenges, similar to the former, and a 12 cm. central band with concentric mainly fringed curved lines; on the left side is a schematic lizard in jagged lines. In all cases the curved lines are incised as are most of the fringes, but some of these are in jagged lines. 72.2 × 5.2 cm.

Untypical pipes.

There is only one example known to me of a pipe from Kiwai with bold designs made by deep cuts, with the sunken areas coloured red. This short thick pipe, Cambridge 1912, 791.644, was collected by Dr Landtman. There is a human figure on the dorsal and on the ventral surface (figure 78). In addition, there are a few simple designs in jagged lines: breast scarifications of women at the aft end, a concentric lozenge at the right side, and a wavy line on the nose and forehead of the dorsal figure. These may have been added later. The impression given by the carving is that the pipe came from the Bamu river, but the pipes known to me from the estuary of that river are very different, though, as stated on p. 96, Beaver refers to a similar technique. The pipe is illustrated by Landtman (1927, fig. 45e). 27.5 × 8 cm.

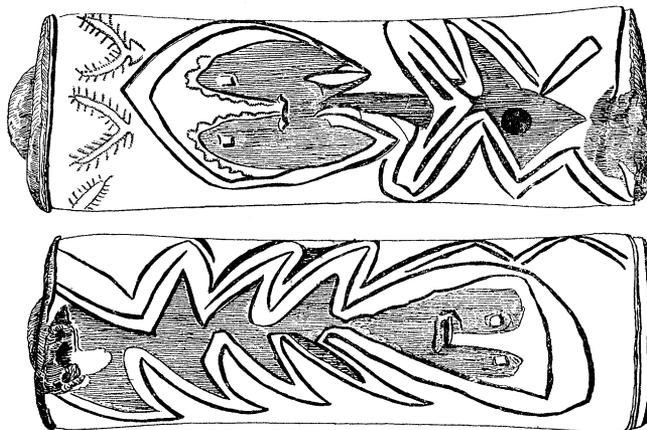


FIGURE 78. Thick short pipe, dorsal and ventral aspects, deep-cut stylized human figures, Kiwai island. Cm. 1912, 791.644.

Landtman collected at Kiwai a small pipe of one internode, 1912, 791.635, with a very broad central band, 21 cm. The ends of the pipe are scraped. The band is divided into three parts by two transverse scratched lines. The fore part has scratched triangles; they and their interspaces are irregularly enhanced in various ways. The central part has a few small triangles and a scratched lozenge and oblong, all of which are irregu-

larly and confusedly enhanced; the intermediate portions are decorated in a confused manner. The aft part is covered with irregularly placed confused designs. On the median dorsal line is a crocodile (?) with its head aft. Fore of it are scratched and slightly enhanced male and female sexual organs. On the ventral surface of the aft part are an incised palm tree (probably an areca palm) and a flower which was almost certainly copied from a calico print or from a picture. All the enhancement is in coarse jagged lines. 35×5.1 cm.

A short thick pipe, 1912, 791.634, collected by Landtman at Kiwai, is scraped except for a broad central band decorated with very numerous transverse irregular fine jagged lines. 31.2×6.1 cm.

Landtman collected at Kiwai a thin pipe with entire skin, Cambridge 1912, 791.641. The main scheme of the decoration consists of four transverse bands with isolated broad chevrons bounded by two fringed lines, with an intermediate clear space (figure 76B). The remaining decoration consists of fringed lines. All the lines are lightly incised. The character of the decoration is unlike that of any pipe known to me from Kiwai; the pipe may have been imported from the western mainland. There are fringed triangles on a pipe from Muralug (Prince of Wales island), Torres Straits, in the British museum, 6521, which has been incorrectly drawn by Partington & Heape (1890, pl. 318, 3). There is a small hole 11 cm. from the fore end, and 5 cm. behind it is a larger one. It may be supposed that the former was for a leaf screw and the larger one was subsequently made for a tubular bowl. 49.5×2.8 cm.

I obtained a small pipe, *piago*, at Saguane, Kiwai island, in 1898, Cambridge Z. 8238. It is scraped from the very small dorsal hole to the fore end and also in a broad band around the aft septum. The long unscraped part of the prenodal area is divided into two bands separated by a jagged line encircling the pipe. The aft prenodal and the postnodal bands are decorated dorsally and ventrally with longitudinal curved stripes consisting of scratched limiting lines between which are spaced transverse coarse jagged lines. Most of the pointed oval spaces between the converging stripes are carelessly burnt. The fore prenodal band has the same type of decoration but much more irregular, and only the space in the median dorsal line is burnt. The decoration thus consists entirely of curved stripes like those partially employed on a few pipes of the area. The pipe may therefore have been made locally, as the two scraped bands suggest. On the other hand, the type of decoration, except for the burning and scraping, is very like that on a pipe from Kapakapa, Central Division (figure 157E). In some pipes in the Central Division burning is combined with incised patterns. It is possible that this pipe was made by a Kiwaian who had resided in the neighbourhood of Kapakapa, which could easily have been the case. As the dorsal hole is very small, a leaf screw must have been used and not a bowl, which also is characteristic of the Central Division. 45×4.3 cm.

Estuary of the Bamu

The estuary of the Bamu is contiguous on the east with that of the Fly, and it contains four large islands: Dibiri, Naviu, Aramia and Bina. The Bamu river near its expansion into the estuary receives the Aramia river from the west. Higher up, the

Bamu is known as the Waiwoi and receives a much larger affluent than itself, the Aworra, from the north-east. The Bebea mouth of the Bamu flows between Bina or Damera island and the northern shore of the estuary, on which is situated the Buniki country.

Very little is known about the natives of the Bamu estuary and river. Beaver (1920, pp. 210–31) gives the best account of the people. L. A. Flint (1919) has described a *muguru* ceremony at Torobina, Damera. The mainland is low-lying and depressing. Beaver says (p. 228) that after you leave the mouth of the estuary there is scarcely a single patch of cultivation, as the people live mainly on sago. ‘With a population living in a semi-nomadic state and under pretty wretched housing conditions, one hardly looks to find any artistic traits, but it is a fact that the upper Bamu is celebrated for its fine drums and canoes. . . . Some rather good carving in relief is done on tobacco pipes, representing Toto-opu, a man’s head design, which is found on all sorts of ornamentation in the Bamu.’ I have not seen the tobacco pipes referred to.

Beaver also says that the most famous canoes in the west are built by the tribes of the northern half of Aramia island and have been exported as far as Torres Straits. The export trade is in the hands of the Waboda people, who make periodical trips for the purpose. Waboda is the most easterly of the islands of the estuary of the Fly. Beaver (p. 226) refers to people from Omati and Turama, rivers to the east, trading with the Buniki, and to sago being exported from Buniki to Kiwai. Though intermittent, there has always been intercourse between the natives of the estuary of the Bamu and those of the estuary of the Fly.

Sir William MacGregor (1892, p. 53) reports that on the Aworra, an eastern tributary of the Bamu, the natives said that they did not use tobacco. On the Dabura Arumo, a small river flowing into the Bebea mouth of the Bamu, the natives are said to grow carefully weeded patches of a violet-flowered tobacco.

At Wododo, a village on the north side of Dibiri island, I obtained in 1914 two pipes, *waduru*, which had the usual tubular bowl, *aturupu*, which is quite plain. One pipe, 1916, 143.20 (figure 79C), consists of one internode and has the skin entire. On each side are nine parallel stepped incised lines which extend along the whole length. There is a narrow band at each end containing a zigzag in relief. 42×6.7 cm.

The other pipe, 1916, 143.21 (figure 79B), has a thin bowl 31.7 cm. in length. The median dorsal line of the fore half of the pipe is scraped; on each side is a panel of whole skin, its upper margin is dog-toothed, and along it runs a series of irregular incised triangles enhanced with fine jagged lines. The right side of the prenodal area is scraped as far as the median ventral line, but the artist has left the skin of the other side entire except for a narrow scraped strip below the panel. There is a central transverse incised band of whole skin which is enhanced with a frond-like design of jagged lines. This is followed by a row of large incised irregular lozenges; the fore part of these is left plain but the aft part is enhanced with coarse jagged transverse lines. The fore triangular interspaces between the lozenges are similarly enhanced. The skin is scraped between the apices of the lozenges and as far as the aft end of the pipe. 43.2×6.9 cm.

At Waridirio, at the mouth of the Bibiri river, I obtained two pipes; one, 1916, 143.19, consists of one internode (figure 79A). It is scraped except for the decorated areas;

these consist of a broad band aft of the dorsal hole and of a chevron band that surrounds the pipe fore of the dorsal hole and a broader one aft of the transverse band. The transverse band is decorated with incised triangles all of which are enhanced with coarse jagged lines. The chevron bands are enhanced with a zigzag of coarse jagged lines. This pipe is decorated in a very careless manner, and in many places the scraping infringes upon the decorated areas. The thin bowl is 39.5 cm. long and has no beading. 30×7.5 cm.

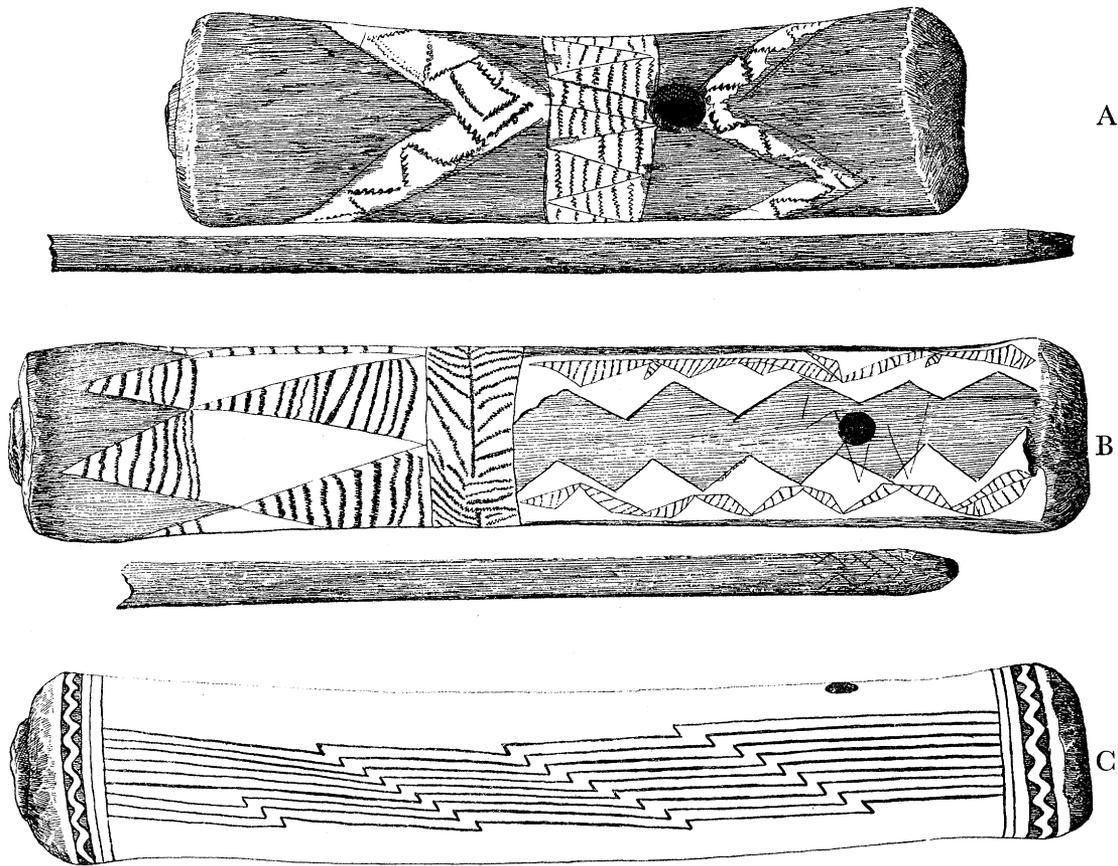


FIGURE 79. Pipes, Bamu estuary. Cm. A, Waridirio, 1916, 143.19 and bowl; B, Wododo Dibiri island, 1916, 143.21 and bowl; C, Wododo, 1916, 143.20.

An anomalous pipe also from Waridirio, 1916, 143.18, has a scheme and technique of decoration which so closely resembles that of pipes from the Rigo District Central Division (see pipe 27.1574) that it must have been made by a man who was intimately acquainted with that district. There are, however, many irregularities and modifications which prove that it could not have been made and decorated by a native of the Rigo district. Some of the cross-hatched elements of the pattern are also burnt. There is one small dorsal hole which has been filled up and a larger hole made for the thin tubular bowl which is 41 cm. long and has a double bead carved in its middle. As the pipe was said to have come from Kiwai the implication is that a Kiwai man went as an indentured labourer to a plantation in the Rigo district, made the pipe there which he smoked in the local manner, and on his return home reverted to his native method of

smoking. Labourers for plantations in the Central Division of Papua are frequently recruited from the estuary of the Fly and neighbouring regions. 38.2×6.1 cm.

At Buniki on the Bebea mouth of the Bamu I obtained in 1914 a pipe, *waduru*, 1916, 143.38 (figure 80). Bamboo is called *gagari*. The skin is entire except along the median dorsal line of the broad patterned bands, and four scraped triangles on the ventral surface. There is a narrow band of whole skin at each end of the pipe and also in the middle, each having two parallel incised lines enclosing spaced longitudinal jagged lines. The broad fore and aft bands extend round the pipe except on the median dorsal line. Each band is decorated with ten bowed areas or stripes resembling the three bands first mentioned. In the median ventral line are four scraped triangles, each bordered by a stripe like the other stripes. 34.5×6.2 cm.

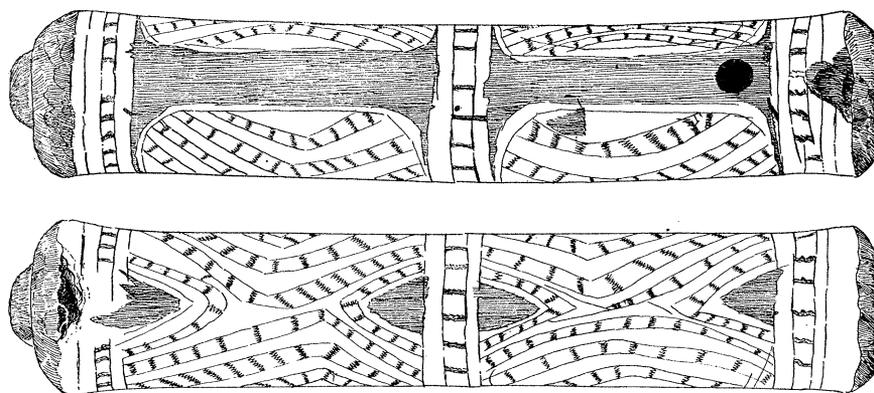


FIGURE 80. Pipe, Buniki, Bebea river, Bamu estuary; dorsal and ventral views.
Cm. 1916, 143.38.

I made a rubbing in 1914 of a pipe at Buniki which is very similar to the foregoing. The median dorsal line is scraped along its length and there is a central transverse scraped band which extends around the pipe. The fore and aft bands of whole skin are decorated as in figure 80.

Gogodara

Gogodara is now the accepted name for a group of peoples, formerly called Kabiri or Girara, who live in the low-lying country around the Aramia river which flows into the Bamu river near its mouth. The most southerly villages of Gaima and Bora are on the northern shore of the estuary of the Fly and their inhabitants have intermarried with Kiwaians. Lyons (1926, sketch map fig. 1) shows the village of Pogona, at 143° , surrounded by land belonging to natives of Kiwai island.

The Gogodara have been investigated by A. P. Lyons (1926) and especially by P. Wirz (1934*b*). Various aspects of their culture are given by W. N. Beaver (1914), G. Landtman (1927) and A. C. Haddon (1916, 1917*a*).

The culture of the Gogodara is distinct from that of their neighbours, and this is especially noticeable in their decorative art. The social structure has been elucidated by Wirz, who finds that the totemic-social system is analogous to that of the Marindanim.

The Gogodara are divided into two large exogamous groups which Wirz calls phratries, one with three and the other with four endogamous groups or classes, *udaga*, which have numerous clans, *gaua*. There are primary totems for the classes and secondary totems for the clans. The class totems, *gi*, are represented on all ritual objects, and all sorts of domestic objects are decorated with emblems or badges, *tao*, of the clan totems. These are mainly animals, but numerous varieties of croton and cordyline (*dracaena*) are employed as plant emblems.

Tobacco, *sakopa*, and bamboos, *keme*, and all objects made from bamboos, such as the tobacco pipe, *waduru*, are secondary totems of the Wagumisi class, which has the crocodile, *sibara*, and pig, *woi*, as primary totems (Wirz 1934*b*, pp. 465, 468). To the Wagumisi also belong as secondary totems a great portion of the swamp flora and fauna and the sea with its fauna. Wirz (p. 452) says that the *tao* is almost always cut into the epidermis of a pipe and usually duplicated, but on one side the *tao* is cut and on the other the totem animal.

It is obvious that the representations have for a long time been conventionalized, probably over and over again, so that most have lost what realism they may have possessed. The identifications here given are offered with reserve. Wirz has given drawings of a large number of emblems, but none of them quite corresponds with those on the pipes known to me.

Beaver (1920, p. 207) refers to various young plants being first planted out in beds and the soil well trenched. Low shelter sheds are erected to protect them from the hot sun. He does 'not recall having seen this system anywhere else in Papua, except in the Tabarum district, where it is in use for tobacco growing'.

Lyons (p. 336) states that 'special beds are prepared solely for the cultivation of *gamada* (*sika*) [kava] and tobacco (*sukup*). To the broken soil in the beds is added wallaby dung, that is laboriously collected on the plains, and ashes. The beds are covered by low-roofed platforms, called *sika-genama*, and enclosed by a fence.'

According to Wirz (1934*b*, p. 452) tobacco, *sakopa*, is usually planted near the communal house, *genamo* or *genama*. The leaves are dried over an open fire or tied to little sticks which are put into the leaf-roof over the fire. Special implements for the drying of tobacco leaves are a piece of the midrib of a sago leaf into which little sticks are stuck vertically, or a piece of palm leaf with the lateral ribs cut short. The tobacco leaves are stuck on these and the whole is put in the roof to dry.

The pipes, *waduru*, consist of one internode of bamboo; six pipes in our collection range from 35 to 46.5 cm. in length; Wirz says 15–50 cm. The background of the design is scraped and generally coloured brown so that the yellow design shows up clearly; this is the intaglio technique, but in some pipes it is not completed. It is characteristic of these pipes to have the septum intact at both ends and two dorsal holes are bored, one for the tobacco holder and the other for suction; it is rarely possible to distinguish between these holes, as they appear to be used indiscriminately for either purpose. Wirz says that the sucking hole is often very small or even is a crescentic slit. A few pipes have only one hole for the tobacco, the aft septum being pierced in the usual Papuan method.

The tobacco is contained in a small twisted leaf. Lyons (MS.) says: 'The practice is to fold the cigarette in a leaf, then light it, then put the hot end of the cigarette in the mouth and blow the smoke down into the pipe.' Both men and women smoke all the time. Beaver (1920, p. 205) says all the people are inveterate betel chewers, and Wirz (1934*b*, p. 453) says that both men and women chew betel. Betel chewing in itself belongs to the Raremana class, to which the most used sorts of betel belong. The drinking of kava, *sika*, by the men is a feature of the Gogodara. Kava and the drinking of kava belong to the Raremana class and are special totems of the *sika* totem clan (Wirz, p. 453).

The seven Gogodara pipes in our museum were given by Dr G. Landtman, who collected them in 1910, 1911.

Pipe from Kubu, 1912, 791.631, with two dorsal holes. One end septum is blackened and surrounded by two rows of *Abrus* seeds. The background of the designs is scraped but not coloured. In the median ventral line is the design shown in figure 81A, *a*; that on the dorsal median line is similar but the heads are more recognizable; it looks as if it might be meant to represent a cassowary-bone dagger. On each side (figure 81A) is a design which bears a resemblance to one on a Kubu mask (Haddon 1916, fig. 15) and to a design on a paddle of the Wabadara class (Lyons 1926, pl. xlv, fig. C 4). This is the only Gogodara pipe known to me with cross-hatching. 38×5.5 cm.

Pipe from Gaima, 1912, 791.628, with two dorsal holes. The background is scraped and painted dark brown. On one side is the design shown in figure 81B, and on the other side is a long snake which stretches from septum to septum (Haddon 1916, fig. 9A). 46.5×5.5 cm.

Pipe from Gaima, 1912, 791.629, with two dorsal holes. The scraped surface is painted dark reddish brown. On one side (figure 81C) are two newly hatched hornbills (Landtman 1927, fig. 45*d*). On the other side is a large plain disk with a small central ring; round the disk is a scraped circle and a circle of whole skin; in front of this design is a face like a frog's from one end of which projects backwardly a three-toed limb. There is an unscraped band at each end of the pipe. 37×7.2 cm.

Pipe from Gaima, 1912, 791.636, with one dorsal hole. The scraped background is painted dark reddish brown. At the aft end there is on the perforated septum a disk of pearl shell with a central hole surrounded by a single row of *Abrus* shells with the black ends inwards and set in wax. The whole pipe is occupied by the representation of an animal (figure 81D) (Landtman 1927, fig. 45C; Firth 1936, p. 66). It may be a fresh-water turtle. This pipe was labelled 'segia' according to Wirz (1934*b*, pp. 455, 458). Segia is one of the ten clans of the Wabadara class. The primary related objects (chief totems) of this class are *Varanus*, *posia*, and the dangerous snake *amura*. 38.5×6 cm.

Pipe from Gaima, 1912, 791.637, with two dorsal holes. The scraped background is only slightly coloured. There are three narrow unscraped bands in the middle and at one end of the pipe, and four at the other end. On each side of the fore and aft areas is a design which perhaps represents the hind leg of a frog (Haddon 1916, fig. 9B; Firth 1936, p. 66). 35×5 cm.

Pipe from Kubu, 1912, 791.630, with one dorsal hole. The scraped background is not artificially coloured. The large dorsal hole is in a broad wavy band of whole skin which surrounds the pipe; there are two lateral incised and scraped lines within the band. At the aft end are two unscraped disks containing two incised and scraped rings; the small inner ring is around a short longitudinal line with three crossbars. 43×5.8 cm.

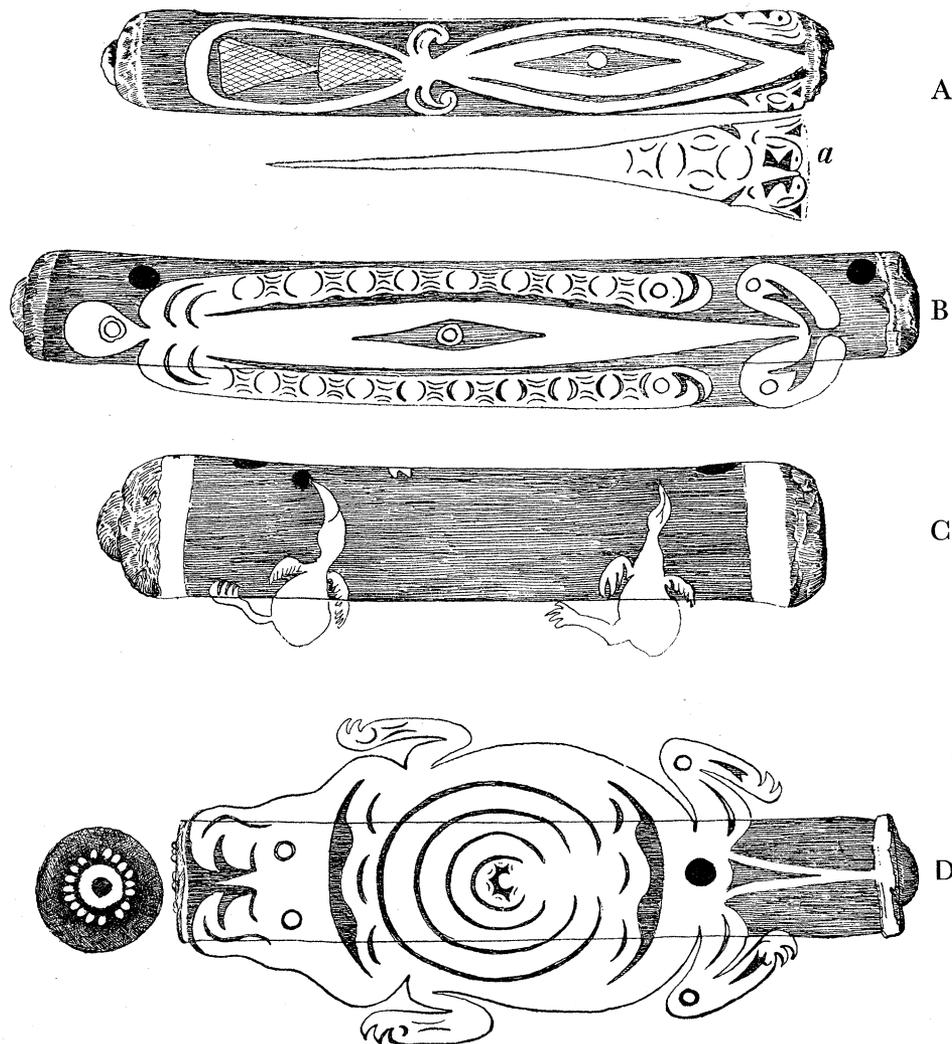


FIGURE 81. Pipes, Gogodara, Coll. Landtman, Cm. With two dorsal holes. A, Kubu, 1912, 791.631. B, Gaima, 1912, 791.628. C, Gaima, 1912, 791.629, with two dorsal holes. D, Gaima, 1912, 791.636.

Pipe from Gaima, 1912, 791.627, with one large dorsal hole. This is an old massive short pipe, scraped all over except for a central band containing incised plain longitudinal lozenges which definitely were made as such. The intermediate triangles are burnt. Except for the burning this is a typical Kiwai pipe and certainly was not made by a Gogodara native. Burning is also alien to the Gogodara. 36×6 cm.

Landtman (1933, pl. xxvii) illustrates three pipes from Gaima. No. 674 has two dorsal holes in scraped triangles; the main design is not very clear. The main design of

no. 675 is very like that of the pipe he gave to the British museum; it has a small dorsal prolongation at one end. Pipe no. 676 slightly resembles figure 81 C, though the bird is probably a parrot.

Landtman gave to the British museum a pipe from Kubu, 1912, 12-17.1, with one dorsal hole. The main design is similar to that of figure 81 D, but the animal has a serrated tail, and the motive in the body consists of a circle containing a spiral within which is a central small circle. This may be a *tao sibara*, crocodile emblem, of the Wagumisi class (Wirz 1934*b*, p. 471, fig. 6). There is also a fish-like design with serrated pectoral fins and a tail that runs into that of the animal. Also there is a bird that may be a parrot.

Wirz (1934*b*, pl. xxxviii, fig. 12*a, b, c, d*) gives a photograph of four pipes, but the designs are indistinct though evidently they are characteristic of the area. They are respectively 28, 39, 43 and 53 cm. long. *a* has a small projection at each end of the median dorsal line, and has two dorsal holes (as has *b*), one of them, the sucking hole, is a crescentic slit; *c* has only one dorsal hole; *d* has one dorsal hole of usual size at about one-third of the length of the pipe and a very small one nearer to that end of the pipe. There appears to be a fish on the dorsal surface.

There is in the Port Moresby museum a pipe collected at Iu in 1914 by A. P. Lyons. Each of the two dorsal holes is in a band of scraped triangles. The rest of the skin is mainly entire. On each side is a pointed scraped oval containing an unscraped disk. The oval is enclosed within a scraped oval band at a short distance from it; the band springs from a stem which rises from the band of scraped triangles at one end of the pipe; the band is open at the other end.

Region between the Bamu and the Kiko (Kikori)

East of the Bamu are the Gama and the more important Turama, with islands at their mouths. The Paibuna and Omati are relatively small rivers off the mouths of which lies the well-known island of Goaribari. The Kiko, or Kikori, is a large river which has its origins in the recently discovered plateau country south of the boundary between Papua and the Mandated Territory, and has a great delta with intricate waterways.

There is little ethnological information about this region, even in the government reports; Murray (1909) visited the area, Oldham (1925) and Rentoul (1925, p. 17) give some details. Beaver (1920, pp. 232-42) makes a few general remarks about the Gama and Turama rivers. A few ethnographical notes on the Goaribari are given by G. R. Le Hunte (1902, pp. 27-30) and J. H. P. Murray (1908, p. 12). H. J. Ryan (1913, pp. 75-7) gives a more detailed account of the natives of Goaribari island, and I have retold his description of a marriage ceremony (Haddon 1920, p. 259). Beaver (1920, pp. 243-54) has some interesting information. I have given (1918) an account of certain aspects of the Kerewa culture which extends over Goaribari island and the adjacent mainland and islands. The Kerewa language is allied to Kiwai. A little information about the Kikori hinterland is given by Beaver (1920, pp. 255-70). Wirz (1934*a*) gives an excellent account of the ethnography of the region.

Sir William MacGregor (1893, p. 46) says that the Goaribari smoke tobacco of their own growing and notes that the pipes resemble those to the east and are different from those to the west. Probably tobacco does not grow well in this swampy region as Beaver (1920, p. 250) says that 'a good deal of tobacco is bought from villages on the Kiko in exchange for crabs'.

Chinnery (1920, p. 448) says that the Mati, Ututi, and Irumuku, who live a few miles north of the Kikori Station, are light-skinned and in physical appearance and language differ from the Kerewa to the south. 'In the vicinity of each village a short-leaved tobacco plant grew abundantly... It was said that these people meet the Kerewa of the coast for the purposes of barter, and exchange tobacco for the coastal crabs.' According to Chinnery (1920, p. 450), in the districts of the Gibidai and Kibeni, on small tributaries of the Paibuna river, tobacco, *sidoi*, is cultivated. These people resemble the other bush folk in physique and general culture.

Wirz (1934*a*, pp. 37, 38) says that the peoples between the Turama and Kiko are known as the Kasere or Kairi; there are dialectic differences between the Sasa-u who live west of the Omati and the Bariwamo to the east of the Omati. He gives the following terms for tobacco: *suku*, Turama and Kerewa; *sidoi*, Kibeni, east of the upper Paibuna river; *kue*, Gibidai, east of Paibuna river; *sirura*, Kahamoi, south of Gibidai; *tiopaha*, Gibiteri, west of Omati river (Gibidai and Gibiteri are at about lat. 7°); *neere*, Iesso, west of Omati river. From the Turama to the Kiko and eastward through the Wapo-Era district tobacco is not grown south of about lat. 7°. In general, tobacco is planted in the neighbourhood of the houses and indeed in the proximity of the clan-houses. At Turama small plantations are each surrounded by a fence. The plucked leaves are hung under the spacious roof of the clan-houses or, if wanted quickly, they are dried over a fire. Sometimes single leaves are stuck on a section of a rib of a sago leaf or spread over a grating. In the Wapo district a special contrivance is made of a 125 cm. length of thin bamboo, one-half of which is split into about ten strips; these are splayed out by interlaced transverse strips. On the fan-shaped shovel thus formed the tobacco leaves are spread and dried over a fire (his pl. ii, fig. 9). The usual pipe is employed; the tobacco is placed in a small leaf screw, usually a piece of dried banana leaf. Wirz states that rarely a short bamboo tube is used as a bowl for the tobacco; probably this refers to the extreme west of the area, as he also alludes to the Bamu and Gogodara districts.

I was informed at Goaribari in 1914 that the tobacco pipe is called *dãve*. The tobacco is placed in a twisted leaf, *adea*, of the *mabere* tree. A cigarette is called *auapoi*. The bush people grow tobacco, *suku*, and trade it with the coastal people for crabs and fish.

The Rev. B. T. Butcher informs me that for the Kerewa and allied languages, such as Turama and Gope, the term for tobacco is *suku*, and for the pipe *suku dowea*.

The following four pipes were given to me by Leo Austen in 1930; they are of especial interest as they were collected at places from which no specimens have hitherto been recorded. In all of them the skin is entire except for the pattern and there are two septa; the dorsal hole is small.

Pipe, Cambridge 31.808, from Diwami village between the Aworra (an affluent of the Bamu) and Gama rivers. The tribe is known as Oberi or Pepeharo by the Turama

people and as Hei by the Kasere; they live in tall houses erected in swamps. The design (figure 82) is unlike any other known to me. It is composed of fine incised lines and dots filled in with brown pigment, as are the scraped triangles between the elements of the pattern. 45 × 5.3 cm.

Pipe, Cambridge 31.806, Ibanio village, Sewomo tribe, Kasere language group, Turama river near Hawoi junction. Austen says: 'Markings of unknown meaning, but belong to the whole of the Kasere.' The carelessly executed decoration consists of

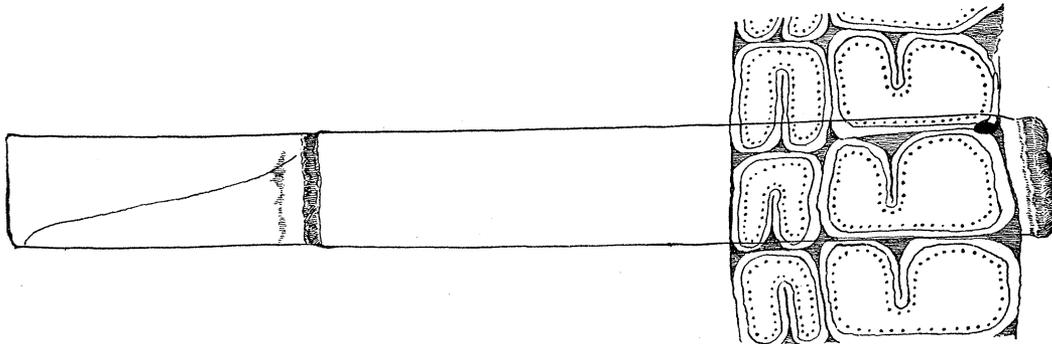


FIGURE 82. Pipe, pattern displayed; Diwami, between Aworra and Gama rivers. Cm. 31.808.

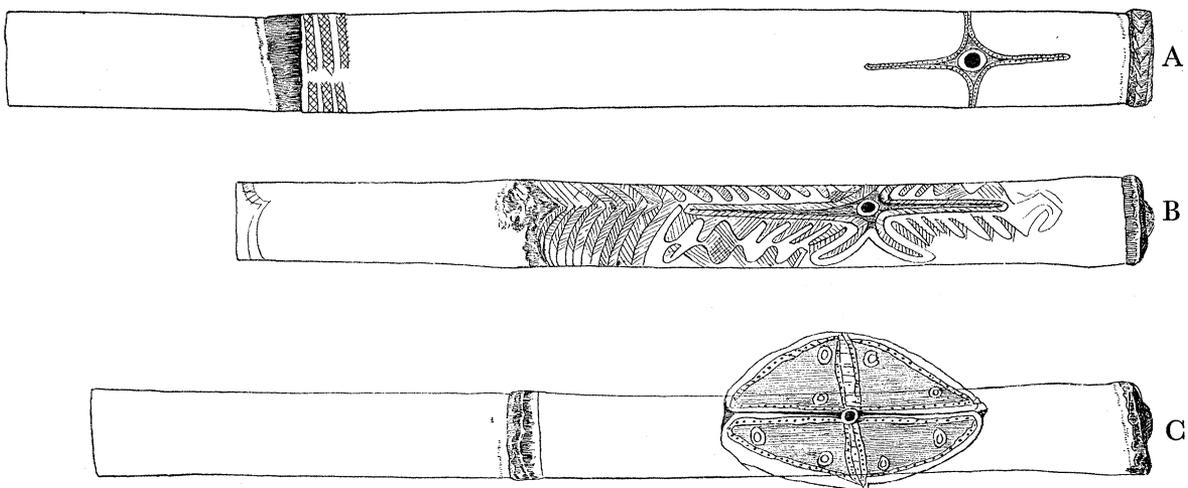


FIGURE 83. Pipes, Turama river; Cm. A, 31.805; Saragi village, Wariadai tribe. B, 31.806, Ibanio village, Sewomo tribe. C, 31.807, Ewaimia village, Auwarubi section, Umaidai tribe.

scratched lines (figure 83B). The dorsal hole is contained within a cruciform design, flanking which are looped lines with the loops or the spaces between them enhanced with scratched lines. In front of the aft septum are twelve irregular bands with imperfect hatching forming herring-bone patterns. 55 × 5 cm.

Pipe, Cambridge 31.805, from Saragi village, Wariadai tribe, near Hawoi junction, Turama river. The tobacco plant is called *geru*. The skin is entire except for a transverse band around the perforated aft septum and for the interior of the star (figure 83A). The small dorsal hole is enclosed in a four-rayed star with long arms, the bases of which are scraped. In front of the aft septum are three transverse bands enhanced with cross-hatching; they are interrupted in the median dorsal line. 68.8 × 6.1 cm.

Pipe, Cambridge 31.807, Ewaimia village, Auwarubi section, Umaidai tribe, Turama river. Skin entire except between the arms of the cross (figure 83C). The small dorsal hole is in the centre of a four-rayed cross of incised lines and dots, which is contained within a scraped pointed oval or lozenge; the unscraped border is of scratched lines and dots. Between the arms are small disks containing a central circle of whole skin, which are emphasized by the scraped background. The design is said by Austen to represent 'a water-snake which lives in the upper Turama'. 63.3 × 5.5 cm.

These three pipes from the Turama agree in having the dorsal hole in the centre of a cross. Although the designs are different, they are executed in the same technique.

I visited Aimaha, in the delta of the Kiko opposite to Goaribari island, in 1914, and saw several tobacco pipes most of which were quite plain; the others merely had a simple device at the dorsal hole as shown in figure 84. According to my slight sketches the technique is evidently similar to that found on the Turama river.

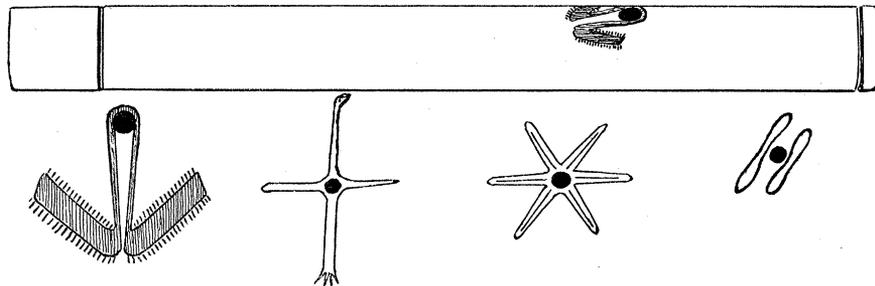


FIGURE 84. Pipe decoration, Aimaha, Kiko delta. A, pipe of whole skin, 76.2 cm. long, dorsal hole 22.8 cm. from fore end. B, C, D, designs, dorsal holes of other pipes.

Delta Division

East of the Kiko begins an ethnographical region which is very different from any of those to the west; it extends to the eastern limit of the Purari delta.

The Kiko and more to the east the Era and Pie rivers have a very intricate delta system of waterways and low swampy islands; it is therefore difficult to determine which are the main channels of these rivers. There are four wide entrances to this labyrinth east of Cape Blackwood: (1) Port Bevan, into which flow the mouths of the Kiko; (2) Paia inlet, into which flows the Aia, an eastern mouth of the Kiko; (3) Era bay, into which the Wapo and Era rivers flow; (4) Port Romilly, into which flow the Pie or Kapaina river and also several streams from the Purari delta system. Cape Blackwood is the southern point of one of the numerous islands of the Kiko (Aird) delta. The Urama islands lie between Paia inlet and Era bay. There are several islands between Era bay and Port Romilly.

The Purari is formed by several large affluents which rise in the southern part of the Mount Hagen plateau; it has a large delta formed by three main branches or mouths of the river intersected by intricate waterways. The Wame and other delta streams of the Purari flow westward into Port Romilly.

The Urama and neighbouring people, who, Wirz (1934*a*, p. 10) says, call themselves Iwaine, are said to speak a language akin to that of the Kerewa people and to be

intermediate in culture between the Kerewa and the Namau cultures. The accounts given by Murray (1909, pp. 88–90; 1912, p. 185) and F. Hurley (1924, pp. 209–36), and the beautiful published and unpublished photographs by Hurley, show that the ritual culture of Urama is essentially similar to that of the Purari delta, but it has a character of its own.

Namau may be accepted as a general term for the various peoples inhabiting the Purari delta from Era bay to the Alele, the eastern mouth of the Purari.

According to Williams (1924, p. 5) the four ethnic sections of the Purari delta are: (1) Ukiaravi (which is in the centre of the delta) is acknowledged to be the original home of the Koriki from which Kairu (and Oru) and the Koropenairu group (Akoma, Ikinu, Kimiri, and Kakari) split off. (2) Iari (Okakinairu and Ravi Kivau). (3) Maipua, Kaimari and Vaimuru. (Maipua is a long island facing the sea west of Alele river, the most eastern mouth of the Purari; Kaimari is in the south-west of the delta; and Vaimuru is not in the Purari delta but on an island between Port Romilly and Era bay.) (4) Baroi (Oravi, Akiravi, Koravake and Evara); this group lives on the more solid ground between the Pie and Baroi rivers and immediately north of the network of waterways.

Holmes (1924, p. 24) says that the people of Maipua and Kaimari, the most southern peoples, have a definite tradition that they came from Urama. The peoples who belong directly or indirectly to the Koriki, the most powerful of all the sections, claim to be aborigines of the delta. Holmes could not get any information about the origin of sections 2 and 4.

We can safely assume that people with a rich ceremonial life came down the Era, Pie (Kapaina) and Purari rivers from the north-west to the coast. Perhaps there was no previous population in the various deltas. There can be little doubt that part of the Maipuan culture has near-western affinities, but a few ceremonies have recently been introduced from the Elema to the east. Basing his conclusions on hero-legends, Williams (1924, pp. 247, 248) suggests that from the north-west may have come 'the present style of house, possibly fire itself, the drum, certain ceremonies and ceremonial objects, the coconut palm, and cannibalism. The betel palm is brought down from the north.'

For the ethnography of the Namau, the following may be consulted: Chalmers (1887, pp. 58–70), Murray (1912, pp. 176–84), Haddon (1920, pp. 244, 260), and especially Williams (1924) and Wirz (1934*a*, 1937).

Williams (1924, pp. 21, 25) states that in the Purari delta native tobacco, *kuku* [but sometimes called *suku*], is grown, but especially by the Baroi group, in patches which show all stages of growth. [Wirz (1934*a*, p. 37) says in the neighbourhood of the dwelling houses or close to the *ravi*.] When the seed pods are ripe on some plants, a number will be plucked and rubbed between the palms over a previously weeded small patch of ground. The young plants soon spring up and they may be protected from the sun by a palm-leaf shelter until they are ready to plant out. Wirz says that small plants are set out and surrounded by a hedge at Turama. According to Williams, the leaves when mature are dried over a fire after plucking. Wirz says the tobacco leaves when plucked are hung up under the roof of the *ravi*, or if they are wanted

quickly they are hung over a fire to dry. Often single leaves are stuck one by one to a segment of the rib of a sago leaf or are spread out on a grid. In the Wapo district an appliance is made of two internodes of bamboo; one internode is split longitudinally into a number of splints, these are splayed out and kept in position by interlacing transversely numerous thin splints (his pl. ii, fig. 9); the tobacco leaves are spread over this grid and held over a fire. Williams states that no twist or cake is made with the leaves. According to Wirz the tobacco is usually screwed up into a little leaf, often a dried banana leaf, which is stuck into the dorsal hole of the pipe; but in a few cases a short tube of bamboo is used as a bowl. It seems that as the Baroi live on higher ground they grow tobacco in sufficient quantities to serve as barter.

Chalmers (1887, p. 68) says that 'long, long ago' tobacco came to the Namau district from Urama. 'Before smoking they often ask the spirit's blessing, and sing ...untranslatable songs...: they do not themselves know their meaning.' In the song given by Chalmers the word *kuku* occurs.

Pipes from the Delta Division. Era river district.

Two pipes were given to me by Leo Austen in 1930: Pipe, Cambridge 31.809, 'Gipi village, Wapo creek, Gope district'. According to Wirz (1934*a*, p. 11), Gope, Kipi (Gipi), and other villages are on the Wapo river, or rather on an island in the delta system of that river. Wirz distinguishes the Wapo district from the Era district. The pipe has the skin entire and two septa. The design (figure 85) round the dorsal hole is made by scraped lines and surfaces which are stained with a reddish brown pigment that in many places also encroaches on the raised surfaces. Near the fore end of the pipe is what appears to be a human face. The aft end of the pipe has four continuous incised bands enhanced with cross-hatching. 62.3 × 5.2 cm.

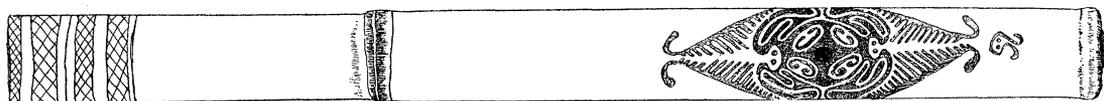


FIGURE 85. Pipe, Gipi village, Wapo creek, Gope district, Era river. Cm. 31.809.

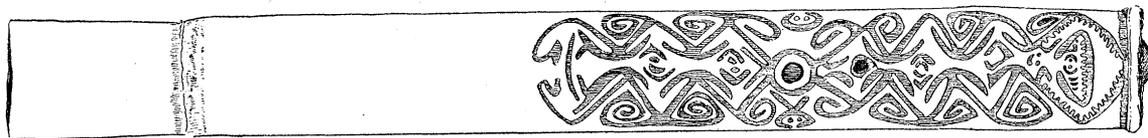


FIGURE 86. Pipe, Goiravi village, Era river. Cm. 31.810.

Pipe, Cambridge 31.810, 'Goiravi village, Era river'. Goiravi is situated approximately at 7° 22', 144° 46' on the Era river. 'The people are an offshoot of the Vaimuru folk on the coast and have intermarried with the Kipaia group' (Leo Austen, MS.). The skin is entire. The pattern that runs along the fore dorsal surface of the pipe is shown in figure 86. It is made by broad scraped lines darkened with a brown pigment. Simple human faces form part of the design. There are two dorsal holes; the original one in the centre of the pattern has been plugged and another has been made in front of it. Firth (1936, p. 65) gives a good photograph of this pipe. 64.4 × 7 cm.

The following two pipes in the Basel museum were collected in 1930 by P. Wirz.

Pipe Vb. 7805, Wapo (figure 87A), is decorated in a manner similar to that of figure 85, and with the same technique. It is possible that the design represents a crocodile with its head pointing forward. 49×5.1 cm.

Pipe Vb. 7780, Era delta (figure 87B), also has the incised cross-hatched bands at the aft end of the pipe. The dorsal hole is in the centre of what appears to be a crocodile or a lizard. The slightly raised ridges marking the septa are cut into notches. 61.5×5.9 cm.

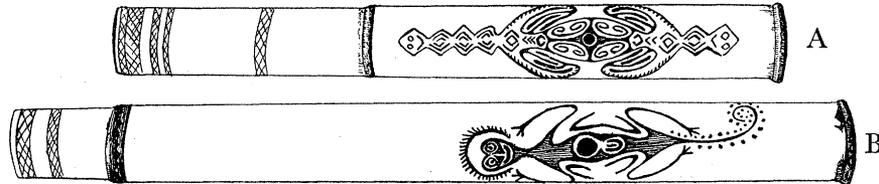


FIGURE 87. Pipes, A, Wapo, Bs, Vb. 7805. B, Era delta, Bs, Vb. 7780.

It is possible that the animal-like design at the dorsal hole, however modified, represents some *imunu* object, not necessarily an actual crocodile or other animal. Williams (1924, p. 272) defines *imunu* as 'magically potent and dangerous'. According to Wirz (1937, p. 409) the word *imunu* 'is synonymous with "vital strength" or "vital principle" and is responsible for the individuality of all things. Strange and unusual things possess this power to a higher degree than ordinary, secular things.' *Imunu* in the Era district is also one name for the bullroarer. Wirz (p. 412) equates the *imunu* of the people of the Delta Division with the *gi*, or totem animal of a class, *udaga*, or of a clan, *gaua*, of the Gogodara, and with the *dema* of the Marind-anim, all of which he thinks can perhaps be best expressed by the term 'totem ancestor'.

The Purari delta.

At Ukiaravi on the Baroi, I obtained from the *ravi* or ceremonial house of Kara-arabi, a pipe, *ina*, Cambridge, 1916, 143.190. At the fore end are two small lateral jaws bordered by an incised band with coarse cross-hatching. The dorsal hole is in a small scraped lozenge. On the ventral surface (figure 88A) is what was called a crocodile in scraped outline. An incised band of two lines containing transverse lines, many of which are converted into a herring-bone pattern, begins at one septum and forms a spiral that encircles the pipe twice and ends at the other septum. 57.4×6.9 cm.

From the same village, but from the *ravi* of Ukunukwa, I obtained a pipe, 1916, 143.175, of one internode. It is scraped only in the patterned area in order to throw up the designs; the background was originally painted with a dark brown pigment, but most of it has now worn away. There is a five-rayed star round the dorsal hole and there is a face on each side of the aft end of the decoration. A central band has two rather carelessly drawn scroll designs which may be degraded stylized faces. The designs are poorly executed and the general effect is confused. 45.2×6.5 cm.

I obtained in 1914 at Kairu, a Koriki village, a short distance east of Ukiaravi, a pipe, Cambridge 1916, 143.226. The skin is entire and the decoration is formed by scraping

which is darkened only around the dorsal hole (figure 88B). The fore band has interrupted chevrons and a broad scraped fringed line. The aft bands consist of two scraped lines enclosing a band of whole skin with cross-hatching and four rows of scraped triangles in series, in most cases with scraped rectangular patches in the triangular interspaces. The design at the dorsal hole was called *kikiria*, markings, and that on the ventral surface *komara*, or *komaia*, crocodile, but it is distinctly a man wearing a pearl-shell crescent at his neck, though the body is covered with what may be scales. Aft of

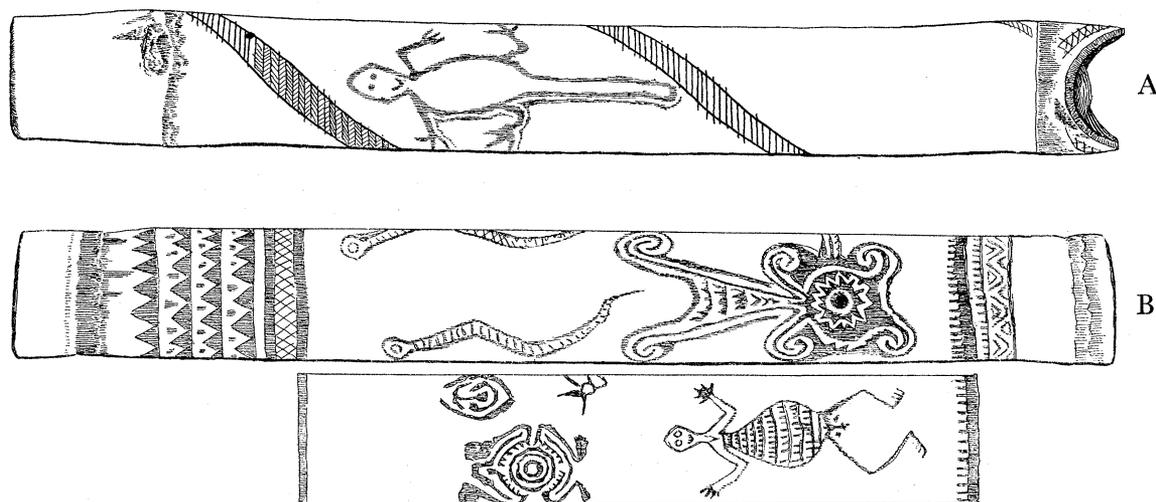


FIGURE 88. Baroi river, Purari delta. A, Ukiaravi, ventral surface. Cm. 1916, 143.190; B, Kairu (a Koriki village), also part of ventral surface. Cm. 1916, 143.226.

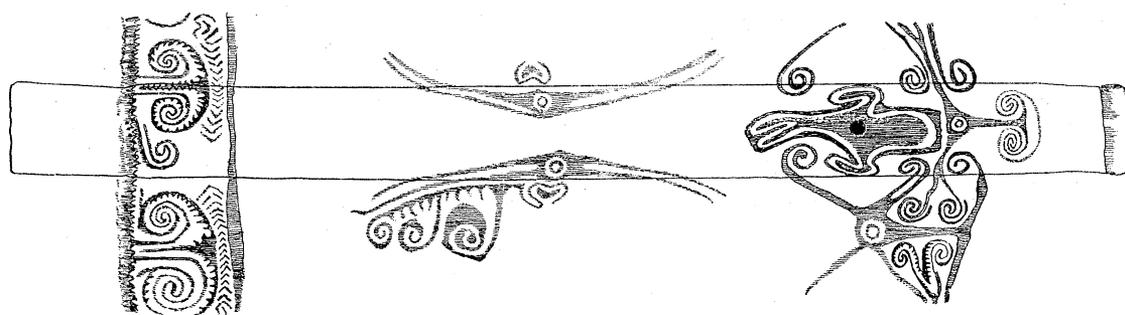


FIGURE 89. Pipe, pattern displayed, Maipua. Cm. 1916, 143.213.

this is *okoia* (?) frog, and beside it is *omaia* or *umoia*, head of a frog. Near the latter is *ikikiria*, which may be a plant. On the sides of the pipe are two *paiko*, snakes. In the median dorsal line is an attempt at lettering, which presumably is the maker's name; this is not shown in the figure. 56.5×7.2 cm.

At Maipua in 1914 I collected a pipe, Cambridge 1916, 143.213. The skin is entire except where the designs are formed by scraping which is more or less darkened with pigment. The dorsal hole (figure 89) is in the middle of a *binam*, hornbill, and on the ventral surface is a rayed design with coiled ends which was said to represent a *siroro*, whirligig toy. In the centre of the pipe are two designs which were called *kavi*, egret, and appear to represent the bills of two egrets joined together, with a central eye. At the aft end are two paired loop-coiled designs with a central line, which in one of them

is serrated; the design was said to represent the abdomen and poison spine of a *piru*, sting-ray. 58×5 cm.

I also collected at Maipua a pipe, Cambridge 1916, 143.212, which is unlike any other known to me, as the designs are in strong relief due to the background being deeply cut and not merely scraped in the usual fashion (figure 90). The dorsal hole is in the middle of what may be intended as a representation of a ceremonial mask. Aft of the hole area are two transverse bands each containing two elongated ovals. In the central portion are five plain raised bands. At the aft end of the decoration on the dorsal side is a design which may be a degraded face. 53.5×6.6 cm.

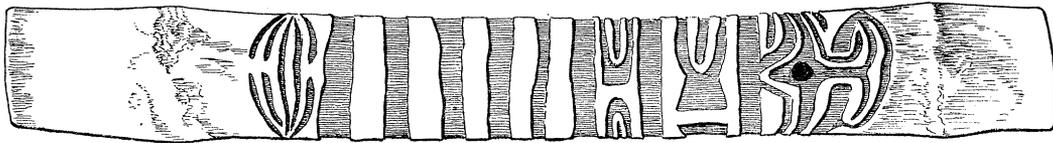


FIGURE 90. Pipe, bands in bold relief, Maipua. Cm. 1916, 143.212.

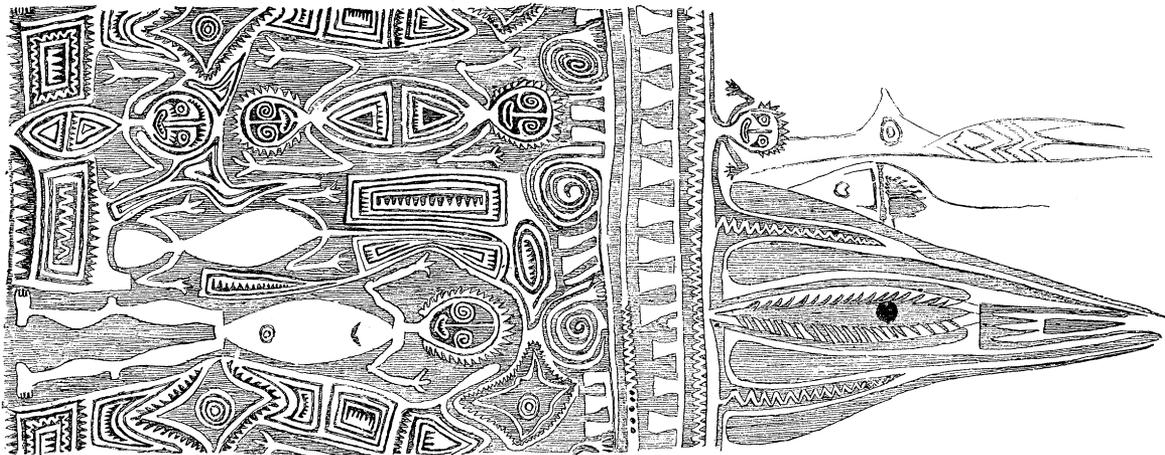


FIGURE 91. Pipe, decoration, no provenance, but doubtless from the Namau. Cm. Z. 9255.

The two following pipes in the Cambridge museum are without a provenance. The technique indicates that they were collected in the Purari delta, and when I showed the pipes to the Rev. J. H. Holmes he identified them as coming from the Namau. They were collected before 1894.

Pipe Z. 9255 is of large size and has but one internode, 66 cm. long. The skin is entire except where it has been scraped to form a background for the designs; this has been painted a dark colour in places, but the pigment is mostly rubbed away, leaving a dull yellow background for the pattern. The decoration occupies the greater portion of the internode. Aft of the aft-septum is a 7.5 cm. band of whole skin, undecorated except for a row of scraped triangles arising from the extreme aft end of the pipe. The dorsal hole (figure 91) is in an elliptical design, which may represent a mask. Aft of it are a zigzag band and a band of what are perhaps conventional feathers. In the dorsal line is a man with flexed arms wearing a pearl-shell crescent. In the ventral line are two truncated people joined together. Holmes (1902, p. 425) says that a somewhat

similar carving on a Moreaipi (Orokolo) belt (pl. xli, fig. 2) represents the original ancestors of the people, Iva and Ukaipu; Iva is said to have sprung from the ground, and he found Ukaipu in the hollow trunk of a large tree. There are two faces with arms also on the ventral surface of the pipe. On the right side of the pipe is a reptile which may be a crocodile or a lizard, *Varanus*. Filling-up designs are seen in the figure, such as are often found on other objects. The carelessly drawn enigmatical designs at the fore end of the pipe near the dorsal hole were made perhaps by a later owner. 76.3 × 7.4 cm.

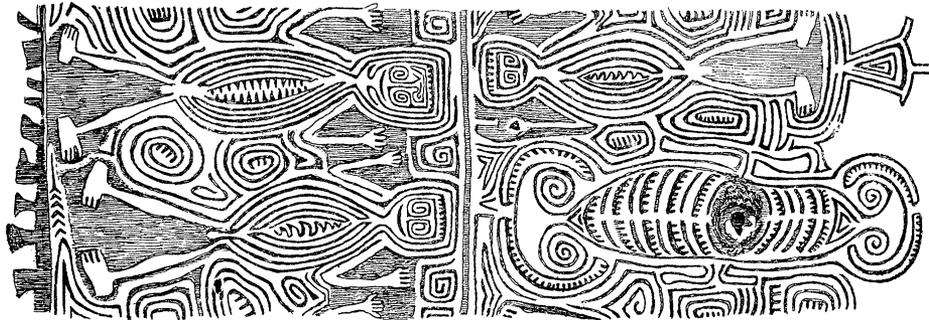


FIGURE 92. Pipe, decoration, no provenance, but doubtless from the Namau.
Cm. 1894.386.

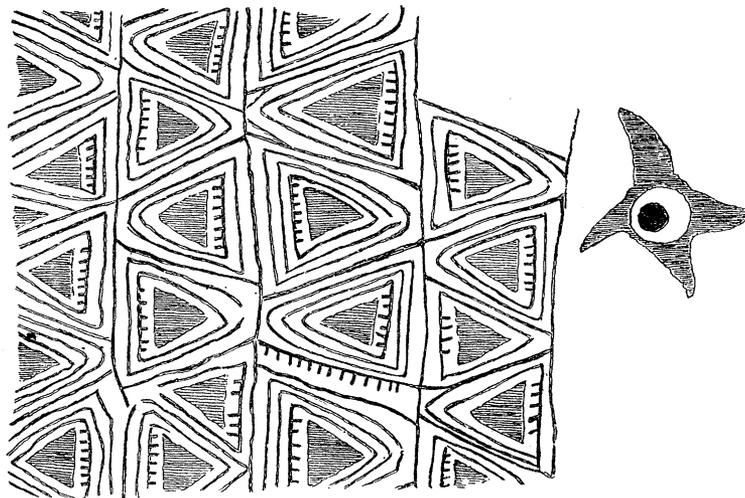


FIGURE 93. Pipe, Purari delta, representation of human feet. R. by F. E. W.

Pipe 1894.386 has a very long (87.5 cm.) thin internode. There can be little doubt that the pierced end of a very small coconut was fastened by gum or wax over the dorsal hole as in the case of a few pipes known to me. Kupele, Central Division, Haddon 1894, pl. x, 153.

The decoration (figure 92) begins 8.5 cm. from the fore end of the pipe and is continued for 47 cm.; the remaining 39 cm. is plain. There is a narrow scraped band which divides the decoration into two bands. Possibly the design about the dorsal hole may indicate a mask; on the ventral surface a man is represented. Two similar men are represented in the aft band, one on the dorsal the other on the ventral surface.

All the men have flexed arms and the body has a central zigzag, the sides being formed by a continuous line thrown into a series of long loops which follow the contour line of the body. The scraped background of the design has been coloured with a dark pigment, though it is now largely rubbed away. 94.5 × 5 cm.

F. E. Williams sent me a rubbing in 1938 of part of the decoration of a pipe from the Purari delta. He states that 'the element of the pattern is called "man's foot"'. It recalls the conventionalized man's foot incised on a plank in the centre of the floor of the men's house, *ravi*, to commemorate the taking of a human victim. Figure 93 is drawn from the rubbing.

Gulf Division.

'Elema', according to Holmes (1903, p. 125), is the accepted name of the district on the coast of the Gulf of Papua, situated between the Alele river of the Purari delta in the west and Cape Possession in the east.

The Elema tribes are divided into two groups, those whose tribal names end in *ipi*, and those whose tribal names end in *a*, *u*, *au*, and *ra*. Of the Ipi group there are six tribes, all living on the coast, observing the same customs and claiming a common ancestry. Of the second group, there is one *ra* and one *u* tribe living on the coast and two *au* tribes quite near it. Probably they are related to the once powerful and warlike Parivau of the hinterland between the Purari and Vailala rivers. As each swarm of the Ipi tribes came south down the Purari basin they were deflected to the east by the Parivau. The Moreaipi, being the last of these movements, found the Parivau reduced in strength and so were able to reach the coast due south. The Opau, who live in the Opau valley, are said to have seceded from the Muru who live inland from Orokolos south of the Parivau. The Haura live in the hinterland east of the Vailala river and about its upper waters.

The more important of the Elema peoples from west to east are: the Moreaipi at Orokolos and Vailala; they extend from Arihava near the Alele to Aivau about 1 mile east of the Vailala. Recent settlements of the Haura are the villages of Helau, Keakea, and Hai (Keuru). The Uaripi (Kerema), according to Holmes, claim precedence of arrival at the coast, having come over the Albert range and down the valley of the Opau to the sea at Kerema bay. The Milaripi extend from Levu (Silo), about 3 miles east of Cape Cupola, to Milaripi (Wamai) near the mouth of the Tauri. The Kaipis live at Kaipis and Kuara (Karama) in Freshwater bay. The Toaripi live at Eavara (Moviavi) on the Tauri and at Toaripi (Motumotu) at the mouth of the Lakekamu, both in Freshwater bay. The Moaripi, now greatly reduced in number, live at Moaripi (Lese), Miaru (Biaru), and Fave (Jokea). The Lepu live at Oikapu (Oiapu) about 10 miles west of Cape Possession. This list is largely based on Holmes (1903).

Tradition relates that the Ipi peoples came from the upper waters of the Purari and the southern slopes of the Albert Victor range (Holmes 1903, p. 126; Haddon 1920, p. 261). According to his MS notes, Holmes was at one time inclined to regard the latest of these movements as having taken place about the first half of the nineteenth century, but this seems too recent.

For the ethnography of the Elema see: Chalmers (1887, chap. III), Murray (1912, pp. 167-76), Haddon (1920, pp. 243, 260-65, with other references), Holmes (1924).

The only information I have concerning the technique of the pipes of the Gulf Division is from a few notes sent to me by F. E. Williams in 1938. He saw an Arihava (Orokolo) native at work with a pen-knife; this was the man who made the pipe of figure 94. In the old days a cockle-shell, *aihau*, would undoubtedly have been used. The red-brown pigment is said to be the sap, unmixed with anything else, of the *haravea* tree, the wood of which is used for making drums; Williams, however, cannot guarantee this as correct.

A recently made pipe from Arihava, Orokolo, was given by F. E. Williams in 1938 to the Cambridge museum 38.971. The skin is entire. The decoration is shown in figure 94. On the ventral surface is a rayed ring, half of which is shown in the figure. The peculiar feature is the deep cutting of the intaglio portions which are coloured deep red and black, more or less alternately, but the aft triangles of the aft zigzag are coloured grey. 61.8 × 4.3 cm.

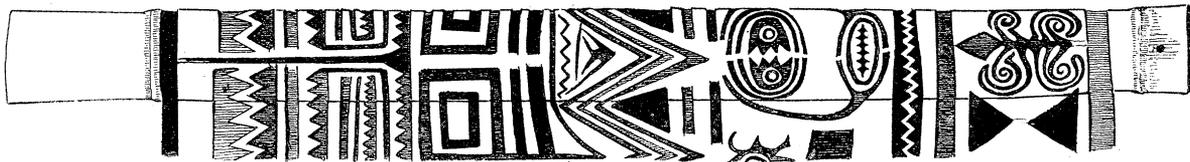


FIGURE 94. New pipe, deep intaglio, Arihava, Orokolo. Cm. 38.971.

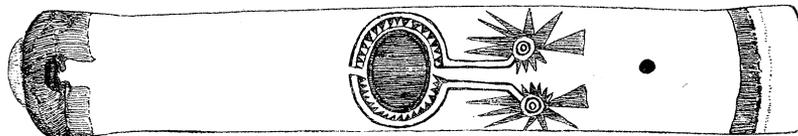


FIGURE 95. Pipe, Orokolo, Cm. 1916, 143.258.



FIGURE 96. Pipe, Vailala river. Cm. 25.658.

I obtained at Orokolo in 1914 a pipe (figure 95), 1916, 143.258, of one internode. There is a scraped band aft of the fore-septum and one at the aft end which is interrupted in the median dorsal line by a space of whole skin. Aft of the dorsal hole is a simple face with exaggerated eyelashes and a gaping mouth. The intaglio portions are slightly coloured dull yellow ochre. 41.3 × 6.5 cm. I have seen other pipes from Orokolo which have a single face more or less analogous to the foregoing; this seems to be characteristic of Orokolo.

A pipe (figure 96), Cambridge 25.658, from up the Vailala river has the skin entire except for the pattern. There is a 30 cm. broad central band. The decoration consists mainly of eye and dog-tooth motives, with a few spirals; these are distributed in an obscure manner, but they are symmetrical to the median line and the general

effect is pleasing. The intaglio portions are coloured a dark reddish brown. Firth (1936, p. 66) gives a photograph of this pipe. 65.2×6.6 cm.

There are two pipes in the British museum which are labelled 'Kukukuku, Upper Vailala River'. One, 1919, 253, has short blunt jaws; the skin is entire. The decoration (figure 97A) is in scraped technique and is of a type that is new to me. 50×5 cm. The other pipe, 1919, 252, is in the style that is characteristic of the Gulf (figure 97B). 60.7×7.5 cm. The term Kukukuku is vaguely applied, as previously stated, to various hinterland peoples, the western groups of whom are stated to be non-smokers. All that can be said is that the pipes were obtained from an unidentified tribe, or perhaps from two tribes, who live far up the Vailala. Later on, in the account of the southern zone of the Territory of New Guinea, I describe a Kukukuku pipe (figure 188), presumably from the headwaters of the Vailala river.

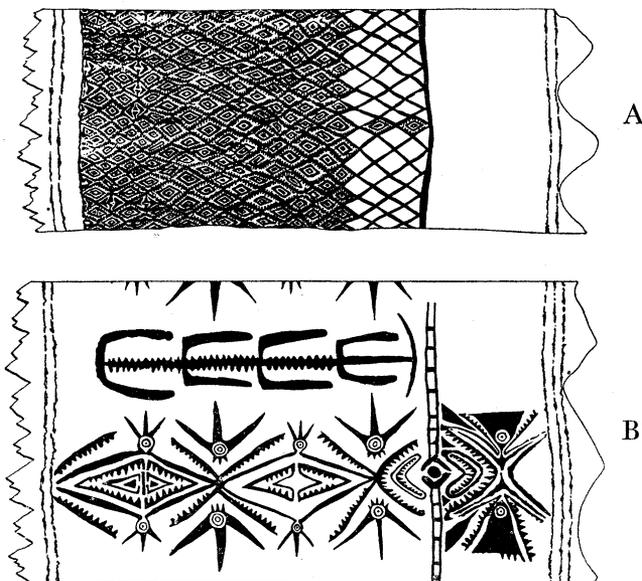


FIGURE 97. Two-jawed pipes, Kukukuku, upper Vailala river. R. B.M. A, 1919, 253, novel decoration. B, 1919, 252, Gulf type.

R. A. Vivian informs me that at the present day there are no decorated tobacco pipes either along the coast or inland of the Gulf Division. His sergeant of the police told him that proceeding from the east, the first decorated pipes are found on the Bamu river, and that on Kiwai island the pipes used to be decorated but are not now; I very much doubt whether this statement is at all correct.

It is remarkable, if it be corroborated, that the natives of the Gulf and Delta Divisions should have entirely ceased to decorate their pipes. The records in this memoir and the rubbings, sketches, and photographs I have of pipes from these two Divisions, as well as unpublished pipes to be found in many museums, show that pipes were so decorated throughout the whole area, though they do not seem to have been as numerous in the eastern as in the western part of the area. The pipe of figure 94 proves that the practice of decorating pipes has not entirely ceased, at all events at Orokolo.

Mr Vivian says 'that there never has been any particular social aspect connected with the smoking, *a'oro*, of the baubau, *hika*. The tobacco leaf is called *kuku* or *siomu*.

People smoked in company or alone. In pre-Government days only the elders, of both sexes, smoked, as it was believed that smoking was harmful for adolescents, "cutting their wind", and so being detrimental to the tribe as a whole, in the event of armed affrays.' Humphries (1927, p. 41) says that tobacco is called *siomu* by the Milaripi; it was used before the white man came and is grown in the gardens.

In his desire to assist me Mr Vivian got a native of Ipisi, a village adjacent to Kerema, to decorate twenty pipes. This was an interesting experiment as, presumably, the artist was attacking a new problem without previous experience and without examples of traditional technique, lay-out, or motives to guide him, though, doubtless, he had other decorated objects about him; at all events, as figure 99 shows, pipes were decorated at Ipisi in a typical manner. I have no idea to what extent the old ceremonial culture persists at Kerema; at all events he drew one or two dance masks and two men wearing the large *kaiwakuku* and *kovavi* masks, and also a pair of eyes of a mask *harisu ofai*.

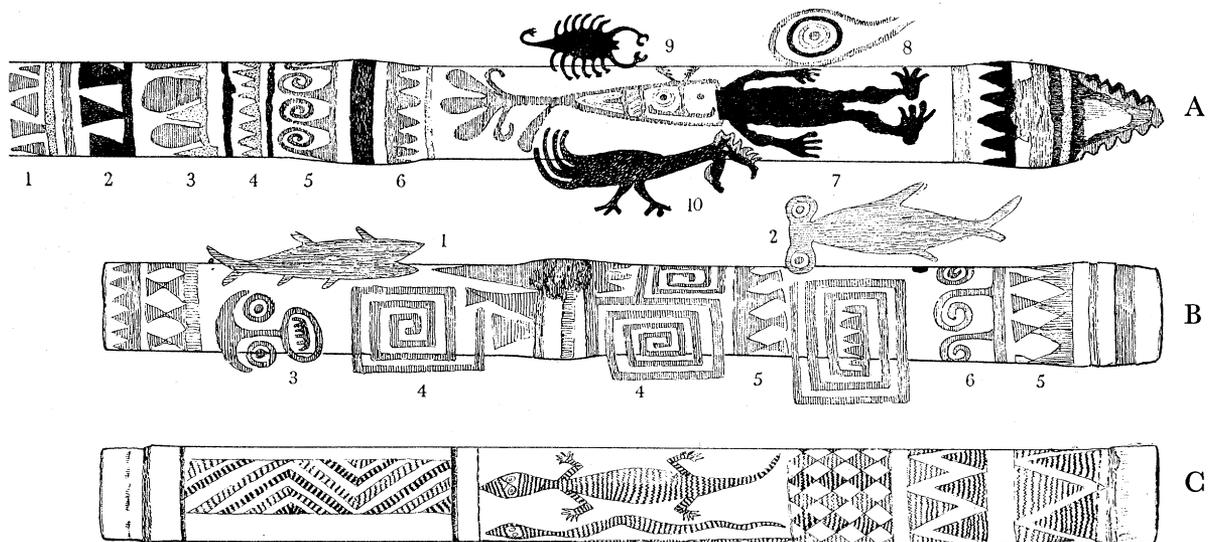


FIGURE 98. Pipes made for R. A. Vivian, 1938. Ipisi, Kerema. Cm. A, ventral view: 1, 3, clouds, *beopo*; 2, shell, *kewa*; 4, 6, sunset, *beopo*; 5, bush vine, *mariri*; 7, man wearing *kovavi* mask; 8, eyes of mask, *harisu ofai*; 9, scorpion, *ukara*; 10, cassowary, *uiva*. B, left side: 1, shark, *iaia*; 2, hammer-headed shark (*Zygena*), *apai*; 3, man's face; 4, clouds, *kauri*; 5, sunset, *meapo*; 6, tying vine, *mariri* (lawyer vine, *Flagellaria indica*). C, ventral surface. Patterns and animals, scratched outlines, enhanced by jagged lines.

Seven of the pipes have two deeply notched jaws at the fore end; one with blunt jaws is labelled 'sea fish, *marupi*', the others have rather long narrow jaws with a swollen tip which suggest the snout of a crocodile. Three have three deeply notched short jaws.

Nearly all the pipes consist of one internode and about a third or a half of a second internode; consequently there is a septum well within the pipe which has been utilized as a base for a coloured band, on each side of which is usually a band of triangles or other simple patterns. In several pipes there are transverse patterns which more or less constitute definite bands. As a general rule there is no very definite scheme of decoration.

Bands, patterns, and figures had their outlines scratched; then they were lightly scraped and finally painted with earthy pigments, pink, orange, yellow, deep brownish red, black; a bluish grey is also common. Some of the pigments used resemble those employed in decorating masks and carved wooden objects, and they have a different character from the pigment used for the old pipes. There are, however, one or two pipes which are painted with what seems to be a vegetable dye of a bright orange or deep brownish red colour. There is usually a deeper cutting of the bands at the fore and central septa. The paintings are called *foa*.

There is one pipe which has quite a different technique (figure 98C). The patterns are definitely in bands. The designs and patterns have scratched outlines, and are enhanced with transverse jagged lines which are coloured a bright green or red, the elements of the pattern being alternately green and red. On the dorsal surface is an 'iguana' (monitor lizard), *ibuna*, and on the ventral surface another monitor and a snake, *hekaloa*. There is one pipe with a snake in a similar technique and also a lizard with the head alone enhanced with jagged lines, the body and limbs being in the usual painted manner.



FIGURE 99. Pipe, Ipsi, Kerema, Gulf pattern, Horniman museum, 694.

Most of the patterns are quite simple and names have been given for a number of them. One or more of them are found on almost every pipe. The patterns generally run transversely round the pipe; a few are longitudinal, but there may be elements of patterns scattered about a pipe. I am ignorant to what extent these names are generally accepted by the people of the district. The number of representations of sunrise, sunset, and clouds is interesting.

All but two of the pipes have two, three, or more representations of a great range of animals. These evidently are drawn as realistically as the skill of the artist permitted and without the conventions that are the result of traditional treatment. Perhaps the least satisfactory are some of the drawings of cassowaries; the proportions are wrong, and in some two short wings are drawn on the back. The most interesting is 'a burrowing animal' which seems to be intended for the spiny anteater, *Proechidna*. Fishes are frequent and varied, among which may be noted: sawfish, hammer-headed shark, and several kinds of rays. Copies of only a very few of the animals are given in figure 98. The few human figures and faces are in the traditional style of the Gulf area.

There is a characteristic pipe from Ipsi, Kerema, in the Horniman museum, 694, which has a 37 cm. decorated band at the aft portion of the internode (figure 99). The pattern consists entirely of human faces. The intaglio was coloured reddish brown, but most of the pigment has worn away through use. 71.2 × 7.5 cm.

Figure 100 illustrates the main decoration of a pipe from Silo, a village of the Milaripi. I am unable to give any more particulars than are shown in the drawing.

The creature aft of the dorsal hole looks like a mixture of a hammer-headed shark and a crocodile; perhaps it is a mythical creature. I do not know what is the width of the space between the fore and aft bands. The large triangles are at the fore end of the aft band. A peculiar, and so far as I am aware a unique, feature is the occurrence of coarse jagged lines.

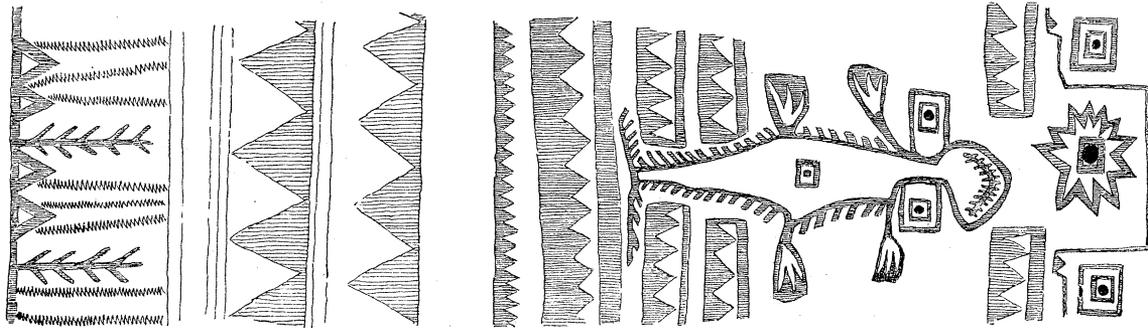


FIGURE 100. Pipe, decoration, Silo (a Milaripi village). R.

There is in the British museum a pipe, +5439, obtained in 1891; it has no precise provenance. On the dorsal surface is a lizard or crocodile in scraped outline. The dorsal hole is in the head, and the long tail ends in two divergent fringed spirals. Aft of this is a scraped band containing a narrow unscraped band from which projects a row of feathers (?). At the aft end is a band of whole skin with a row of scraped fringed spirals. 61.5 × 6.4 cm.

Figure 101 is drawn from a rubbing of a pipe from Kaipi, Freshwater bay; unfortunately, I have no further information about it. It is wholly decorated in incised lines; there is no intaglio technique. The two faces are more simple than is usual in the Gulf area.

A pipe without a provenance in the Vienna museum, obtained in 1901, is about 67 cm. long; the dorsal hole is 13.3 cm. from the fore end. The fore half of the pipe is quite plain (figure 102). The decoration of the aft half consists of two transverse 1.3 cm. bands 19.5 cm. apart. The bands are outlined in scratched lines and enhanced with cross-hatching. Between the bands are two snakes in the same technique. Each snake has an oval head, thin neck, and a tail that tapers to a point. They encircle the pipe twice; the head of one snake is close to the tail of the other. Fore of and close to the band are two stylized eyes with a mouth between them, much in the Orokolo style.

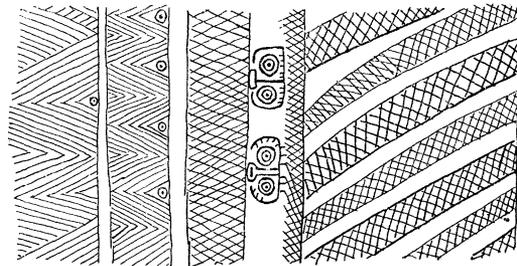


FIGURE 101. Pipe decoration, incised lines. Kaipi. R.

There are two pipes in the Rome museum which were collected by Dr O. Finsch in 1882 at 'Kerräma, Freshwater Bay'. I regard this place as Karama, which is in Freshwater bay, and not as Kerema, which is farther to the west.

Pipe 34949 has the skin entire. There are two dorsal holes 18 and 30 cm. respectively from the fore end. In front of the aft-septum is a 34.5 cm. patterned band which

consists of two rows of human faces looking towards one another and separated by a band of oblongs. The aft of these two rows is broader than the other, and the extra space is filled in with designs that evidently are stylized mouths. Between the faces of the fore row are concentric circles. Fore and aft of the whole band are two rows of long attenuated oblongs. 91×5.7 cm.

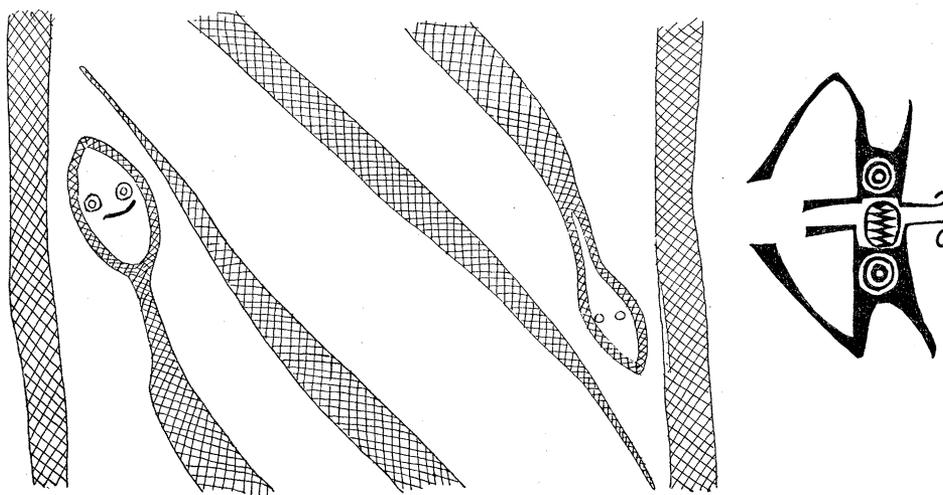


FIGURE 102. Pipe decoration; snakes, incised lines; face is Gulf style. Vienna. R.

Pipe 33707 has the dorsal hole 16 cm. from the fore end; it is in a toothed band of whole skin, in the middle of which is a scraped line that separates to enclose the dorsal hole. There is a very broad decorated band at the fore part of the pipe and a much narrower one at the aft end; I think they are separated by a scraped band. The patterned bands are bordered and divided by narrow transverse toothed stripes of whole skin, and between these the skin is scraped except for toothed ovals of whole skin, each containing a pair of eyes. Of these bands of ovals there are two fore of the dorsal hole, three aft of it, and two at the aft end of the pipe. Part of the decoration, including the dorsal hole, is illustrated by Haddon (1894, pl. viii, fig. 119). 62×7.2 cm.

Partington and Heape (1890, pl. 318, no. 4) give a sketch of a pipe in the British museum, +2493, which was collected by S. McFarlane probably at Toaripi about 1884. The pattern occupies a 31.8 cm. band at the fore end; the aft end of the band is vandyked. There is a zigzag in relief at the fore and aft borders of the band. On the dorsal and ventral surfaces is a design consisting of two faces looking away from each other. Each has a mouth with nostrils and a median line for the nose, in the middle of which is a concentric circle, in one of which is the dorsal hole. This circle may possibly represent the four eyes of the two faces amalgamated into one (as in the Kerräma belt (Haddon 1894, fig. 32) and a shield (pl. vi, fig. 88)). The two lateral pairs of eyes with a connecting dog-toothed line may be a subsidiary face, of which the lateral indented quadrangle may be the mouth. 90.3×6.6 cm.

Summary of the Delta and Gulf Divisions.

There is a general resemblance between the cultures of the Namau and Elema peoples, but the flat swampy Purari delta is very different from the clear sand beaches

of the eastern half of the Gulf, features which inevitably have their influence upon the material culture and social conditions of life of the two groups of peoples. In both areas the prominent buildings in the villages are the long and imposing ceremonial houses, in whose lateral, patrilineal family alcoves are numerous carved and painted ritual tablets, ceremonial masks, and trophies; formerly, they also contained shields and weapons. The rear end of the *ravi* of the Delta is screened off to form a murky 'holy-of-holies', *ravi-oru*, in which are kept the sacred and mysterious basket-work monsters, *kai-imuna* or *gopi-ravi* (*kopiravi*), that play an important part in ceremonial life. Numbers of large carved bullroarers lie on the floor or in bags below the monsters. The rear end of the *eravi* of the Gulf opens simply by a doorway on to a small verandah into full light of day. There are other differences in culture between the two regions which need not be mentioned here. There can, however, be no doubt that the cultures had a common source in the interior of New Guinea.

The fundamental similarity in decorative art of the Namau and Elema tribes is especially evident in the decoration of masks, belts, shields, and other objects. With regard to the pipes, while the technique is similar, there appear to be some local differences in the decoration of the specimens I have examined. Few of the considerable number of pipes I have seen have a reliable provenance, but from these certain tentative conclusions may be drawn.

The Namau decoration is apt to consist of dispersed elements or to be confused; clearly defined patterns are rarely to be found. On the other hand, the Elema decoration is generally clear cut, and definite patterns of human faces are not uncommon. Even when the pattern is obscure, as in figure 99, the clean character of the decoration is conclusive and there is a definite attempt at symmetry.

The pattern is formed in the great majority of the pipes by removing the skin of the bamboo, and the shallow, porous depressions thus formed are painted typically with a dark reddish brown pigment. In some pipes the scraped portions form the design or pattern, but in others the pattern is produced by the unscraped portions, the intaglio forming a darker background which shows a pleasant contrast to the light yellowish skin of the bamboo.

The most prevalent motive on the pipes is the human form in whole or in part. Information is lacking concerning what it is that is represented—ordinary people, dead relatives, ancestors, or superhuman beings. On two Purari pipes (figures 91, 92) the whole extended human figure is depicted, but a squatting human figure is drawn on a Koriki pipe in the British museum. In figure 91 the upper halves of two individuals are seen joined together; this is not an uncommon motive. Holmes (1902, pl. xli) illustrates two examples from Orokololo. Predominantly the human face is depicted singly or forming a pattern. On one pipe only the eyes are shown. On a pipe (figure 93), the soles of the feet alone are represented.

There are sporadic examples of techniques other than the intaglio.

Fine incised or scratched lines, frequently in the form of cross-hatching, are seen on pipes from the Era and Wapo rivers (figures 86, 87), and from Ukiaravi and Kairu (figures 88A, B), all from the Purari delta. From the Gulf area are two pipes (figures 100, 101) with the same technique.

Jagged lines are known to me on only one pipe (figure 100), from the Milaripi, Gulf.

In a few pipes the pattern is formed by deeply incised lines or grooves, a technique that is found on bamboo receptacles, gourds, and arrows; figure 94 affords an example; an extreme variant is seen on a pipe from Maipua (figure 90).

According to Holmes (1924, pp. 84–6) some of the simple designs found on pipes were also tattoo patterns. Tattooing was not an art native to the Namau, nor was it formerly a general practice among the Ipi tribes. The centre of the art was at Orokolo and its distribution thence was casual. 'As an art to produce permanent designs having totemic significance to the people who bore them, it seemed to be confined to Orokolo and its hinterland.' The tattoo designs of the Keuru of the Haura group, who, also like the Muru, do not belong to the Ipi group but came down fairly recently from the middle Vailala to the coast, had their counterpart in those on the foreheads and breasts of the men of the hill tribes occupying the whole stretch of country between the Purari and the Vailala and inland to the mountain range.

I suggest that the characteristic intaglio technique of the Namau and Elema was brought from the north-west interior of New Guinea by the various migrations to which allusion has been made. Tradition relates that the dry low hinterland east of the Purari was occupied by indigenous peoples who opposed the coastward-trending immigrants, but they were finally overcome and weakened. If this be the case, the sporadic occurrence of incised, scratched, and jagged lines may be the vestige of techniques employed by the aborigines. Evidence has been given that these techniques predominate to the west of this area, and later it will be shown that they are prevalent in areas to the east.

The Mountain peoples of the hinterland of the Delta and Gulf Divisions

The mountainous hinterland of the Delta Division of Papua has only recently been explored. Travelling is very arduous in this difficult country and is not without danger. J. G. Hides with O'Malley in 1935 first explored and described (Hides 1936) the western part of the area and came down the Kikori river at 144°. Ivan Champion and C. T. J. Adamson in 1936 explored the same area but slightly more to the south, mapped lake Kutubu, then more or less followed the boundary and went down the Pio or Purari river. They are now engaged in bringing the area under Government control. The following information, except when otherwise stated, was generously given to me by Adamson in 1938 and 1939. For a large map of the Bamu-Purari Patrol of 1936 by Champion and Adamson and a brief summary of the patrol see Champion and Adamson (1938). I am very greatly indebted to Champion for giving facilities to Adamson, who sent me early in 1939 thirty negatives of men smoking and a collection of eighteen pipes, all of which have exceptionally detailed localities in addition to written information. F. E. Williams sent me further information in 1939 after a visit he had made to the area.

Only a few geographical features need be referred to here of this hitherto unknown region of the great Papuan plateau. West of 142° 45' and south of 6° 30' arises the Wawai river which flows into the Bamu, and north of 6° 15' the Karius range stretches

north-westerly. The Bosavi mountains are south of $6^{\circ} 30'$ and between $142^{\circ} 45'$ and 143° . The Humphries range begins south of $6^{\circ} 15'$ and runs northerly west of $143^{\circ} 15'$; not far from the boundary are Mounts Rentoul and Giblin, both 12,000–13,000 ft. in height. Between the Karius range and the Humphries range is the large valley of the Tari river which flows through Ryan's gorge into the Hegigio river; this unites with the Mubi (Mobi) river to form the Kiko (Kikori) river.

Between $6^{\circ} 15'$ and $6^{\circ} 30'$, but nearer the latter, and between $143^{\circ} 15'$ and $143^{\circ} 20'$ is the large lake Kutubu (Marguerite of Hides). Several rivers have their source in the grassy plateaus south and north of 6° . The most westerly is the Augu which flows some 10 miles east of the lake, then turns south-west and joins the Mubi. From west to east are the Wage or Wela, Nemebia (Nemba), Kawuku, and Mendi; at about $6^{\circ} 30'$ they severally join the Erave, which is a tributary of the upper Purari river.

The Pivia country is at the sources of the Mendi on a grass plateau just north of 6° and about west of $143^{\circ} 45'$. South of 6° and between $143^{\circ} 45'$ and 144° is Mount Giluwe (Keluwere), 13,660 ft. The Tarari country is just north of 6° and west of 144° , and from it flows one of the main sources of the Kagole river. Poriba is at the territorial boundary on the southern side of the valley of the upper Kagole (Kaugel) river about 8 miles north of Mount Ialibu (Yalbu) and about 15–20 miles south of Mount Hagen. The Kagole ultimately flows into the Purari. The names in brackets are those given in the map by Spinks and Leahy (Spinks 1936).

On the northern slopes of the Bosavi mountains, tobacco is smoked in bamboo pipes similar to those used on the coast. Very little tobacco was seen actually growing, but the natives have large quantities of the cured leaf wrapped in bundles, which they use for barter. The native words for tobacco are *sogu*, *soku*, or *suku*, terms which are used by almost every tribe with whom Champion and Adamson came into contact.

Tari valley extends from about 6° to $6^{\circ} 15'$ and is a few miles west and east of 143° . The height of the valley is about 5100 ft. The Tari Furoro are a short, light-skinned, friendly people who wear their hair in mops, and many wear wigs of human hair which may be decorated with flowers and feathers. They are good agriculturalists and make enormous ditches and drains about their settlements. Tobacco, *soga*, was seen growing round their houses. They are fairly heavy smokers and carry the smoking outfit in a string bag which they carry slung over the shoulder. The tobacco is placed in a leaf screw which is held in the pipe and lit either with a coal from the fire or with fire made by the rattan strip and split stick method. There is no difference in their method of smoking from that of the Kutubu people; the pipe, too, and its decoration is of the same type.

The Kutubu-Mubi area extends roughly from $6^{\circ} 15'$ to $6^{\circ} 30'$ and between east of 143° to $143^{\circ} 30'$. About the centre of the area is Lake Kutubu.

Tobacco is used on the northern side of the Hegigio river and in the lake district. A fair quantity was seen in the settlements between the river and the lake, but not so much as at the lake itself. The area is populated by a dark-skinned people whose staple food is sago. They live in big communal houses and in men's houses with the houses of the married persons near them. They seem to have practically the same language and

similar customs throughout the area. Tobacco is grown round the houses and is cured by hanging it up inside the houses. They carry the smoking outfit in a string bag. Tobacco is called *soga* or *sogu* and the pipe *sogoru*. The leaf for the screw is *sogu sai* or *sabora*, and is obtained from a tree which grows in the sago areas.

Most of the photographs of the Tari valley men show them as holding the pipe with both hands at the dorsal hole as if to keep the screw in position (figures 199, 200), but the Kutubu-Mubi photographs show that the pipes are held in various ways, though probably this is not significant. In both areas some of the pipes appear to be undecorated. Adamson says that in the Fasu district, south of Lake Kutubu, and on the lower Mubi river they seem to use a rather larger pipe, which is seen in the photographs (figures 200–202). Adamson sent me a series of photographs showing Neki-nako, one of the chiefs of Wasemi village, Wasemi island, Lake Kutubu, preparing the leaf screw, lighting it, smoking, and handing the pipe to another man (figures 203–206). Apparently when the pipe has been filled with smoke by suction at the open end, the screw is removed and some of the smoke inhaled from the open end; it is then passed to another man for him to inhale what smoke still remains in the pipe.

This method of smoking is different from that characteristic of Papua, as the smoke is not inhaled through the dorsal hole. Neither is the pipe smoked in the same manner as we do, as the smoke is definitely inhaled after the leaf screw has been removed from the dorsal hole.

According to Williams, tobacco at Kutubu is called *soga* (pronounced 'sawga'); the pipe *sog-oro*, 'tobacco bamboo', is of the *baubau* type. A cigarette or screw is inserted into the dorsal hole. The smoke is drawn from the other end of the pipe, which has a perforated septum. He considers that the habit of removing the screw and drawing the smoke out of the dorsal hole, which some of the local natives are adopting, was introduced by the police. Tobacco is cultivated very commonly and often planted along the sides of men's long houses.

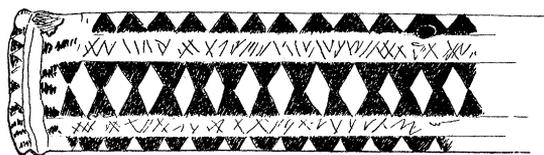


FIGURE 103. Pipe, fore part, Tari Furoro. D. by F. E. W.

F. E. Williams has sent me the following tale concerning the introduction of tobacco to Lake Kutubu; it was so secret that the uninitiated were not allowed to hear it. A man shooting birds from a hide at the east end of the lake was surprised by the arrival of a strange woman coming from the east. The sight of her turned his head and he made for his home in one of the lake villages, where he continued to behave like a madman, being kept in a small shelter, fed on leaves and nursed by his kinsmen. Finally he recovered. Before his death he told his brother to look under the tags of hair hanging at the back of his head for what he would find. The brother did so and found there a tiny string bag, such as is worn for carrying charms. In this bag were the seeds of the tobacco plant.

Hides (1936, p. 104) gives a photograph of a Tari Furoro man smoking a long decorated bamboo pipe from the open end. F. E. Williams has given me the following information about this pipe, or one very similar to it. 'The bamboo is 18 in. (45.7 cm.) long and $1\frac{3}{8}$ in. (3.5 cm.) in diameter. One node is intact, the other has a hole in it less than $\frac{1}{2}$ in. (13 mm.) in diameter. The dorsal hole, 4 in. (10.1 cm.) from the other end, is very small, $\frac{1}{8}$ in. (3 mm.) in diameter; apparently it has been used for a leaf cigarette. The pipe is completely covered with scratched and poker-work designs, the latter forming white diamonds on a black background.' The pipe (figure 103) is decorated with longitudinal bands of lozenges formed as such with burnt interspaces and bands of burnt triangles; alternating with these are narrow bands containing irregular scratchings.

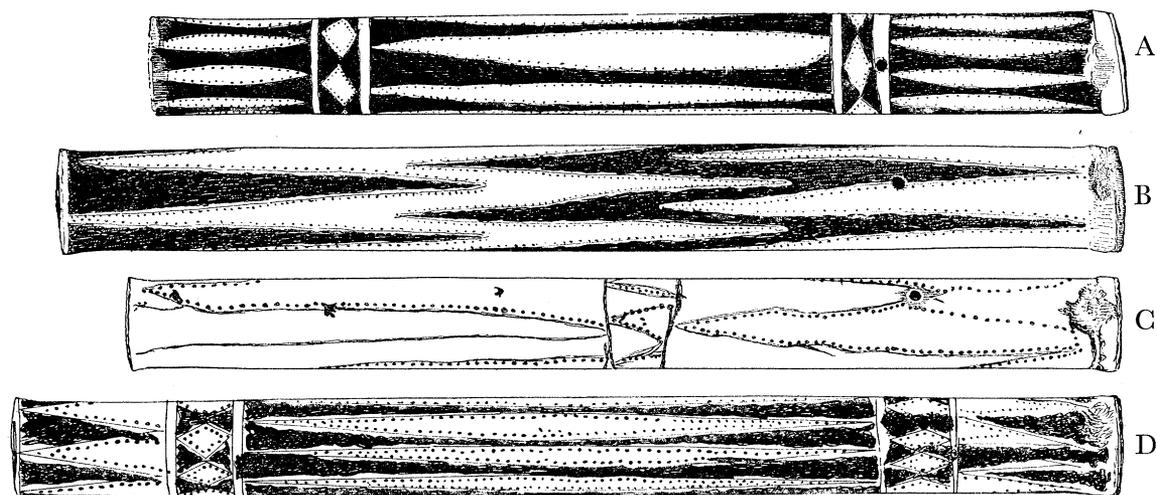


FIGURE 104. Burnt technique. Cm. A, B, C, Iokorobu village, Tari valley, 39.185, 39.186, 39.187. D, Wasemi island, Lake Kutubu, 39.189.

Three out of four pipes from Iokorobu village, $6^{\circ} 12' 15''$ and $143^{\circ} 04'$, in the Tari valley are shown in figure 104A, B, C; the fourth is similar to A, and is said to come from Lake Kutubu. The simple patterns need no description; the patterns were outlined by burnt lines, which in some cases are so fine as to appear as if they had been incised; the dark areas are burnt, as are the dots. In all the dorsal hole is very small. (A) 39.185, 38×4 cm.; (B) 39.186, 41.5×4 cm.; (C) 39.187, 39×3.6 cm.; (D) 39.189, 40.2×4.5 cm.

There is one pipe, 39.189, from Wasemi village, Wasemi island, Lake Kutubu (figure 104D), which is so similar in the style and technique of the decoration to the Tari valley pipe (figure 104A), that they evidently belong to the same cultural area, but perhaps it was brought from the Tari valley. 43.4×4.1 cm. One pipe has no definite provenance; it probably came from the Tari valley. The fore and the aft bands contain elongated burnt triangles, and the broad central band elongated attenuated burnt lozenges; all without marginal dots. The two narrow bands are very similar to those of figure 104A. 42.7×3.4 cm.

Williams says that nearly all the Kutubu pipes are quite plain. He sent me four sketches (figure 105 A-D) of the sort of decoration employed. It is in rather crude scratching, but in one case there are only small pin-point holes.

The Kutubu people trade with the Augu people and the same sort of pipe is commonly used at Augu.

Farther inland in the Wela valley the pipe is called *hilum*. As bamboo is relatively rare up in the high valleys, a climbing cane, *hilum*, is used instead. The cane has slightly defined nodes about 12 in. apart and it may be as much as an inch in diameter. Externally the cane is very like the ordinary solid rattan cane, but it possesses a fine central hole running down the length of each internode. A section is cut off leaving one septum intact; then an inch or so from the node a small lateral hole is bored which leads into the central hole. This serves as the dorsal hole for the screw, and the smoke is drawn from the other end of the internode (figure 105E). Williams thinks that the dorsal hole was made in order to keep the cigarette vertical, which would be more convenient than if it was inserted horizontally in the central hole had the septum been cut away. Some of these pipes are slightly curved.

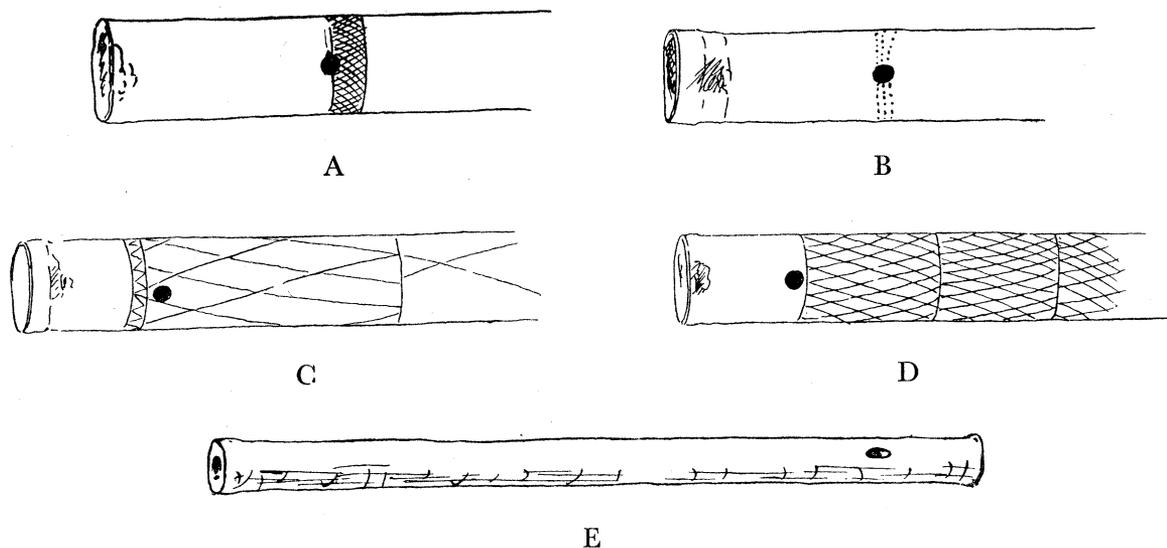


FIGURE 105. Pipe decoration. A-D, scratched technique, Kutubu. E, pipe, *hilum*, Wela valley. D. by F. E. W.

Tobacco in these upland valleys, Augu-Wage-Wela (which are those which Williams visited), is called *mīt*, which merely means 'smoke'—the smoke of a fire is *īsh-mīt*, 'wood smoke'. The screw or cigarette, *mīt jor*, is made with a leaf, *jor*.

Champion and Adamson in 1938 entered the valley system of the Erave river in $6^{\circ} 22'$, $143^{\circ} 36' 30''$. It is populated by a dark-skinned people who were rather difficult to deal with. They were exceptionally heavy smokers, and a large variety of pipes was seen. The natives could not then be induced to part with any of them. There are three main varieties.

(1) A holder similar to that of figure 105B, but of larger size (figure 207; camp 7, Erave valley, $6^{\circ} 22' 35''$, $143^{\circ} 36' 42''$, 4720 ft.; 14. vii. 38). The screw was inserted into the tube and smoked in the same way as we smoke a cigarette. No others of this type had then been seen in the Erave valley. This is what Adamson terms the Kagole type; presumably it is made of wood.

(2) A short thick pipe made out of the root of a bamboo, with one end closed (figure 208; camp 7, Erave valley). A pipe of exactly the same type was obtained from the lower Wage valley (figure 106C).

(3) A short slender type of pipe was also seen at camp 7 (figure 208). Adamson examined a number of these pipes, but could not buy any. They were all well 'seasoned' and full of nicotine. Most of the pipes were plain, but a few had a rough design scratched upon them. Tobacco was seen growing around the houses; it is hung up inside to cure. Later, 16. vii. 38, at camp 10, $6^{\circ} 19' 15''$; $143^{\circ} 31' 57''$, in the same valley, two small bamboo pipes were obtained. Both are quite plain. One, 39.191 (figure 106A), is very small and is made from the root end of a bamboo, 24.5×1.5 cm.; the other, 39.192 (figure 106B), is stouter, 25.4×2.7 cm.

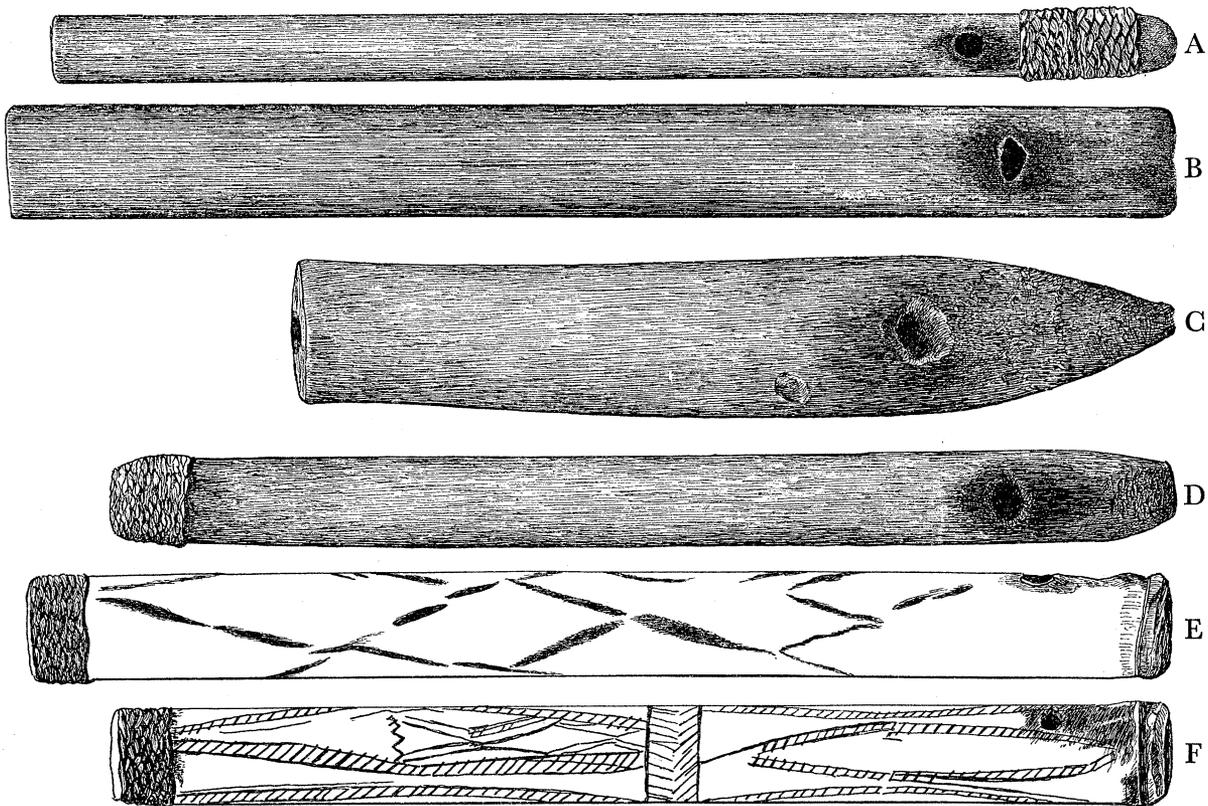


FIGURE 106. Pipes, Cm. Erave valley, A, 39.191; B, 39.192. Lower Wage river, C, 39.193; D, 39.194; E, 39.195; F, 39.196.

What struck Adamson about the pipes was their short length and the way in which the screw was inserted into the pipe and not held while being smoked. This was the case for all the pipes, but it was more noticeable for the Kagole type of holder, type 1.

At a height of 5920 ft. on a tributary of the main river, the men were not nearly as heavy smokers and all their pipes were of type 3.

In the lower Wage valley, at $6^{\circ} 20'$, $143^{\circ} 30' 15''$, tobacco is called *soga* or *sogu*; it is grown around the houses and cured by hanging it up inside. A marked difference was seen in the pipes here and those farther up the valley. Here they were of the same types

as those of the Erave valley, except that type 1 was absent, while farther up they were of the Kutubu-Tari type.

Five pipes from the lower Wage river were obtained at Maranda village, 5700 ft., 18. vii. 38. Pipe 39.193 (figure 106C) is very short and thick; it is made from the root end of a bamboo and is undecorated. 19.1×3.6 cm. Pipe 39.194 (figure 106D) is also made from the root end of a bamboo. It is plain and has a plaited cane band at the open end. 23×2.1 cm.

The other pipes are made from an internode of bamboo. Pipe 39.195 (figure 106E) is decorated with an irregular lozenge network of slightly burnt lines. 25.2×2.4 cm. Pipe 39.196 (figure 106F) has a central band with an imperfect chevron and two broad bands containing lozenges, the centre of which may be plain or with simple designs. 23.1×2.2 cm. Pipe 39.197 (figure 107A) is very thin. The decoration consists of elongated oblongs and truncated triangles containing transverse rows of zigzags. 32.3×1.3 cm. In the last two pipes the pattern is formed by thin burnt lines.

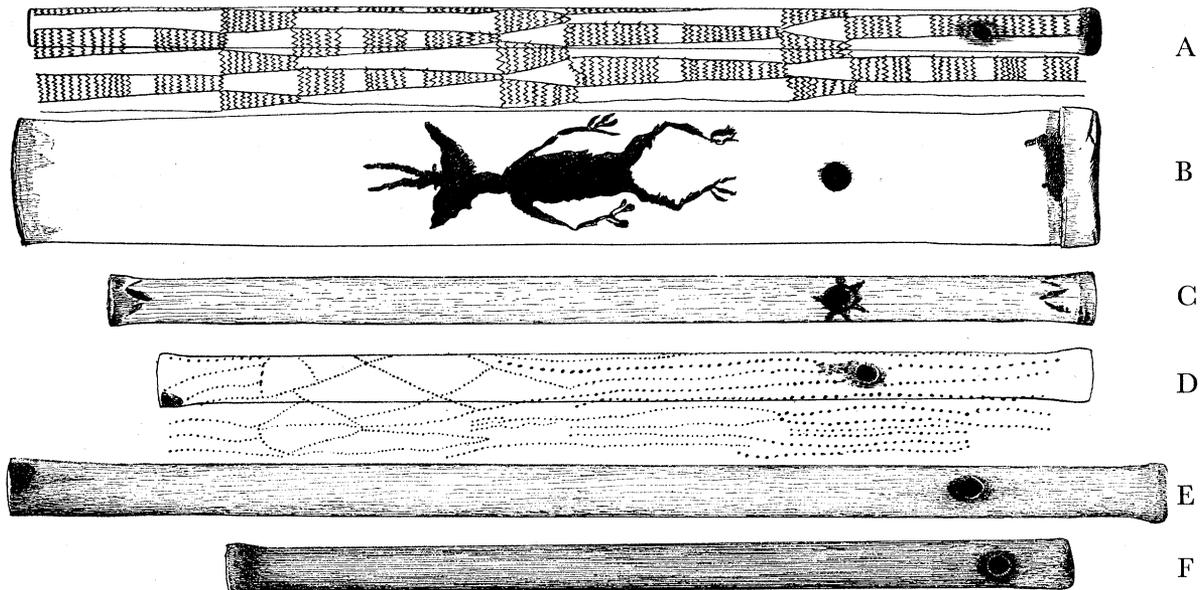


FIGURE 107. Pipes, Cm. Lower Wage river; A, 39.197, pattern displayed. Middle Wage river; B, 39.198, Wage river; C, 39.199; D, 39.200, pattern displayed, Nembia valley; E, 39.201; F, 39.202.

A variety of pipes was seen in the middle Wage valley. At $6^{\circ} 05' 43''$, $143^{\circ} 22' 23''$ the large Tari-Kutubu type seemed to predominate, but going northward the small slender type became general (figure 209). Pipe 39.198 (figure 107B), from $5^{\circ} 59' 58''$, $143^{\circ} 21' 50''$, is typical of a number that were seen, but the burnt design is unusual and it was the only one seen with that particular design; it represents a man with a wig surmounted by two feathers. It is burnt without an outline. 32.6×4 cm.

Two small slender pipes were obtained at camp 7, Wage river, $6^{\circ} 02' 52''$, $143^{\circ} 21' 56''$, 6980 ft.; both are made from the internode of a bamboo. Pipe 39.199 (figure 107C) has a burnt star at the dorsal hole and a burnt zigzag at the aft end. 29.7×1.5 cm. Pipe 39.200 (figure 107D) has simple burnt punctate designs. 28×1.5 cm.

The men here are heavy smokers and their method of smoking is the same as that at the Erave valley. Tobacco was seen growing around the houses and was hung up inside. The people are darker in colour than the Tari, but the language appears to be very similar.

At camp 20, $6^{\circ} 07' 46''$, $143^{\circ} 26' 04''$, in Nembia valley, tobacco is called *soga*; it is grown around the houses. The language appears to be the same as that of the Kawuku valley. They are heavier smokers here. The pipes are similar to all those seen from the Rai basin to this place. The two pipes obtained here are made from an internode of bamboo and are quite plain (figure 107). (E) 39.201, 34.9×1.7 cm.; (F) 39.202, 25.4×1.5 cm.

In the upper Wage valley, at camp 10, $5^{\circ} 54' 18''$, $143^{\circ} 21' 50''$, 8100 ft., the small pipe was general and no large ones were seen; they were similar to those of figure 107 C, D. The population is rather scattered and they are not heavy smokers. Tobacco is called *mundu*.

People of the same type and habits extend from the upper Wage to Rai basin, where at camp 12, $5^{\circ} 53' 06''$, $143^{\circ} 26' 28''$, 7850 ft., all the pipes were similar to those of figure 107 C, D. Tobacco is called *mundu*. They did not seem to be heavy smokers (figure 210).

From camp 12 (Rai basin) and down the upper Kawuku valley to $6^{\circ} 03' 06''$, $143^{\circ} 31' 18''$, 7000 ft., the population, pipes and the name for tobacco (*mundu*) remain the same. None of these people appear to be heavy smokers, although they all appeared to smoke. The pipes are all of the small slender type and are mostly plain, but a few had a scratched design on them.

Adamson says that all the people in this part of Papua appear to be very similar in all that pertains to tobacco smoking. The outfit is always carried in a string bag slung from the shoulder. Fire is made by the sawing-thong method with a strip of rattan and a split stick. The tobacco is rolled in a leaf screw. There appears to be only one kind of tobacco. After a few puffs the pipe is handed to someone else. The tobacco does not seem to be specially cultivated, but is just planted about the houses and when young protected by a few sticks. The leaf of the tree used for the screw is cultivated in the sago swamps of the Kutubu area. The natives of the grasslands use another kind of leaf; these grasslands are so denuded of timber of any sort that it is probable that they do cultivate this particular tree.

From the accounts given by Adamson and an inspection of the photographs he sent to me, it is evident that the natives of this area do not inhale the tobacco smoke from the dorsal hole as is the general practice in Papua, but they inhale the smoke from the open end of the pipe.

Two straight holders of light-coloured wood from the Pivia plateau and a curved one from Poriba in the valley of the Kagole river were collected in November 1936 and were given by the Government of Papua to the Cambridge museum. As their characteristics are shown in figure 108 they do not need further description. Adamson, who accompanied Ivan Champion on this expedition, informed me that tobacco, *sogu*, is rolled in a leaf screw which is held to one end of the holder. This end of the

holder is charred. These holders are unlike any others hitherto described, but, according to Adamson, as previously mentioned, one of a similar type has been found in the Erave valley. The area of its distribution cannot be delimited till further information is available.

A few tobacco plants, *sogu*, were seen in 1936 growing on the Poru plateau (camp at $6^{\circ} 19' 42''$, $144^{\circ} 12' 30''$), but Adamson did not see anyone smoking.

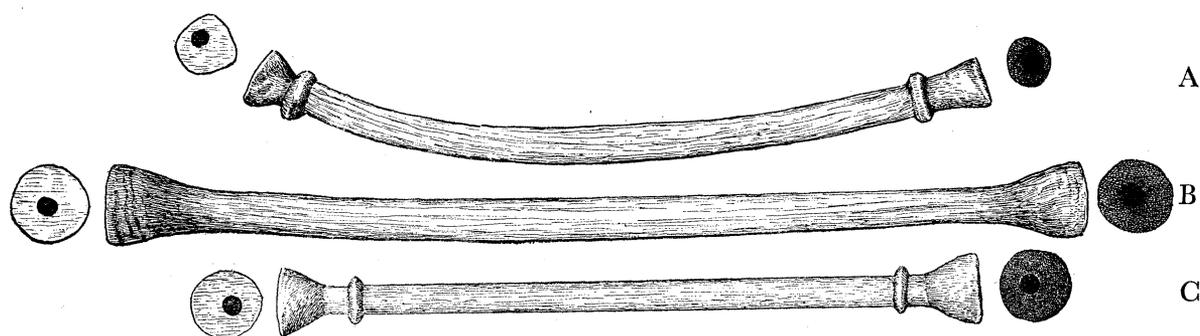


FIGURE 108. Holders, light-coloured wood, western upper Purari river. Cm. Poriba district. A, 37.1537, curved, bead near each end. l. 21.1 cm.; diam. stem 1 cm., mouth end 1.7 cm., bowl end 1.3 cm., coll. I. Champion. Pivia district. B, 37.1538, l. 27.5 cm.; diam. stem 1.1 cm., ends 2.2 cm., coll. I. Champion. C, 37.1539, bead near each end, l. 19.8 cm., diam. stem 0.9 cm., ends 2.1 cm., coll. M. J. Healy.

Tive plateau is approximately at $6^{\circ} 25'$ and west of $144^{\circ} 45'$, and Karimui plateau is about $6^{\circ} 30'$ and east of $144^{\circ} 45'$. Here a large quantity of tobacco was seen in cultivation, and the natives are heavy smokers, especially those at Karimui. They use the coastal *baubau* type of pipe. Ivan Champion (*Illustrated London News*, 6 March, 1937, p. 388) gives a photograph of a Karimui man smoking.

In the Samberigi valley and its neighbourhood Staniforth Smith (1911, p. 170) found tobacco cultivated in every native garden. It is universally called *suku*. The Samberigi creek, according to Champion and Adamson's map, rises north of Mount Murray and flows westerly to join the Mobi, a tributary of the Kiko. The Samberigi tribes inhabit an area between $143^{\circ} 45'$ and 144° and between $6^{\circ} 30'$ and $6^{\circ} 45'$. Beaver (1920, pp. 262, 266) says there are a few gardens of tobacco in the 'Sambrigi' valley; they grow good tobacco in the valley of the Mobi. According to Flint (1923, p. 149) tobacco is grown extensively and is traded with the coastal people; the quality is good, but it is badly cured.

Ryan (1912, p. 73) says: 'A large amount of trading is carried on between the natives on the coast and the natives up above the station [Kikori]; the coastal natives bring up their canoes loaded with crabs, and get in exchange tobacco leaf, which is grown by the natives of Marau's and Siaki's villages in large quantities.' Marau's village is on Ututi creek and Siaki's village on the Mati, a small stream below Udubi creek.

South of Mount Murray, near the source of the Iehi, a north-south affluent of the Kiko at 144° , Hides (1936, p. 188) saw four old men incessantly smoking large 'baubaus'.

Kukukuku was the term applied to the hinterland mountain people by the Motu who came to the Gulf in *lakatoi* for trading purposes, and it has since become the unsatisfactory name for a congeries of often predatory peoples who have unsettled habits and do not live in large villages. In Papua, according to Chinnery (1934*b*, p. 114), they extend from the headwaters of the Western Lakekamu (Tiviri) and Tauri to the Eastern Vailala, which probably is the Evori (Ivori), which flows from the Albert mountains. Skelly (1919, p. 73) says of the 'Kukus' who live at Pikwa-a, high up on the ranges of Mount Albert, about 8–10 miles south of the Boundary and near where the Swanston joins the Ivori tributary of the Vailala, that tobacco, 'which they never indulge in', is absent. Men, women and children chew betelnut at all times of the day. Oldham (1914, p. 89) also says that the Kukukuku 'do not smoke, but chew betelnut. . . . The people living on the eastern branch of the Williams River [Lakekamu] are distinct from the natives of the Arabi, Tiviri, and Olipai rivers [to the west]. . . . They smoke long cigarettes, about 6 in. by 1 in., placed in a bamboo holder, 6 in. by 1¼ in., and chew betelnut.' The natives across the Arabi and Williams rivers call tobacco *yeb*.

Mountain peoples of the Central, Northern and North-eastern Divisions of Papua

Before considering the coastal regions south-east of Cape Possession and their immediate hinterlands, it has been found advisable to study the mountain peoples of the Main range from Mount Lawson to Mount Nisbet. The enumeration of the peoples is to be regarded as purely geographical, as they do not necessarily belong to one ethnic stock. It is probable that owing to scanty material the following conclusions may have to be modified when more ample data are available.

The areas from which I have information or material are: (1) Mounts Chapman and Strong and the Kunimaipa valley. (2) South of Mount Nelson; the Goilala. (3) Mount Albert Edward. (4) The Chirima valley. (5) Mounts Scratchley and Momoa, and the Yodda valley. (6) Mounts Bellamy and Nisbet; the Agi. (7) The upper Kumusi river and the Mamama river areas.

It is more convenient to deal with the Koiari and allied mountain peoples of the Central Division in another section, and the same applies to the peoples of the hinterland of the Rigo district.

(1) *Mounts Chapman and Strong and the Kunimaipa valley.*

Most of the following information is given by Chinnery (1918, pp. 59–67, and map).

The Goi-efu or Kuefu Vera-vera live between Yarima, a northern buttress of Mount Yule, and the Omeri range to the west at the headwaters of the Akaifa affluent of the Biarur river which flows into the Gulf of Papua north of Cape Possession.

The Kunimaipa river flows in a south-westerly direction between the eastern side of the southern spurs of Mount Chapman and the western side of the southern spurs of Mount Strong (Minarua). The river bends up at Mount Mau-uru, immediately north of Mount Yule, and turns north-east between the most southern spurs of Mount Chapman and the Poto range. Lower down the river joins the Lakekamu.

The streams south of the watershed of the Kunimaipa join the Akaifa and other tributaries of the Biaru, while those to the south-east, the Loloipa and others, help to form the headwaters of the Angabunga or St Joseph river which debouches into Hall sound. The Lakekamu, of which the Kunimaipa is the most important tributary, flows into the Gulf of Papua south of Freshwater bay.

In the Kunimaipa valley on the northern slopes of the Poto range dwell the Goi-efu Lupiriario and the Goi-efu Itariario. The Goi-efu Inapera live on the northern slopes of Mount Mau-uru. The Goi-efu Gerebi live on the southern slopes of Mount Mau-uru; Chinnery regards these as a southern migration from the Kunimaipa valley, where in the north-eastern portion of the valley there is a Girebi tribe. Chinnery is not certain whether Goi-efu or Kuefa is a tribal name embracing the peoples referred to, or whether it is simply a geographical feature distinguishing them from other communities in the neighbourhood bearing the same name. He gives (1918) a good general account of the ethnography of the valley.

Mr R. G. Speedie wrote to me in 1929 that there are 'two Girebi tribes in the Mount Yule district, one north-north-west and one north-east'. The holders (described later) were collected at Guara village, Girebi tribe, Kunimaipa valley, 12 miles north-north-west of Mount Yule. He also stated that the Girebi of Kunimaipa valley have trading relations with the people of Maipa village of the upper Mekeo district, and that the Mekeo also regularly attend dances in the Kunimaipa valley. Chinnery's map (1918) shows Guari village in the lower portion of the north-eastern part of the valley, and I assume that it is the same as Guara. In the same map Maipa village is on the lower part of the Akaifa river.

The streams of the northern slopes of the divide at the southern end of the upper Kunimaipa valley are part of the system of the headwaters of the Waria river, which flows into the Pacific ocean near Morobe.

Chinnery (1918, p. 56) describes the Kau as a beautiful plateau stream which rises from the saddle at the top of Kunimaipa valley and flows according to his map (1931) into the Gene; this lower down is known as the Ono, which is a tributary of the Waria river. The Sini live about the Gene on the northernmost slopes of Mount Strong. Chinnery (1931, p. 35) states: 'Like the other mountain people of the Waria watershed the Sini have friends among the tribes on the Papuan side of the border, and they are on exceptionally good terms with Mizhani, the last village in the Kunimaipa valley on the southern slopes of Mount Chapman (Noanoa).' The Sini are also friendly with the peoples who live lower down the river.

Chinnery (1918, p. 60) states that articles of adornment of the peoples of the Kunimaipa valley have much in common with those in the Chirima valley and in the Kumusi Division. Tobacco is cultivated in and around the villages. Native tobacco is called *mau-upu* by the Goi-efu (Kuefa), who call trade tobacco *kaniji*. Native tobacco is called *itolu* by the Kunimaipa and Gaizhiri tribes (the Gaizhiri live on Mount Chapman), *munamuna* by the Biaru (Kovio) and Loloipa tribes, and *uzhoto* by the Sini.

It was apparently just to the west of Kunimaipa valley that Monckton (1922, p. 224) 'found the people smoking cigars of excellent leaf, cigars that they smoked

through a bamboo holder—the only spot in New Guinea where I have found tobacco used in the form of cigars’.

The six holders I have examined from the Kunimaipa valley, apart from the beauty and delicacy of some of the patterns, are of peculiar interest, as several of the patterns are met with in other areas.

The first four holders are cut out of a single internode of a small bamboo, but there is a widely perforated septum near one end of the other two. Apparently all the lines were made by burning, but in two pipes (figure 110) they have been so cleaned by the natives that very little or none of the charring remains; this is particularly the case in one pipe (figure 110B). In one pipe (figure 112) the smaller triangles have been scraped after being burnt; they have a brownish colour. The two bands and the large triangles of the pipe shown in figure 112 and the triangles of the pipe in figure 113 are fully burnt.

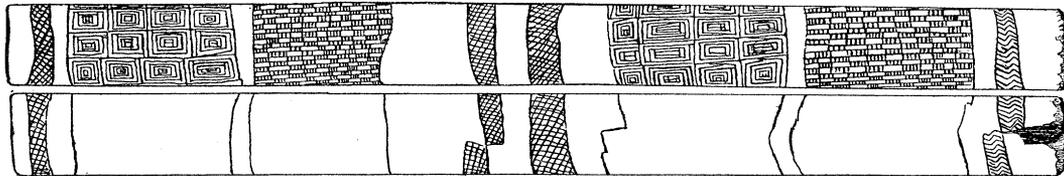


FIGURE 109. Holder, Kunimaipa valley, pattern displayed (but not patterns of broad bands), in lower figure. Cm. 37.1532.

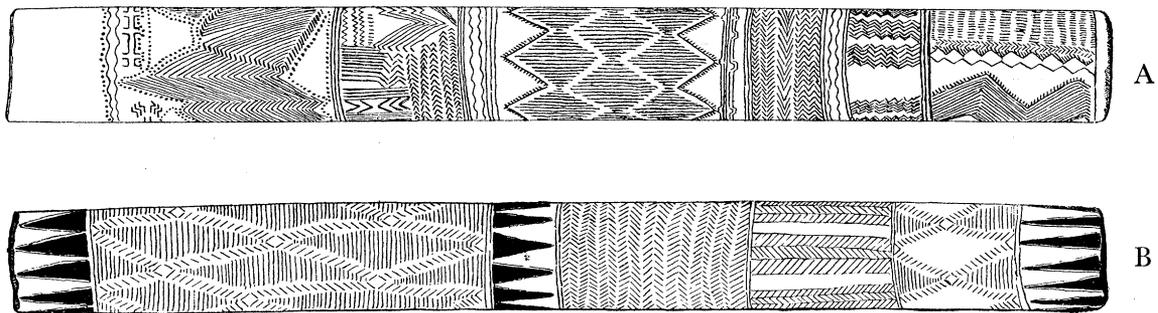


FIGURE 110. Holders, Kunimaipa valley. Cm. A, 37.1533; B, 37.1534.

The patterns as a rule run as bands round the tube and are separated by lines or narrow plain bands or narrow bands with simple enhancement. The holder shown in figure 111 is the only one with no demarcation between the transverse patterns.

Holder, Cambridge 37.1532, given by Lord Moyne (figure 109), has broad patterned bands of concentric squares and chequers and narrow cross-hatched bands. 28×2.2 cm.

Holder, Cambridge 37.1533, given by Lord Moyne, has more intricate patterns, as shown in figure 110A, which baffle description. The central band contains lozenges formed solely by longitudinal lines separated by plain stripes. 29×3.2 cm.

Holder 37.1534, given by Lord Moyne, has less intricate patterns (figure 110B); there are two bands of lozenges, which in the narrower band are plain; all are bordered with short oblique lines. In the narrower band the triangles, and in the broader band

all the lozenges and triangles, are enhanced with transverse lines. There are three bands of burnt triangles. The triangles were first outlined by a burnt (?) incised line and then the interior was carefully burnt; the burning only occasionally extends beyond the incised outline. 28.9×3 cm.

The following three holders were collected by R. G. Speedie and given by him to the Cambridge museum. They came from Guara village, Girebi tribe, Kunimaipa valley.

Holder 31.813 is the smallest and most neatly decorated of the six Kunimaipa holders. The design (figure 111) consists mainly of fine transverse stepped lines, close to one another. In the greater part of the band the steps are so arranged as to form diagonal bands around the holder; at intervals some of the transverse lines are fringed. In a few places the fringes of two parallel lines face each other so as to produce minute lozenges or a zigzag. In one part the steps of the transverse lines are skilfully disposed so as to produce lozenges. There are also two bands of concentric quadrangles. 23.5×2.7 cm.

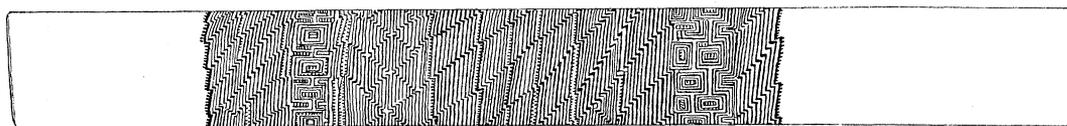


FIGURE 111. Holder, Guara village, Girebi tribe, Kunimaipa valley. Cm. 31.813.

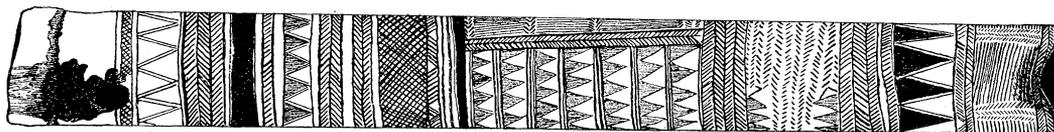


FIGURE 112. Holder, Guara village, Girebi tribe, Kunimaipa valley. Cm. 31.812.

Holder 31.812 is the largest of the series and has a widely pierced septum close to the end which is placed in the mouth. This holder differs in the type of its decoration from all the others (figure 112). In each of the two broadest bands there are two different patterns; the triangles in these bands and in one other band are scraped, but they may have been burnt previous to being scraped. There are two narrow burnt bands and one band of burnt triangles which point towards the end in which the tobacco was placed, as is indicated by the charring of that end. Each triangle has a double burnt-line outline; the burning was made within the inner lines. 29.5×3.3 cm.

Holder 31.811 is the most simply decorated of all. Speedie wrote on it: 'Name *nerere*; markings *rede-o* [this may apply to the herring-bone pattern only]. From Girebi tribe, Kunimaipa valley, 12 miles N.N.W. of Mount Yule, Central Division, Papua. Cig. holder or tube, not pipe.' The decoration is clearly seen in figure 113. The outlines of the triangles were made by lines before the interspaces were burnt, and the lozenges were similarly outlined by crossed lines. Bordering the bands of triangles are narrow transverse bands of oblique lines, giving a herring-bone effect. 32.7×2.7 cm.

A carefully decorated holder, *mangi*, 30.108 (figure 114) was obtained by Chinnery from a man of Ono river; though it came from beyond the boundary of Papua, it certainly belongs to the same artistic cultural area as the Kunimaipa holders. At one

end are scraped triangles which previously were burnt. The two decorated bands consist of transverse stepped lines, the steps being so disposed as to form a pattern of lozenges or a net pattern. Regular or irregular crosses are formed at the 'knots' of the net. 25.2×3.2 cm.

The foregoing series of holders are of especial interest as they came from the far interior of Papua and therefore their decoration presumably represents an indigenous art and one that, in the main, is unlike anything with which I am acquainted, though in a simplified manner it is found on some pipes from the Mekeo district, where certain elements of the patterns were interpreted in jagged incised lines.

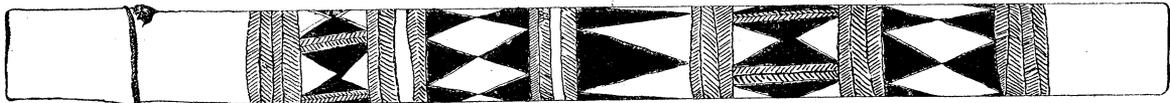


FIGURE 113. Holder, Guara village, Girebi tribe, Kunimaipa valley. Cm. 31.811.

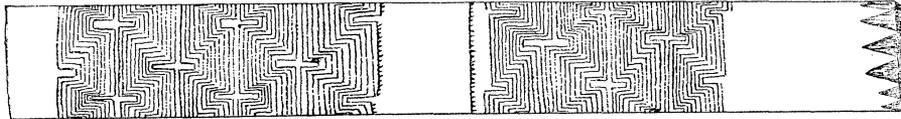


FIGURE 114. Holder, Ono river (tributary of Waria river). Cm. 30.108.

The distinguishing feature of this artistic cultural area is the use of stepped lines. In two holders (figures 111, 114) the steps of the lines form a network which encloses a series of lozenges, and obviously considerable skill is required to do this consistently. In the end bands of the holder shown in figure 110B, the same general effect is produced in a much simpler manner; it looks as if the artist was not sufficiently skilled in the former technique. Perhaps the lines joined by chevrons such as those of a terminal band and part of the central band of holder 31.812 (figure 112) are a simplification of stepped lines.

One holder (figure 112) is peculiar in having scraped triangles. Three holders have bands of burnt triangles within incised lines. Burning of pattern areas is found in the Goilala district (figure 116), and is characteristic of the Main range to the south. We may assume that this technique has spread from the south-east into the Kunimaipa valley. The burnt patterns of the coastal area from Cape Possession eastward belong to a different cultural spread.

Bands of cross-hatching and chevrons are met with in other parts of the Main range.

(2) *South of Mount Nelson. The Goilala.*

According to Lett (1935, pp. 141-57) the Dapa and Sopa tribes live on a high ridge south of Mount Nelson and north of Mount Chamberlain; on its western flanks is the Lova river with its tributaries. These two virile and war-like tribes are known collectively as the Goilala. The Dapa were the most aggressive and had a very influential chief. The Goilala drove out the first Government patrol from their country in 1917. There were further difficulties with the Government, but in 1922 village constables were appointed among the Goilala.

In 1938 Patrol Officer G. M. Rodger sent me the following information, which applies to all these tribes.

The holder, *kugile*, is a piece of bamboo about 10 in. long, open at one end, whilst a hole is pierced through the septum at the other end.

The large pipe, *togu*, is more elaborately decorated by incised and burnt technique. Burning seems rarely to be used in the holder.

It appears that the pattern is first incised with a tooth of a cuscus (*Phalanger maculatus*). Then 'the open spaces are blackened by a small ignited piece of bark or pandanus', which the operator keeps glowing by continuously blowing upon it. The incised technique is termed *kawpepi* and the burnt *inaemuti*. The charring is never cleaned off, and after the completion of the pattern the work is not retouched. The pipe is frequently polished with pig's fat. When a pipe becomes useless it is not thrown away at random but is broken up and burnt.

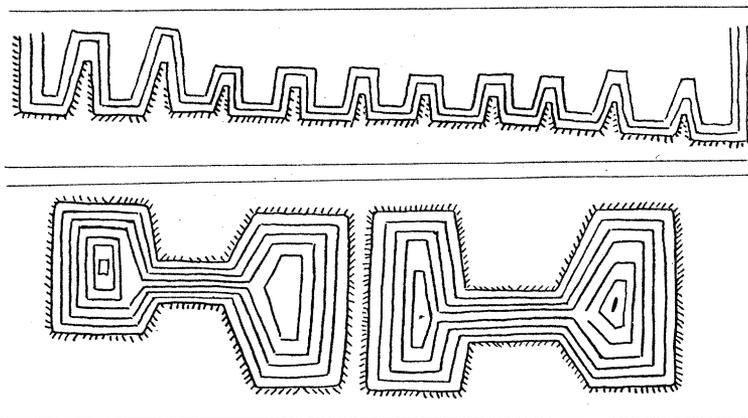


FIGURE 115. Holder decorations, Goilala. D. by G. M. Rodger.



FIGURE 116. Holder, Lole village, Loleavu tribe, Lowe valley, Goilala. Cm. 31.817.

Patterns appear to be chosen indiscriminately, and there is no variation in the design of a patterned strip.

There is not much ceremony associated with smoking. The holder or pipe is passed from hand to hand whenever a group foregathers. Each man takes three or four greedy gulps of smoke and hands it to his neighbour [apparently this refers to the holder]. Visitors from another tribe are always handed a pipe in token of friendship and hospitality, but the tobacco is first lit by the hosts.

Mr Rodger sent me sketches of the decoration of two holders (figure 115).

Ivan Champion gave me a holder in 1931 labelled 'Lole village, Loleavu tribe, Golilala district, Lowe valley' (figure 116). This holder, 31.817, has a perforated septum near one end; this, the proximal, end evidently was the mouthpiece, as the other, the distal, end is distinctly charred. The patterns are shown in the drawing;

they are not executed with much skill or care, and there are obvious mistakes. There are indications that the decoration was first sketched by thin, presumably burnt, lines; then many of the lines were emphasized by deeper burning and finally certain areas were burnt. 28.5×2.3 cm.

At Sidema village, Giumu tribe, 8 miles east of Mount Nelson, native tobacco is called *paosi*.

(3) *Mount Albert Edward.*

Mount Albert Edward, one of the highest mountains of the Main range, is the source of one of the chief tributaries of the Angabunga river. Other drainage systems flow north to the Waria, east to the Aikora, and south-east to the Chirima rivers.

When in Papua in 1914, I made rubbings of three pipes said to have come from Mount Albert Edward, probably from its western slopes. The decoration is entirely in fine jagged lines; the drawing from a rubbing (figure 117) shows its character; that of the other pipes is very similar. Length about 60 cm. The scheme of decoration, technique, and most of the patterns are similar to those of certain pipes from the Mekeo, Kuni and Nara areas.

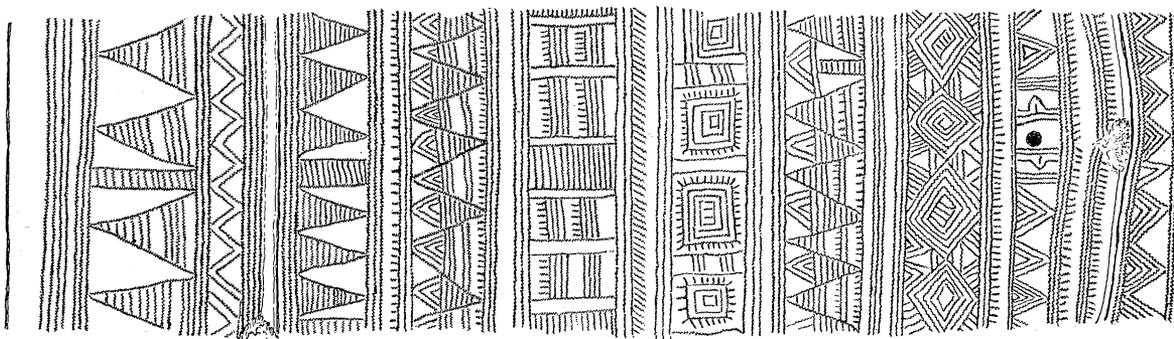


FIGURE 117. Pipe, said to be from Mount Albert Edward. R.D.

(4) *The Chirima valley.*

The Chirima river rises on the western and southern slopes of Mount Albert Edward and receives small tributaries from Mount Stonewigg and the Wharton range, including the Asiba which has its sources from Mount Teira, the southern end of the Wharton range, and from Mount Scratchley. The Chirima then, instead of a south-easterly course, flows eastward and joins the northerly flowing Yodda to form the Mambare river. Cawley (1929) gives a useful sketch-map of the district.

Kuama village of the Garima tribe is situated, at a height of 7000 ft. above sea-level, at the source of the Songoa creek and between it and the headwaters of the Chirima river. At the junction of these streams are the Chirima tribe of Cawley, and a little lower down on the north side of the Chirima river are the Kambisi villages, and, according to Monckton's map (1907) the Gagara live farther down; these are the Sungena of Chinnery (MS.). Gagara village lies west of the Otovia range, and behind it is a hill which forms the divide between the Chirima and the headwaters of the Aikora, which flows into the Gira river (Cawley, MS.). Cawley shows numerous

named villages on the south side of the middle part of the valley, some of which are grouped as the Kandilana tribe. Iamofa is near the mouth of the Asiba, and higher up on the left bank of the Asiba north of Mount Scratchley live the Fofoa tribe.

C. F. Jackson (1916, Papua, *Ann. Reports*, 1914–15, p. 13) found that the dialects of Gilua village, Vovoi (Fofoa) tribe and of Gomali (Goromani) in the Vetapu valley on the western slopes of the Wharton range were 'practically identical', and that there is intercourse and intermarriage between the two peoples.

Williamson (1912, pp. 8–12) refers to the many resemblances between the culture of the Chirima valley people (the Kambisi) and that of the Mafulu, the most northern of the Fuyuge-speaking peoples, although the Kambisi and Mafulu are separated by the northern part of the Wharton range. The Chirima valley people speak dialects of the Fuyuge language. F. E. Williams (1930, p. 5) says that before the arrival of Europeans in Chirima valley there was apparently no contact between the inhabitants of the valley and the Orokaiva to the east.

Monckton (1907, p. 89) obtained at Kambisa (Kambisi) a tobacco pipe (he calls it a 'baubau') 'in which the entire inside was almost closed by incrustation of tobacco juice and ash, resembling a cake of Indian ink, and possessing a peculiarly aromatic smell instead of the usual nauseating reek'. At an altitude of about 10,000 ft., on the summit of the north end of Wharton range, he found tobacco plants growing; but he did not know whether the plants were indigenous to the mountains or the seed had been dropped by the natives. The tobacco was 'remarkable, even among New Guinea tobacco, for its fragrance and its long pointed leaves' (p. 90; see also Monckton, 1922, pp. 39, 46). Tobacco is called *ewuta* at Kambisi, and bamboo *e* (Monckton 1907, p. 93); Finsch (1914, p. 304) gives *ewutu* for Mount Albert Edward.

F. A. Cawley informed me in 1929 that 'the natives of the Chirima valley after drying the tobacco leaves in the sun and subsequently over a fire made from the husks of the fruit of the pandanus, which imparts to the leaf a peculiar odour which is found only in the tobacco smoked by these people. . . . The leaf after being cured is rolled in the form of a long cigar. This is placed into one end of the tube and lit. The smoker then takes the bamboo and draws the smoke through the other end until the pipe is almost filled. He then removes the cigar, holds his hand over that end and hands the pipe to his friends. This method of smoking is used to a certain extent by French missionaries who work amongst the people speaking the Fuyuge language, which is the common language of the Chirima valley. I understand that a very cool smoke results from this method.' He continues: 'The ordinary type of bamboo with the hole on one side is also used, but only by those natives whose trading relations have brought them in contact with others who are more advanced in culture.'

Mr Cawley in 1929 sent a holder to the Cambridge museum, 31.831, from the Chirima valley. It is a long undecorated section of bamboo with two internodes. There is a central perforated septum and another about 8 mm. from one end, where there is a narrow transverse burnt band. 63.5×2.9 cm.

Ivan Champion has given to the Cambridge museum two holders and one pipe from Kuama village, Garima tribe, Chirima valley. Both holders consist of a single

internode; about 2 cm. from one end is a perforated septum, and apparently this is the end which is put into the mouth.

Holder 31.814. The decoration (figure 118) is produced solely by burning and is carelessly executed, and defies description. 29×2.6 cm.

Holder 31.815. The pattern (figure 119) is produced by burnt lines.* There is a strip of skin or membrane around the centre of the tube. The decoration mainly consists of small longitudinal zigzags which are formed by strokes and are not in continuous lines; there are also zigzags and apparently some chevrons under the central membrane. Near the mouth end are three burnt oblongs. 23.5×2.3 cm.

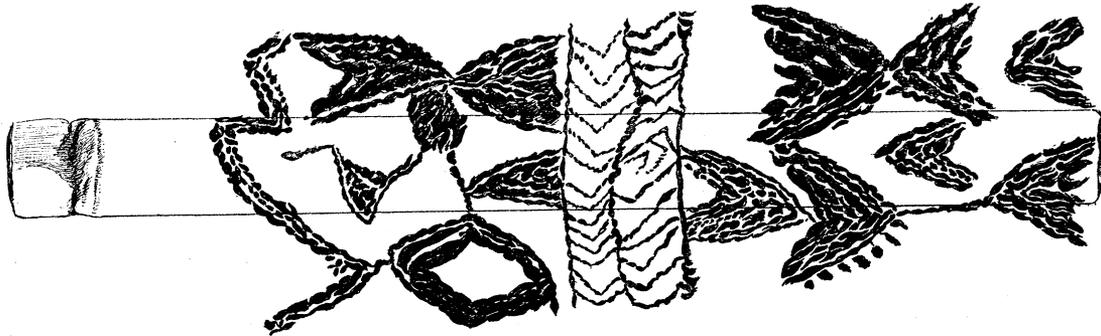


FIGURE 118. Holder, pattern displayed, Kuama village, Garima tribe, Chirima valley.
Cm. 31.814.

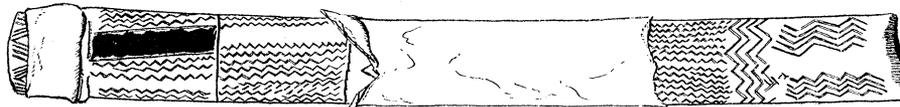


FIGURE 119. Holder, partly covered by membrane, Kuama village, Garima tribe,
Chirima valley. Cm. 31.815.

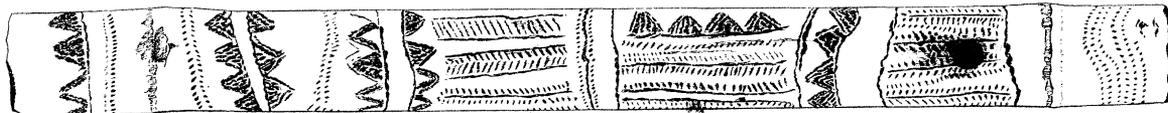


FIGURE 120. Pipe, partly covered by membrane, Kuama village, Garima tribe, Chirima valley.
Cm. 31.816.

Pipe 31.816. The scheme of decoration consists essentially of transverse bands; there are no longitudinal plain bands. The bands (figure 120) have secondary longitudinal bands or stripes which contain a single or a double row of oblique lines; there are also rows of burnt triangles and of single lines fringed on each side. The rest of the decoration is sufficiently indicated in the figure. On the left side near the aft end is a band of ten parallel oblique lines that slant in different directions and form a broken zigzag somewhat similar to that shown in the central band of figure 110B; a variant is shown on figure 124. All the decoration is by burning. 45.4×4 cm.

(5) *Mounts Scratchley and Momoa, and the Yodda valley.*

Mount Scratchley forms the northern end of the Owen Stanley range; to the north-east of it is Mount Momoa; their eastern slopes constitute the western part of the Yodda valley. On the eastern side of the valley is the uninhabited Ajura Kijala range. The Yodda river rises from an eastern prolongation of the Owen Stanley range south of Mount Victoria and receives numerous small tributaries from the eastern slopes of the northern part of the range. The Iola affluent of the Yodda rises in the range near Mount Victoria. The Yodda flows north and unites with the Chirima to form the Mambare river.

The following information is taken from a manuscript by Chinnery which is based on his explorations about 1916. The Isurava live in the small valleys of the Iola tributary of the Yodda. A short distance north-west of them are the communities collectively known as Biagi; *biagi* is said to be a word of greeting. Farther north on Mount Momoa are the villages, Bede and Orumuku, of the Bora, who are sometimes called Karukaru Biagi. The dialects spoken by the Isurava, Biagi, and Bora are related to the Koiari group of languages, and both physically and culturally these peoples resemble the Koiari-speaking peoples on the western slopes of the Main range.

Chinnery was told that two peoples speaking different languages, one being the Bora, lived in a rock called Igui at the head of the Chirima river. The chattering of the Bora so annoyed the others that a quarrel took place; the rock opened and let the Bora out; thence they drifted to Neneba on Mount Momoa. The other people then came out of the rock and occupied Chirima valley, but they so harassed the Bora that they left Neneba and became distributed along the extremity of Mount Momoa and even as far as Owi on Mount Victoria. The other people remained in the Chirima valley. Chinnery provisionally groups the Bora with the Biagi, as they have little in common with the Chirima people and what they have may be due solely to proximity.

According to Beaver (1916, p. 48) the eastern slopes of the Main range between Mounts Victoria and Nisbet are occupied by the Koiari-speaking Isurava tribe with its offshoots, the Biagi and Karukaru or Beda. The Karukaru, who are in contact at Mount Scratchley with the Fuyuge-speaking peoples of the Chirima valley, were at one time on the slopes of Mount Momoa, but conflict with the Koko of the Yodda valley caused them to move to Neneba; later they extended their gardens across the Yodda. Then the Koko and Badi chased them away from the river, and soon after 1906 they left Neneba and returned to Beda, a spot higher up on Mount Momoa. Jackson (1916, p. 13), however, states that the Karukaru are an offshoot of the Simola tribe who live to the north of Asiba and speak the Fuyuge language, but the Karukaru now habitually use the Biagi language in their general intercourse. The younger generation of the Karukaru speak the Isurava (Koiari) and Fuyuge languages with almost equal facility, but there is no doubt that the former is their true language.

Sir William MacGregor (1898, p. 7) gives a description of the village of Neneba, which is situated at 3000–4000 ft. on the north side of Mount Momoa, which lies to the north-east of Mount Scratchley. He says: 'It is also common for the young men to

wear in the lobe of the ear a piece of bamboo about three-fourths of an inch in diameter and six or eight inches long, closed at one end, and with the end of the tail of a small cuscus or squirrel stuck into the open end, which projects in front. This bamboo is used as a cigarette-holder. . . . They cultivate tobacco. . . . The presence of tobacco at Neneba, and its absence on the lower Mambare, would seem to show that there has been little or no communication for ages between those tribes. The form of pipe in ordinary use at Neneba is the same as the "baubau" of the central district.' Tobacco is called *hewutu*; bamboo pipe, *togu bagu*; hole in bamboo pipe, *togu fa*; hole at end of bamboo pipe, *togu aifa*; to smoke tobacco, *hewutu isi*.

F. E. Williams lent me a drawing of the fore end of a Karukaru pipe which he drew in 1933 at Kokoda (figure 121). The stepped line pattern resembles that on the Ono holder (figure 114); chequers are found on Wowonga and Managalasi pipes (figures 126-30), and are widely distributed in the mountain areas. The patterns are solely made by burning; there are no incised lines.

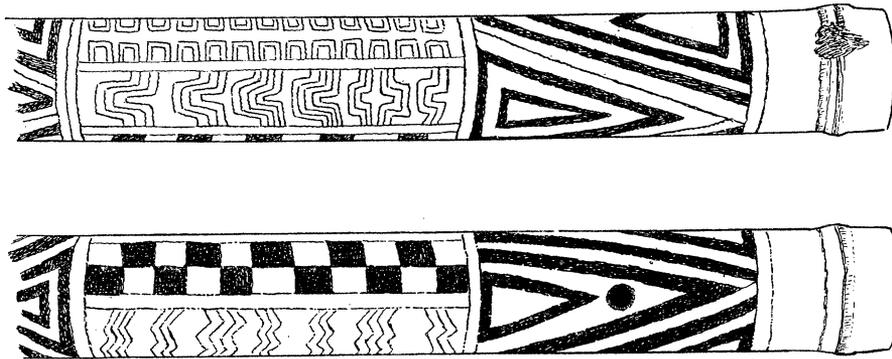


FIGURE 121. Fore end, Karukaru pipe, Mount Momoa, dorsal and ventral views. After F. E. W.



FIGURE 122. Pipe, Yodda valley. Oxford, 1914.

Two pipes in the Oxford museum from the Yodda valley were purchased in 1904. They are crudely decorated in burnt technique. The decoration of one is shown in figure 122. The irregular lozenges on the ventral side of the aft broad band were formed by crossed burnt lines and then the triangles were roughly burnt. The strands of the network are not outlined. There are no scratched or incised lines. The ridge of the aft node is scraped away. 46.4 × 4.7 cm.

The other pipe has two central bands of two lines flanked by very irregular and mostly degraded triangles which were outlined and then partially burnt. At wide intervals on the rest of the pipe are rows of separated coarse burnt spots. There are also some very irregularly drawn zigzags which do not form any pattern; they are in fine lines which look as if they had been incised, but they may have been burnt. 62.8 × 4.4 cm.

(6) *Mounts Bellamy and Nisbet; the Agi.*

The Agi are a mountain people who live on the western slopes of the Main range between Mounts Bellamy and Nisbet south of 'The Gap', a pass across the Main range. Notes on the Agi are given by Haddon (1901, pp. 244-7).

Ballantine gave me in 1898 two Agi holders which are now in the Cambridge museum: Z. 9288, 32×3.5 cm.; Z. 9289, 33.3×3 cm. The holders appear to have been used indifferently at each end. The decoration is solely by burning, but the triangles are only imperfectly burnt; there are no incised lines.

In both holders there is a central plain transverse band, but in Z. 9288 there is also a narrow plain band 4.5 or 5.5 cm. from each end. The decorated bands contain longitudinal patterned stripes which form a half spiral round the tube. Figure 123 shows most of the patterns of Z. 9289; five of the eleven patterns are repeated on the other holder with the addition of five other patterns, all of which are found on pipes from the upper Kumusi river area.

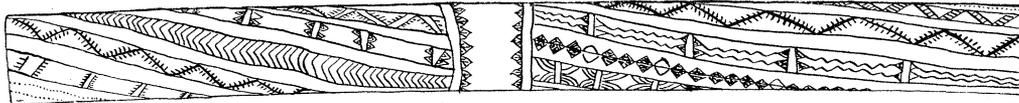


FIGURE 123. Holder, Agi, 1898. Cm. Z. 9289.

Upper Kumusi river and the Mamama river areas

Between the Main range in the neighbourhood of Mount Nisbet in the west and the Hydrographers range in the east is the mountainous region drained by the system of the upper Kumusi river. The Ina (upper Kumusi) river rises in the easterly trending Owalama range and flows in a northerly direction between the eastern spurs of the Main range and the Guava (Guravi) range, which forms the western border of the basin of the Mamama. South of Mount Lamington, at the western end of the Hydrographers range, the Mamama river flows west to join the upper Kumusi at about 9° .

Upper Kumusi valley: Wowonga subdistrict. The western side of the upper Kumusi valley alone is inhabited. The peoples of the area were investigated by Beaver and Chinnery about 1914, 1915.

Chinnery (MS. 1920) states that the Birifi or Jiwai-ia tribe lives at about 30(?) miles south of the junction of the Mamama with the Kumusi. A few miles higher up the valley are the Jioji. These two tribes speak a language which has some resemblance to that of the Mamara river group.

Beyond the Jioji are the Akisi, Logali, and Niguri, who are popularly known as the Wowonga; their language has only dialectic differences from that of the former group.

Beyond the Niguri up to the headwaters of the Kumusi are three communities, Efogi, Misai, and Iwuadi, who speak a language related to the Koiari group of languages. Beaver says they differ in appearance from the Isurava and other Koiari tribes, but in appearance and culture resemble the Doriri tribes of the upper Musa river which rises south of Mount Nisbet and flows into the eastern end of Dyke Acland bay.

According to Chinnery the Jiwai-ia, Jioji, Managalasi, Oinji, and Miai claim to have come out of large holes in the ground beneath three huge rocks at Tuagila on the summit of a peak of Mount Nisbet. Troubles among them, after they had settled in the Kumusi valley, resulted in the Managalasi, Oinji and Miai emigrating to the Mamama valley. These three peoples form one linguistic group.

Later the Akisi, Logali, Niguri, Efogi, Misai, and Iwuadi ascended from the hole at Tuagila. They are said to have spoken a different language, but at the present day the language of the Akisi, Logali, and Niguri differs little from that of the Jiwai-ia and Jioji; the legend states that they lived for some time in the valley with the former group and that they learned each other's language. Owing to quarrelling among the women, a number of this second group emigrated to Mount Victoria and settled at the head of the Egovi river, whence they drifted to the northern and southern slopes of Mount Victoria as far as Iori-baiwa, though they still retain friendly relations with their kinsmen of the Kumusi valley.

Tuagila is also regarded as their place of origin by various Koiari tribes west of the Main range.

Wilfred Beaver (MS. 1914) says that Wowonga is the Orokaiva name for the tribes in the Upper Kumusi valley. They speak their own language and that of the Kagi; both peoples are extremely friendly and pay frequent visits. These people have a tradition that they have a common origin with the peoples west of the Main range, from Kagi to Iori-baiwa, not far from Port Moresby. Both groups originated at a place on the Upper Kumusi.

Leo Austen (1927) does not refer to the communities mentioned by Beaver and Chinnery, but in his map he gives the following villages from north to south: Barubila, Managula, Ahaba, Auwamaka, Viambete, and Wasairo. In a sketch-map he sent to me the last four are grouped as 'Wowonga tribes (semi-Koiari)'.

The Kivio subdistrict is on the spurs of the Owalama range (Cawley).

Mamama river area, Managalasi subdistrict

The Managalasi subdistrict is situated between the Owen Stanley range and the Hydrographers range in the Mamama valley, which has an altitude of approximately 2000 ft. The Mamama river system is occupied by people grouped as Managalasi; at the headwaters of the river to the north are the Miai and to the south the Oinji.

Leo Austen informed me in 1927 that it has now become customary to term as Managalasi all those tribes who live in the valley of the Mamama and also the folk who live along the streams that flow south into the Barigi river, which debouches into the south coast of Dyke Acland bay. They practise the custom called *ujawa*. This is an initiation ceremony during which the lads are confined in a specially built tunnel-like hut, *ujawa*, but from Austen's account (1927, p. 49) the rite is simply one of tattooing the novices. When they leave the hut the initiates are permitted to wear their hair bound with bark into four or five long tails. When a man marries, his 'pig-tails' are taken off and he wears his hair in long ringlets or cut short. With the exception of the Managalasi-speaking people of the village of Barubila, the tribes inhabiting the western

side of the valley of the Ina (whom Austen (MS.) regards as of Koiari extraction) do not have the *ujawa*, nor have the Binandele-speaking tribes, or Orokaiva as they are generally termed. Leo Austen (MS.) says that the flap of painted barkcloth worn by the Managalasi men has been borrowed from the Binandele-speaking coastal people. Previously they used merely a perineal band under which the prepuce was kept in position (as is customary among the mountain peoples).

Among the Oinji and Miai tribes of the upper Mamama valley (but in an unpublished map by Austen, all the peoples of the area) the earth inside the *ujawa* is excavated to a depth of 2 ft., and Austen suggests that this is 'the earlier form of the *Ujawa* in the semi-burial, and it is possible that the significance of the whole ceremony was originally the idea of the initiate dying for a time, and then later coming to life again' (1927, p. 49).

F. E. Williams (1930, p. 4) says that between the Managalasi and the Orokaiva there is a marked distinction in culture and physique. 'The Managalasi are as a rule lighter in colour, shorter in stature, and somewhat sturdier in build. They have not the lean and well-marked features of the plainsmen, but broad faces on which their more vivacious temperament shows itself in broad smiles.'

Williams (1929, p. 6) gives an illustration of a decorated pipe and details of some of the patterns. The patterns are burnt on the bamboo by a man who takes a small stick and burns the end in the fire. Then he holds it against the bamboo pipe and blows on it to keep it red-hot. Names are given to the different patterns; it is not always easy to see why the name is given. The Managalasi are artists at painting barkcloth and in tattooing the bodies of the men (his fig. p. 1), the women are not tattooed.

In a note on the Managalasi tribe, Rentoul (1929, p. 35) says: 'The people have a wonderful gift of decoration. Apart from their complicated tattooing, their poker work on bamboo pipes and their finer work on lime gourds is worthy of all praise. In several villages small lengths of bamboo, beautifully decorated, were worn as earrings, and their tapa cloth painting is also very fine.'

Mr O. J. Atkinson, R.M. of the Northern Division, has kindly given me (1938) the following information about the decoration of pipes in the Managalasi district.

The bamboo, *kuguhoni*, is cut off at the required length and then cleaned by rubbing it with the flesh of a ripe coconut. It is then ready for decorating. No preliminary patterns are sketched in fine lines. The operator makes a small fire in which he places the ends of the wooden pencils he is about to use for making the patterns. The pencils are splinters, about 30 cm. long, split from a tree fern, *muana*. When all is ready, the man seats himself and takes a pencil, *gorisi-siambe*, which is alight at one end; this he places on the bamboo and draws the patterns, *sorembi-ie*; as he moves the pencil the end is kept glowing by gently blowing on it. When the lighted end of the pencil dies away, it is placed back on the fire and replaced by another burning pencil. This is continued until all the patterns are finished. If the artist has time or inclination he may complete the decoration at one sitting, but in most cases a number of sittings, even lasting over some weeks, are taken to finish all the patterns.

Nearer the coast the patterns are burnt in with fragments of coconut shell after the bamboo has been allowed to dry; nothing is rubbed over the bamboo. So far as he has

been able to ascertain, nowhere in the Northern Division is any preliminary sketching done on the bamboo.

I am greatly indebted to F. R. Cawley for sending me thirteen pipes from the Kokoda administrative district with precise provenance and the names of some of the patterns. He says that in the Wowonga, Kovio, and Managalasi subdistricts each mark has a meaning. They prize their pipes and a man seldom goes anywhere without his pipe. This valuable collection has enabled me to describe the main features of the pipes of this interesting area.

The decoration of the pipes of this area is solely by burning; there are no scratched or incised lines. In all the pipes under consideration, except figure 126, the internode is divided into transverse bands, which may be close together or separated, but there is only one narrow central band in figure 124. In several pipes the broad bands contain longitudinal patterns or bands of patterns. This tendency seems to be borrowed from the typical holders of the Main range.

Two thick pipes from the Togahau subdistrict have a crude and simple decoration; one, 31.319, has a row of burnt triangles in the centre of the internode and on each side of the aft-septum. There are two narrow bands of coarse cross-hatching. 50×6.7 cm.

Pipe 31.821, *soru*, Barubila village, Wowonga subdistrict. These are a Managalasi-speaking people. There is a narrow central band dividing the internode into a fore half, which has five longitudinal patterns, the dorsal hole being in one lozenge of a band of lozenges (figure 124). The aft half has two longitudinal patterns. 43×5.3 cm.

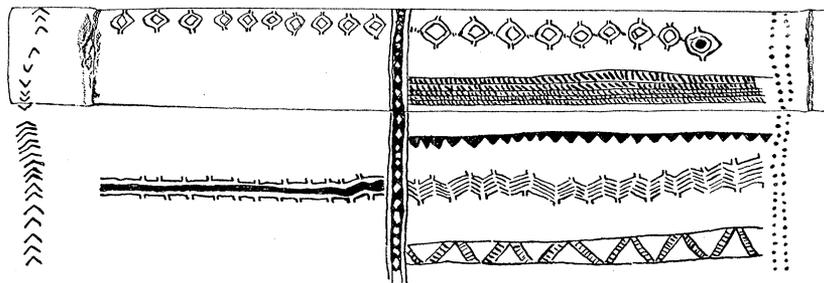


FIGURE 124. Pipe, pattern displayed, Barubila village, Wowonga. Cm. 31.821. Lozenges in mid-dorsal line, *eni*, eye; dog-tooth pattern of black triangles, *deabwagai*, shells for head-dress; broken chevrons, *gejui*; enhanced double-lined zigzag, *gejugeju*, gnarled tree-branch; central transverse band, *mesa*, skin of cuscus.

Pipe 31.822, *bagui*, Uruaba village, Emawja tribe, Wowonga. The internode is divided by three narrow transverse bands into two broad bands containing six longitudinal patterns (figure 125). Other unrelated designs occur at the end of the pipe. 46.8×5.2 cm.

Pipe 31.823, *bagui*, Viamebe village, Misai tribe, Wowonga. The pipe is decorated with five spiral patterned bands which go all round the internode (figure 126). 43.3×5.5 cm.

Pipe 31.824, *bagui*, Iaro village, Ajai or Ejai tribe, Wowonga, has two broad, widely separated, patterned transverse bands (figure 127). 50.4×6.3 cm. There is another pipe, 31.826, from Iaro village, the central band of which has a *baoi* pattern similar to

that of the other pipe and a fore and an aft band with longitudinal patterns similar to those of other pipes from the area. 50.5×5.4 cm.

Pipe 31.825, Ujiro village, Ai tribe, Wowonga, has in the centre a plain band; fore and aft of this are two bands close together, all with widely separated oblique bands of patterns which recur on other pipes. Three patterns are shown in figure 128A, B, C. Fore of the dorsal hole is a row of double-outlined triangles, which alternately are plain and enhanced. 37×4.9 cm.

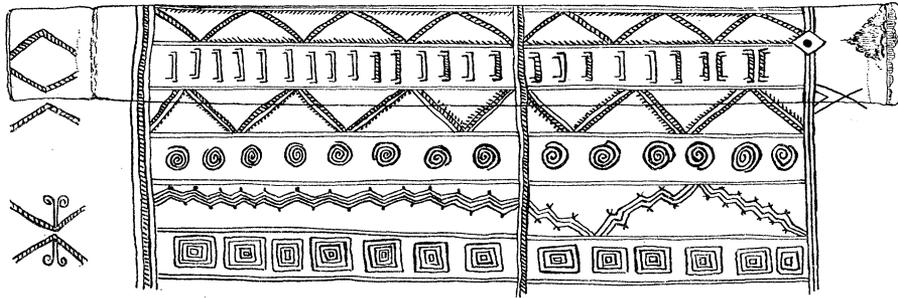


FIGURE 125. Pipe, patterns displayed, Uruaba village, Emawja tribe, Wowonga. Cm. 31.822. Double-fringed zigzag, *dajegironi*; spirals, *eni*, eye; concentric squares, *iwasaimaraveri*.

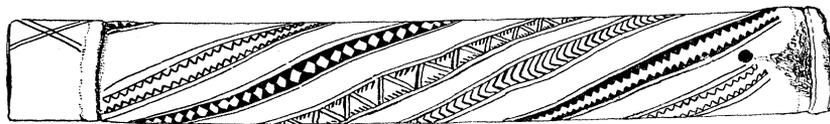


FIGURE 126. Pipe, Viamebe village, Misai tribe, Wowonga. Cm. 31.823. Band with lozenges, black ground, *irisahai*.

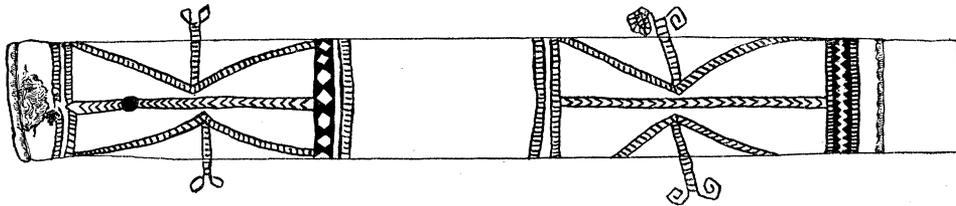


FIGURE 127. Pipe, Iaro village, Agai tribe, Wowonga. Cm. 31.824. Chevron mid-dorsal, *atatori*; three-rayed design with scrolls ending central bar, *baoi*.

Pipe 31.827, Auwamaka, Kasua tribe, Wowonga. The internode has three bands of the *siware* pattern (figure 128E). The aft area has a band of plain lozenges formed by crossed lines and small burnt triangles within the larger triangles. 43.2×5.6 cm.

Pipe 31.830, *bagui*, Wasairo village (Iwuadi tribe; Chinnery), Kovio, has eight narrow transverse bands of simple patterns. Within two of the spaces are simple longitudinal patterns one of which is shown in figure 128D. The aft area has two rows of the] designs shown in the second row of figure 125. 48.1×4.9 cm.

Pipe 31.828, Enjora village, Aumi tribe, Managalasi (figure 129), has a large number of characteristic patterns. 53.6×5 cm.

Pipe 31.829, Bubori village, Managuraja tribe, Managalasi. The internode has two broad bands each having a lateral *baoi* design and characteristic longitudinal

patterns, one of which, and also covering the aft area, is the pattern shown in the fore band of figure 129. 45.1 × 5 cm.

A Managalasi pipe, 31.832, presented by G. F. W. Zimmer in 1927, has eight separated bands. The fore half of the pipe is shown in figure 128 K. The zigzagged lines are zigzags, not jagged lines. 54 × 4.2 cm.

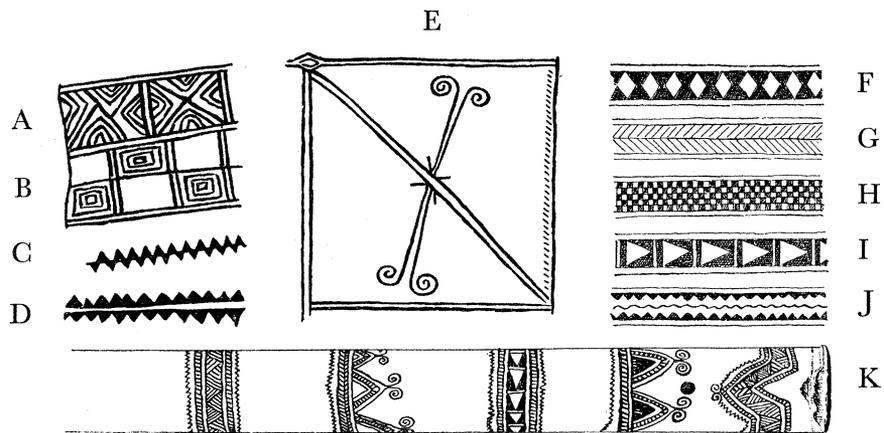


FIGURE 128. Various patterns, Wowonga, Kivio and Managalasi pipes. A, two patterns called *tabai*; B, three concentric rectangles, *eni*, eye, in oblique bands in aft transverse band; C, *sehe*, another oblique band of Cm. 31.825, Ujiro, Wowonga, Ai tribe; D, longitudinal band, *musini*, in central transverse band of Cm. 31.830, Wasaire, Kivio; E, pattern called *siware*, one of similar panels that cover pipe, Cm. 31.827, Auwamaka, Wowonga, Kasua tribe. F-J from F. E. W. (1929, p. 6); F, pig's feet marks; G, fish bone; H, cassowary's egg; I, barbed spear; J, bird's teeth (serrated beak); K, fore end of Managalasi pipe, Cm. 31.832, given by G. F. W. Zimmer.

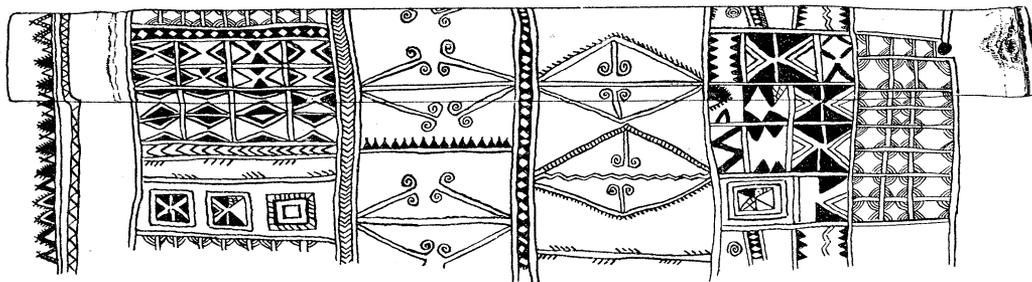


FIGURE 129. Pipe, pattern displayed. Enjora, Aumi tribe, Managalasi. Cm. 31.828.

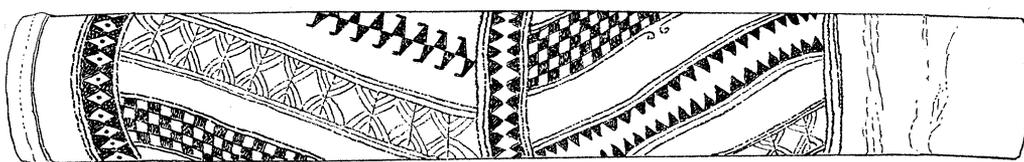


FIGURE 130. Managalasi pipe. D. by F. E. W.

F. E. Williams lent me a drawing of a Managalasi pipe which he drew at Sangara in 1932 (figure 130). The two broad bands contain spiral patterns running in opposite directions, a feature not known to me on other pipes from the area. He gives (1929,

p. 6) a sketch of a Managalasi pipe with five broad transverse bands; each band contains longitudinal angled bands (chevrons) with typical patterns. In the same paper he gives drawings of five patterns for which he obtained their meaning; these are copied in figure 128 F–J.

Managalasi men are tattooed on the chest, back, upper arms, and thighs. Figures 131 A, B are copies of the only published sketches of the tattooing. The designs agree with those that are found on pipes. Women are not tattooed.

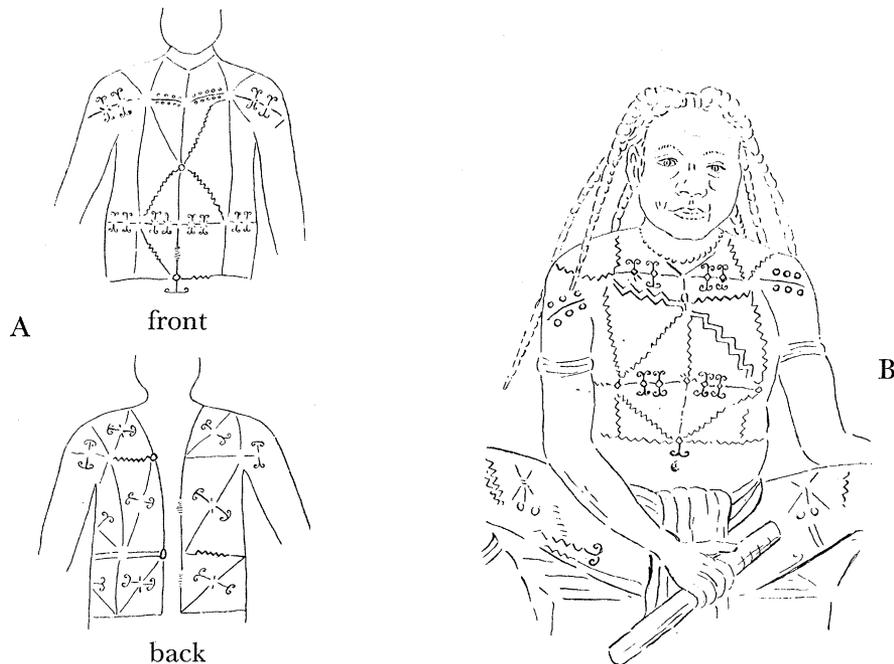


FIGURE 131. A, tattooed patterns, front and back of Managalasi man made at *Ujawa* ceremony (Lee Austen 1927, figs. pp. 102, 103 and following details). ! with coiled ends to bar, *audunaigue*, New Guinea string; row of short lines, *jube*, eel; Y with arms coiled at ends, *gareri-sigo*, Goru palm; small circle with four oblique rays, *waawinedi*, a crab; two rows of small circles, made with small burning bamboo; zigzags, *bijuriwe* (=the Motu *revareva*, writing), meaning unknown. B, tattooed Managalasi man (F. E. W. 1929, p. 1).

Mekeo, Kuni, Fuyuge, and Nara

The main geographical features of this area and to Redscar bay in the south are low coastal grassy and wooded plains. Roughly parallel to the coast at a distance of about 30 miles there begins a hilly and mountainous country which extends to the Main range.

In dealing with the area of Papua that extends along the south coast from Cape Possession to Cheshunt bay and inland to the Main range, it is necessary to distinguish between the immigrants who brought a 'Melanesian' language and other foreign cultural traits and the indigenous 'Papuan'-speaking peoples.

The Western Papuo-Melanesians occupy nearly all this coastal belt and rarely live more than a few miles inland. In some inland areas, however, there are peoples of mixed descent who speak 'Melanesian' dialects; these are alluded to when describing

their respective areas. The Western Papuo-Melanesians can be grouped from west to east as: the Roro, Motu, and Loyalupu.

For the present purpose the Mekeo district is regarded as extending from Cape Possession to Hall sound and the basin of the Angabunga, or St Joseph river, inland as far as the Main range.

Seligman (1910, p. 195) states that the Roro-speaking tribes, who occupy the coastal region, extend from Kevori, near Waimatuma, or Cape Possession, to Hiziu on the north coast of Redscar bay. Williamson (1912), in his map, places the southern limit of the Roro up to the Aroa river; but Seligman says this is a comparatively recent settlement and the old southern limit may be placed at Delena at the southern entrance of Hall sound. There are two dialects: (1) Waima, spoken at Kevori, Waima (Maiva), and Bereina; (2) Roro, spoken by the other tribes. The Mekeo language is spoken by the other peoples inhabiting the valley of Angabunga.

These peoples are very much alike socially and culturally, but the decoration of the tobacco pipes of the Waima district (at least) of the Roro group is by a burnt technique, while that of Mekeo is by an incised technique. It is also worth noting that the Mekeo people are slightly shorter and have somewhat broader heads than the Roro. The inhabitants of Waima can be divided into two types, one showing affinity with the Elema group of the Gulf of Papua, the other resembling the Roro (Seligman 1910, p. 26). They all speak 'Melanesian' languages, but there are peculiarities in the Mekeo language which point to 'Papuan' influence.

A general account of the ethnography, as far as was then known, of the Mekeo and Roro is given by Haddon (1894, pp. 141-51), and Seligman (1910, pp. 195-372) deals with the social anthropology of these peoples in a masterly way.

The Kuni inhabit the country south of the Angabunga from about $146^{\circ} 45'$ to about 147° , and to an undetermined extent to the south. The Kuni also speak a 'Melanesian' language, but ethnically and culturally they are largely of Papuan stock.

The Fuyuge-speaking peoples occupy a band of mountainous country south of the Angabunga to the north of the Vanapa river. To the west at about 147° is the Kuni country. The eastern boundary of the Fuyuge is the Wharton range, but they also extend into the upper Chirima valley, which leads to the south-east. Of these peoples the Mafulu in the northern part of the area are the best known. Williamson (1912, p. 14) contrasts the forest-covered steep-ridged country of the Kuni with the higher open valleys, with their stretches of grassland and parkland, of the country of the Mafulu. According to Williamson (1912, p. 2) the term Mafulu is the Kuni pronunciation of Mambule, which is the name of the people for themselves. Fuyuge is a 'Papuan' language, and ethnically and culturally the Fuyuge are allied to other mountain peoples.

Pratt (1906, pp. 321, 322) gives the following description of making and smoking the 'Bau-bau or social pipe'. This account probably refers to the Kuni country. 'It is made of one joint of bamboo, closed at both ends by the natural section [septum] of the bamboo. In the side of the cylinder near one end they drill a hole by applying a piece of hard wood made red-hot. They press the red-hot wood to the bamboo, and blow it to incandescence, repeating the operation until a hole is pierced. They next

knock a hole in the opposite end of the bamboo, so as to admit a current of air. The red-hot wood is now applied again to the original hole, and they blow through the hole knocked in the opposite end until the small hole in the side is gradually enlarged. The "Bau-bau" is now complete, except for its ornamentation. Elaborate patterns are scratched on the hard enamel of the bamboo with glass, a knife, a stone, or red-hot wood, and the speed with which this decoration is accomplished is extraordinary. . . . On the march our men would cut a bamboo, and on reaching camp would borrow some suitable tool from us, and make a pipe in a very short time.' They liked an old pipe best, because, as they said, tobacco is not good in a new one.

'The method of smoking is elaborate. They roll a leaf into a little horn, and insert it in the smaller hole on the side of the 'Bau-bau', within this leaf is placed the charge of tobacco which they light, and then placing their lips to the end hole they draw. The little horn, or cigarette as one may call it, is now removed from the hole in the side, and if the pipe is new they blow away the first charge of smoke, by placing their lips to the hole in which the cigarette was originally inserted. Again the cigarette is placed in the small hole, and the pipe is drawn from the end hole. This time smoke is intended to be used, so the cigarette is removed from the small hole, and the smoker applying his lips thereto inhales the whole charge. . . . [The cigarette is replaced, lighted, and the pipe filled with smoke], but this time the smoker does not inhale the charge himself, but removes the cigarette and politely hands the charged pipe to his neighbour, who punctiliously rubs the mouthpiece, and enjoys the long whiff. Very often there is one drawer for an entire party, whose duty it is to fill the pipe with smoke, and pass it so filled to each of his companions in turn.

'They usually sit in a circle for these smoking parties; and in camp the 'Bau-bau' is continually used. They grow their own tobacco, which is very rank, and not good smoking at all. In fact, the natives themselves cannot inhale much, as it makes them giddy; and they are not infrequently seized with severe fits of coughing when the fumes have proved particularly suffocating. The supply of tobacco is carried in the armband or behind the ear.'

Technique in the Mekeo district.

In reply to the Lieut. Governor's request, on my behalf, for information regarding the technique of the decoration of pipes, Mr W. H. H. Thompson, A.R.M., Kairuku, inquired of Father Dupeyrat, of the Sacred Heart Mission, who stated that in the Mekeo district there are three principal methods employed in making patterns. (1) By simply engraving with a shell or nowadays with a knife. The lines rapidly get full of dirt and black from smoke, which gives the appearance of having been engraved by burning. (2) Simply by burning. A glowing stick is used which is applied directly to the bamboo. The pattern takes shape as the artist progresses with the work, but the pattern is always inspired by tribal custom. (3) By a combination of engraving and burning. The artist traces out the straight or jagged lines with a cutting tool, a shell, flint, or the point of a knife. He has to keep his hand vertical, otherwise he cannot keep it regular. This method is surprisingly exact. Sometimes the artist copies a pattern, but more often it emanates from his own imagination. It is a very rare event

to find a new form of decoration. This accomplished, the artist takes a peduncle (*kaba-kaba* in Roro) which remains at the top of a coconut palm when the nuts have fallen (figure 132). The thin tip is ignited in a fire and applied to the engraved pattern and is kept sufficiently hot by blowing softly on it. When the artist wants to enlarge the burns he replaces the peduncle with an ordinary firestick, as is used in ordinary burning. The firestick leaves cinders or makes marks on the bamboo; thus the artist is not able clearly to define the pattern he is tracing, so he has to keep on cleaning the bamboo.



FIGURE 132. Peduncle, coconut palm, for burning patterns. Mekeo.

In the Kunimaipa valley the engraving with a knife is carried out in the same way, without being combined with burning. The foregoing three methods are also found among the Kuni, Fuyuge, and other tribes.

In a later communication Father Dupeyrat writes that according to his knowledge there is no ceremonial or ritual aspect of smoking in the whole of the Mekeo district, though at every meeting or dance the natives smoke together, but this is merely an act of sociability or politeness. Ordinarily the least important person prepares the pipe and passes it to a more distinguished person. To smoke in company is a sign of friendship, but nothing more. If a man presents tobacco to a woman it is often the expression of an amorous declaration, a gesture that ordinarily is badly received if it is made in public. Men and women do not smoke together, but in the home the husband voluntarily passes the pipe to his wife, and she reciprocates.

It may well happen that to lull the distrust of an enemy, a man may offer him a smoke, although he is resolved to hit him on the head at the first opportunity. Thus to smoke together does not imply that there will be no violence or treachery.

Tobacco can also be employed in sorcery. By itself it is harmless but it is rendered potent through the magical words that are uttered over it or by some element that is inserted into the tobacco, for example, a minute portion of magical scented bark, or a piece of a special leaf or of an appropriate plant.

If you have the mischance to fall in love with a girl who does not respond to your advances, you ask a woman of your family in whom you have confidence to offer a pipe to the girl you love. The tobacco of this pipe is charmed, for you have taken care to mix with it a small bit of a special leaf, which if possible should be inserted in the end of the cigarette or leaf screw, so that the charm operates with the first whiff. In Fuyuge, one of the bushes from which are taken these enchanted leaves is called *ejag'ato*, which means 'to smile with the teeth'. Or you may employ a particle of a plant susceptible of receiving a *menge*; this is a charm of magical words. The 'love philtre' is rendered much more powerful if you add to it something personal to yourself, such as a hair, sweat, ear-wax, etc. With the first whiff of tobacco smoke is carried the smoke of the charm which thus penetrates into the interior, *ur'ua*, of the girl and

causes her heart to have a great love for you. It is evident that tobacco has no special virtue in itself; it is only a vehicle for charms and can easily be used as it is an element of social courtesy.

Roro-speaking tribes.

The three following pipes may with confidence be regarded as coming from the Waima or Maiva district, a few miles south of Cape Possession. The decoration is in burnt technique, with an absence of simple or jagged lines.

Pipe Z. 9327 (figure 133A) in the Cambridge museum was obtained in 1891. The central band has transverse zigzags flanked by typical stepped patterns. Fore and aft of this band on both dorsal and ventral surfaces is a double 'flagged' design, which in varying form is a common tattoo pattern of women. In the postnodal area is a band of lines and dots with lateral V-shaped extensions which may be regarded as representing the *gado* tattoo design. The small panels need no description. 79×5.8 cm.

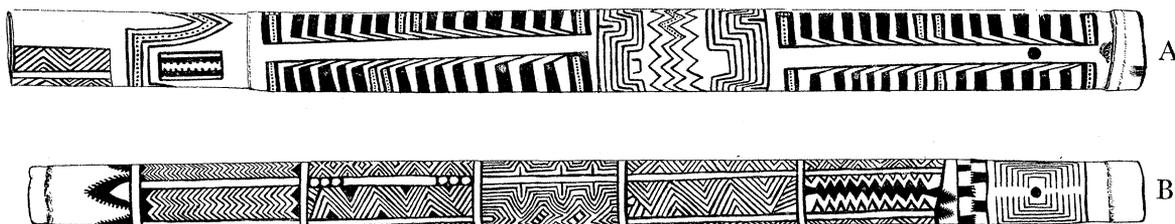


FIGURE 133. Two patterns, burnt technique, Waima (Maiva). Cm. A, Z. 9327; B, Z. 8752.

Pipe Z. 8752 (figure 133B), without a provenance, is decorated in a manner which I regard as typical of Waima. The design round the dorsal hole is repeated on the ventral surface, but in the centre has four fringed rectangles like those in the next band. Of the following five bands: 1, 2, 4, 5 are composed of dorsal lateral and ventral panels; of which 2 and 5 contain only zigzags, 1 and 4 have two panels with zigzags and two with a different pattern. Band 3 has two lateral panels with a concentric pointed arch pattern, which is a variant of the stepped pattern, and concentric lozenges or oblongs. The aft end has broad fringed chevrons; variants of this pattern are found on other Waima pipes. 77.5×4.5 cm.

A pipe in the Glasgow museum, 89. 67, dv, is labelled as coming from Kerama, but, as previously stated (Haddon 1894, f.n. p. 144), I have no doubt that it came from Waima. In the general scheme of decoration it is not unlike the last pipe (figure 133B), but there are a few panels with a six-rayed cross on a burnt background. Other panels have the pattern shown in Haddon (1894, pl. ix, 142), and one panel (pl. ix, 137) has representations of a lizard or crocodile and three birds, which probably are mound-birds (*Megapodius*); three similar birds and a fish are depicted in the aft area. 103×6 cm.

Illustrations of other burnt designs on Waima pipes are given by Haddon (1894, pl. ix). The aft third of one pipe is decorated with two heads of hornbills (*Buceros*), but in one the casque is omitted from lack of space. Seligman (1910, p. 211) says that at Waima numerous patterns are admittedly derived from the hornbill; these strictly are clan badges and no other clans have the right to copy them. Another pipe has an

elongated band pattern containing lizards separated by what appear to be conventionalized waist bands, *sini*, and below these are apparently feather head-dresses. Other Waima patterns (140, 141) are shown on the same plate.

Two pipes in the British Museum collected in 1904 by the Cooke-Daniels expedition came from Kevori, close to Cape Possession and north of Waima, the most westerly village of the Western Papuo-Melanesians. They are decorated solely in coarse jagged lines, in neither is the dorsal hole yet perforated. Both pipes are covered with concentric lozenges, those in the internode of the second pipe have a cross in the centre. Pipe 1906, 10-13.1165 has the skin entire except for three narrow bands at the fore and aft septa and in the middle of the prenodal area. An unusual feature is a scratched line dividing the central panel into two unequal portions, and one also at the aft end of the patterning. The chevrons between the lozenges in the aft band have their apices prolonged into a short line. 61.5×5 cm. The other pipe, 1163, has two transverse scratched lines in the internode dividing it into three equal portions and one in the middle of the aft band. 83×4.4 cm.

A pipe, Z. 8728 (figure 134), labelled 'Waima' was given to the Cambridge museum by D. Ballantine in 1898. It is made of a kind of bamboo which is unlike that used for other pipes as it lacks the characteristic uniform polished surface. The decoration, which is confined to the fore end, is in very coarse jagged incised lines which form a series of contiguous lozenges. I do not know of any other pipe with this type of decoration. 54.7×5 cm.



FIGURE 134. Pipe, unusual type, coarse jagged technique, Waima. Cm. Z. 8728.

I collected in 1898 at Möu, a few miles south-east of Waima on the Angabunga, a pipe, Z. 8729, carelessly decorated in very coarse jagged lines with poor and very irregular Mekeo designs. The original dorsal hole is plugged with barkcloth and a new hole was made on the former ventral surface. The aft area has long and short longitudinal lines. There is a scraped 4 cm. band about the aft-septum. 53×4.3 cm.

There is a pipe in the Rotterdam museum, 17713, from 'Yule Island' (figure 135). All the decoration is in jagged lines. The dorsal hole is in a lozenge which has a small indentation at each end and a larger one on each side. In the median dorsal line are two similarly indented lozenges with double outlines in the centre of which are two spirals which in the aft lozenge spring from the internal apices of the lateral indentations. Between and on each side of the lozenges is a row of triangles outlined by scratched lines and enhanced with transverse lines. On each lateral surface is a longitudinal zigzag from some apices of which there springs a long oblique stem which ends in a spiral; of these there are nine in each row. The character of the spirals, which spring from chevrons, but not the technique, shows a resemblance to those on gourds from the Nara district; the reversed spiral (figure 147C) is in jagged technique. Thus it

seems probable that the Rotterdam pipe comes from Nara. A peculiar feature of the decoration is the scratched outline of the pattern on the dorsal surface of the pipe. 44 × 4.7 cm.

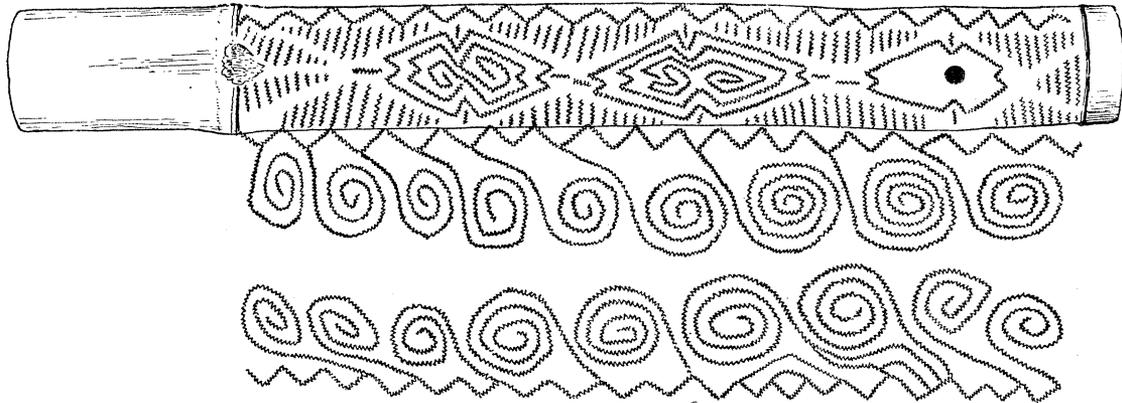


FIGURE 135. Pipe, pattern displayed, jagged technique, 'Yule Island'. Rt. 17713.

Mekeo.

The pipes characteristic of Mekeo have an entire skin and usually have two inter-nodes. I know of only a few pipes with a little scraping. The decoration is entirely in jagged lines. The decorated bands with few exceptions are limited by a jagged line drawn round the pipe and never by an incised line, as in the Kiwai pipes; this alone suffices to differentiate the pipes of the two areas.

Although in most cases I refer here to pipes in the Cambridge museum, I have a number of rubbings of other pipes which conform to the following general descriptions. Pipes in which the decoration is mainly contained in broad bands and in a technique of coarse jagged lines appear to be restricted to the plains on each side of the Angabunga.

The dorsal hole is moderately or quite small, as the tobacco is put into a rolled-up leaf. In most pipes the dorsal hole is within a large concentric lozenge. As there is a similar lozenge on the ventral surface, the two lozenges meet on the lateral aspects of the pipe and leave triangles which may or may not be enhanced concentrically or with transverse lines.

The other bands of the pipes vary in number and are decorated in different ways. In several pipes, as in figures 136A, 137, a band is traversed by a zigzag of three to five lines, the resultant triangles being enhanced with transverse lines or with a step pattern. A band may be filled up with longitudinal or transverse zigzag lines; a variant of transverse zigzags is shown in figure 136C, where there is an approximation to a step pattern. Some bands contain a stepped pattern, others contain lozenges partially or wholly enhanced concentrically. Some encircling or longitudinal lines are fringed. The aft end of the pipe is variously treated or may be plain.

The first illustration of a Mekeo pipe was given by Lewis (1924, pl. ii, fig. 1), but without a description; he gives (1925, pl. xxviii, fig. 1), a rubbing of the first band aft of the dorsal hole of this pipe.

In the Cambridge museum are two very similar pipes collected in 1898: Z. 8727 was labelled 'Maiva' by D. Ballantine and so probably was obtained there. The decoration (figure 136A) is typical of Mekeo. There is a burnt dot in each triangle of the unusual toothed fore end. At the aft end is a large hooked zigzag enclosing double-lined triangles. 69.4 × 5.4 cm. The other pipe, 25.662, from Veifa (Veipa), was given to me by Mrs Bamwell in 1898. The pattern of the central prenodal band is shown in figure 137. The aft band contains longitudinal zigzags. 67 × 4.7 cm. I have a rubbing of another Veifa pipe which resembles these two pipes.

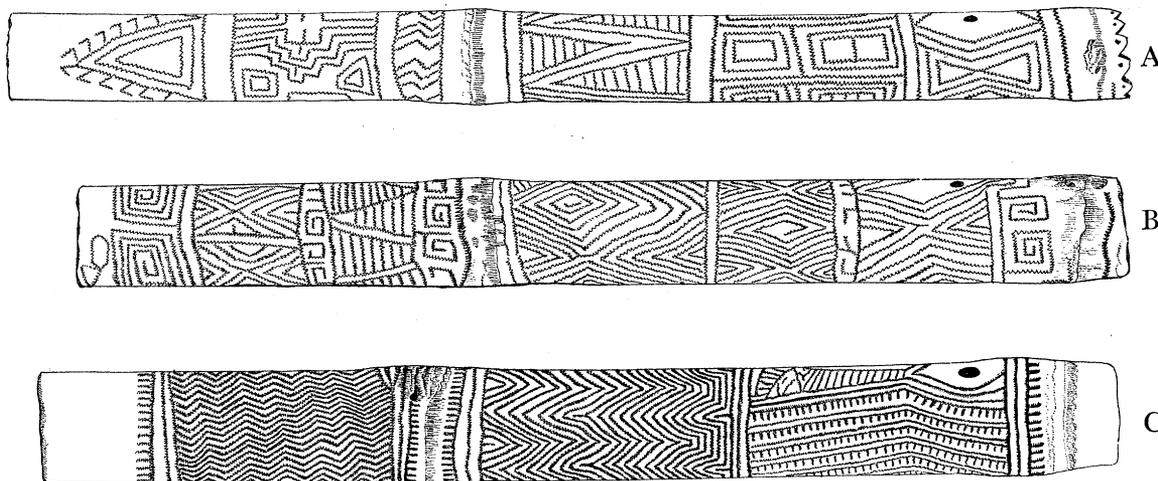


FIGURE 136. Pipes, jagged technique, Cm. A, 'Maiva', Z. 8727; B, Mekeo, Z. 8732. C, 'Moveave Gulf', a typical Mekeo pipe, Z. 8330.

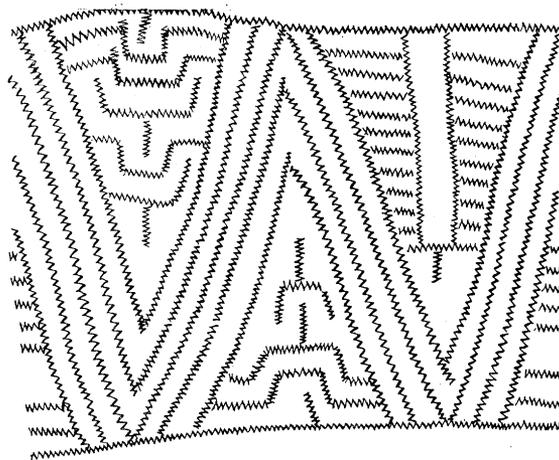


FIGURE 137. Pattern, central band of pipe, jagged technique. Veifa. Cm. 25.662.

I obtained at Mekeo in 1898 an old pipe, Z. 8732, with typical decoration (figure 136B). It is characterized by a band of squared spirals at each end, and there are also squared spirals in the postnodal area. 65.8 × 6 cm.

Ballantine gave me in 1898 a fine old pipe, Z. 8330. He labelled it 'Moveave Gulf'; however that may be, it is decorated in a manner typical of Mekeo (figure 136C). 67.2 × 7 cm.

A pipe in the Glasgow museum, 89.67 dr (figure 138), has the aft 22.8 cm. plain. The longitudinal rows of triangles are a peculiar feature. Although incorrectly labelled 'Murray Island', it undoubtedly belongs to this series. 69 × 6.7 cm.

Williamson gave to the British museum a pipe, 1913, 4-7.177, from 'Mekeo'. The skin is entire except for two narrow scraped bands. It differs from the other Roro and Mekeo pipes in the absence of bands in the internodal area and by the patterns being outlined by scratched lines and enhanced with fine jagged lines. The dorsal surface is shown in figure 139. In the aft half of the dorsal and ventral surfaces is a representation of a crocodile, and on the left side is what appears to be a bird. 45.7 × 5.2 cm.

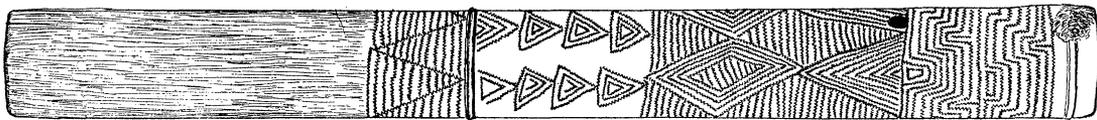


FIGURE 138. Pipe, Mekeo. Glasgow, 89.67.dr.

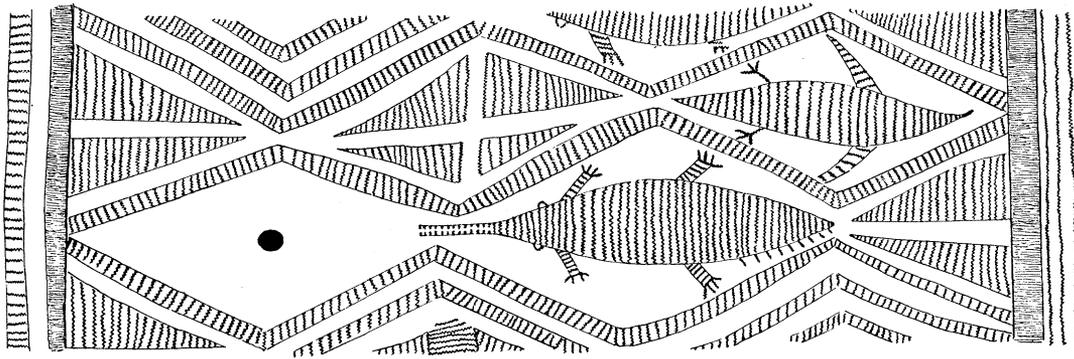


FIGURE 139. Pipe, dorsal and left sides, animal designs, 'Mekeo'. B.M. 1913, 4-7.177.

The Cooke-Daniels expedition collected a pipe, 1906, 10-13.1153, at Veipa, on the Angabunga, with the same technique. The dorsal hole is within a lozenge. The whole internode is covered with stripes similar to those of the previous pipe; they extend obliquely, or semi-spirally, backwards, except at the fore end where they are parallel with the fore half of the lozenge. The fore area is decorated with transverse fine jagged lines and the aft area with enhanced triangles. Dr Seligman was informed that this was a Jokea pattern; presumably this refers more especially to the oblique bands.

The technique of these two pipes is unlike anything I am acquainted with from this part of Papua, but I have not seen any pipes from Jokea. This village is a few miles west of Cape Possession and the natives, with those of Miaru and Lese, belong to the Moaripi, the most eastern of the Gulf tribes. The true Moaripi are said to be almost extinct (Haddon 1920, p. 261). I made a rubbing at Kapakapa in 1914 of a pipe with the same technique from Taboro, Rigo district.

Kuni.

The somewhat narrow bands of a group of pipes from the Kuni country have patterns in fine jagged lines, which are rather close together. The general effect is neater and cleaner than in the Mekeo pipes.

There are several pipes in the British Museum from Epa, a village 15 or more miles east of Möu. I am not sure whether Epa is actually in the Kuni country, but these pipes and the two following agree closely with certain Kuni pipes. A Cambridge pipe, Z. 8733, from Epa (figure 140), shows the characteristic decoration of this group. The jagged lines are darkened so as to appear black, but there is no trace of burning. 45×5.2 cm. A pipe, Z. 9328, is labelled 'Mekeo'; the decoration is very similar to the former. There are six spaced rings of plaited cane fastened round this pipe as it showed a tendency to split. 62×4.6 cm. Both pipes were given to me when I was in Papua in 1898.

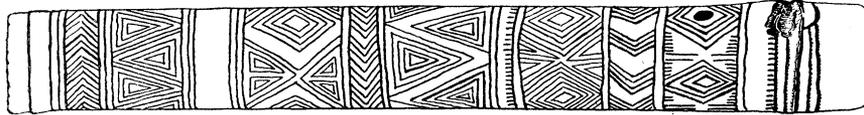


FIGURE 140. Pipe, Epa, Kuni country. Cm. Z. 8733; fine jagged lines, not straight lines as in drawing.

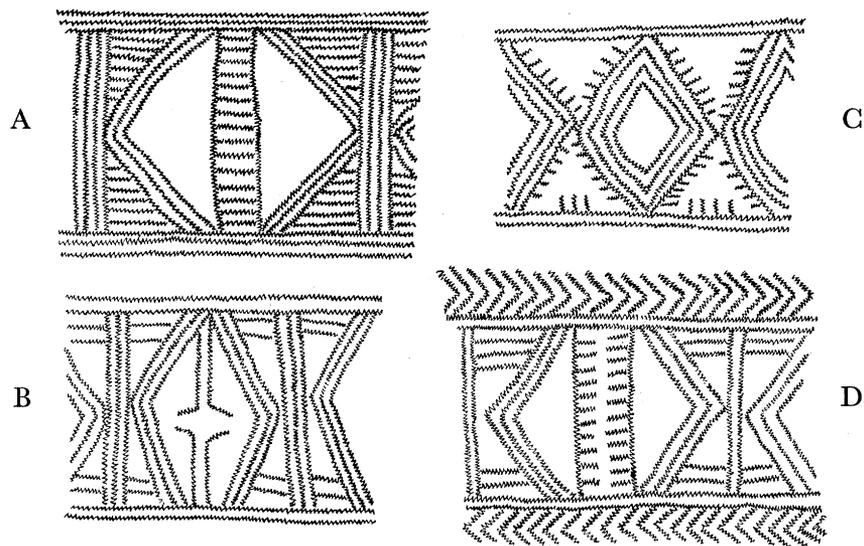


FIGURE 141. Pipe patterns, Kuni country, Horniman museum. A, B, C, pipe 595; D, pipe 594.

There are three pipes in the Horniman museum, 593–595, which resemble the Epa pipes, though with different patterns. Pipe 594 has the pattern shown on figure 141D in four bands, but the first band has lozenges. Pipe 595 has the three fore bands with the same motive (figure 141A); a kind of cross is inscribed in the lateral and ventral lozenges of the aft band (figure 141B); also in the same pipe is a band of concentric lozenges with an external fringe (figure 141C); the same motive is found in four bands of pipe 593, but on the concentric lozenges of the fore band (in one of which is the dorsal hole) there is no fringe. These pipes were collected by A. E. Pratt, but he gave no provenance. As Pratt spent some time in Dinawa they may have been collected there or they may have been obtained from the area between Dinawa and Epa. Dinawa is at a height of 3600 ft., 3 miles south of the Angabunga at about $146^{\circ} 50'$ in the northern part of the Kuni country. Pratt (1906, pl. p. 304) illustrates indistinctly two pipes with analogous patterns.

Pratt (1906, pl. p. 305 and pl. p. 319) illustrates pipes, also presumably from the Kuni country, with a different type of decoration. The decoration consists of transverse bands of burnt triangles; similar bands are found on some holders from the Kunimaipa valley (figures 109–13).

In the Cambridge museum is a pipe Z. 11314 from Emene, Ikoikoi, Uniuni in the north Kuni country, which was obtained by Dr C. S. Myers in 1898. Figure 142 shows the rough character of the decoration. There are three scraped bands and the patterns are carelessly executed in burnt jagged lines. 55.6×5.3 cm.



FIGURE 142. Pipe, Emene, Ikoikoi, Uniuni. Burnt jagged lines. Cm. Z. 11314.

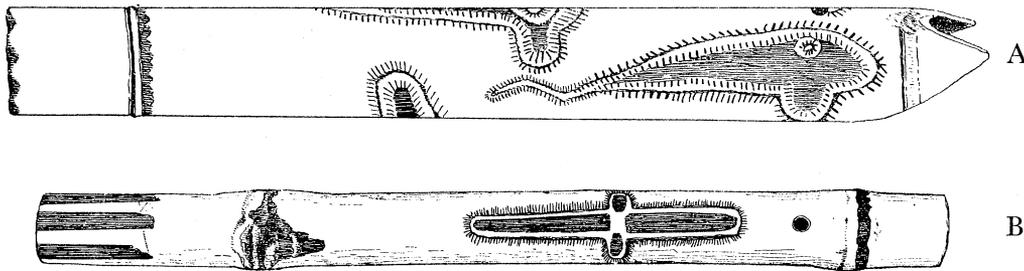


FIGURE 143. Kuni pipes, scraped designs. A, pipe with jaws; Inaumaka, Kuni. B.M. 1906, 10–13.744. B, 'Yule Island'. L. 1999.75.

The Cooke-Daniels expedition of 1904 collected at Inaumaka, Kuni, a pipe with jaws, B.M. 1906, 10–13.744. The skin is entire except for a little scraping. The decoration is solely made by scraping. The dorsal hole is by the side of an irregular fringed ring within which is a similar ring. There are four strange designs (figure 143A), three have tails of varying length. There is also a small fringed cross with square arms. 51.6×5.4 cm.

A pipe, *ile-ile*, from 'Yule Island' in the Leiden museum, 1999.75, was obtained in 1920. The skin is entire except for a little scraping, as shown in figure 143B. There is a dorsal and a ventral fringed cross solely made by scraping. 5.6×4.8 cm. The British museum specimen confirms my original allocation of this pipe to the Kuni.

Fuyuge.

A pipe from Avila, on the Dilafa river, in the British museum 1906, 10–13.751, has the skin entire except at the ends. All the decoration is in very fine jagged lines. In the centre is a band of a few lines and at the aft end a broad band of lines. On the dorsal surface of the fore band is a group of concentric bowed chevrons with their apices towards the dorsal hole; there are also two herring-bone and other designs. Within the aft band is a broad spiral band tapering at the ends and enhanced with close longitudinal lines. Alternating with it is a similar spiral on a smaller scale.

32.5 × 4.7 cm. According to Williamson's map (1912) 'Avela' may be in the Kuni country, but the pipe seems to belong to a Fuyuge series.

Pipe 747 from Galoma has the skin entire except at the extreme aft end. All the decoration is in very fine jagged lines. The scheme of decoration is shown in figure 144, British Museum 1906, 10-13.747. 47.5 × 4.7 cm. I have not been able to find Galoma on any map; the decoration of this pipe, but not the details, shows a general affinity with that of the Avila pipe.

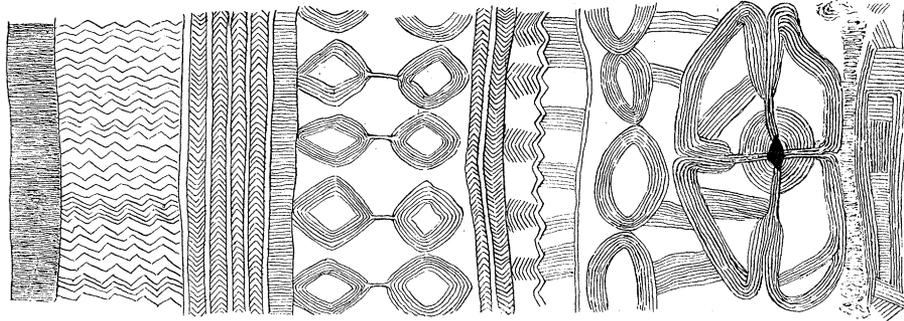


FIGURE 144. Pipe, Galoma, Fuyuge country. Fine jagged lines, not straight lines as in drawing. B.M. 1906, 10-13.747.

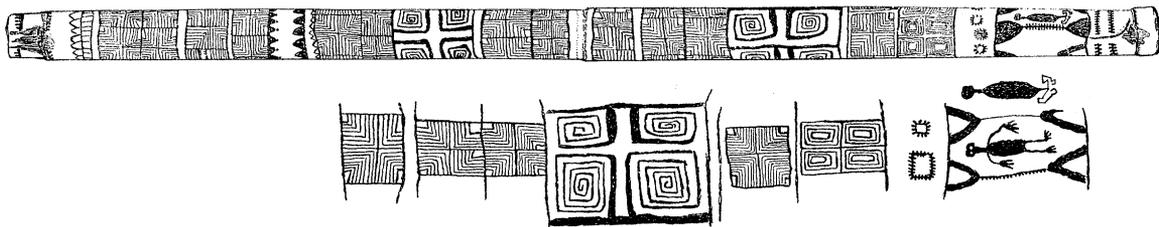


FIGURE 145. Pipe, burnt technique, dorsal surface, other patterns on first internode. Fane village, Mafulu. Cm. 38.390.

Pipe 748 is labelled 'Pizoko'; this is a mountain a few miles north-east of Mafulu village. The skin is entire and there are blunt jaws at the fore end. The internode is not divided into bands and is decorated with longitudinal series of disconnected plano-convex elements which are enhanced with transverse lines. Usually there are enhanced transverse ovoids where the elements meet. The dorsal hole is in one element of the fore transverse row of the elements; behind this row is a transverse series of three-rayed designs, formed of transversely enhanced bars that meet V-like with a vertical bar in the angle. All the decoration, which is carelessly executed, is in very fine jagged lines. 43.4 × 5.2 cm.

The pipe shown in figure 145 was collected in June 1925 by Dr de Rautenfeld at Fane, about 7 miles south-east of Mafulu, and he gave it to the Cambridge museum, 38.390. This is one of the longest pipes known to me from New Guinea; the skin is entire and there are two internodes. The decoration is effected solely by burning and without any incised lines. All the decoration is within transverse bands separated by narrow plain spaces. Most of the broader decorated bands are subdivided by a single transverse burnt line, and each half of the band is divided into panels by longitudinal

lines. In most cases each panel is treated irrespective of a neighbouring panel; it is divided into four sections by a transverse and a longitudinal line and typically each section is enhanced with concentric right-angled lines. There are some slight irregularities which break the monotony of these simple designs. Two bands are decorated with paired squared spirals. The dorsal hole is in a fringed circle; in the band fore of it are solid or hollow triangles joined by a fringed line, and in two interspaces are the figures shown in the illustration; these are the only human figures on a pipe known to me from the Mekeo-Kuni-Fuyuge area. The other patterns are simple. 106.4 × 4.5 cm.

Williamson (1912, p. 71) says that the pipes of the Mafulu are of the ordinary type. 'They are, however, generally not ornamented; or, if they are so, it is merely in a simple geometric pattern of straight lines. I obtained one pipe [his pl. 51, fig. 1] of an unusual type, being much smaller than is usual. A special feature of this pipe is its decoration, which includes groups of concentric circles. This is the only example of a curved line which I ever met with among the Mafulu villages, and it is probable that it had not been made there.' He speaks (p. 209) of the decorative art as being 'apparently confined to the very simple designs scratched upon some of their broad abdominal belts, smoking pipes and lime gourds'.

The 'pipe' referred to by Williamson was given by him to the British museum, 1913, 4-7.178; it is an exceptionally thick holder (figure 146). There is a septum with a small hole at the most decorated (the mouth) end; the widely open other end is charred internally. The decoration is solely by burning. The dark orange-yellow colour of the bamboo is due to long use and with the burnt patterning produces a rich effect. 25.7 × 4.3 cm. This holder may be regarded as having affinity with the holders of the Main range district.

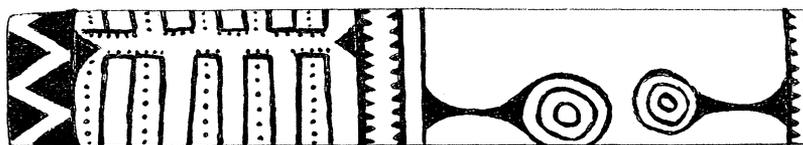


FIGURE 146. Holder, burnt technique, Mafulu. B.M. 1913, 4-7.178.

Nara.

Nara or Pokao (Pokau) is a pleasant grassy hilly district south-east of Hall sound, which abounds with game (Haddon 1901, p. 262). The inhabitants are especially interesting on account of the number of individuals with wavy or almost straight hair (Seligman 1910, p. 373); this trait also occurs among other Papuo-Melanesians. The Nara say that they originally came from the interior, but Seligman (1910, f.n. p. 26) has no doubt that they must be regarded as the least modified descendants of the original immigrant stock who made their way inland from the coast and intermarried largely with the aborigines of the country. Murray (1912, p. 159) says that the Nara language differs from Roro and Mekeo; 'it is Melanesian but contains, it is said, a number of words which resemble those of the mountain dialect in the neighbourhood of Mafulu.' There is an old-standing friendship with the Koita and their social organization is similar. There is also an old and intimate friendship with Waima and a

considerable trade with the people of Delena, who bring pots to Nara and receive in return yams, bananas and tobacco (Seligman 1910, p. 374).

There are eight pipes in the British museum from the Nara district collected by the Cooke-Daniels expedition of 1904.

Pipe 1906, 10-13.1185, Diumara village, has six transverse bands, all similarly decorated with a series of double longitudinal lines, fringed externally. All the decoration is in coarse jagged lines. 48.5×4.3 cm.

Pipe 1151, Diumara. The internode has longitudinal narrow bands of chevrons, between which are concentric rectangles, the central rectangles have transverse lines across them, except those in the dorsal hole area. Aft of the aft-septum is a transverse band with chevrons, and aft of this a series of transverse concentric zigzags. All the decoration is in fine jagged lines. 52.5×4.5 cm.

Pipe 1184, Diumara, has the internode divided into three bands, which are bounded by two transverse lines fringed externally. The fore band is the broadest and is decorated with two large double-outlined lozenges; extending transversely across each lozenge are two lines fringed externally. The other two bands are decorated with a series of three longitudinal lines, the outer lines being fringed externally. All the decoration is in coarse jagged lines. 43.3×5.3 cm.

Pipe 699, Nara. The skin is entire except for a narrow scraped band in front of the aft-septum. 50.8×4.6 cm. The decoration of this pipe is shown in figure 147A. That of pipe 1167 is very similar; both were made by a man named Keo. In both the aft band has the same pattern which was labelled by Seligman as '*Bilela*, track of hermit crab on beach'. Pipe 1157 has the patterns shown in figure 147B. 46.5×4.4 cm. The decoration of these three pipes is solely in jagged lines.

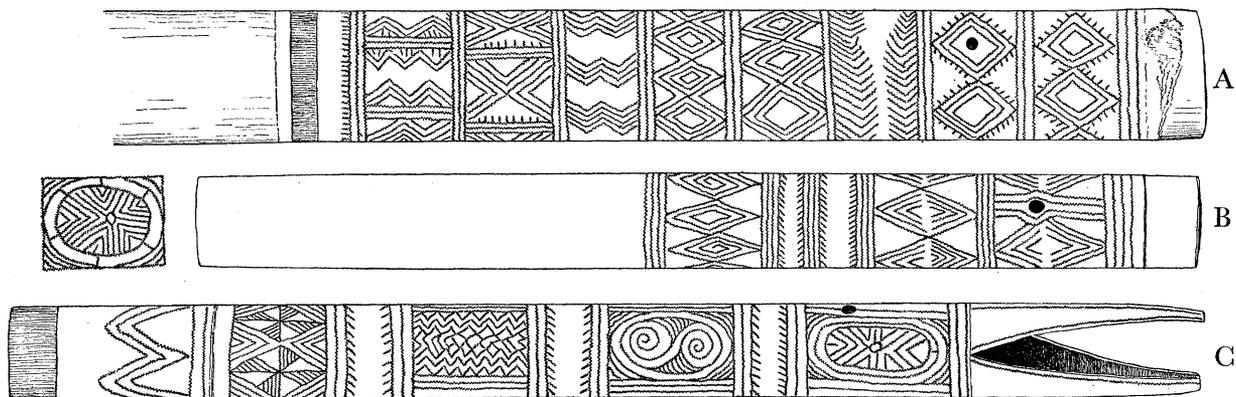


FIGURE 147. Three Nara (Pekao) pipes, jagged technique. B.M. 1906, 10-13, A. 699; B. 1157; C. 1158, jaws, reversed spiral, *koiyu* ornaments. D. from R.

Pipe 1158, Nara, has jaws; the skin is entire except for a narrow band fore of the fore-septum and one at the extreme aft end of the pipe (figure 147C). The decoration is solely in jagged lines. The two fore bands alone require comment. With the exception of one reversed spiral the motive is the *koiyu*, a characteristic ornament consisting of a fretted turtleshell disk applied to a white shell disk. These ornaments are made by the Roro and are traded to considerable distances, even as far as the north coast of

Papua. 53.3×4.3 cm. Another Nara pipe, 701, has two reversed spirals, and a pipe in the Edinburgh museum, 1885.91, without a provenance, is covered with bands containing similar spirals (Haddon 1894, pl. ix, fig. 150). The reversed spiral is formed by two spirals each springing from an enhanced triangular base. Single spirals of this kind are common in burnt technique on lime gourds from Nara; or two divergent spirals may spring from a common base. I sketched the tattoo marks of a Nara woman in 1898 who had a number of detached spirals of this kind tattooed on her thighs.

Kapatsi (Kabadi).

Kapatsi, called Kabadi by the Motu, is a small marshy area east of the Aroa river and north of Galley reach. The population appears to be mixed: one element migrated from Afai in Mekeo (Seligman and Strong 1906, p. 232); there is also a Roro element, and the dialect spoken is nearly related to Motu (Seligman 1910, p. 27); it is not known to what extent there is an aboriginal Papuan stock. Very little has been published about the people (Haddon 1894, p. 153).

The only pipe from the district of which I have information is one in the Berlin museum collected before 1890. The main pattern (figure 150F) consists of two longitudinal rows of large concentric lozenges, in one of which is the dorsal hole; between the lateral angles of the lozenges are two parallel lines ending in scrolls. In available spaces are representations of the *koiyu* ornament.

I obtained in 1898 a pipe, Z. 8329, at Borepada, a coastal village between Caution bay and Port Moresby and north of Haidana island, which was said to have come from Maipua. There is a scraped band at the fore end and at the aft-septum (figure 148).

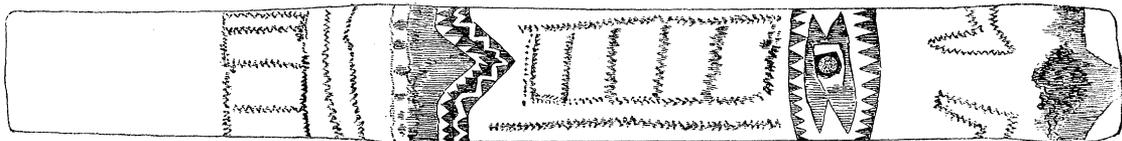


FIGURE 148. Pipe, scraped and jagged line technique. Borepada. Cm. Z. 8329.

The original dorsal hole is in a simple scraped design. On the fore side of the aft-septum is a toothed band and a zigzag in relief; these form an angle in front of the leaf-scar on the ventral surface and it is repeated on the dorsal side. These decorations are in the usual Gulf technique. There are in addition rough patterns in coarse jagged lines. The main design on the original ventral surface consists of a large T-shaped motive flanked by two lines on each side; the body of the T is a ladder-like motive which is represented on the other side in an abbreviated manner. Near the fore end of the 'ladder' is an open hole, and therefore it is on the later dorsal surface; there is also an excentric hole near this one, both of which have been used. The rest of the decoration is indicated in the figure. These decorations are in the style of the ruder Nara pipes from Diunara and also recall the Emene pipe (figure 142). 58.5×6.7 cm. In 1901 (p. 204) I wrote: 'I found that the people [of Borepada] made very little themselves, some of the specimens we bought came from Toaripi, over a hundred miles to the north-west, and others from Bulaa [Hula], seventy miles to the south-east. They

apparently do not decorate the articles they make.' It may be assumed that the pipe originally came from the Gulf area; a later owner plugged the original dorsal hole, turned the pipe round and made a new (dorsal) hole and decorated the pipe in the jagged line technique. The final owner did not attempt to decorate the pipe with patterns in the burnt technique of the neighbouring peoples.

Summary.

The burnt technique of the characteristic Waima (Maiva) pipes is similar to that of Western Papuo-Melanesians of the coastal areas as far east as Aroma, and the patterns, as a whole, agree with those to the east, though a few influences from Mekeo may be seen, as in the step patterns of figure 133. The depicting of animal forms referred to on p. 150 is a local peculiarity, though animal forms in scratched and jagged lines occur on a pipe without a definite provenance (figure 139).

The burnt decoration of the Fane pipe (figure 145) has a different history, as it belongs to the Papuan hinterland culture. The holder (figure 146) is related, but not in its decoration, to the holders of the Main range.

The characteristic feature of the Mekeo pipes is decoration by means of jagged lines, which in many cases are definitely coarse. The execution is more delicate in the pipes of this class from Kuni and these show a similarity in technique and style with pipes from Mount Albert Edward (figure 117), where spirals also occur.

Stepped triangles and stepped crosses are found in the Mekeo pipes, but so far as my material goes these patterns are not represented in the Kuni or Nara pipes. There are, however, stepped patterns in the holders from the Kunimaipa valley, to the north (figures 109-13), and in a holder from Ono, upper Waria river (figure 114). A pipe from the Karukaru, who live on Mount Momoa, also shows a definite step pattern (figure 121). In the mountain areas the lines of the patterns are burnt and there are few incised lines and no jagged lines. It therefore seems probable that certain patterns in the Mekeo area were borrowed from the Main range, but were executed in the local technique of incised jagged lines. It is interesting to note that a pipe (figure 142) from Emene in the mountainous north Kuni country is decorated with burnt jagged lines.

An inspection of figures 136, 138, 140, 141, 147, which, however, do not fully illustrate the patterns on the pipes from this composite area, will show that the decoration consists of numerous transverse bands separated by two or more lines, some of which may be fringed. The most common pattern within the bands is a series of concentric lozenges; a very unusual broken concentric lozenge is shown in figure 147B. Triangles within bands are variously enhanced. Sporadically bands contain concentric rectangles, of which the central rectangle may be traversed by spaced lines. A band may be broken up into patterned panels by longitudinal lines: the panels in many cases contain zigzags or chevrons of two or more lines. Fringed lines are common—these observations apply to the Mekeo-Kuni-Nara area and also to two pipes (see figure 117) said to have come from the Albert Edward range.

The occurrence of spirals is of interest. Spirals are common in the decorative art of the Delta and Gulf Divisions, but are rare in the Central Division, where they are

most common in the Nara country and spring from a triangular base. It is possible that the Rotterdam pipe (figure 135) came from this area. In several pipes, as in figures 136B and 145, there are squared spirals, or fret, as also occurs in the Delta Division.

Patterns of incised jagged lines are sporadically found in the area of the Papuan gulf and are characteristic of the regions west of the Fly river. A few examples are known from the mountainous country of the Central Division west of the Main range; in the Rigo district jagged lines are common and usually are made by burning, but incised jagged and simple lines may occur. The abundance of patterns composed of jagged lines in the Mekeo-Kuni-Nara area is merely a local development of a widely spread technique.

In the Fuyuge area very peculiar patterns are made in very fine jagged lines (figure 144). This may be regarded as a special local development.

Two Kuni pipes (figure 143) have the decoration made by scraping; this, too, seems to be a very local peculiarity.

Another local type of decoration is seen in the two Mekeo pipes referred to on p. 154 and figure 139. As was there stated, the technique is otherwise unknown from the Mekeo-Kuni-Fuyuge area, but it can be matched in the Rigo district.

Central Division from Redscar bay to Kapakapa

A narrow coastal belt from the mouth of Vanapa river, Redscar bay, to Kapakapa is occupied by Motu-speaking tribes, but Murray (1912, pp. 150, 153) says that the true Motu extend from Galley reach to Pari, west of Bootless inlet.

There is no evidence when the Motuan immigration took place; the whole coastal area for some miles inland was then occupied by the Koita and allied tribes, who, as Chalmers (1887, pp. 14, 15) says, are the real owners of the soil, and they allowed the Motuans to settle around Port Moresby presumably to assist them in repelling the forays of the Koiari; he also states that the Motuans prevented the Hula folk from raiding the Koita. An amicable arrangement was made whereby the Motu exchanged fish and pottery for the vegetable produce and game of the Koita. Nevertheless, owing to their supposed magical powers and their control over the weather and heavenly bodies, the Koita were much feared by the Motu.

The Koita, whom the Motu call Koitapu, were, according to Turner (1878, p. 471), a roving people who did not remain very long in one place. A small settlement of these people was generally to be found at one end of the Motu villages, but they tended to preserve their identity, as Lawes (1879, p. 371) confirms; they also lived a little way inland in settlements on hills overlooking the sea. He (p. 374) says that it was admitted that the Koita were once a powerful tribe, but have been decimated by the Koiari. According to Seligman (1910, p. 41) the Koita, who are a 'Papuan'-speaking people, live in scattered villages from the mouth of the Laroki to Pari village, about 7 miles south-east of Port Moresby. Many of the coastal Koita villages are built in direct continuity with Motu settlements and consequently there is much miscegenation. The villages inland from the coast are inhabited solely by Koita (p. 45). The Koita

apparently had little intimate intercourse with tribes other than the Motu. A certain amount of trade took place between the Koita and the Koiari, and a very few of the Kilakila and Baruni women married Koiari men; these villages are respectively 4 and 2 miles from the township of Port Moresby.

Murray (1912, p. 157) says that at the time of the arrival of Sir William MacGregor in 1887, the cultivation of tobacco had not spread along the coast to the east of Port Moresby. Tobacco was often given to Motu traders by the vendors of sago when they visited the Gulf of Papua on their trading voyages in the *lakatoi*. He adds that stone axes and tobacco, as well as food, were purchased from the Koiari at regular markets.

Numerous tobacco pipes in museums have been obtained at Port Moresby and other villages of Motu-speaking folk which bear a general resemblance in style of decoration and all agree in having a solely burnt technique. It is not recorded whether these pipes were made locally, and it is probable that many of them were not of local manufacture. It is not possible therefore to say whether a given pipe was made by a Koitan or Motuan, but at the present day this seems to be immaterial. There is little doubt that Koiari pipes have also been collected from coastal villages. There are numerous pipes in museums which safely can be relegated vaguely to this coastal area or to the Loyalupu area. No general conclusions can be drawn until we know definitely who were the makers of the pipes.

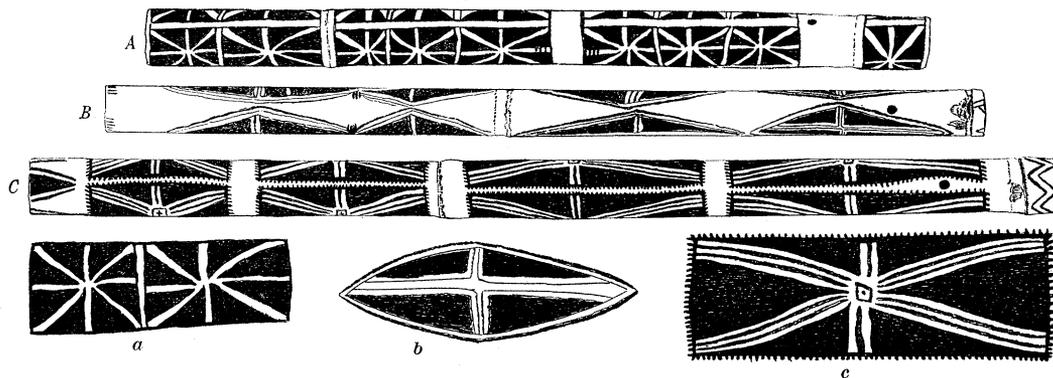


FIGURE 149. Koiari and Kabadi pipes. Cm. Koiari. A. Sogeri, Z. 8758; B. Wamai, Z. 8734; C. Koita; Barune, Z. 8739.

It seems improbable, at all events in the Motu area, that the people of the hinterland borrowed details of the decoration of their pipes from the immigrants, who at first were unable to do more than hold their own against the indigenous peoples. The early records constantly refer to raids from the mountains to the coast and of none in the opposite direction.

The only definite Koita pipe in the Cambridge museum comes from Barune, and was given by D. Ballantine in 1898, Z. 8739 (figure 149C, *c*). There is a septum near the fore end and one about the middle of the pipe. At the fore area is a double zigzag, and at the aft end are triangles. There are four large fringed panels on each side having the design shown in the figure. The panels are separated by narrow longitudinal spaces in the median dorsal and ventral lines and by broad plain transverse spaces. 80.3 × 4.5 cm.

Koiari-speaking peoples and other mountain tribes

There is a somewhat confused mountainous area from a few miles inland of Port Moresby and its neighbourhood to the Main range. It is here that numerous rivers rise which unite to form the Laroki (Laloki). The northern main tributary of the Laroki is the Brown river, Naoro, whose northern affluent flows from the mountains west and south of Mount Bellamy; the southern affluent of the Brown river has its sources on the western slopes of the Owen Stanley range in the neighbourhood of 'The Gap'. The next main tributary of the Laroki is the Goldie river which rises in the mountains west of Mount Nisbet. The main stream of the Laroki rises in the Richardson range and skirts the northern end of the Astrolabe range. The western headwaters of the Wanigela are midway between the Richardson range and the Main range.

The term Koiari is applied by the Motu and their neighbours on the coast to a congeries of tribes who inhabit the country drained by the tributaries of the Laroki. It is perhaps more correct to speak of them as the Koiari-speaking peoples, for tribes beyond this area are regarded as being cognate to them, and there is no real coherence between the several tribes speaking that linguistic group.

Beaver (1916, p. 48) states (and Chinnery, MS. 1920 confirms it) that the Koiari tribes from the Hagari and Kagi in the north to certainly as far south as the Wamai recognize their connexion with the Isurava, Karukaru, and other Koiari-speaking peoples, on the eastern slopes of the Owen Stanley range and trace back a common origin from the spot on Mount Nisbet known as Tuagila (see p. 141). The Koiari continually visit the people of the upper Kumusi watershed and formerly assisted them in warfare, and to this day bring back from Tuagila a certain plant which they grow in their gardens to strengthen the crop (p. 49).

Lawes (1879, p. 375) says that the gardens of the Koiari in the ravines and gorges of the hills are very fruitful. 'Tobacco is cultivated, and forms an article of barter with the coast tribes. They have a custom in smoking similar to that of drinking healths. They sit round the fire, and having filled their bamboo pipe, shout out a name before they take their whiff. In my case I was their guest, and had given them some foreign tobacco, and they wished to honour me. They shouted as they took the pipe "Misi Lao kuku e!" (Mr Lawes tobacco, Oh!) and "Misi Lao biaki" (Mr Lawes our friend). Far into the night were to be heard shouts of "Misi Lao kuku e".' In 1898 I saw tobacco cultivated at Atsiamakara, a small village on a hill east of Mount Warirata, at the northern end of Astrolabe range (Haddon, 1901, p. 243). This was a populous village some ten years or so previously, but it was raided by mountaineers from the east.

Lawes (p. 376) notes that, in common with all the tribes in this part of New Guinea, the Koiari chew betel nut. It grows plentifully in their mountains and is much coveted by the coast tribes with whom it is an article of barter for coconuts, which do not grow in the interior.

In various museums there are numerous pipes decorated with different kinds of burnt patterns, some with one kind, others with another, and some with quite different patterns. By means of these a considerable number of pipes can be presumed to belong

to the same general area although they have no provenance. The first step is to describe those pipes for which a definite tribe or locality has been recorded. Though these are lamentably few in number, it is possible from the range of their patterns to allocate tentatively to the Koiari a number of other pipes without provenance. A few pipes are labelled as having been obtained at Port Moresby and Tupuselei, but most of the patterns on them can be matched from the Koiari.

The Kubere or Kupele live about the upper waters of the Vanapa in the area south of Mount Victoria and west of Mount Bellamy. As the Vanapa flows into Redscar bay communication between the Kubere and the Kabadi is feasible. There is a small tribe, the Doura, living on the north side of the lower Vanapa who have suffered much at the hands of their neighbours, including the Kabadi and the mountaineers. Chalmers made a journey to 'Meroka' in 1879 (Chalmers and Gill 1885) and met numerous 'Kupele' people, who, he says, 'are the same race of people as at Meroka—some very dark, others very light-coloured. Their weapons are the same as the Koiari, so also is their dress' (p. 130). He says some of the Meroka 'women had quite an Eastern Polynesian look. . . curly heads abounded, although a number had straight hair. They say they are not Koiari' (p. 117). The positions of Kubere and Meroka (Moroka) and Sogeri are taken from the maps in Chalmers (1887) and Murray (1912).

A pipe from 'Kupele' in the Berlin museum, VI. 4332, 'Aug. 1880', is especially interesting in having a bowl (figure 150A), made from the punctured end of a small

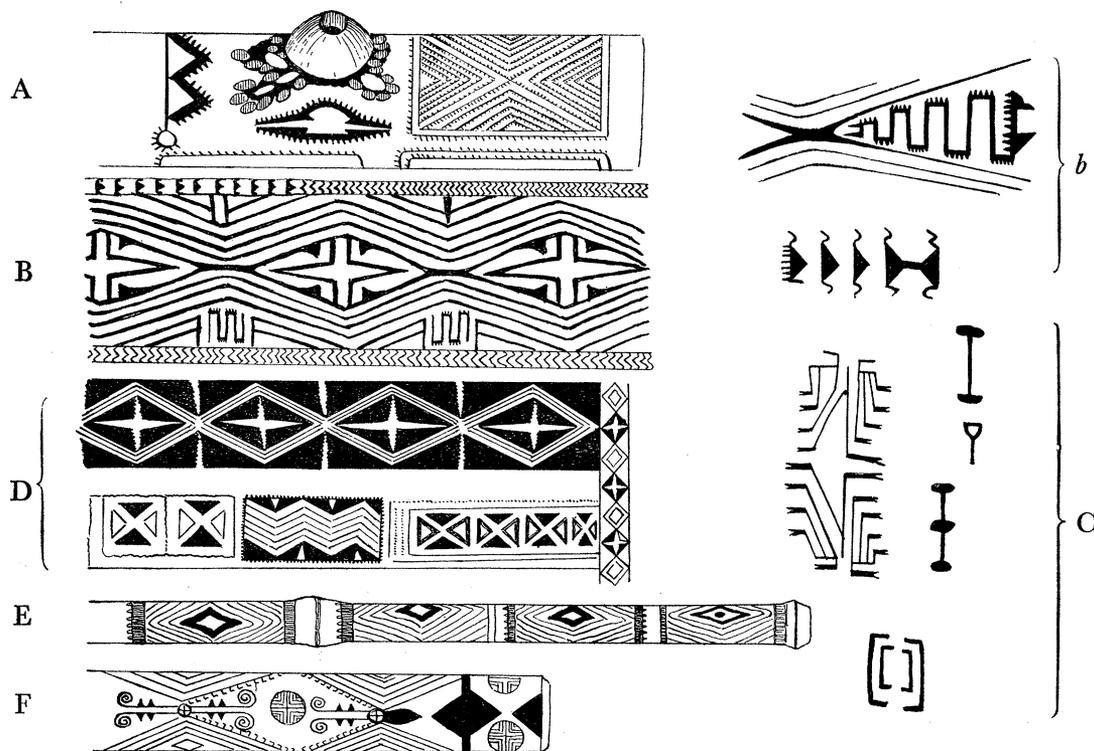


FIGURE 150. Kupele, Koiari and Kabadi pipes. A, fore end, Kupele pipe, coconut bowl supports leaf screw, Berlin VI. 4332. B, decoration, Kupele pipe, Berlin, R. C, flagged designs, Sogeri. C, other designs on same pipe, Berlin VI. 4339, S. D, decoration, Koiari pipe, Berlin VI. 4324, S., R. E, decoration, Koiari pipe, B.M. 106-10-13. 1177. F, decoration, Kabadi pipe, Berlin, S., R.

coconut; the black wax (?) which cements the bowl on the pipe is studded with fragments of a white shell and edged with red seeds. Strictly speaking, it is not a true bowl but rather a support for the leaf screw. An analogous bowl is recorded from the Purari delta (p. 111). The pipe is decorated with panels intersected by diagonal fringed lines, the triangular spaces being filled concentrically with fringed lines. There are also a few simple designs.

Another Berlin pipe from Kupele is decorated with patterns shown in figure 150B, *b*. The fringed squared zigzags are interesting. The decoration of these pipes is in burnt technique.

The Hagari apparently live south of the Kubere, and south of the Hagari are the Kagi and Wamai. Their area seems to coincide with Meroka, an area west of Mount Nisbet on the upper waters of the Goldie or Naoro tributary of the Laroki. The Efogi occupy the eastern part of the area.

A pipe, Z. 8734, from Wamai was given to me by D. Ballantine in 1898. It consists of two internodes. On each side of the pre- and postnodal areas is an elliptical lozenge, making a total of eight (figure 149B, *b*); the first on the left side is shown in detail, but many of them are less carefully executed. The pattern was first, wholly or in part, outlined by scratching; later some of the lines were burnt and a few solely burnt lines were added and then the triangles were burnt. 69×3.7 cm.

The Sogeri live south of the Wamai, west of Mount Karadu on the southern upper waters of the Laroki. In the official map (*Ann. Report, 1900-1*), the Sogeri country is about 25 miles east of Port Moresby, between the Richardson and Bartholomew ranges and between the Laroki and the north-western source of the Wanigela. The three following pipes in the Cambridge museum came from the Sogeri. All the patterns are simply burnt and there are no scratched or incised lines.

Pipe Z. 9329 consists of one internode. It is decorated with panels, which in the fore three-quarters of the internode are arranged in four longitudinal rows of three panels so as to form a continuous pattern (figure 151). Aft of this are four separated panels. The pipe has been shortened, as in the aft area there are three panels which have been cut in half. The designs which constitute the panels are very irregular. The pipe was probably collected about 1890. 49.1×6.3 cm.



FIGURE 151. Sogeri pipe, Cm. Z. 9329.

Pipe Z. 8741 consists of one internode (figure 152). In the fore area is a band of scratched chevrons which are emphasized by burning. Behind the dorsal hole is a 9 cm. band which originally had a pattern but was subsequently burnt all over; the band is interrupted in the median ventral line. The main part of the decoration consists of two bands, each containing a lateral panel with longitudinal irregular burnt patterns, no incised lines. Given by D. Ballantine in 1898. 42×4.6 cm.

Pipe Z. 8758 was given by Ballantine in 1898. The decoration (figure 149A, *a*) consists of four lateral panels containing one, two, or three patterns. The panels are separated by transverse plain bands and by a longitudinal plain stripe on the median dorsal line; owing to the large size of the panels on the right side the other longitudinal stripe is on the left latero-ventral surface and not really ventral. No incised lines. 61.6×4.1 cm.

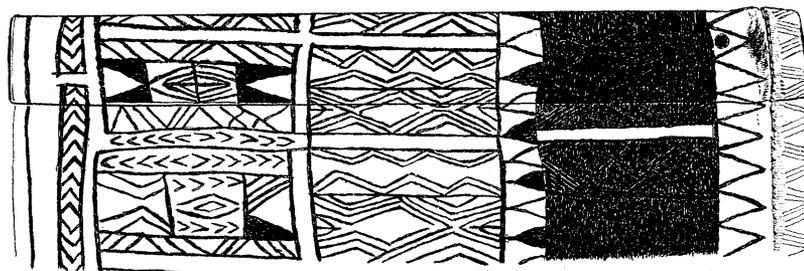


FIGURE 152. Sogeri pipe, pattern displayed, Cm. Z. 8741.

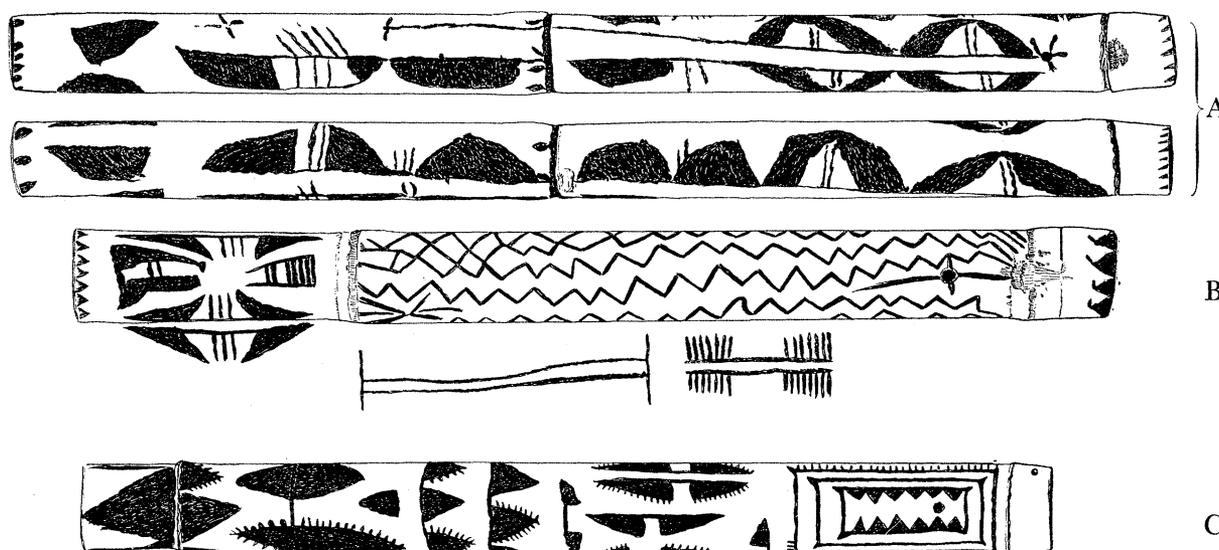


FIGURE 153. Koiari pipes, Cm. A, dorsal and ventral surfaces, Gasiri pipe, Z. 8735. B, dorsal surface, Gasiri pipe, two isolated designs on ventral surface of internode, Z. 8736. C, perhaps from Gasiri, Z. 8749.

A pipe from Sogeri in the Berlin museum, VI.4339, has a 'flagged' design (figure 150C) which is a variant of the design frequently tattooed on the shoulders and in the armpits of coastal women. There are other scattered designs (figure 150C, *c*).

The Gasiri live on the northern slopes of the Astrolabe range.

Two pipes from Gasiri were given to the museum by D. Ballantine in 1898. Pipe Z. 8735 has two internodes. The dorsal hole is in an imperfect star. The aft side of the central septum is burnt. In the prenodal area are an irregular median dorsal and a ventral plain band. The carelessly executed patterns are shown in figure 153A and need not be described. There are no incised lines. 64.4×4.4 cm.

Pipe Z. 8736 has no longitudinal or transverse bands; the patterns are made by burning only. In the fore area is a row of hooked solid triangles (figure 153B); aft of this is a scratched and subsequently burnt line; on the fore and aft nodes is a narrow band which was deeply burnt and then scraped. The dorsal hole is in a long-stemmed cross. The dorsal surface and sides of the prenodal area have three pairs of longitudinal zigzags which on the right side form a row of irregular lozenges; on the ventral surface are the two designs shown in the figure. On the dorsal surface are two obscure designs. The aft small triangles appear to have been first cut, then scratched and finally burnt, but most of the charring has been worn off by handling. 57×5.1 cm.

Pipe Z. 8749 was given by Sir William MacGregor about 1898, and characteristically without a provenance. There can be no doubt it came from some Koiari tribe and possibly from the Gasiri. The decoration is neatly executed in solely burnt technique (figure 153C). The dorsal hole is in a concentric oblong. There is a hole for suspension in the fore area. The aft area contains large solid triangles. 53.1×5 cm.

Part of the decoration of a Koiari pipe in the Berlin museum, VI. 4324, is shown in figure 150D. Probably it was collected about 1885. 77×6 cm.

A Koiari pipe of two internodes in the British Museum, 1906, 10-13. 1177, collected in 1904 has the simple decoration shown in figure 150E. In each of the four bands is a burnt hollow lozenge on the dorsal and ventral surfaces; the spaces between the lozenges are filled up with concentric chevrons. 61.5×4.9 cm.

There is a holder in the British Museum, 4619, from 'inland mountains'; it was obtained from S. McFarlane and apparently was collected on 8 January 1879. Both ends are charred internally. The decoration (figure 154) is solely by burning. 34.2×2.5 cm. It may have been made by one of the interior Koiari-speaking peoples or by a mountaineer of the Main range.



FIGURE 154. Holder, 'inland mountains', either Koiari or some other mountain group, coll. 1879. B.M. 4619. D. by D. Epps.

Rigo district

The Rigo district is bounded on the west by a line from Gaile to Mount Nisbet and along the coast to 5 miles east of the mouth of Ormond river at the western entrance of Marshall lagoon and northward to the west of Mount Brown, and thence along the divide to Mounts Obree and Nisbet. The marine village of Kapakapa is about 13 miles east of Gaile; the L.M.S. mission station at Vatorata (Vatororuata) is about 2 miles inland and the Government station of Rigo another $1\frac{1}{4}$ miles. The Wanigela flows into the head of Hood bay; the western boundary of the bay is Hood peninsula, with several villages, Hula, Babaka, etc. Immediately east of Hood bay is Hood or Kerepunu lagoon.

This region includes the greater part of the valley of the Wanigela (Kemp Welch river) and its tributaries and extends to the Ormond river. A short distance inland between these rivers is the low Macgillivray range. Farther inland, almost on 148° , is

the prominent Pyramid hill, Barigoia, which is part of a hilly tract. Pyramid hill is about 17 miles inland from Hood lagoon. At about the same latitude as Pyramid hill, the Wanigela receives a large tributary flowing from the north-west, the Guieva or Musgrave river, which has a large southern affluent, the Hunter river, that also flows from the north-west and rises in the Astrolabe range. Farther inland on the east side of the Wanigela is the Henty range; immediately north of the range the Wanigela receives a tributary from the east, the Uma or Margaret river. About 6 miles to the north a large tributary, the Iaba, from the west and another from the east, the Mimana, unite to form the Wanigela. The Mimana rises from the Main range west of Mount Obree. The main source of the Ormond river is from the southern and south-western slopes of Mount Obree; an affluent comes from Mount Brown. Chinnery in 1912 was the first European in the upper waters of the Ormond; he says (1920, p. 445) that 'These natives are short sturdy mountaineers, their skin-colour varying between light and dark. . . I saw no tobacco among them'.

There is a high hilly country between the Macgillivray range and the Henty range. Between the Henty range and the Owen Stanley range is a mountainous country with several high mountains; from one of them, Mount Baron, according to Chinnery, arises the Margaret river, and a north-western affluent, the Urokoru, of the Orama or upper Ormond river.

The Rigo district is of particular interest as it contains a greater range of decorative techniques on tobacco pipes than any other district in New Guinea.

Thanks to the kindness of Mr R. A. Vivian, then A.R.M. of the Rigo district, I received in 1931 a collection of fifty-six pipes (31.833-31.889) from that district, which are now in the Cambridge museum. This is an especially valuable collection, as each pipe was labelled with the name of the village and subdistrict whence it was obtained. I have also studied other pipes in various museums, most of which were not so well documented.

The positions of the following villages (from which we have pipes in the Cambridge museum) and of the administrative subdistricts of the Rigo district are based on Miller's map (1914), on information given to me by R. A. Vivian, and on a tracing of a Government map of 4 miles to the inch sent to me in 1938 by the Government Secretary. For convenience of description I divide the area of the Wanigela and Ormond rivers into three zones. The name of the subdistrict is followed by those of the villages.

Northern zone. West of the Wanigela and north of Musgrave river; *Iovi*: Totimava. Between the upper waters of the Ormond; *Edei*: Buleduburu. South of the Mimana river and north of Mount Baron; *Barai*: Tabu, Ibaradou, Igonamo. South of the lower Mimana and east of the Wanigela; *Sirumu*: Waiapaike. North of the Uma (Margaret river); *Kokila*: Bara-ika, Adaka-ika (*Korigo* subdistrict, Vivian); Dilinoum, Magirinoum, Bulidobu (in the Government map this is south of the junction of the Uma and Wanigela). East and south-east of the north-south bend of the Uma river; *Durom* (*Doromu*): Amura-ika.

Central zone. South of Henty range and north of the latitude of Pyramid hill. East of Henty range; *Boku*: Baugabuna, Seneauga. South of Henty range; *Iogomo*: Dever-

agolo, Taborogolo (Tabugoro). West of the Wanigela are Kwali, which is north of the junction with the Musgrave river, and Gaigeve, which is near the Musgrave and west of Kwali (Gaigeve, *Umuri* subdistrict, Vivian). East of the Wanigela and opposite to and north of the junction of the Musgrave river; *Taboro*: Kokorogolo, Ofigolo, Loroganoum, Napenanoum (in the Government map Nafenonomu is in the Dokura subdistrict and Lorogonomu is south of it).

Southern zone. The region of Pyramid hill from near the Wanigela to Ormond river; Doakomana, Manugolo, Obaki. East of Pyramid hill, near the Ormond river; Munatou: *Iduka* subdistrict, Vivian. South of Pyramid hill; *Gerurupu* (or *Kerirupu*): Ugimakoman (Maokomana?). West of Pyramid hill; *Taburama*: Gwaiborubu (in the Government map Gwaiborumu is about halfway between Pyramid hill and the Wanigela).

The following distribution of languages in the Rigo district is taken with slight modifications and some omissions from Ray (1929, pp. 66–72):

Melanesian. Motu: Gaile, Kapakapa; Sinaugolo (Sinaugolo): Rigo, Saroa, etc., inland from Kapakaka; Ikoru: villages between Sinaugolo and the coast; Hula (Bula'a), and villages on Hood peninsula; Keapara (Kerepunu), south of Hood lagoon; Rubi: villages of Kererupu, south of Pyramid hill; Keakalo (Keagolo): Keakoro, etc., and Maopa villages, east of Hood lagoon including Keakoro bay; Galoma (Aroma): east of Maopa.

Papuan. Two extinct dialects at Mulaha and Iaibu on the coast at Kaile (Gaile); (A) Kwale group, which is unlike the Koiari and Kokila: Manukolo, behind the coast east of Gaile; Lakumi [apparently villages on the Hunter and Musgrave rivers up to Mount Bride. Lagumi district in Miller's map is south of the Hunter. There is some confusion in the villages given by Ray]; Garia, villages of Gumoridobu and Gea on the Wujeva (Hunter river); Kwale, villages of Mount Douglas. (B) Kokila group: Kokila 1, at headwaters of the Wanigela; Kokila 2, north of Margaret river—languages of this group appear to extend to Mount Brown. Seramina group, south of the Jaba affluent of the Wanigela. Barai: Bagoro village between Mounts Potter and Baron; Nigubaiba, Iawarere village, etc., at the upper waters of the Aleme (Musgrave) and Adai (Iaba) rivers.

Concerning the Garia and the Sinaugolo, Seligman (1910, p. 18) says that according to their legend the Garia and the Sinaugolo, who then as now spoke different languages, came from their ancestral cave on the slopes of Mount Taborogoro. [Mount Giles, which is a south-western spur of the Henty range; this range lies immediately to the south of the Margaret river and extends to the Wanigela.] The Sinaugolo migrated coastward in a south-westerly direction, while the Garia migrated westward across their track.

It is strange to find that though the Garia speak a 'Papuan' language and the Sinaugolo speak a 'Melanesian' dialect, yet they claim a common point of origin in the interior. The inference is that one element of the Sinaugolo is indigenous, but that the foreign element dominated them linguistically.

The term Garia, says Seligman (1910, p. 30), may usefully be applied to a group of tribes living east of the Koiari peoples and west of the Wanigela river. The Governor

Loch range may be regarded as the headquarters of the tribes speaking the Garia dialects, whence some of the Garia have spread westerly towards the coast. The most westerly of the western group are the Manukoro [Manugolo], who are in contact with the coastal people behind Gaile. The Governor Loch range is on the western side of the Wanigela north of the latitude of the Henty range.

Seligman (1910, p. 19) says that after many splittings and wanderings the advanced guard of the Sinaugolo 'finally came to the very edge of the coastal plain which here stretches some three miles inland, where they founded the village of Gumori Dobo'. This was the first settlement of the Sinaugolo actually on the coastal plain; its *dubu* was named Ligodubu, and the first settlers took Ligo (Rigo) as the name of their clan. The word *ligo* means 'gone down', i.e. come down from the hills. Gomoredobu of the official map is at the south end of the Astrolabe range, close to the Rigo Government station. Ray, however, states that the Garia language is spoken at Gumoridobu.

The type of linear decoration combined with cross-hatching on some Rigo pipes (figures 155-63) resembles the incised decoration of the local coconut vessels (Haddon 1894, pl. xi, 175-7), and both are clearly related to the carving on the *dubu*, or open ceremonial platform (Haddon 1901, pl. xvii; Seligman 1910, pls. vii, viii), but instead of being flat the interspaces of the cross-hatching of the *dubu* posts are pyramidal knobs, *kaiakala*, which are easy to chip out; they represent the scutes or horny scales of the crocodile. The ceremonial life of a village centres in the *dubu* of the coast and hinterland from Nara to Aroma (Seligman 1927, p. 177). Seligman describes the nature and decoration of various kinds of *dubu* and gives many illustrations; they are best developed among the Sinaugolo and cognate peoples. The Sinaugolo state that they brought a *dubu* post from Mount Taborogoro. Chinnery took a photograph of a *dubu* in a Durom village in the mountains which has carved designs similar to those on a *dubu* in a Sinaugolo village, except that it lacks the characteristic pyramidal knobs. The Durom told Chinnery that the *dubu* belonged to an earlier people, and he suggests (MS.) that it marks the site of an old Sinaugolo village long since abandoned. We may thus safely regard this type of decoration as belonging to the Sinaugolo when they still resided in the mountainous interior. Seligman (1910, p. 18) remarks that it is reasonable to believe that the *dubu* and its associated customs, which are most vigorous in the hill zone behind the coast, never took any firm hold of the purest of the Motu immigrants.

The Sinaugolo group appears to extend from Taborogoro to Gomoridobu and the villages about the Kwikili, or Nutmeg creek, the most southern of the western affluents of the Wanigela river.

Description of the pipes.

The skin is invariably entire and there are no scraped areas. The majority of pipes consist of a single internode, the septa being in most pipes near the ends. The fore and aft areas are usually undecorated, or they may have a very simple decoration.

The technique of the decoration is by means of scratched lines, simple burnt lines, burnt jagged lines, or by burnt patterns and burnt broad lines. In some pipes with patterns in simple or jagged lines the whole surface has been cleaned so as entirely to remove the charring, but on other pipes the charring is wholly or partially retained.

After the previous statement was written I received the following memorandum from F. E. Williams, whom I had asked to obtain definite information on the matter. He writes: 'I have just consulted a highly intelligent Rigo Armed Constable and he gives a clear account of how the decoration is done. (1) The lines are incised with a knife. (2) The newly incised pipe is held in the hot ashes of a fire and rolled round for a few minutes. (3) It is "sand-papered" with a leaf. I think the second part of the process solves the mystery. The sensitive parts exposed by the scratching would perhaps char sooner than the hard surface of the bamboo, and this gives the impression of very fine poker-work. What is a puzzling feature of these pipes, viz. that some of the fine lines seem to be burnt, while others are obviously plain scratches, would be accounted for by the above explanation: some of the scratched surfaces have not come into full contact with the embers.'

Mr H. W. Champion, Government Secretary, sent me in the summer of 1938 the following information obtained by R. A. Vivian, then R.M. Gulf Division, who inquired of a young armed constable, enlisted from the Rigo district. The sheathing bract, *niubina*, of a coconut palm, *niu*, which had previously been dried for a week in the sun, was split into lengths. The operator squatted before a fire and placed in it the ends of several of the *niubina*. The fibrous-elastic nature of this material caused it, when burnt, not to become ashes immediately, but to remain more or less whole and of unusual rigidity. The operator selected a suitable *niubina* and placing it on its side began to draw a pattern by burning, *gabua*, on the skin of the bamboo, gently blowing it all the time. Several *niubina* were used up in this way. The use of *niubina* is confined to coastal tribes, as in the mountains there are no coconut palms and strips of the *magau* tree are employed.*The bamboo is burnt when in a green state.

Lines are not always made by burning. Very fine lines are made with a penknife; in former days pieces of sharp flint were used for incision, which is called *siria* in distinction from *gabua*. The term for tattooing is *bela*.

Patterns formed by lines.

A pipe, Z. 8757, of one internode with a somewhat carelessly executed longitudinal pattern was collected by C. G. Seligman in 1898 from the Garia (figure 155). On the dorsal and latero-ventral surfaces are concentric zigzags with intermediate fringed zigzags or chevrons. In the approximate dorsal and ventral lines between the zigzags is an interrupted doubly-fringed line, or herring-bone, which evidently was made after the zigzags. The aft ends of two of the zigzags are cross-hatched. 51 × 4.5 cm.

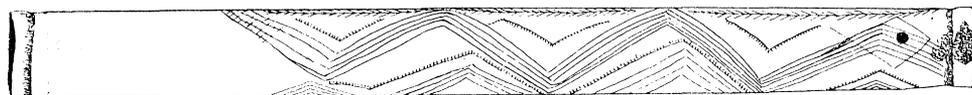


FIGURE 155. Pipe, Garia, Rigo. Cm. Z. 8757.

In all the other Cambridge pipes the patterns are drawn within transverse or longitudinal bands. Some of the patterns consist solely of simple lines, but others have jagged lines in addition.

Transverse bands.

There is only one pipe, 31.853, Amuraika, Durom (figure 156), of which the decoration consists of only coarse jagged lines. The bands are more or less divided into panels by longitudinal lines. The patterns are composed of lines, chevrons, and zigzags. 41.4 × 6 cm.



FIGURE 156. Pipe, Amuraika, Durom, Rigo. Cm. 31.853.

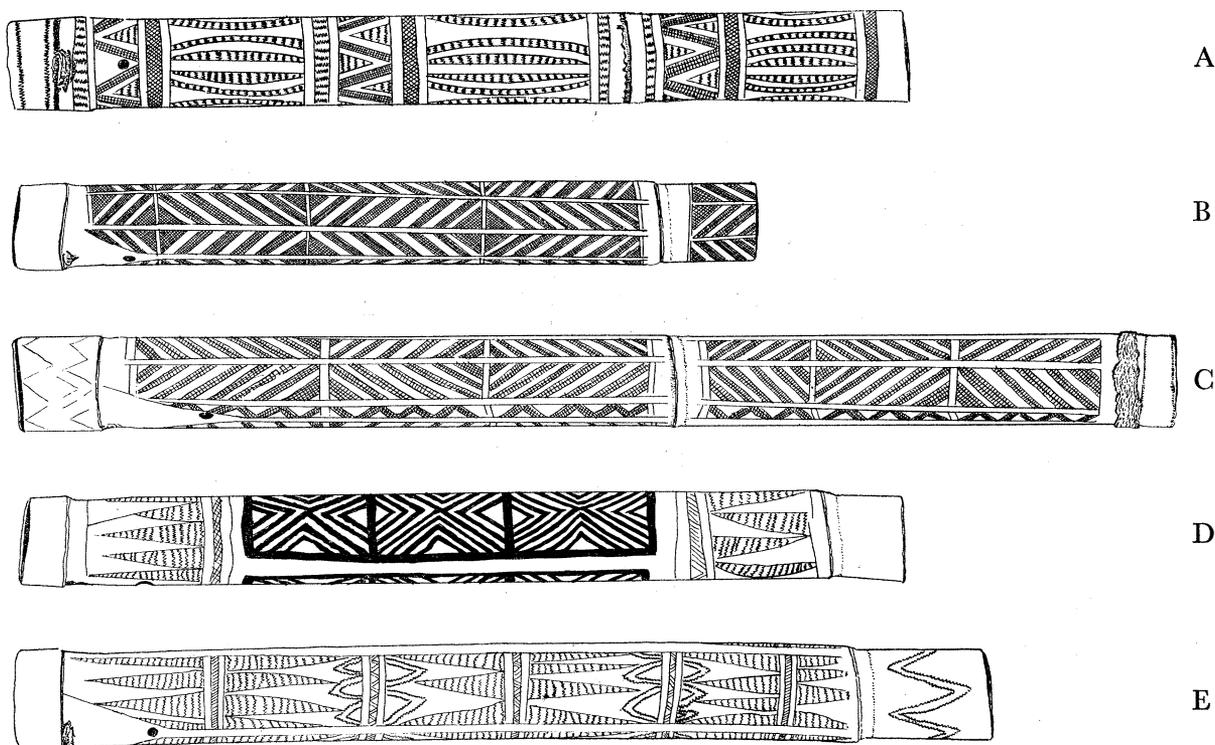


FIGURE 157. Pipes, Rigo, Cm. A, Amuraika, Durom, 31.850. B, Baugabuna, Boku, 31.868. C, Kapakapa, said to be from Taboro, Z. 10.005. D, Hula, 25.657. E, Kapakapa, said to be from Taboro, 1916, 143.269.

A variant of a type of decoration characteristic of the district is that seen in the three broad bands of pipe 1916, 143.269 (figure 157E), which I obtained at Kapakapa in 1914; it was said to have come from Taboro. The other patterns on the pipe do not require description. 51 × 5.1 cm. The unit of the pattern may be regarded as a plain bar on each side of which is a plain curved bar, and between each unit is a plain 'hour-glass' space; the intermediate spaces are enhanced by jagged lines.

In three bands of pipe 31.866, Taborogolo (figure 163A), the unit may be regarded as a panel that occupies the whole side of the pipe. At each end is an enhanced plano-convex bar bordered by a plain straight and a curved bar; in the centre are two

apposed similar elements, and the 'hour-glass' spaces are enhanced. The units are separated by an enhanced space in the dorsal and ventral median lines of the pipe. Figure 158B illustrates two panels of pipe 31.861, Kwali; the artist has enhanced the 'hour-glass' or left it plain. In this pipe the panels are in the longitudinal patterned bands. In pipe 31.858, Napenanoum (figure 158A), the transverse bands are divided into panels by enhanced longitudinal bars (corresponding to the enhanced space of figure 163A); each panel has a central enhanced 'hour-glass', on each side of which are two bowed jagged lines. The patterned bands are separated by narrow transverse enhanced bands, two of which are seen in figure 158A. All the five bands of pipe 31.857, Napenanoum, have panels as shown in figure 159E. The same motive recurs in some panels of pipes 31.860, 31.861, Kwali. The design of figure 159K, pipe 31.856, Kokorogolo, is repeated in widely spaced panels in the three broad transverse bands of this pipe; it may be taken as the final stage in the simplification of this type of panel. In all these pipes the pattern is outlined and the enhancement is by transverse jagged lines. All the localities of these pipes are in the central zone about the Wanigela river.

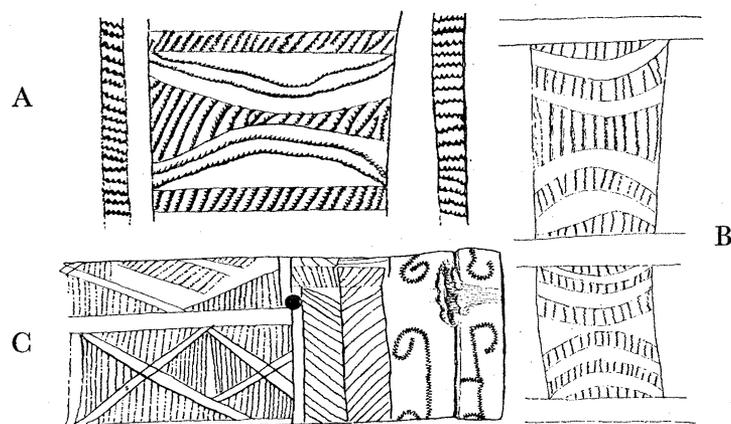


FIGURE 158. Patterns, simple and jagged lines, Rigo. Cm. A, transverse band of 31.858, Napenanoum, Wanigela; B, panels in two longitudinal bands of 31.861. Kwali; C, fore end of pipe 31.863. Baraika, Kokila; on each side of fore-septum, a jagged line ending in spirals.

A few pipes have only rows of triangles, enhanced with transverse lines, within the bands. In 31.837, Kwali, Rigo (figure 159A), the triangles form plain lozenges; the triangles in a band may be drawn as such, may be formed by crossed lines, or by one oblique line across a band and two short lines. In two bands there are short cross-hatched bars within the lozenges. In 31.847, Loroganoum (figure 159B), the triangles have double outlines. In 31.859, Loroganoum, the transverse bands are widely separated and the triangles are enhanced with jagged lines; in three bands the triangles form plain lozenges, but some of the lozenges are formed by crossed lines. There is a median line in these bands which intersects the lozenges. In the aft area are two large lateral oblongs, the frames of which are enhanced with jagged lines. The decoration of 31.843, Doakomana, Pyramid hill (figure 159 M, N), is very similar, but the bands are close together, and the triangles are cross-hatched. Three bands contain concentric

oblongs, the frames of which are cross-hatched and have a central line. Two oblongs are in triplicate. These are the only two pipes in the collection with oblongs.

Pipe 31.862, Totimava, Iovi, is very carelessly decorated. Some of the bands are filled in with oblique or chevron bars with scratched borders, but most of them with

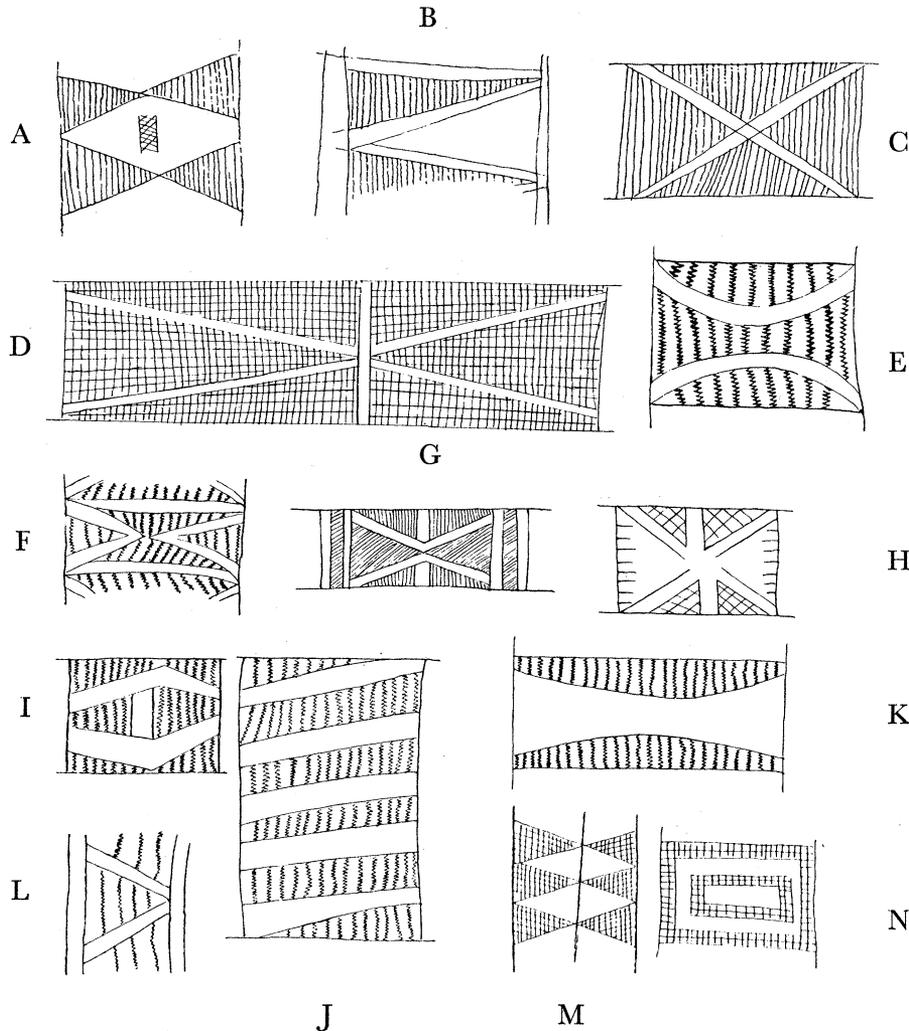


FIGURE 159. Patterns on Rigo pipes, Cm. All the panels are drawn so that the end to the right corresponds with the fore end of the actual pattern on the pipe, with the exception of J, where the top end corresponds with the fore end. A, 31.837, Kwali; B, 31.847, Loro-ganoum, Taboro; C, 31.863, Baraika, Kokila, see figure 160C; D, 31.839, Dilinoum, Maru; E, 31.857, Napenanoum, Wanigela; F, 31.855, Ofigolo, Taboro; G, 31.842, Boku; H, 31.841, Amuraika, Dorom; I, J, 31.854, Amuraika; K, 31.856, Kokorogolo, Taboro; L, 31.862, Totimava, Iovi; M, N, 31.843, Doakomana, Pyramid hill.

scratched triangles (figure 159L). The bars and triangles are enhanced with transverse jagged lines. Somewhat analogous is the carelessly decorated pipe, 31.855, Ofigolo, Tabori. The main pattern consists of a series of scratched triangles apex to apex, formed by crossed lines; the portion drawn in figure 159F does not show this. Within the fore and aft triangles are similar smaller ones; the bases of the triangles are scratched lines. The triangles are enhanced with jagged lines.

The following pipes have longitudinal spaces in the two broad transverse bands between the longitudinal patterned bands. These patterned bands are divided by transverse spaces into panels.

Pipe 31.863, Baraika, Kokila, has patterned bands divided into panels, in many cases indistinctly. Each panel (figure 159C) has two plain bars forming a cross that extends from corner to corner, but in three panels the cross consists of a simple line. The interspaces are enhanced with transverse lines. The fore end of this carelessly executed pipe is shown in figure 158C. In front are two transverse coarse jagged lines which end in hooks or semi-spirals; the aft line has additional hooks. This is the only attempt at spirals known to me from the area. The band fore of the dorsal hole is unusual. The fore right-hand panel is very irregular; the other panels are as described. All the decoration, except the jagged lines, is in simple burnt lines. 47.7×5.3 cm.

Pipe 31.842, Boku, has all the panels more or less like figure 159G. All the panels are separated by bars with linear enhancement. There are several narrow transverse bands with oblique lines or enhanced triangles, and one with a double zigzag with enhanced triangles. 57.5×5.9 cm.

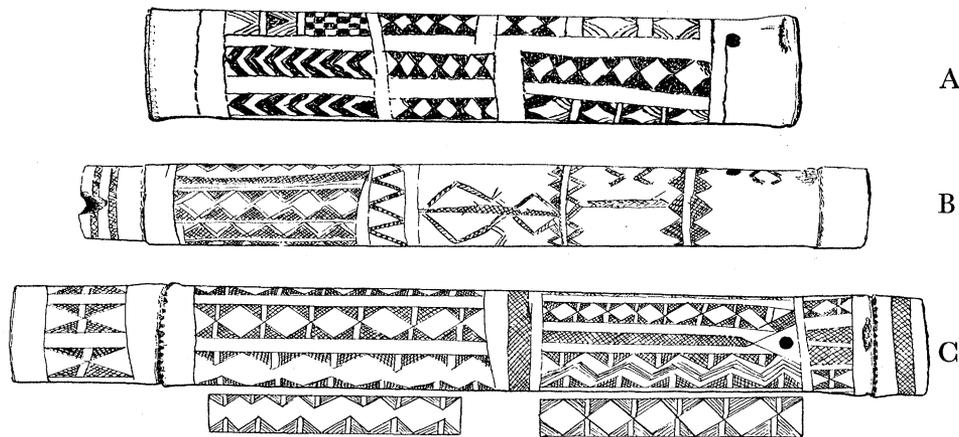


FIGURE 160. Pipes from the Rigo district. Cm. A, patterns in burnt technique, Seneauga, Boko, 31.873; B, linear technique, Munaton, Iduka, Ormond river, 31.838; C, Kokorogolo, Taboro, 31.844.

Pipe 31.844, Kokorogolo, Taboro. The aft edge of each septum is notched. Figure 160C illustrates the scheme of decoration. The transverse bands were first outlined, then the triangle for the dorsal hole and the cross-hatched dorsal longitudinal band were drawn, and subsequently the other patterned bands. In each transverse band there are a median ventral cross-hatched longitudinal band and on the left side a band containing a cross-hatched zigzag. The remaining bands contain two rows of triangles which were either drawn as such or made by crossed lines. The triangles were then bisected transversely by a plain bar, which frequently is not symmetrical with the apex of the triangle; finally, the lateral triangular spaces were enhanced with oblique lines or by cross-hatching. On the left dorso-lateral surface of the fore band is a 'Rigo pattern' in linear technique. 48.5×5.5 cm.

Pipe 31.846, from Kokorogolo, is somewhat similar to 31.844. The two broad transverse bands are decorated with longitudinal bands, four of which are cross-hatched, others contain cross-hatched chevrons or zigzags, and one has a simple variant of the 'Rigo pattern' also cross-hatched. There are four long jagged zigzags in interspaces between patterned bands and jagged chevrons in three longitudinal bands. The septa are notched. 41.5×4.7 cm.

Pipe 31.838, Munatou, Iduka, east of Pyramid hill and near the Ormond river, has a type of decoration (figure 160B) unlike that of other Rigo pipes. The broad aft band has longitudinal patterned and narrow plain bands; in one patterned band the double-outlined cross-hatched triangles are apex to apex, thus forming plain lozenges. The other two transverse bands have separated longitudinal simple patterns, and there is a design which may be a stylized human figure. 41.2×4.3 cm.

With a characteristic type of decoration are the following pipes. The transverse bands are divided at intervals by longitudinal plain bands which are bisected by transverse plain bands, thus forming panels. The separate panels contain oblique cross-hatched bars which are so arranged in contiguous panels as to give the effect of the whole surface being decorated with lozenges. Pipes 31.833, Ibaradou, Barai, and 31.835, Buleduburu, Edei, have the same decoration as that shown in figures 157C and D. Two pipes I collected in the neighbourhood of Hula in 1898, Z. 8753, Babaka, and Z. 8755, Hula, are covered with this type of decoration. Parts of pipes 31.834, Igonamo, Barai, and 31.836, Magirinoum, have the same type of decoration. The ventral panels of 31.836 contain cross-hatched triangles and lozenges. In 31.834 Igonamo, Barai, the broad fore band has semi-spiral bands of usually four lines; some of these are cross-hatched and some contain a zigzag.

Longitudinal bands.

In a considerable number of pipes the internodes are divided longitudinally by plain bands bounded by fine lines that extend along the whole length of the internodes. The intermediate patterned bands are divided by transverse spaces or bands, which usually are plain; thus a patterned band contains a longitudinal row of separate panels.

The distinction between longitudinal and transverse bands is due to a different conception in the lay-out of the decoration which usually is more clearly expressed in pipes from other areas. As a matter of fact this real distinction is not very obvious in many pipes from the Rigo district, as in both groups the patterned bands in most pipes are broken up into panels and the panels may be decorated in a similar manner.

In some, but not in all, pipes the bounding lines of the median dorsal plain band diverge at the fore end to accommodate the dorsal hole. In some pipes the dorsal hole bears no special relation to the decoration. In most pipes there are median dorsal, median ventral and lateral plain bands, but in others this symmetry is not found. The broad dorsal and ventral plain bands in a few pipes contain a narrow longitudinal band with a long jagged zigzag or jagged chevrons.

Some pipes have oblique cross-hatched bars across the individual panels, and the decoration is so arranged that four contiguous panels produce solid or hollow lozenges with external concentric cross-hatched bars.

Pipe 25.657 was obtained by me at Hula in 1914. It is very small with careful decoration (figure 157D). 42×4.8 cm. Pipe Z. 10.005 was collected by me at Kapakapa in 1898. It was said to have come from Taboro (figure 157C). 66×5.4 cm. I made a rubbing at Vatorata (Vatororuata) in 1898 of a long pipe with two internodes in the possession of Mrs Lawes which was of this type. It came from Gelesi (Gerese, south of the Hunter river), Sinaugolo tribe. Mr A. C. English told me that the linear decoration has been copied from the Kirirupu and Tupulamu mountain villages [near Pyramid hill]. Of the same type are Z. 8754, Hula, and Z. 8756, Babaka, which was said to have been made at 'Kirirupu, at the back of Macgillivray range', which I obtained in 1898. In pipes 31.851, 31.852, Amuraika, Dorom, the oblique bars and triangles in the panels are enhanced with jagged lines, as are those in the longitudinal patterned band on the left side of pipe 31.854, Amuraika (figure 159J); but the two longitudinal bands on the right side of this pipe have variants of the design shown in figure 159I. 54.7×5.9 cm.

The panels in the five longitudinal bands of 31.841, Amuraika, contain repetitions of the design shown in figure 159H. Each of the three longitudinal patterned bands of 31.839, Dilinoum, Maru, contains three panels of the design shown in figure 159D.

In three pipes from Amuraika, Dorom, the panels of the longitudinal patterned bands are decorated with triangles outlined in fine incised lines. In pipe 31.850 (figure 157A), the triangles are enhanced with jagged lines and between their apices are jagged chevrons; 55×5.5 cm. Pipes 31.848 and 31.849 are very similar, but the former has the central panels of triangles enhanced with transverse simple lines, and the latter has all the triangles so enhanced except the triangles of the aft panels which have jagged lines. There are oblique jagged lines or chevrons at the apices of many of the triangles.

Burnt patterns only.

There are twenty-one pipes collected by Vivian with a decoration in burnt technique and without fine or jagged lines.

In seven pipes all the patterns are disposed as or within transverse bands. The simplest, 31.886, Tabu, Barai, has 6 cm. long toothed jaws at the fore end and a dorsal 1.5 cm. notched flat projection; the aft end of the pipe is also notched. The pipe is quite plain except for two transverse bands, fringed on each side, fore of the central septum and two fore of the aft-septum. 65.4×4.9 cm. Pipe 31.871, Doakomana, Pyramid Hill, has five rather narrow bands with simple patterns of different arrangements of solid burnt triangles.

The other pipes have broad patterned bands, and in some pipes there are also narrow bands. In pipe 31.873, Seneauga, Boko, Ormond river, the bands are divided longitudinally into patterned bands with blank spaces between the bands; figure 160A illustrates the various patterns. 34.5×5.9 cm. Pipe 31.874, Napenanoum, has two broad bands containing several narrow patterned transverse bands and three dorsal longitudinal patterns close together within the aft broad band. The patterns are mostly zigzags and chevrons. 46.2×5.7 cm.

Pipe 31.876, Totimava, Iovi, has four transverse bands so close together that the decoration covers the whole pipe. A large pattern (figure 161 A) covers each side of all the bands. 55×4.6 cm.

In eleven pipes the decoration consists of long or short patterned panels; a long panel may extend along the length of the internode. There is typically a dorsal and a ventral longitudinal blank space which separates the lateral panels. In 31.881, Gageve, Umuri, and 31.884, Deveragolo, Iogomo, these spaces contain a broad burnt fringed line. In 31.872, Obaki, Pyramid hill, there are also lateral spaces; thus there are four long panels in the internode.

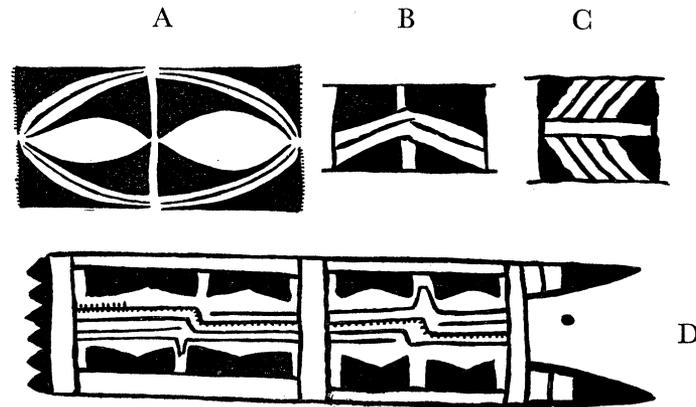


FIGURE 161. Patterns in burnt technique. Cm. A, Totimava, Iovi, 31.876; B, Manugolo, Pyramid hill, 31.869; C, Gageve, Umuri, 31.881; D, prenodal dorsal pattern, Bulidobu, 31.875.

The patterns of the long panels consist of a broad zigzag (figure 162 B); or of a chevron when the panels are short (figure 161 B, C). The zigzag is bordered by a burnt line and is enhanced with a single zigzag or by several zigzags; the same applies to the chevrons. The background is burnt, resulting in a series of triangles. Typically a median unburnt line is left in each triangle, thus bisecting it into two small right-angled triangles. These small triangles are either entirely burnt or there may be left unburnt spots or lines. Thus there are numerous variations in the treatment of the background of the zigzag. For convenience of reference this may be termed the 'Rigo pattern'.

I know of only two examples of this pattern executed in lines: 31.844 (figure 160 C), and 31.846, both from Korogolo, Taboro. The decoration of the Garia pipe (figure 155) may be a degeneration of this motive. This pattern is common as a burnt decoration of the lime gourds of the Rigo district, but it is also found sporadically to the east in the Motu area.

The longitudinal blank spaces are analogous to the longitudinal plain bands of the pipes with a linear decoration, but in these latter the bands are demarcated by lines, whereas in the pipes under consideration the blank areas are merely spaces left between the panels.

Pipe 31.883, Deveragolo, Iogomo, has a long lateral panel that extends along most of the internode; figure 162B illustrates the decoration of this pipe. There is a dorsal

and a ventral longitudinal space. 47.2×5 cm. Pipes 31.884, 31.885 from the same place are very similar, but 31.884 has in the dorsal and ventral longitudinal spaces a broad doubly fringed line which is forked at each end. All three pipes have words burnt in capital letters of which I do not know the meaning; this is due to Mission teaching. The lettering is in the dorsal longitudinal space, except in 31.884, where it is in the fore area.

Pipe 31.872, Obaki, Pyramid hill, has four longitudinal panels which extend along the length of the internode; they contain a variant of the Rigo pattern. The panels are separated by dorsal, lateral, and ventral longitudinal spaces. There is a burnt line round the aft area. 47.6×6.2 cm. F. E. Williams sent me a sketch of a similar pipe from the same village.

Three pipes, 31.870, Manugolo, Pyramid hill; 31.877, Adakaika, Korigo; 31.889 (figure 162A), have isolated designs, most of which resemble some designs characteristic of 'Koiari' pipes.

Various other schemes of decoration.

In pipe 31.875, Bulidobu, at the junction of the Margaret river with the Wanigela, the prenodal and postnodal areas have a dorsal and a ventral broad longitudinal panel, all four of which have a fringe of burnt triangles at the end facing the central septum. The long prenodal panels have two patterns (figure 161D), and the dorsal postnodal panel has one pattern, all of which are alike. The postnodal ventral panel has irregular designs. The dorsal hole is between two prolongations of the dorsal panel. 52.6×5.4 cm.

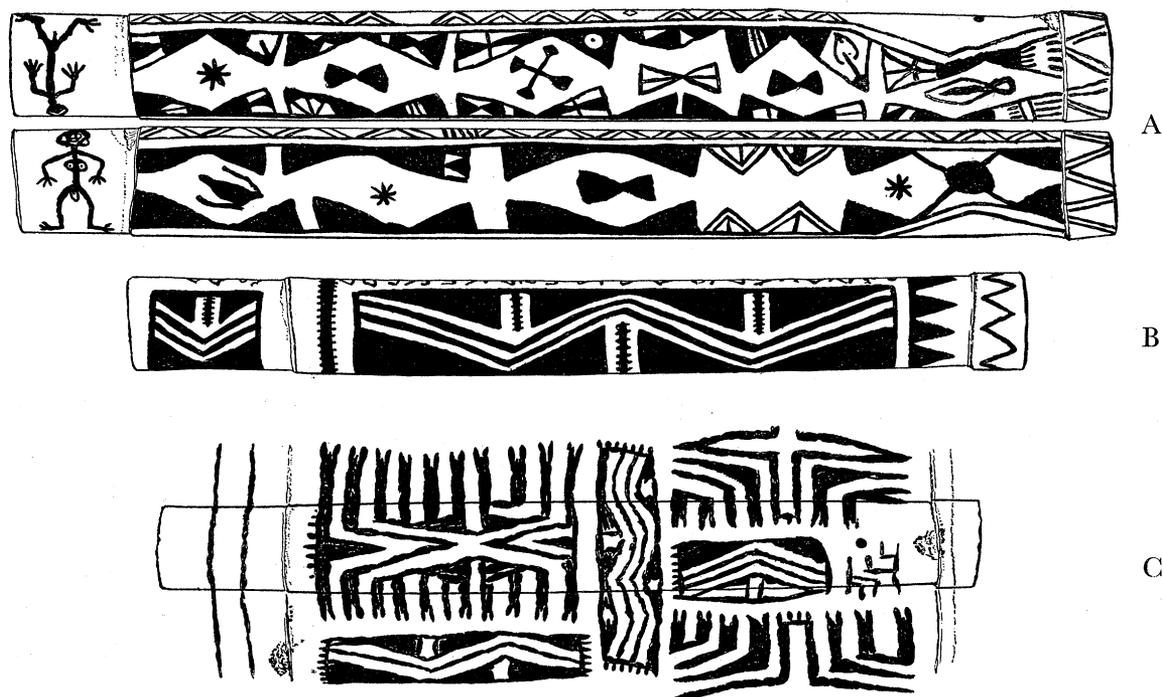


FIGURE 162. Patterns in burnt technique. Cm. A, Amuraika, Durom, left and right sides, 31.889; B, Deveragolo, Iogomo, 31.883; C, Kwali, with patterns displayed, 31.887.

The decoration of 31.887, Kwali, is less regular than that of other pipes (figure 162C). In the centre of the internode is a transverse Rigo pattern which is interrupted in the median ventral line. In front of it a large cruciform design begins on the right side and extends to the left. On the dorsal surface, rather to the left side, is a small typical Rigo panel, and fore of it are two h-shaped designs. The main aft design extends down each side from the dorsal surface, and in the median ventral line is a typical Rigo panel. There are no definite transverse bands, though the designs are arranged somewhat as panels. All of these are tattoo patterns. 43.4×4.5 cm.

The decoration of pipe 31.889, Amuraika, Durom, has a longitudinal arrangement shown in figure 162A. On the dorsal surface are two double lines between which are two rows of double chevrons; the lines diverge and converge in front, leaving an oval space within which is the dorsal hole. On the ventral surface are similar lines and zigzag. The decoration of the intermediate lateral areas is shown in the illustration. In the aft area on the right side is a standing female figure and a male on the left side; their feet are in the median dorsal line and between their heads is an eight-rayed star. 58×5.8 cm.

Burnt and linear patterns.

There are five pipes in the Vivian collection with a decoration consisting of burnt and of linear patterns. The fine lines and the jagged lines appear to have been made by burning.

Pipe 31.865, Waiapaika, Sirumu, has a dorsal longitudinal plain band and seven longitudinal patterned bands separated by plain bands. The burnt patterns are outlined by single or double fine burnt lines (figure 163B, C, D). 46×5.8 cm.

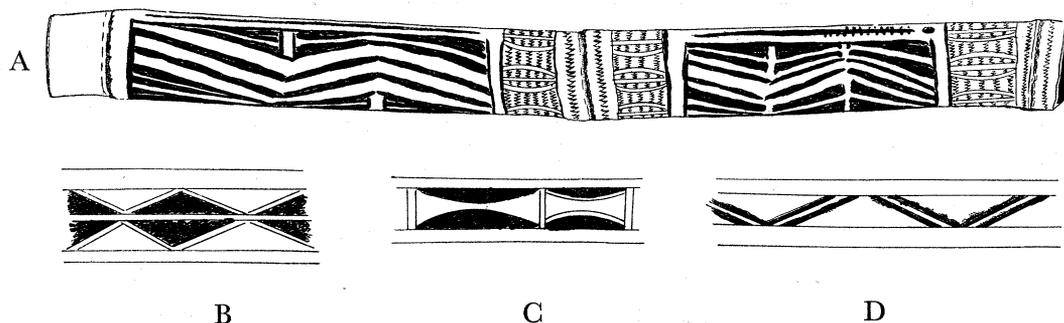


FIGURE 163. Patterns in combined linear and burnt technique. Cm. A, pipe, Taborogolo, Iogomo, 31.866; B, C, D, patterns, Waiapaika, Sirumu, 31.865.

Pipe 31.868, Baugabuna, Boku, has the decoration shown in figure 157B; it is composed of a bold burnt pattern which was not outlined previous to burning and of fore and aft bands of irregular triangles in thin lines and enhanced with jagged lines. There are two bands of fine lines, one with oblique and cross-hatched lines, the other entirely cross-hatched. 50×5.3 cm.

Pipe 31.867, Taborogolo, Iogomo, has in each internode a long lateral panel with variants of the Rigo pattern. The dorsal and ventral spaces have a median burnt line. Close to the ends of the panels are transverse bands of burnt triangles, except at the

aft end where the triangles are outlined by fine lines and enhanced with coarse jagged lines. There are two rows of coarse jagged chevrons in the aft area. 52.3×4.1 cm.

The decoration of pipe 31.866, Taborogolo, is shown in figure 163A. Reference has been made (p. 173) to the pattern of the three bands of linear technique. 53.7×4.7 cm.

Pipe 31.864, Amuraika, Durom, has a scheme of decoration very similar to that of figure 163A, but instead of the long burnt panels there are two transverse bands containing panels of the type of figure 161D. Of the five other bands, one is in the hole area aft of the fore-septum, and one is on each side of the central and aft-septa; they are also divided into small panels each of which has two oblique cross-hatched bars of the same character as the bars in figure 157C, D. There are no jagged lines. 51×4.9 cm.

An analysis of the fifty-seven pipes in the Vivian collection from the Rigo district shows that, for the areas I have adopted (p. 168), the patterns formed only by lines fall into three groups: (1) thirteen with fine lines only, (2) seventeen with simple lines and jagged lines; (3) one with jagged lines only (figure 156). In the five pipes in which linear and burnt patterns are associated two belong to group 1 and three to group 2. The geographical distribution of the linear, linear and burnt, and only burnt patterns is as follows:

	L.	L. + B.	B.	
Northern zone	16	2	5	= 23
Central zone	13	3	9	= 25
Southern zone	2	—	6	= 8
	—	—	—	—
	31	5	20	56

The label of one pipe with burnt patterns was partially destroyed so that it cannot be located.

It is evident that while pipes with linear patterns may be found anywhere in this section of the Rigo district, they predominate in the northern zone, and pipes with a burnt technique become more numerous in the central and southern zones. It is true that a number of pipes with simple linear decoration have been collected from villages on or near the coast, such as Kapakapa, Hula, and Babaka, but there are several statements to the effect that some at least of these pipes either came from Taboro and the region near Pyramid hill, or that they were decorated in the Taboro manner. Thus the pipes as well as tobacco are traded from the mountainous interior to the coast.

With regard to the two types of linear technique in decoration:

(1) Bands composed of two lines, chevrons, triangles, or oblongs formed by simple lines, are enhanced with cross-hatching in many pipes. On p. 171 I refer to a possible connexion of cross-hatching with certain carvings on the *duba*, but, on the other hand, similar cross-hatching occurs in numerous areas in other connexions.

(2) In all but one pipe, 31.853 (figure 156), jagged lines are combined with simple lines. Some pipes, as for example 31.850 (figure 157A), bear a general resemblance to certain pipes from Kiwai and Torres Straits (figures 74–8, 53–69), and some also, though to a less extent, to certain pipes from the Mekeo district. The decoration of 31.853 (figure 156) resembles some Mekeo pipes, but it is more carelessly executed.

In the western and Mekeo areas the jagged lines are made by incision and not by burning as in the Rigo district, though the cleaning off of the charring of many of the Rigo pipes makes the burnt jagged lines superficially like incised jagged lines.

There is only one pipe in the collection with some kind of spiral (figure 158 C), 31.863, Baraika, Kokila; they are formed by jagged lines.

As has been abundantly illustrated in the previous pages, the production of patterns by simple burnt lines and burnt areas is characteristic of the mountain peoples of the main range of south-east Papua. Two pipes, 31.873 (figure 160A), Seneauga, Boku, and 31.874, Napenanoum (p. 178), have patterns which evidently are derived from this source. Pipe 31.838 (figure 160B), Munaton, Iduka, though decorated in simple lines clearly shows the same influence, as do the semi-spirals at the fore end of pipe 31.863 (figure 158C).

The pipes with burnt panels and most of the other heavily burnt designs seem to belong to a different category. The majority of them are comparable or identical with patterns tattooed on Hula and Motu women, and some are found as burnt patterns on lime gourds. I have not been able to find any definite information about tattooing among the Koiari.

The most obvious suggestion is that these patterns belong to the Western Papuo-Melanesians, but there seems to be little hope of determining definitely what type of decorative art was introduced by these immigrants. There is some correspondence between certain Rigo patterns and certain 'Koiari' patterns, for example, figure 161A, B, C, and various scattered designs in figure 162A. Further, it is an open question to what extent the Motu, Keapara, Hula, and allied peoples derived their decorative motives from the 'Papuan' people of the hinterland. I am disposed to think that they did so very largely. It may be argued that the borrowing was in an opposite direction, but, so far as the decoration of pipes is concerned, I consider that the Motu and similar groups borrowed from the inland peoples, and we know that the custom of smoking spread from the interior to the coast. The main difficulty, in my opinion, is the strong prevalence of tattooing among the Western Papuo-Melanesian women. We have no means of knowing if the immigrants practised tattooing before their arrival in Papua and if they did what patterns they employed. It is probable that the immigrants brought few women with them and that the men intermarried with the local women. Thus it is possible that the local patterns were adopted and that it became fashionable to tattoo the whole body with them.

I have a note, which I am not able to verify, that the Babaka and Kamali villagers of the Hood peninsula are really bush natives driven down from the interior, and that the inland people are still coming down towards the coastal area.

Aroma

For ethnographical reasons it is convenient to regard the Aroma district as a distinct area; it extends from Keakaro bay or Keppel point to Cheshunt bay or Cape Rodney. The Aroma people have not been studied adequately.

I made a rubbing at Paramana, Aroma, in November 1914 of a pipe with seven transverse bands containing a herring-bone pattern; between these bands are broader

spaces in which are inscribed oblique stripes of three lines which cross one another very irregularly, and also several words in capital letters which indicate Mission influence. All the decoration is in incised lines only. The dorsal hole is small.

In the British museum is a pipe, +2484, from Aroma. Aft of the dorsal hole are three toothed transverse bands; the long spaces between these contain longitudinal panels enclosing a zigzag. 58.8×3.6 cm.

Cloudy bay district

The natives of the coastal area of Cloudy bay, Baxter bay, and Table bay have not yet been investigated; they appear to be allied to the Mailu of Amazon bay. The Cloudy bay natives formerly had a bad reputation, which doubtless hindered the opening up of the district, but now the whole area has quietly settled down to Government control.

About 1890, and a little later, a number of pipes came into the London market without a provenance. The style and technique of their decoration showed that they came from a definite area, and as they could not have come from any district west of Aroma, I (1894, p. 167) had no hesitation in ascribing them to the Cloudy bay district. This suggestion has been generally accepted, though, so far as I am aware, no precise localities have been given for specimens of this type of pipe.

The technique of scratching simple lines on the bamboo in definite patterns and then charring the alternate spaces begins in the Cloudy bay area and extends into the Massim area. In some pipes the scratched lines were more or less emphasized by burning.

In many pipes there is a plain burnt encircling band at each end, but a few have a central band in addition. The dorsal hole may be in an interval left in the fore band or at the beginning of the dorsal longitudinal band, or in some other position. A narrow longitudinal band in many pipes extends aft of the dorsal hole, and in these pipes there is a similar ventral band. These bands may be plain, or burnt, or decorated with various burnt patterns; in some there is a series of burnt triangles along each side of the band which may be so arranged as to leave a central plain zigzag, but it seems evident that in most cases the artist was not concerned with the zigzag, its occurrence being incidental. In most pipes there are several patterned longitudinal bands separated by narrow plain bands. When there is a central burnt transverse band the fore and aft areas may or may not have corresponding patterns. In a few pipes there are no longitudinal bands but only patterned transverse bands. A looped pattern enclosing circles, zigzags in series, concentric lozenges and quadrangles may be regarded as being characteristic of these pipes.

In most of the pipes from this area the aft-septum is pierced by a relatively small hole. In a pipe in the British museum, +6779, and in another one I have seen, the central hole is small and is surrounded by five or six smaller holes; I have not noticed this peculiarity in any other Papuan pipe. Only one pipe in the Cambridge collection has a central septum.

Pipe, Cambridge 25.659F (figure 164), with patterns displayed, has short longitudinal patterned bands. The third pattern is occasionally found with variants in

other places in New Guinea (figures 103, 113, 123), but the curved lines are not usual; in the Cambridge pipe, Z. 8759, the triangles are more regular and only those in one row are enhanced; the interdigitating triangles are plain with a central burnt cross. 37.3×5.8 cm.

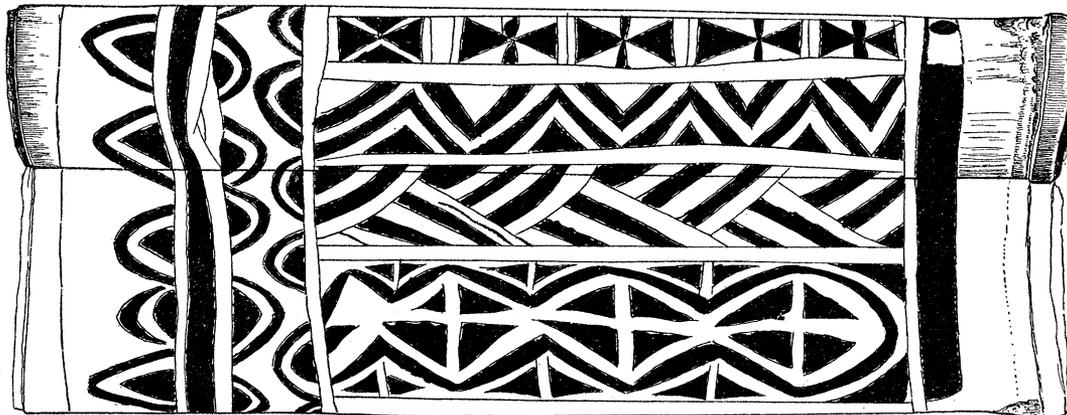


FIGURE 164. Pipe with patterns displayed. Cloudy bay district. Cm. 25.659F.

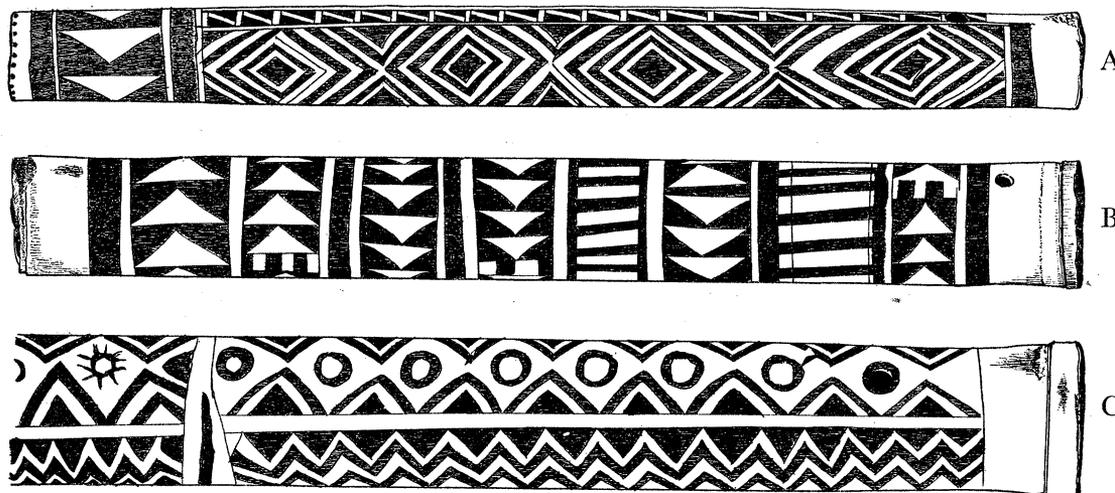


FIGURE 165. Pipes from Cloudy bay district. Cm. A, 25.659A; B, 25.659C; C, Z. 9330.

Pipe 25.659A (figure 165A) is small and neatly executed; there is a median dorsal and ventral longitudinal band with the same pattern. The sides contain concentric lozenges in an uninterrupted series. 37.5×3.5 cm. Pipe 25.659C (figure 165B) has unusual patterns in the transverse bands; there are no longitudinal bands. 37.5×4.3 cm. Pipe Z. 9330 (figure 165C) has two very broad transverse bands which are decorated in a similar manner. The narrow plain longitudinal bands are confined to each band and only roughly coincide. The scratched lines were not subsequently burnt. 58×5.7 cm.

Illustrations of various patterns on pipes from this area are given by Haddon (1894, pl. xi, figs. 178-83).

Mailu

According to Saville (1926, p. 18) the Mailu-speaking peoples inhabit the islands of Mailu (Toulon island), Laruoro and Loupomu in Amazon bay and the coastal lands from about Cape Rodney ($148^{\circ} 23'$) in the west to Gogosiba village in the middle of Orangerie bay in the east. They are the most eastern of the Western Papuo-Melanesians of Seligman; the Aroma peoples form a link uniting the Mailu with the other members of the group. Saville (1926, p. 197) says: 'The Mailu Island people and the villages they have formed west, in contrast to the hill folk, bear very little resemblance, physically, temperamentally and socially, to the Massim, but in the matter of houses, village construction, temperament and physical appearance bear strong resemblance to the Aroma people.' Influence of the culture of the southern Massim is more conspicuous among the Mailu islanders with regard to material culture and to some extent in artistic productions, but the social life is typically Western Papuo-Melanesian. This is the more easterly limit of the double canoe with its crab-claw sail and the most westerly limit of the attachment of the float to the outrigger by means of two pairs of undercrossed sticks. Pottery is made by the coiled process as among the Massim, whereas the modelled process obtains among the Motu. The language, however, is 'Papuan' and Ray (in Seligman 1910, p. 25) says the Mailu language shows no trace of Melanesian grammar, though there are Melanesian words in the Mailu vocabulary. A grammar of the Mailu language is given by Saville (1912).

Saville (1926, p. 63) says that, 'Before the advent of the white man they [the Mailu] used to plant tobacco in close proximity to their houses and also in their gardens, and they do so still. They collect the mature leaves, and after no more preparation than that of holding the leaf over the fire for a few moments, they roll it up cigarette fashion in some other kind of leaf, preferably mango-leaf, and thrust it into a small hole in the side of a bamboo pipe.' The pipe is smoked in the usual manner. A pipe full of smoke is passed to those who are present. The pipe is called *kapakapa* and native tobacco *lugu*, but imported tobacco is called *kuku*.

Millport harbour

In 1914 I obtained at Mailu five pipes, *kapakapa*, made by natives of Borebo village in Millport harbour, which is immediately east of Mailu. Four have two internodes and a very long thin one has three internodes. In all of them are transverse patterned bands, which in three pipes are separated by a blank space containing a burnt band. In one pipe all the patterned bands are separated by cross-hatched bands. In all the pipes the transverse, longitudinal, and oblique or semi-spiral bands, the chevrons and other patterns were outlined by scratched lines before the enclosed areas were burnt.

The decoration of pipe 1916, 143.274 is shown in figure 166B. 47.5×3.5 cm. Pipe Z. 8765 is somewhat similar; it is unfinished, as the two end septa are intact and there is no dorsal hole. 54.3×4 cm. The long thin pipe with three internodes, 1916, 143.272, from 'Mailu, coast of mainland', may be classed with the foregoing, as some of the patterns are similar. Aft of the dorsal hole is a plant-like design, and in the central and

aft internodes are stepped patterns which are similar to some patterns on netted bags. 75.6×2.7 cm.

The decoration of pipe 1916, 143.273 is shown in figure 166 C. The lozenges in the patterned bands are formed by oblique lines across the band supplemented by short lines in the opposite direction, but in the aft band some seem to have been made as such. Two aft bands contain triangles. All the unburnt spaces in the patterned bands are covered with transverse scratched lines, most of which look as if they had also been burnt and the charring cleaned off. 61×4 cm.

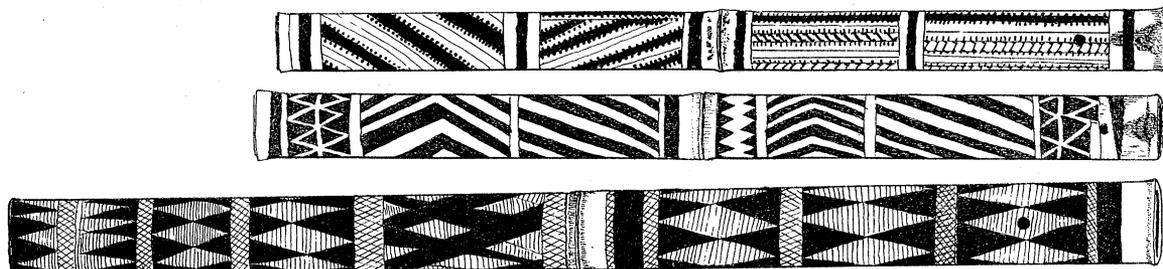


FIGURE 166. Pipes from Borebo village, Millport harbour. Cm. A, 1916, 143.275; B, 1916, 143.274; C, 1916, 143.273.

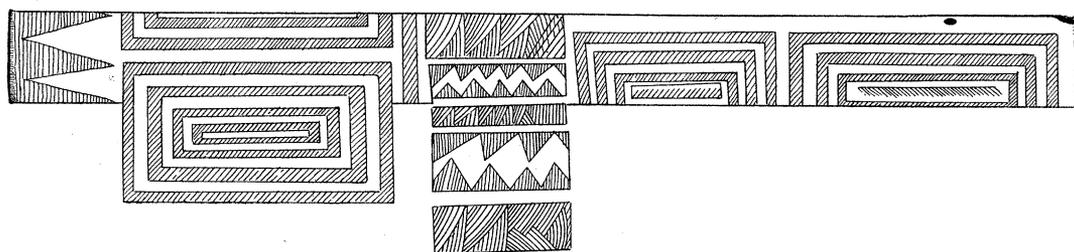


FIGURE 167. Pipe from Okeno, Millport harbour. Bern, Pap. 113.

Pipe 1916, 143.275 is illustrated in figure 166A. The Z-marks and all the dashes that form fringes are burnt only. 46.5×3.1 cm. This pipe shows 'mountain' influence.

In the Bern museum is a new pipe, Pap. 113, obtained in 1903, from Okeno, Millport harbour, with two internodes and with the skin entire. The decoration, which is solely by incised lines, is shown in figure 167. 70.5×5.9 cm.

In the Sydney museum is a 'musical bamboo tube', E. 3862, from 'Cloudy bay'; probably it is a pipe. There are two widely separated bands containing simple panel oblongs enhanced as in figure 167. In one band there are three transverse rows of oblongs; each of those of the central row is connected with the borders of the band by enhanced bars; each fore and aft pair of the other two rows of oblongs is connected by a similar bar. The other band contains two rows of isolated framed oblongs. The borders of the bands are also enhanced with oblique lines.

Massim district

The Massim district as first defined by me (1894, pp. 184, 218) was taken to extend on the mainland from Poura (Mullens harbour) across the peninsula to Baunia, Bartle bay, and it included all the islands and archipelagos off these coasts from the

Trobriand islands in the north to Yela (Rossel island) in the south. Seligman (1909, pp. 253, 268; 1910, p. 5) adopted this term, but according to E. L. Giblin (p. 268) outliers of this stock extend on the north coast as far as the Cape Nelson peninsula. I am now of the opinion that the middle of Orangerie bay should be regarded as the western border of the district.

In the following description of the Massim pipes I first deal with the southern mainland area from Mullens harbour to East cape, and then the Massim archipelagos are dealt with. It is, however, more convenient to describe in another section the pipes of the north coast of Papua from East cape to the northern boundary, irrespective of the fact that the stretch of coast from East cape to Collingwood bay is generally considered as belonging to the Massim area. The influence of the Massim culture is slight in Collingwood bay.

The main interest of the Massim area from my immediate point of view is the fact that when Europeans first visited the islands tobacco smoking appears to have been unknown in all but a few districts, and in these its introduction was probably recent. With and after the arrival of Europeans trade tobacco was bartered all over the area to the natives, many of whom soon became habitual smokers.

As one main aim of this investigation is to trace the spread of the cultivation and smoking of native tobacco, it is necessary to learn what Europeans have recorded on the subject in this area. Unfortunately, very few statements have been made, which may have been due to lack of interest in the subject, or that seeing natives smoking the bamboo pipe it did not strike them as peculiar on account of their knowledge of the custom in other parts of Papua, or they did not trouble to record the absence of the habit. Some information can be obtained by noting the date when pipes now in museums were collected in the Massim area. There are, however, numerous pipes in museums, without a locality or date of collection, which may be assigned to a Massim provenance solely by the technique and style of the decoration; thus they do not help towards the elucidation of the problem of the spread of smoking native tobacco. Elsewhere in Papua this spread was due to contact between neighbours, but in the Massim archipelagos it could have been effected only through maritime trade. It seems as if the confirmed addiction to betel chewing restrained the spread of smoking native tobacco, but when trade tobacco became easily obtainable the habit of tobacco smoking became more prevalent.

The southern mainland Massim

Ray (1907, p. 414, map, p. 289) shows that 'Melanesian'-speaking peoples extend eastward from the middle of Orangerie bay. The Dauï dialect is spoken, so Armstrong informs me, as far east as a little to the west of Suau island (South cape) and the Suau dialect thence to a little east of Samarai; they are dialects of the same language. Armstrong (1921) and Williams (1933) give notes on the sociology of the Suau. Williams (p. 6) says: 'One old man, explaining why so many more people died nowadays, said very shortly that it was due to tobacco. Expanding his answer somewhat he said that tobacco was the ruin of women's virtue. Whereas in his youth women's favours were not easily obtained, it was now only necessary to go into the garden and

show a stick of trade twist. Tobacco led to adultery, and adultery to death by sorcery.' I know of only two pipes from the Dauai area.

Armstrong gave to the Cambridge museum a pipe, 22.1619, which he collected about 1921 at 'Mugura' (Mugula is an island at the mouth of Mullens harbour). This small pipe consists of an internode and is decorated in fine burnt lines which apparently were first scratched. The patterns and their disposition (figure 168) are in the 'mountain' style and do not resemble other Massim pipes. 45.8×3.9 cm. Pipe 22.1618 was collected by Armstrong at Dubaguli, Dauai. It is decorated with twelve transverse bands, some of which contain pairs of triangles apex to apex, others have oblique bars. The borders of the bands and the outlines of all the patterns are incised; the enhancement of the triangles and bars is by burning. 52.5×4.2 cm.



FIGURE 168. Pipe in 'mountain' style, Mugula, Mullens harbour, Dauai. Cm. 22.1619.

I have no information about smoking in the coastal villages of Milne bay and the East cape area. In Milne bay (Tawala or Tawara) and at Kehelala, bamboo is called *baubau* and native tobacco *lugulugu* at Kehelala (Armstrong 1922, p. 19).

The southern Massim islands south of the D'Entrecasteaux group

Maclay (1886, f.n. p. 352) says that the use of tobacco in the Louisiade archipelago had been introduced quite recently. In 1880 he visited some hill villages on Basilaki (Moresby island) where the natives were completely unacquainted with tobacco and smoking.

Finsch (1888, p. 268) describes a visit he paid to Aroani or Merari, one of the Killerton islands, at the north entrance to Milne bay. He says the pipe (*baubau*) is here called *kirä*; it is smoked in the usual manner. The *kirä* passes from mouth to mouth; he was assured that this method of smoking is very potent and stupefying, but even small children are used to it. He also says that the 'baubau' is closely linked up with the daily life of the Papuans on all the south-east coast of New Guinea. He gives an illustration (p. 268) of two women smoking. Finsch (1891, p. 28) says that the *kirä* is found in Teste island and Dinner island (Samarai), but not on the mainland adjacent or in the D'Entrecasteaux group.

Tubetube, the best known island of the Engineer group that lies to the east of Basilaki, is stated by Seligman (1910, p. 428) to have been first colonized by people from Duau (Normanby island) and Dobu. He refers (pp. 526-39) to their extensive trading operations, as did MacGregor in 1890.

According to Fortune (1932, p. 202) one source of the spondylus shells, which are made up into the necklaces that form a valued element of the *kula* system, is (or was) Port Moresby; the other source is Rossel island. They are brought to Tubetube and thence they pass to Dobu on their way to the Trobriands. Although Tubetube canoes go to Murua, they always go by way of Dobu and the northern end of Duau, but they

do not take spondylus shell necklaces to Murua; these are left at Dobu. The Tubetube canoes never go to the Trobriands. The Trobriand canoes go to Dobu but not to Tubetube. Wari (Teste island), which is to the south of the east end of Basilaki, like Tubetube, is a pottery-making and trading centre.

Although I have no information about tobacco smoking among the inhabitants of Tubetube and Wari, I refer to them as they undoubtedly were the middlemen through whom the most distant Massim received tobacco from the south coast of eastern Papua. At Tubetube native tobacco is called *ligu*; European tobacco, *tabak*. The term for bamboo is *baubau* (Armstrong 1922, p. 18).

Louisiade archipelago

I have information about smoking only from the following islands of this group: Misima, Panaieti, Tagula and Yela.

Malinowski (1922, p. 497) records that a wider section of the *kula* ring runs from Murua, and perhaps from Nara, through Misima and Panaieti to Wari; probably in the olden days the Moresby group, Basilaki, Sariba and Rogeia, were in the *kula* ring. Wari links on with the great trading centre of Tubetube. It seems that Tagula and Yela were not directly in the *kula* ring; they trade with each other and Tagula trades with Misima. The best spondylus shells, with the brightest red colour, are found in the sea around Tagula, Yela and the neighbouring small islands; from these shells are cut the disks which were made into the valuable necklaces, *soulava* or *bagi*. These necklaces entered into the southernmost section of the *kula* ring at Wari, and perhaps at Panaieti and Misima (1922, p. 507).

Misima. St Aignan

The ethnography of Misima was first described by MacGregor in 1888 (1890*c*, pp. 249–51; see Haddon 1894, p. 226); he does not refer to tobacco smoking, nor does anyone else so far as I am aware. I know of three pipes from Misima, two in the British museum and one in the Cambridge museum.

Pipe B.M. 96.1015 has the skin entire except for a narrow fore and a central and aft broader bands, all of which are scraped and burnt; these are shown in figure 169 in cross-hatching. There are five narrow grooved bands; the grooves are alternately black and red. The three broad bands contain a continuous longitudinal loop design; the grooves are deeply cut and alternately are painted red and burnt black. There are various irregular dotted designs. The decoration of this pipe is unlike any other known to me. 70.5 × 3.2 cm.

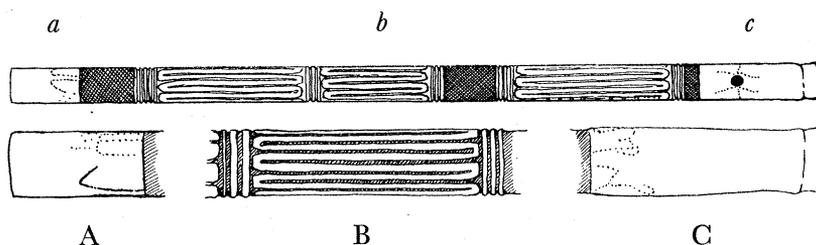


FIGURE 169. Pipe in unusual Massim technique. Misima. B.M. 96.1015. D. by Dorothy Epps.

Pipe B.M. 1931, 7-22.62 is an old pipe of whole skin and one internode. All the patterns (figure 170) were first incised and then burnt. This is the only pipe known to me with the birds' heads and necks design, which is characteristic of the insular Massim area. The pipe was collected in 1900 and is labelled 'St Aignan, pipe of peace'. 46.5 × 5.1 cm.

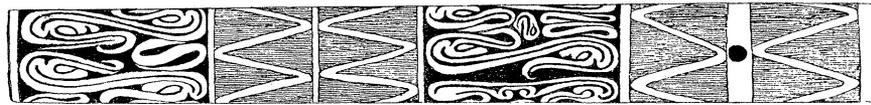


FIGURE 170. Pipe with birds' heads and necks pattern. Misima. B.M. 1931, 7-22.62.
D. by Dorothy Epps.



FIGURE 171. Fore half of the decoration of a pipe. Misima. Cm. O.H. 1814.

Pipe O.H. 1814 was obtained by Seligman in 1898. Only the fore half of the decoration is shown in figure 171; the patterns of the aft half are essentially repetitions of the aft band of the figure. In the narrow bands fore and aft of the dorsal hole the rows of the triangles seem to have been made irrespective of the space between them, whereas in all the other analogous bands a definite zigzag is produced. The outlines of the lozenges in the fore broad band and the triangles of the other bands were first scratched; next all the triangles were scraped and then lightly burnt. 125.5 × 4.5 cm.

Panaieti

Panaieti (Paniet, Panietti, Panaiati, etc., Deboyne island) is described by all writers as being a noted boat-building centre. Canoes have been bought there by Sariba people, and canoe voyages were made from Panaieti to Samarai (Haddon 1937, p. 255). Native tobacco is called *lamwa* and trade tobacco *tabak*.

Two Cambridge pipes have no provenance, but their decoration so closely resembles that on two pipes in the Liverpool museum, 1904, 246, 247, which were collected by H. O. Forbes in about 1887 at 'Panietta', that they may safely be regarded as coming from that island. Pipe 246 is very long, one-quarter being plain, the rest covered with two types of pattern (figure 172 A). The outlines of the patterns are incised and the

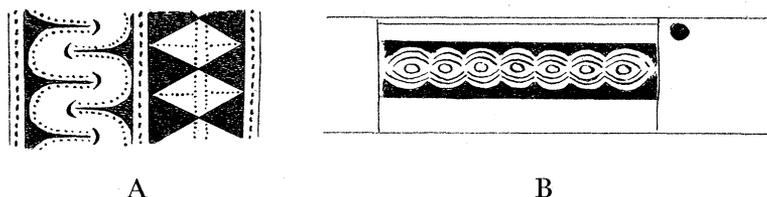


FIGURE 172. Patterns on Massim pipes. Liverpool. A, Panaieti, 1904. 246; B, Fergusson island, 1904, 247.

backgrounds are burnt. The pattern of pipe 247 consists mainly of triangles and lozenges outlined with dots, the background of the lozenges is burnt. There are no incised lines.

The decoration of the Cambridge pipe 27.1572 is shown in figure 173 A. The outlines of the bands and of the square panels were first scratched, then the outlines of the lozenges and triangles were made by crossed scratched lines, finally the triangles were burnt. All the other decoration was done by burning only. Scrolls do not occur on the other three pipes. 70.2×4.5 cm. In pipe 27.1574 (figure 173 B) the lozenges and triangles of the two fore bands were outlined by crossed scratched lines and then the triangles were burnt; in the other bands the lozenges were definitely made as such. 60×3.9 cm.

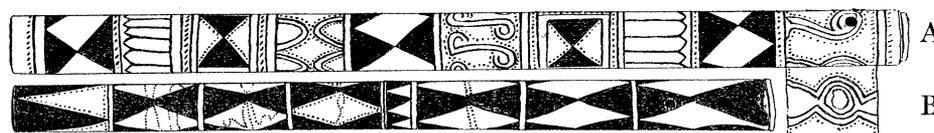


FIGURE 173. Two pipes from Panaieti. Cm. A, 27.1572; B, 27.1574.

Yela, Rossel island

Captain Cyprian Bridge (1885, p. 101) landed on Rossel island in 1885 and found one or two natives who 'knew the words "tobacco" and "pipe"; to the use of which most of them were evidently unaccustomed; beyond this they were quite ignorant of English.' Sir William MacGregor (1894*a*, p. 7) visited Yela in 1892; he says: 'They have taken kindly to tobacco, and will consequently be willing to trade. Tobacco is not grown on the island.' In his account of a patrol of Rossel in 1908, L. L. Bell (1909, p. 107) says: 'The bamboo pipe (Baubau) is used, but it is supposed to have been introduced from other islands.' The most complete account of Rossel island is given by W. E. Armstrong (1928) who says (p. 12): 'The tobacco pipe, of Massim type, occurs but is probably of quite recent introduction, for Rochas found the natives ignorant of the use of tobacco in 1859'; [he gives on p. 197 the original statement of V. de Rochas]. Armstrong (p. 154) refers to one particular *yaba*, or sacred spot, in which are a 'male' and a 'female' stone. 'Betel nut or tobacco is placed on the appropriate stone and then given to the man or woman whom it is wished to stimulate sexually.' European tobacco is called *tabak*. (Armstrong 1922, p. 18.)

D'Entrecasteaux islands

The D'Entrecasteaux islands lie off the north coast of Papua opposite to East cape and westward of Collingwood bay. Besides islets, there are three large islands, from south to north, Normanby (Duau), Fergusson (Moratu) and Goodenough (Morata). The small but important island of Dobu (Goulvain) is in the eastern entrance to Dawson strait, between Duau and Moratu. The small islands of the Amphlett group lie north of Fergusson island.

The earliest account of these islands is by MacGregor (1890*a*, p. 11), who found that on Normanby and Fergusson islands neighbouring tribes have as a rule little or no

communication with each other. In the neighbourhood of Dawson strait the natives were active and industrious, and the bartering instinct seemed to be very strongly developed. The Dobu men looked very war-like and appeared untrustworthy. On Goodenough island he 'came into contact with a people of a character strikingly different from those met with in the neighbouring islands. They were quiet, friendly, and undemonstrative, although physically they resembled their neighbours.'

MacGregor (1890*c*, p. 255) in 1888 visited Normanby island 'immediately north of the so-called Harris Island' (it is a spit of land on the east coast) and describes the people as 'the wildest and most savage we have yet met. . . . They knew nothing about tobacco, pipes, nor matches, and did not seem to wish in the least to have anything belonging to us.' At the north end of the island opposite to Dobu, the natives were eager to barter native objects for tobacco and iron tools.

At his first anchorage in 1888 at Fergusson island, Moratau, which presumably was at the south end of the island, MacGregor (1890*a*, p. 257) says the schooner was surrounded by about 250 men and boys, 'and to obtain trade tobacco seemed to be the sole desire of every one of this number'. In a small bay distant in a straight line about 7 or 8 miles from the first anchorage, the natives (p. 258) 'knew nothing whatever about tobacco, pipes, or matches; they did not care for beads, nor for anything we could give them'. On the coast from Ebeboa (Llewellyn) point to Girigira, the south-eastern corner of the island, MacGregor (1892, p. 65) found in 1891 that the natives were fond of tobacco. In 1895 MacGregor traversed the island from Hughes bay to Seymour bay. At halfway between Diaware and Itona, near Mount Taumoa, he says (1897, p. 5): 'they had a few plants of tobacco, which were doing well. This was the first time I had seen it cultivated on the islands, but could not learn where they had procured the seed.'

It would seem that when Sir William MacGregor first visited the D'Entrecasteaux islands tobacco was unknown in many places, but in the neighbourhood of Dawson strait it was already known and appreciated. Malinowski (1922, pp. 39-41) says that the Dobuans who inhabit the flat lands on both sides of the strait are pleasant honest folk and are allies of the natives of Dobu island. The Dobu islanders were fierce and daring cannibals and head-hunters and were the dread of the neighbouring tribes. The fact that MacGregor found tobacco smoking among the Dobuans probably was due to the trading expeditions of the *kula* system or ring (Seligman 1910, pp. 526-40; Malinowski 1922; Fortune 1932, pp. 200-34). This is the circulation in defined directions of articles of great sentimental value which is accompanied by ordinary trade. One important section of the *kula* ring is from the Trobriands to the Amphletts and thence to Dobu, which is a great receiving and distributing centre, but the Trobriand men have no *kula* relations with other islands of the D'Entrecasteaux group.

R. F. Fortune wrote to me in 1928 that in Dobu (Goulvain island) the Papuan bamboo tobacco pipe, *dumo*, is almost universally replaced by the cigarette, *lipulipu*, rolled in dry banana leaf, *sagilubu*; it is smoked without a holder. This is in imitation of the white man; a few old people still use the *dumo*. The Dobuan term for tobacco is *tapwaki* or *tapwa'i*; he regards this as a native rendering of 'tobacco'. In Fergusson island and in the Amphletts the *dumo* is still usually smoked, the *lipulipu* being inserted

into the dorsal hole. He did not see any pipes with patterns on them. Fortune (1932, p. 127) merely alludes to the cultivation of tobacco in Dobu, and says (p. 170): 'The fear of being poisoned dominates native life. Food or tobacco is not accepted except within a small circle.' The Rev. W. Bromilow (MacGregor 1893, p. 109) gives *tobaki* as the Dobu term for tobacco.

According to Jenness and Ballantyne (1920, p. 27) an imaginary line between Hughes bay in the east of Fergusson island and Cape Mourilyan, Kukuya, the south-west corner of the island, south of Seymour bay, separates the language and culture of the northern from those of the southern D'Entrecasteaux. 'Behind Kukuya there are large outcrops of obsidian, and natives come to trade for it from all around, from Wedau on the mainland [south of Goodenough bay] to the Amphlett Group. . . . With Wedau Kukuya has had intimate relations for many years' (p. 34). The fisherfolk of Wagifa, a small island at the south-east of Goodenough island, 'carried the obsidian all down the east coast of Goodenough [bay?], so that it is possible that a little mainland culture found its way along this route' (p. 35).

Malinowski (1922, pp. 494, 500, 501) refers to non-*kula* trading expeditions from Kavataria village, Kiriwina, and the island of Kayleula, Trobriands, to the Koya of Fergusson and Goodenough. 'They are foolish men, the people of Koya [northern D'Entrecasteaux], not like people of Dobu, who are human beings. Those in the Koya are wild, eaters of men.'

In his traverse of Fergusson island in 1888 from east to west MacGregor, to his surprise, found that a little tobacco was cultivated. It is legitimate to suppose that originally tobacco smoking was introduced on this northern area from the neighbourhood of Goodenough bay, Papua. The observations of Jenness and Ballantyne on the obsidian trade tend to support this conclusion. On the other hand, the more general use of tobacco may be attributed to the 'hundreds of young natives [who] are recruited each year to work on the gold mines and copra plantations of this eastern part of Papua, and return. . . . laden with tobacco, knives, cloth, and all the other treasures of our civilization' (1920, p. 17).

Jenness and Ballantyne (1920, pp. 163, 164) say that in Goodenough island tobacco and betel nut appear to the native almost as necessary as food. Two things constitute perfect friendship—the eating of food together and the sharing of betel nut and tobacco. Tobacco does really appear to stimulate the natives much more so than it does us; it appears to renew their strength, while the betel nut takes away hunger and thirst. On an average about three-fourths of their wages goes in tobacco. The ordinary Papuan pipe is used; it is from 1 to 2½ ft. long. A cigarette is rolled with paper, when procurable, or with a dry banana or croton leaf, and placed in the dorsal hole. Three inhalations from the dorsal hole will empty a pipe of moderate dimensions. Often three or four natives sit together, and the pipe is handed on from one to another till their tobacco is exhausted or each is satisfied.

Several pipes were collected in Goodenough island by D. Jenness in 1913 and given by him to the Oxford museum. Five of them are quite plain, except one which has rays radiating from the dorsal hole. The pipes range in length from 39 to 75.5 cm. One large pipe of two internodes has a rosette round the dorsal hole. The only other

patterns are three bands of hooked triangles in the centre of the prenodal area; two of the bands have two rows of hooked triangles, base to base. 68×5.9 cm.

One pipe, *dumo*, from Mud bay (figure 174), needs no detailed description; the second band shows degenerate examples of the interlocking bird's head pattern. Most of the patterns and narrow bands were roughly outlined by burnt lines; there are no incised lines. 56.4×5.6 cm.

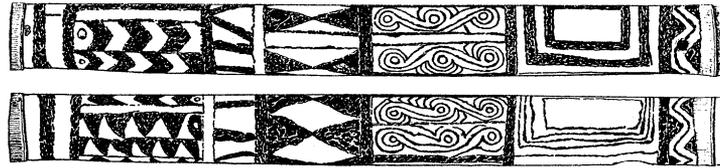


FIGURE 174. Dorsal and ventral surfaces of a pipe from Mud bay, Goodenough island. Oxford.

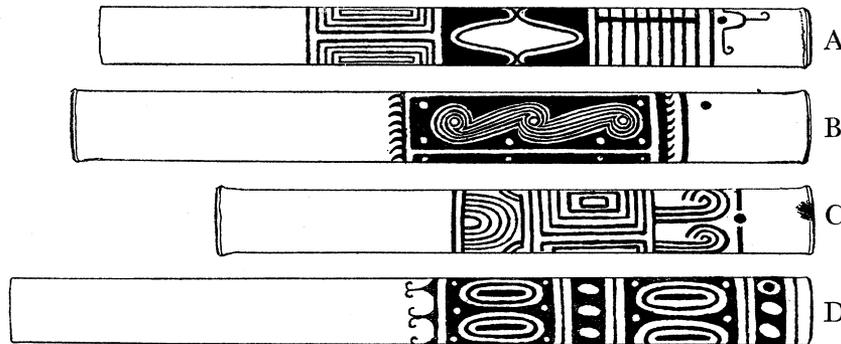


FIGURE 175. Decoration of four northern Massim pipes. B.M. A, Dobu, 1906, 10-13.757; B, Amphlett islands, 1919, 262; C, Amphlett islands, 1919, 263; D, Iwa, Marshall Bennet islands, 1906, 10-13.690.

A pipe from Fergusson island in the Liverpool museum, 25.198.89, has the decoration shown in figure 172B. The rest of the pipe is plain.

A pipe, 1906, 10-13.757, in the British Museum is labelled 'made at Dobu'. The whole of the simple decoration (figure 175A) is burnt deeply. 56.2×4.6 cm.

Amphlett islands

The Amphlett islands lie north of Fergusson island; the natives have direct *kula* and trading relations with those of the Trobriands. Seligman (1910, p. 531) says: 'The strongest and best decorated pots in the Possession are made on the islands of the Amphlett Group whence they are traded in two directions, northwards to the Trobriands and southwards and eastwards [westwards] to Milne Bay and the neighbouring islands. The handsome pots do not reach Tubetube', as pots are made on that island. Jenness and Ballantyne (1920, p. 35) state that 'The Amphlett Islander, traded their pots round all the shores of Goodenough except the north-east coasts where pots are made by the local natives themselves; the same people even worked down the coast of the mainland from Cape Vogel to East Cape, returning home through Dawson Straits.'

There are two pipes from the Amphlett islands in the British Museum, 1919, 262, 263, collected by F. R. Barton about 1918, the decoration of which is shown in figure 175B, C. The technique and patterns are similar to those on pipes from the Trobriands and do not need description. I have been told that the interlocking scroll pattern is called *erepa*. B, 58.7 × 5.6 cm.; C, 47.5 × 5.1 cm.

The northern Massim

The northern Massim area includes the Lusancay and Trobriand islands, which consist of the large island of Kiriwina (its proper name, according to Malinowski, is Boyowa) and neighbouring small islands, the most important of which is Kayleula, off the north-west coast of Kiriwina. Also included are the Marshall Bennet islands, Murua (Woodlark island) and Nada (the Laughlan islands).

The natives of the Trobriands, and to a less extent those of the other islands, have been carefully described by Seligman (1910) and Malinowski (1922, and in subsequent books). These energetic and artistic islanders directly or indirectly appear to have influenced a considerable part of the Massim area, and they are the most important section of the *kula* system.

I have been able to find extremely little information about tobacco smoking in these islands. MacGregor (1893, p. 4) found in 1891 that the natives of Kaibola, at the north-west of Kiriwina, were well acquainted with tobacco smoking. He says: 'They are all passionately fond of tobacco, and their use of it is more thorough than I have ever observed elsewhere. They seem to swallow the smoke, and learn to retain it for a considerable time, and then emit it through the nostrils. They use the bamboo pipe.' Tobacco, *muku*, *tobakki*; bamboo pipe, *bobao*; hole in pipe for cigarette, *pwarara*; closed end of pipe, *pwala*; open end, *waduna*; cigarette, *kululu*; bamboo, *bobao* (pp. 102-5).

As tobacco smoking was well established in at least one part of Kiriwina in 1891, the natives must have been acquainted with tobacco for some time. Perhaps native tobacco was called *muku*; the term *tobakki*, like the Dobu *tapwaki*, was introduced along with the trade tobacco brought by Europeans. Native tobacco could have reached the Trobriands by the non-*kula* trade route between north-west Trobriands and Fergusson and Goodenough islands, or it could have come from Dobu as an accompaniment to the *kula* system. Native tobacco could have reached Murua and Nada through the Trobriands, but it could equally well have come by the Misima-Wari trade route.

The Lusancay islands are a small group of unimportant islands lying to the west of the Trobriands. MacGregor (1894*b*, p. 20) visited Kawa island in 1893; he says that the natives 'are fond of tobacco, but do not know it as a plant'.

The Trobriand islands

The pipes are made of thick bamboo and most of them consist of one internode, though some long ones have two internodes. The skin is always entire. The decoration is usually aft of the dorsal hole and commonly it is restricted to a single band. The bordering lines of the transverse bands and of the patterns were first scratched or incised and then burnt so that the original scratches can rarely be seen. The background of the patterns is burnt, often deeply so. Supplementary patterns are burnt only.

There are several pipes in the British museum labelled 'Trobriands Islands' and seven that definitely came from 'Boioa'. In the Aberdeen museum are several pipes that were given by Sir William MacGregor, but, as was characteristic of him, they have no provenance. The technique and patterns indicate that they came from the Trobriands. In other museums there are similar pipes obtained from various sources, some of which probably came from the Trobriands.

The decoration of pipe + 6362, from the Trobriands, which the British museum obtained in 1893, is more complicated than is customary (figure 176). The most aberrant feature is an incised design of unknown significance. The longitudinal rows of short transverse bars are also unusual. The patterns were first incised and then burnt. 66×5.8 cm.

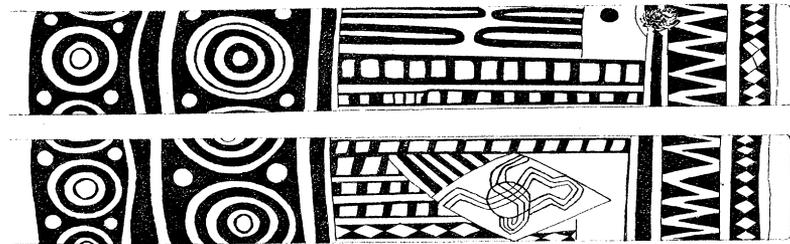


FIGURE 176. Two aspects of a pipe from the Trobriands. B.M. + 6362.

A British Museum pipe, + 6361, from the Trobriands is decorated for about half its length with bands of varying breadth, containing double circles and designs consisting of two parallel thick lines which turn in at their ends; I consider this motive as a simplification of the heads of two birds (Haddon 1895, fig. 37 B). A sketch of this pipe, and of another one, is given in Partington and Heape (1895, pl. 157, no. 4), where they are erroneously stated to come from Cloudy bay. 81.2×4.3 cm.

Five pipes were collected at 'Boioa' (this is Boyowa (Kiriwina)) in 1904 by the Cooke-Daniels expedition. The patterns are shown so clearly in the illustrations that no description is necessary.

Pipe 1906, 10-13. 689 has a 38 cm. band about 9 cm. from the fore end; the dorsal hole is about halfway between, but there are two other holes that have been plugged. The band has the longitudinal patterns shown in figure 177 A. 61.8×6.7 cm.

Pipe 684 has two very broad bands with longitudinal patterns (figure 177 B). The dorsal hole is in the narrow fore burnt band. In this pipe the patterns do not seem to have been first incised, and the burnt background is more shallow than in the other pipes. There is only one band of double curves. 46.2×6.5 cm.

Pipe 683 is short and thick; there is a 13 cm. band 8.5 cm. from the fore end. The dorsal hole is halfway between the end and the band (figure 177 C). 36.2×7.4 cm.

Pipe 691 has a 12 cm. band immediately behind the dorsal hole (figure 177 D); the ventral surface of the band is plain. 57.7×6.1 cm.

The other two Boioa pipes have bands with only concentric circles.

Parkinson (1889, p. 168) refers to pipes from the Trobriands, Murua, and Nada; one from Murua was 145×4.8 cm. and one from Nada was 130×4 cm., but he has seen

longer and shorter ones; these lengths are very exceptional. He illustrates a long pipe which has at the fore end a dorsal flat projection from which depend five strings of seeds with a tuft at the ends. The greater part of the pipe is decorated along the sides with scrolls and continuous looped coils in the usual burnt technique.

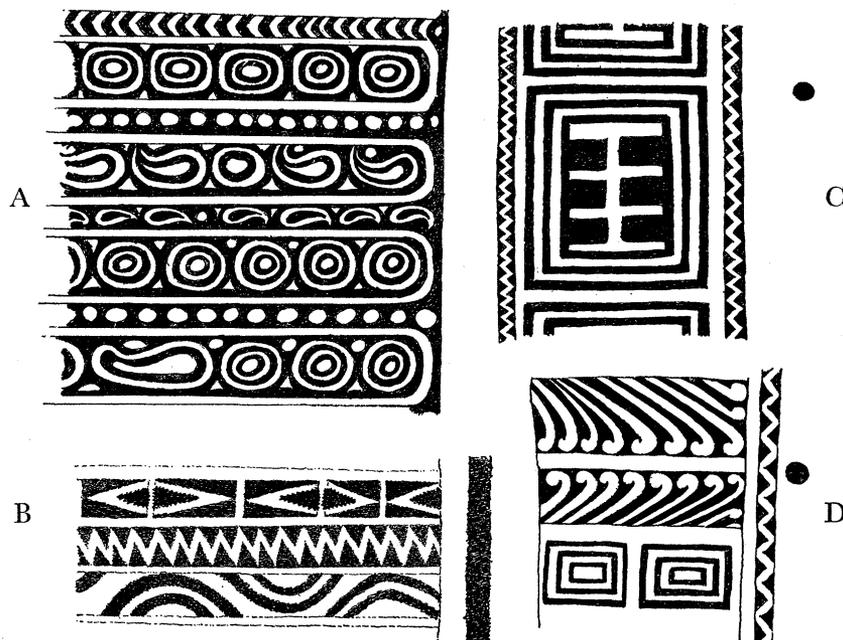


FIGURE 177. Decoration of four pipes from Boioa (Boyowa), Kiriwina. B.M. A, 1906, 10-13.689; B, 1906, 10-13.684; C, 1906, 10-13.683; D, 1906, 10-13.691.

Marshall Bennet islands

The only pipe known to me from these islands is one from Iwa, an elevated atoll. It does not present any special features (figure 175D). B.M. 1906, 10-13.691; collected in 1904. 63.5 × 5.5 cm.

North coast of Papua

West of East cape are Bentley bay; Awaiama (Chads bay); Cape Frere; Bartle bay; Goodenough bay; Cape Vogel; Collingwood bay; Phillips harbour, Keppel point; Cape Nelson; Dyke Acland bay, into the south-east end of which flows the Musa river; the Hydrographers range; Gona or Holnicote bay; north of 8° 30' is the Kumusi river; to the north is Cape Ward Hunt and Mitre rock, and west of it are the Mamba (Mambare) and Gira rivers. The Eeia, Wuwu, and Waria rivers have their mouths west of the boundary.

Goodenough bay

Goodenough bay, which lies to the south of the Cape Vogel peninsula, is opposite to Dawson strait which separates Fergusson island from Normanby island.

The culture of the natives of Bartle bay is described by Seligman (1910, pp. 430ff.), otherwise very little of any consequence has been written about the natives of the Goodenough bay area.

In an undated memorandum (probably written about 1888) on the north-east coast of Papua, H. O. Forbes (1890, p. 50) says of the natives of Rawden (Rawdon) bay, on the north coast of Goodenough bay, 'knives were unknown to them, and of the use of tobacco they were quite ignorant'. He also says that 'the use of tobacco was unknown to them', presumably to the natives of Holnicote bay, farther to the west.

A Cambridge pipe, 34.594, from the hill country behind Goodenough bay, was collected by the Rev. J. Bodger. In the aft third of the pipe (figure 178) the base-line of the aft apex-to-apex triangles, the bordering lines of the band of chevrons, and the base-line and the outlines of the basal triangles of the band in front were first incised and then burnt. All the other patterns are burnt only, the triangles being first outlined by burnt lines. 35.5 × 3.8 cm.



FIGURE 178. Pipe from the hill country behind Goodenough bay. Cm. 34.594.

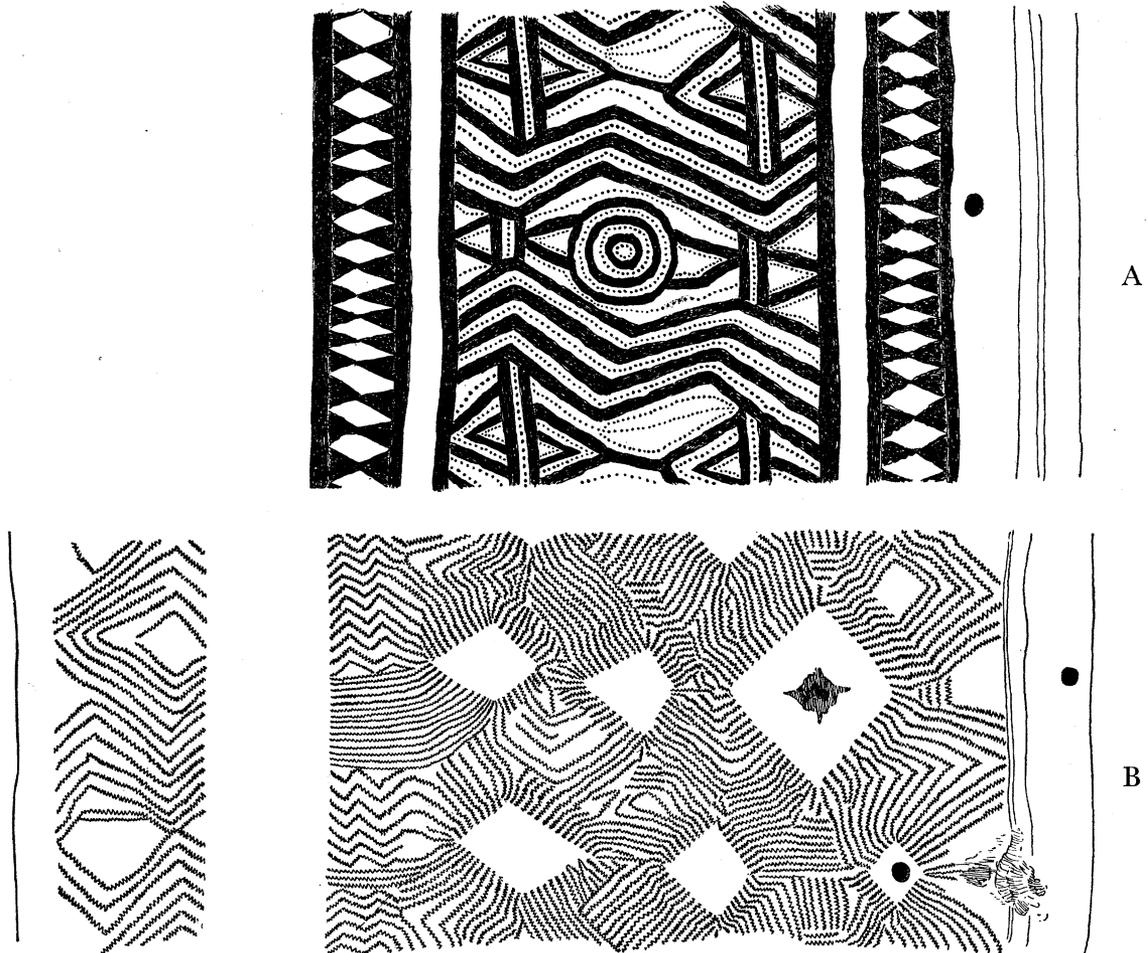


FIGURE 179. Decoration of two pipes from Boianai village, Goodenough bay. Drawn from rubbings. Sydney. A, E. 16562; B, E. 16610.

I made rubbings in the Sydney museum of two pipes from Boianai, a village on the south of Goodenough bay at 10°. Both consist of one internode and the skin is entire.

Pipe 'Kabarawa', E. 16610 (figure 179B), has the decoration wholly in rather coarse jagged lines. The original dorsal hole has been plugged and another made in a small lozenge. The pattern consists of two longitudinal rows of three plain lozenges with fringes of jagged lines along their sides. The fringes of one lozenge in some cases are coterminous with those of other lozenges, or they may meet at an angle. There is an aft band of two irregular concentric lozenges. 45 cm. long.

Pipe E. 16562 (figure 179A). Aft of the dorsal hole is a narrow transverse pattern of two burnt lines between which are irregular lozenges on a burnt background. Aft of this is a broad pattern; the main motive on the dorsal surface is a rosette flanked with zigzags. On the ventral surface are chevrons. The elements of whole skin have a central row of burnt dots. The pattern is made by bold burnt lines. Aft of this band is a narrow band of lozenges similar to the former. There is a broad band of whole skin in the centre of the pipe. Aft of this is a repetition of the foregoing bands. The elements of the patterns appear to have been outlined by incised lines before being burnt. 73 cm. long.

The decoration of the pipe with jagged lines is unlike any other known to me; it looks as if it is due to some old type of decoration from the mountainous hinterland. The other pipe more or less conforms to the Cloudy bay-Massim type of decoration. F. Speiser collected in 1931 a pipe from Goodenough bay, Basel, Vb. 1385, of whole skin. On each side of the central septum is a narrow burnt band. Fore and aft of this is a band with burnt incised borders and a broad incised zigzag, the background of which is burnt. 48 × 4 cm.

Collingwood bay

Collingwood bay extends from Cape Vogel to Cape Nelson and is opposite to Morata (Goodenough island).

Sir William MacGregor (1892) visited Collingwood bay in 1890. Of Ataiyo village on the north side of Cape Vogel, he writes (p. 11), 'they are beginning to learn the use of tobacco, but at that time they were not very desirous of obtaining it'. He was the first white man to visit villages in Collingwood bay between Phillips harbour and Keppel point. At Augo (p. 13) he reports: 'Of tobacco they were, of course, quite ignorant, and we found that the pieces of bamboo they carried were used exclusively as nose flutes, and not as pipes.' At the next village he visited he says, 'of iron and tobacco they were entirely ignorant' (p. 13), and in the large village at the bight of the bay, 'Like their neighbours they did not know the use of iron or of tobacco, but they willingly exchanged their jade-stone adzes for a few small beads' (p. 14). On p. xiii MacGregor says that the natives of Cape Nelson and of Collingwood bay seemed to be quite unacquainted with tobacco and iron. Within a space of twenty years there was a very different state of affairs.

The Rev. A. K. Chignell (1911) gives an account from a missionary point of view of the natives of Wanigera, in the bight of Collingwood bay, which may be the 'large village' visited by MacGregor. He says that 'every one smokes in New Guinea, except

the little children' (p. 137). Mission boys and girls smoke newspaper-rolled cigarettes, passing it from one to another, just before they go into school. Men smoke similar cigarettes, each being passed from hand to hand so that no man gets more than a couple of whiffs. A cigarette is also inserted into a bamboo pipe. He says (p. 231): 'When these fellows have tobacco, it belongs not much more to them than to their friends, for the supply is shared out, by men who are too generous to keep anything to themselves, and among men who are too honourable to accept anything which they will not return in kind when they have the chance. Even if it is only the half-ounce or so of tobacco that each stick contains, it will be spread over several days, and broken up into the substance of very many newspaper-rolled cigarettes, and even the little bit that a man keeps for himself will be shared with anyone who is within reach when the bamboo pipe is lighted, and passed from hand to hand.'

There are four pipes from Collingwood bay in the Cambridge museum. The first three were collected by the Rev. W. H. Abbot and the last by the Rev. G. R. Bullock-Webster. All consist of one internode.

Pipe 1901, 24.3 is scraped all over except at the ends and for a band along the right side, which is decorated with triangles which were first scratched in outline, scraped and then imperfectly burnt. The rest of the pipe is rudely decorated longitudinally with groups of irregular burnt lines which slant towards and away from each other. The slovenly execution is characteristic of the decorative art of some of the coastal natives, as shown in their lime spatulas and other domestic objects. 61.6×4.3 cm.

The decoration of pipe 1901, 24.2 is in transverse bands which cover the whole surface except for 12 cm. from the aft end. Figure 180A shows the character of the patterns, which are carelessly executed. The triangles and the bars in the first two bands were first outlined by scratches, then slightly burnt and the charring rubbed away or scraped; some of them were then punctated by burning. The longitudinal stripes of two bands were not outlined and some of them were punctated by burning. 53.8×4.4 cm.

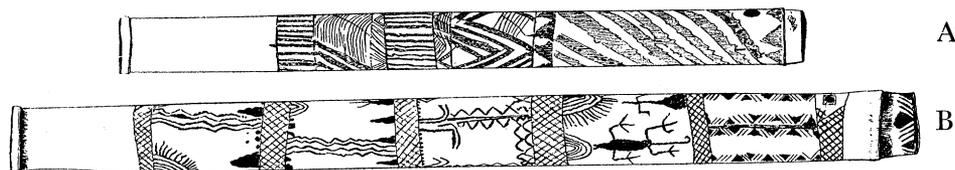


FIGURE 180. Two pipes from Collingwood bay. Cm. A, 1901, 24.2; B, 1902, 306.

In pipe 1901, 24.1 there are two broad patterned bands separated by a plain 9.5 cm. central space. Each band has three narrow transverse bands with burnt cross-hatching and three broader bands containing longitudinal zigzags or chevrons. These were first outlined, then scraped presumably after slight burning, and finally burnt in a punctate or linear manner. The aft band has a few zigzags that were simply burnt. 75.4×3.8 cm.

Pipe 1902, 306 (figure 180B) has six transverse cross-hatched bands which appear to have been scratched before burning. The interspaces contain simple solely burnt

designs which need not be described. The fore interspace contains four longitudinal panels consisting of a double series of oblique lines which slant towards and away from each other; these appear to have been first scratched and then burnt, the resultant triangles being next burnt. Between the two series of lines and triangles a longitudinal band was first burnt and then scraped. Similar lines and triangles occur in the fore area. The dorsal hole is in a scraped square. 71.5×53 cm.

A Collingwood bay pipe in the British museum, 1905, 275, has one internode and the skin is entire. There are two patterned bands each about 11 cm. broad; they are 5 cm. apart. They are divided by longitudinal and transverse double lines so as to form rectangles (figure 182D). The alternate rectangles are cross-hatched, the others are burnt, except a few of which the skin is plain. I do not know of similar chequers elsewhere, though simple chequers are found on several holders and pipes from the central mountains (figures 121, 130, 160A). 51.6×6.5 cm.

There are three pipes in the Horniman museum from Collingwood bay, 9.178; they consist of one internode and have a fore and an aft broad patterned band. The decoration of one is shown in figure 181A. Some of the longitudinal chevrons of the fore band are fringed externally; most of them have a central row of dots. The aft band contains two large framed oblongs; within each is a small oblong decorated with dots. All the bordering lines of the bands and the pattern of the fore band were incised and then burnt. The oblongs in the aft band are burnt only, as are all the dots and dashes. 61.2×4.4 cm.

The decoration of another pipe is shown in figure 181B. This is a very small pipe and resembles a holder. The bands are divided into two longitudinal panels. The outlines of the narrow black transverse bands, of the longitudinal paired lines and of the triangles were first scratched and then burnt; the curved stripes, the dots, and the rays round the dorsal hole are burnt only. 37.2×3.1 cm.

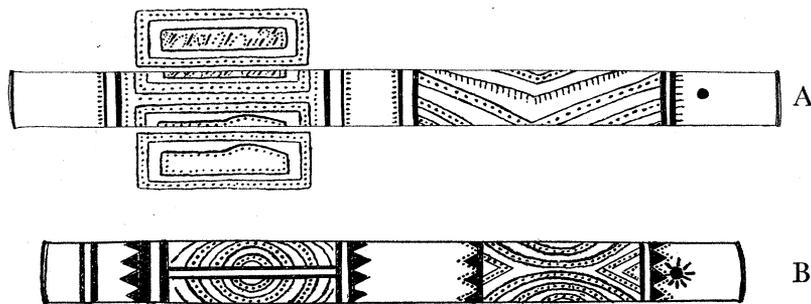


FIGURE 181. Two pipes from Viuku village, Collingwood bay. Horniman museum, 9.178.

In the Oxford museum are two pipes from Ubiri, Wanigela, Collingwood bay. One is very similar to figure 181B, but there are four bands with curved stripes. 50×3.4 cm. The other pipe has two broad bands. The fore secondary band of the fore band contains dotted curved stripes, the aft one a double-lined zigzag, the triangles of which are burnt. The aft band has two secondary bands with similar zigzags. In the space between them is a double longitudinal line fringed externally. 38.5×3.9 cm.

Hinterland of Collingwood bay

MacGregor (1897, p. 23) in 1895 ascended the Musa river, and at Gewaduru, where the launch grounded, to his surprise he was asked for 'kuku (tobacco)' and other things. 'It was at once supposed that they had learned these words from the people of Collingwood Bay.' In the valley of the Adaua, a tributary of the Musa among the mountains, MacGregor (p. 25) says: 'Tobacco they do not know, but they are very desirous of learning to smoke.' No term is given for tobacco, but (p. 102) he gives 'Smoke tobacco: Kuku mini'.

There are a few pipes in the British museum from 'Maisina, Upper Musa River' collected by F. R. Barton.

The decoration of pipe 1919, 259 is shown in figure 182A. The patterns are deeply burnt and no incised lines are apparent. 80 × 5 cm.

Pipe 1919, 257 resembles that shown in figure 182A, but it is much longer and the bands instead of being bordered by triangles are flanked by bands with a zigzag as in the former pipe. A detail of the aft band is shown in figure 182B. The patterns are burnt and no incised lines are apparent. 65.2 × 3.9 cm.

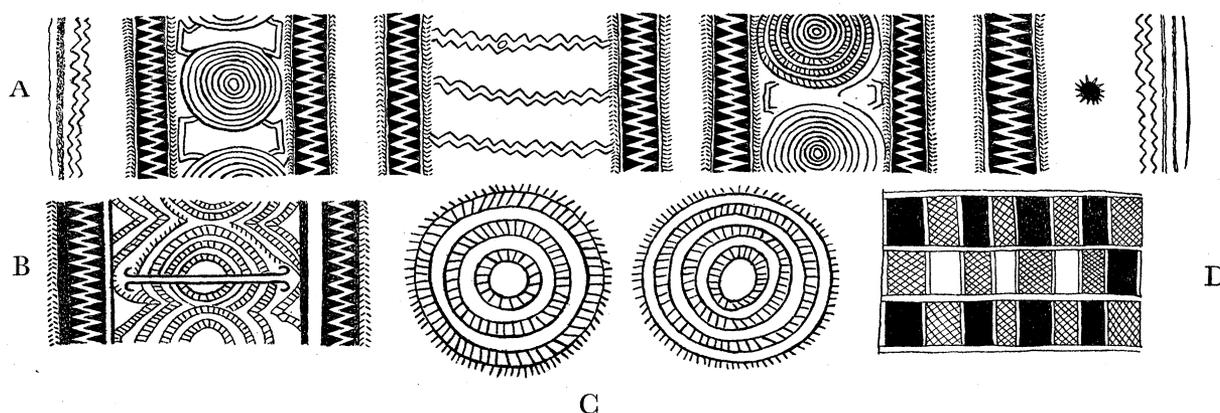


FIGURE 182. Decoration of pipes from the region of Collingwood bay. B.M. Drawn from rubbings. A, 'Maisina, upper Musa', 1919, 259; B, Maisina, 1919, 257; C, bush tribe, Cape Vogel, 1919, 256; D, Collingwood bay, 1919, 275.

There is a pipe in the Sydney museum from Collingwood bay, E. 13165, which resembles the last pipe, but there are no transverse bands with a zigzag. 61.5 cm. long.

It is convenient to refer here to a pipe collected by Barton from a bush tribe, Cape Vogel, B.M. 1919, 256. It has one internode and the skin is entire. The fore quarter is plain, and the rest of the surface is covered with rosettes of varying size. The large ones consist typically of three concentric double circles, which are enhanced with radiating lines; the outer circle is either fringed or it is surrounded by a circular fringed line (figure 182C). 58.4 × 5.9 cm.

The type of decoration by concentric circles is of interest. We have seen that concentric circles recur in the decoration of pipes from the Trobriands, and this motive might appear to have come thence. On the other hand, it must be remembered that the practice of smoking must have been introduced into the Massim area from the

mainland of Papua. There is no record of Trobriand islanders trading directly with the mainland, though there was trading between the natives of Morata (Goodenough island) and those of the coast between Cape Vogel and East cape. MacGregor (1892, p. 11) found a group of coastal villages, a few miles west of Cape Vogel, collectively called Kapikapi, which were subject to hostile incursions from Morata on the one hand and from the Maisina, of whom they were greatly afraid, on the other. The pipes (figure 182A) from 'Maisina, upper Musa river' and the analogous pipe from the bush tribe of Cape Vogel (figure 182C) point to an inland origin, and it is unreasonable to suppose that these could have been influenced by Massim culture. MacGregor (1892) refers to a group of villages at the head of Collingwood bay which were known as Maisina; Maisin is shown in this position by Seligman and Joyce (1907, fig. 3). There is no record of a relationship between the Maisina of the upper Musa and those of the coast. A very short distance on the coast north of Maisin is Rainu, where are found large numbers of prehistoric pottery sherds (1907, p. 333), one of which (pl. x, fig. 5) is decorated with concentric circles and dots and another (fig. 4) with concentric half circles. Here too were found cone shells with incised spirals and double spirals (pl. viii, figs. 3, 4) belonging to the same extinct culture. Chinnery (1919, p. 275) refers to these finds and gives other references in his discussion of the significance of carved stone pestles and mortars and other objects from New Guinea. I am inclined to regard the concentric circles on the pipes as relics of the old extinct culture.

The following information from the peoples of the Hydrographers range, North-eastern Division, was obtained by J. B. McKenna and sent to me by A. E. Cridland, R.M., Cape Nelson, in 1938. A piece of wood is cut from the stem of a fern-like tree, *gumu*, which grows up to a height of 20 ft. The bark is scraped off and the blackish wood is cut into slivers, *gumu*, about a foot in length and about half as thick as a pencil. One end is sharpened and thrust into a fire. The glowing end is traced over the bamboo pipe, and gently blown upon at the same time. The wood may be used green, direct from the tree, in which case it has to be continually relighted; but when dry it smoulders to the end. No preliminary design is made on the bamboo; the man draws from memory as he proceeds. The mark can be made as deep as desirable by repeated burnings. There are no smoking customs or prohibitions among the men, women, or children of the Hydrographers range.

Chignell (1911, p. 328) says that the people of the village of Avaru in the Hydrographers range did 'not know the use of manufactured tobacco. There was tobacco growing between the houses inside the stockade, and the neighbouring gardens were full of the precious plant. . . anybody who felt like a smoke would just gather a handful of green leaves, and toss them for a moment on the fire, and then roll a cigarette and puff it in his bamboo pipe.'

Northern Division of Papua

The ethnography of the region has been amply described by F. E. Williams in two books (1928, 1930). Chinnery and Beaver (1915, pp. 158-60 with two maps) have traced the movements of the tribes of the area. Some ceremonies are briefly alluded to by Haddon (1920, pp. 249-52, 267-70) from information collected by Beaver and

Chinnery. Chinnery has written a good account of the Orokaiva and other tribes in an unpublished manuscript which I have consulted. He adopts the term of Coastal Orokaiva for the canoe-using peoples of the rivers and coasts whose dialects show more affinity with one another than with the dialects of those inhabiting the plains and foothills; these latter, the Bush Orokaiva, do not use canoes and their dialects show a more definite resemblance to one another than to those of the coast.

Orokaiva is now the accepted term for a number of 'Papuan'-speaking peoples who occupy the country between 8° and the Hydrographers range and between the mountainous interior and the sea. The great majority of the Orokaiva are plainsmen. Along the western margin of the alluvial plain the hills stand up abruptly and merge into a wide belt of uninhabited mountains, the Ajura Kijala range, that separate the Yodda and Chirima valleys from the plain. In the south, long sweeping slopes lead up to Mount Lamington and the Hydrographers range. In the south-west, the Orokaiva country extends south of the Ajura Kijala range and west of Mount Lamington and includes the headwaters of the Yodda river, and some of those of the Kumusi river.

The first explorers who penetrated the Mambare (Mamba) river were greeted with cries of 'Orokaiva!' from those who wished to be friendly. MacGregor (1894 *b*, p. 33) says: 'The password is "Orokaiva", which seems to mean "man of peace". It at all events puts one on a friendly footing.'

The map given by Williams (1930) shows the distribution of the various tribes or groups of the Orokaiva. The largest group is the Binandele in the north, who live about the lower and middle Gira and Mambare rivers. The Huniara inhabit the south-western extension of the Orokaiva country; to the west of them are the Biagi peoples of the Main range. The Government station of Kokoda is on the upper Yodda river. The Kokoda plateau, according to Chinnery and Beaver (1915, p. 69), was first occupied by the Ungora section of the Uga mountaineers, who were driven out by the Autembo (men of the bush), a tribe closely related to the Koko, but later and quite recently the Koko were exterminated by the Uga. The Koko, who now inhabit the neighbouring region, came from the head of the Nimuni tributary of the Kumusi; they differ very little in appearance from the 'Bush Orokaiva' of the Kumusi river area. East of the Huniara are the Wasida who extend to the northern slopes of Mount Lamington; farther east are the Sangara and other tribes. The Aiga of the hinterland lie between the Wasida and the Binandele.

Although the Northern Division extends inland to the Main range, I have found it convenient to deal in a previous section with certain natives of the Main range and those of the Chirima and Yodda valleys.

Apparently about 30 miles up the Kumusi, MacGregor (1894*b*, p. 34) says of the natives: 'They have no tobacco in their gardens, and did not know it.'

MacGregor (1894*b*, p. 31) found at about 5 miles up the Mambare that, though the natives have well-kept gardens, 'they have no tobacco'. He went up the river in 1894 as far as it was navigable and states (p. xvii) that 'they had no tobacco plant' in the district he visited. MacGregor (1897, p. 50) says of the people of Eruatutu, 20–25 miles up the Mambare, 'Tobacco being new to them—unknown until our first arrival there—they do not as yet attach much value to it.'

South of Robinson bay (this bay is 4 miles south of Cape Ward Hunt), MacGregor (1892, p. 16) says of the natives: 'Tobacco they would not accept. . . They laughed at the idea of giving one of their weapons [jade or basalt adzes and disk-shaped stone-headed clubs] for anything we could offer them in exchange' (p. 17). This was in 1890.

The following information is given by F. E. Williams (1928, 1930). Tobacco is widely distributed among the Orokaiva, though nowhere grown in great quantity (1928, p. 120). It is common to see a number of tobacco plants in the village itself, where they have sprung from seeds falling through the floors of the houses (p. 137). 'Several varieties are distinguished. The leaf is simply sun-dried, and is smoked either in the well-known bamboo tube [pipe], *poru*, or else rolled with some leaf or other into a cigarette' (1930, p. 66).

Native tobacco 'has evidently preceded the coming of the European by only a generation or two at the most (for the names of agents in its disposal are well remembered), and all informants have been in agreement as to the route it has taken, viz. from the non-Binandele-speaking Isurava or Biagi people in the neighbourhood of Kokoda, down to Oivi and Papangi [these two places are in the Huniara country]; thence to the Kumusi and (within living memory) to the Aiga people of the middle Opi; and thence again to the true Binandele of the Mambare and the lower Kumusi' (1928, p. 120). Tobacco had not reached the Mambare or the lower Kumusi when MacGregor first visited these rivers in 1894.

Tobacco, as an unfamiliar product, is known by a variety of more or less local names (Williams 1928, p. 120; 1930, p. 66): *hajojo* and *tonaki*, from the resemblance of the tobacco leaf to those of these two trees; *masati*, which is said to be the same word as *masa*, 'stink', and *soka*, 'which bears a suspicious resemblance to the name *sokowa*, commonly used for tobacco west of the Fly river [but Williams (1936, p. 424) gives *sukuva*], and may have been introduced by the early Kiwai police' (1930, p. 66). The commonest names, however, are *orokaiva* or *kaiva*, and *kuku*. The term *kuku* was used before the white men brought their trade tobacco, which is now known throughout the territory as *kuku*. 'If you pluck a tobacco leaf in a village and ask what it is called, three times out of four you will get the answer "Orokaiva"'. (Footnote: This at any rate among Wasida, Aiga, and Binandele people)' (1928, p. 121). Williams also says (1930, p. 4) that *orokaiva* in modern speech stands for 'native tobacco. . . the inferior kind of tobacco'.

Miss Cheeseman (1935, p. 45) says that the early miners started the habit of tobacco-smoking at Kokoda; 'nowadays it is the chief article of trade, and without it there would be little inducement to work. Both men and women like the trade-tobacco. The plant is grown in gardens in the mountains, but the leaves do not furnish as strong a tobacco, and are looked on as a poor substitute for those who are badly off. In a family, or among those who have any obligations towards one another, a bamboo cylinder with tobacco is passed round for each to take a whiff; and any paper is in great demand to roll into cigarettes with a scrap from a twist of evil-smelling stuff. For trade-tobacco is sold in twists called sticks—three sticks for a shilling was the price just then [1933]. Mountain tribes did not care for tobacco so much, but salt took its place in trading.'

This evidently refers to trade tobacco, as the mountain peoples grow and smoke native tobacco.

Mr O. J. Atkinson has informed me (1939) that V. C. Kenneth, a native of the Sangara district, states he has heard his father say that in the days when the people were fighting among themselves there was no tobacco, nor did they know about it till the white people came. He (? the father) was then a very small boy. After that the natives looked about for tobacco. Immediately after saying this he went on to say that one day long before the arrival of Europeans ashes fell from the sky destroying their gardens and blinding their pigs. The bush pigs were also blinded and did not attempt to run away and so were easily caught. The ashes spoilt the ground and the water as well, and Mount Lamington was broken up too. (Mount Lamington is to the south-west of the district of the Sangara.) All the men and women were frightened and went inside their houses and remained there for two days until the ashes had ceased falling. When they came out of the houses they did not know whether they were going to die or not. They caught the village pigs, collected food and made a feast. They waited for some time but no more ashes fell. They made new gardens and tobacco plants grew in them spontaneously. Pumpkin plants and Pawpaw [*Carica Papaya*, introduced from America] trees also grew up later. As they did not know anything about these plants they dug them up and left them on the ground. Later an old man went to the garden and saw the tobacco lying on the ground where they had left it, he picked it up, took it to the village and asked the people if he should eat it or what he should do with it. Another old man told him to give it to him and he would look at it. He looked at it and said it was also growing in his garden and then said, 'You and me smoke'. Some of the others told him they would die if they smoked it. When four days had passed and the people saw that the smokers had not died, they decided they would try it. Some liked it and continued smoking but others did not like it and ceased smoking. Then the white people came and smoked. Some white people told the natives that they would not grow big if they smoked the tobacco, but that they would grow big if they ate the pumpkin and pawpaw. This was the first time they ate them.

A man from Asingi, on the northern boundary of the Sangara, says that a man named Kimanapa of Javunari, Kokoda, found tobacco and brought it to his friend Bujuta of Asingi. The latter tried a little but did not like it. Kimanapa told him to take the seed and sow it in his garden, when it grew up he was to smoke it. He did so and there was plenty of tobacco to smoke when the plants grew up. Bujuta is now dead.

The statements made by Kenneth are somewhat obscure. Taking the two accounts together, it is evident that in the Sangara district and at Asingi tobacco smoking was not practised originally, but it spread from the interior about the time of the arrival of Europeans.

Mr C. H. Rich, A.R.M., Ioma, in the south-west of the Binandele district Northern Division, sent to me in 1938 the following information. All the baubaus (pipes) used in this district are not decorated in any way. A cigarette is made by one person and handed round to all who wish to have a smoke. If a baubau is used, the owner usually draws smoke into it, removes the cigarette and passes the pipe to someone else, who inhales from the small hole. This goes on until the cigarette is finished or those smoking

have had enough for the time being. It is believed that a cigarette may be the means of conveying love charms to some particular girl, or poison to an intended victim.

Williams (1930, fig. 13, p. 67) gives a drawing of a *poru* which has numerous separated transverse bands. Some are simple scraped transverse bands, others are rows of confluent triangles, called '*Satiri* or *poki* (fork)—the V-shaped cut in the top of a building post'. The band with transverse bars, like those in figures 80, 185 A, is called '*papau*,—the hole made in a branch by a boring insect'. These patterns were outlined and then scraped. A band of incised chevrons is called '*tono*—a kind of tree snake'.

South-western area. A pipe with jaws in the Cambridge museum, 31.820, from Iavanini village, Kokoda subdistrict, was given by F. R. Cawley (figure 183). The decoration is solely by burning; there are no definite incised or scratched lines, but the pattern may have been first outlined by fine incised burnt lines before being deeply burnt. There are burnt jagged lines. The bold simple pattern is not unlike that of the Karukaru pipe (figure 121). 42.3 × 5.4 cm.



FIGURE 183. Pipe with jaws. Iavanini village, Kokoda subdistrict. Cm. 31.820.

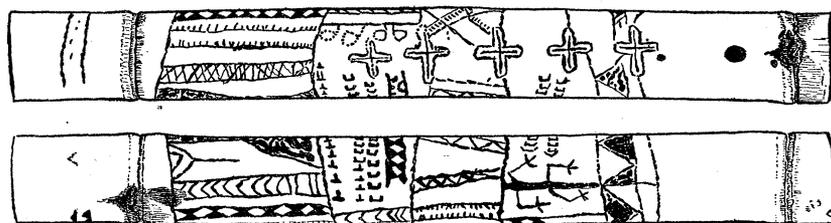


FIGURE 184. Dorsal and ventral surfaces of a pipe from Oivi village, Huniara country. 1927. Oxford.

Two pipes from this area were given to the Oxford museum by V. A. C. Finlay in 1927. One from Oivi, a village in the centre of the Huniara country and east of Kokoda, has the careless decoration shown in figure 184. The patterns are simply burnt and there are no incised lines. The external ridge of the nodes is scraped away. 43.5 × 4.7 cm.

The other pipe is from Wire rope, a village, in the south of the Wasida country, on a tributary of the upper Kumusi which flows from Mount Lamington. The technique, scheme of decoration and the patterns are similar to those of the Wowonga and Managalasi pipes (figures 124–31). In the middle band of the prenodal area are three large lozenges which contain burnt representations of a stylized lizard, a frog and a bird (?), and a man dancing with feathers on his head. 61 × 6.3 cm.

There are two long pipes in the Horniman museum, 191, from the 'Mambare river'. The decoration is solely burnt. In one from Manukoro, the prenodal area has two bands of irregular lozenges formed by crossed burnt lines, the interspaces being burnt; between these is a broad band with a dorsal longitudinal band of chevrons and

on the ventral surface a band with a zigzag composed of ladder-like bars. On each side is a series of transverse similar bars. In the postnodal area are three bands of lozenges similar to the former; in the middle is a broad band containing a dorsal row of chevrons and oblique ladder-like bars, some of which end in concentric circles. There are two crosses with fringed arms. 87.7×4 cm.

The other pipe has in the prenodal area three narrow bands enhanced with lines or crossed lines; the fore interspace has transverse rows of dots and a series of chevrons forming a frond; the aft interspace has longitudinal rows of zigzags, dots and chevrons. In the postnodal area are four transverse ladder-like bars ending in concentric lozenges; between these are longitudinal rows of zigzags, dots, and chevrons; on the left side are six transverse ladder-like bars. 88.2×4.4 cm.

Northern area. W. E. Armstrong gave to the Cambridge museum the following pipes, *poru*, which he collected about 1920.

Pipe 22.1776, Mambare, has at each end and in the centre a transverse band with short longitudinal bars (figure 185 A). The broad bands contain oblong frames of whole skin; the interior of each oblong of the fore and the two aft bands is scraped except for a longitudinal bar of whole skin which extends across the space, but in the second band (the aft one of the figure) the longitudinal bar is shorter than the space. Most, probably all, of the patterns had their outlines scratched before being scraped. This is an old worn pipe. 44.3×4.7 cm.

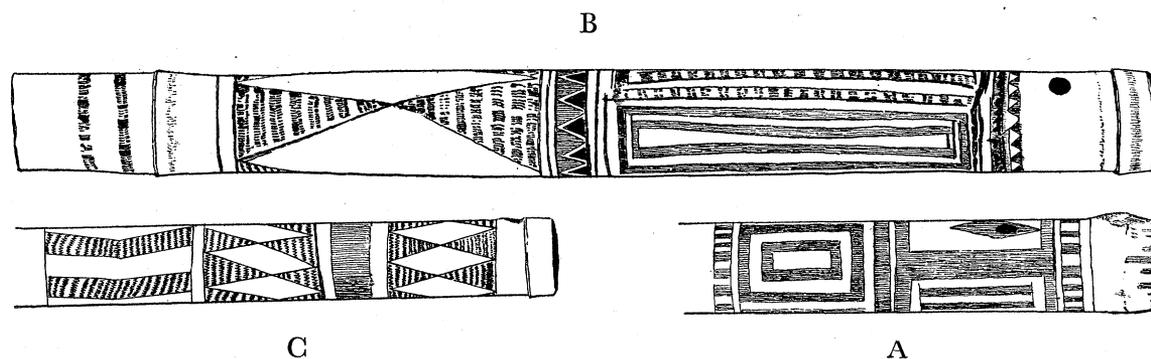
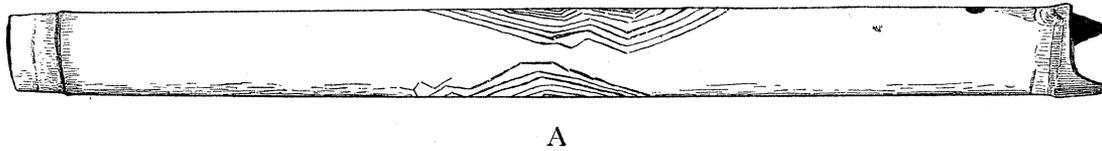


FIGURE 185. Decoration of Mambare (Mamba) river pipes. Cm. A, fore end of pipe, 22.1776; B, pipe, 22.1777; C, fore end of pipe, 22.1778; said to have come from Orokaiva.

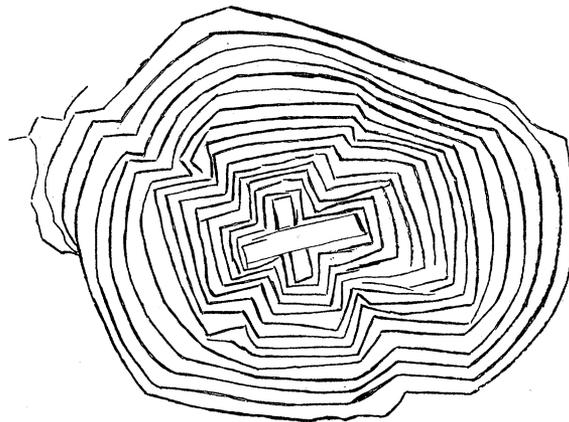
Pipe 22.1777, Mambare (figure 185B), has two lines of burnt dots in the fore area, and in the aft area an encircling row, and on the dorsal side a half row, of coarse jagged burnt lines. Aft of the dorsal hole is a band of scraped and slightly burnt triangles followed by a burnt band. The broad fore-patterned band has a dorsal and a ventral longitudinal band of whole skin with two longitudinal stripes enhanced with coarse jagged burnt lines. On the left side, on a scraped background, is an elongated oblong frame, the interior of which is scraped except for a longitudinal bar. About the centre of the internode is a band of whole skin containing a transverse zigzag; the triangles are scraped and the fore series are also burnt. The aft broad-patterned band contains three large lozenges formed by crossed lines; the triangles are enhanced transversely with jagged lines. All the bands and patterns were first incised with fine burnt lines and then enhanced. What are here termed jagged lines are very coarse and

really consist of two rows of dashes which may be continuous, or overlap, or are separate. Perhaps the scraped portions were slightly burnt before being scraped (figure 180A shows the same technique); some of them were subsequently imperfectly burnt. 60×5.5 cm.

Pipe 22.1778 has no dorsal hole and the aft-septum has not been perforated. Near to what would be the fore end (figure 185C) is a scraped band and there is a narrow partially scraped band fore of the aft-septum. There are three bands of apex-to-apex triangles formed by crossed lines; probably the artist tried to make lozenges, but these are irregular. Three bands contain longitudinal bent bars. Most of the triangles and bars are enhanced with coarse typical jagged lines, but others with a kind of punctate lines; there is no trace of burning. This pipe was collected by Armstrong at Dubuguli, Daui, but it was said to have come from Orokaiva; it is analogous to those in the Oxford museum from the upper Gira river. 64×4 cm.



A



B

FIGURE 186. Pipe with jaws and decoration displayed, from Mambare. Cm. 22.1775.

Pipe 22.1775, Mambare, has small lateral jaws at the fore end. The incised decoration (figure 186A, B) has been made by burning, it is carelessly executed and is analogous to the cross design on a Karukaru pipe (figure 121), or to the more elaborately worked-out pattern of the Ono holder from the upper waters of the Waria river (figure 114). Nothing further can be said owing to the absence of a definite provenance for this pipe. 46.5×4 cm.

A pipe from Tatulu (? Taututu) on the left bank of the lower Mambare river in the collection of Dr P. B. de Rautenfeld, Basel, has a triangular notched projection on the dorsal surface of the fore end. The decoration consists of two broad bands separated by a central row of burnt triangles. The dorsal hole is within a jagged lozenge, aft of this are jagged chevrons and a lozenge, there is scratched cross-hatching between two of the chevrons; all of these are contained in a longitudinal band of whole skin; the sides

are scraped. On the dorsal surface of the aft band is a longitudinal band of whole skin, the fore half has scratched cross-hatching and the aft has transverse jagged lines; the sides are scraped. On the ventro-lateral aspects of the pipe are eight oblong frames of whole skin with a central jagged line in the frames; within the frames is a plain frame of whole skin. The rest of the surface is scraped. 45×5.2 cm.

Three pipes in the Oxford museum from the upper Gira river, which has its main sources from the northern and eastern slopes of Mount Albert Edward, were bought in 1903. All the patterns are contained in bands outlined by fine lines, which appear to have been burnt, as are also the larger patterns. The lozenges are formed by crossed lines, the triangles being enhanced—this is the predominant pattern of the three pipes. All the lines simple or jagged appear to have been made by burning.

One pipe (figure 187A) has two bands of a pattern that does not occur on the other two pipes, the enhancement is solely in jagged lines. There are no incised lines in the narrow bands containing chevrons and lozenges. On the ventral side at the aft end are transverse and longitudinal jagged lines. 61×4.3 cm. In another pipe (figure 187B) the triangles in the two fore bands are enhanced by jagged lines, but in the other bands the enhancement is by paired rows of very short lines, which might be termed a double punctate technique. 61.3×5 cm. The third pipe has a decoration somewhat similar to the latter. Near the aft end is a narrow band of whole skin containing a zigzag, the triangles of which are scraped. The enhancement is in jagged lines, but there are two narrow bands enhanced with transverse lines in the variant which may be termed feather-line. 56.7×3.8 cm.

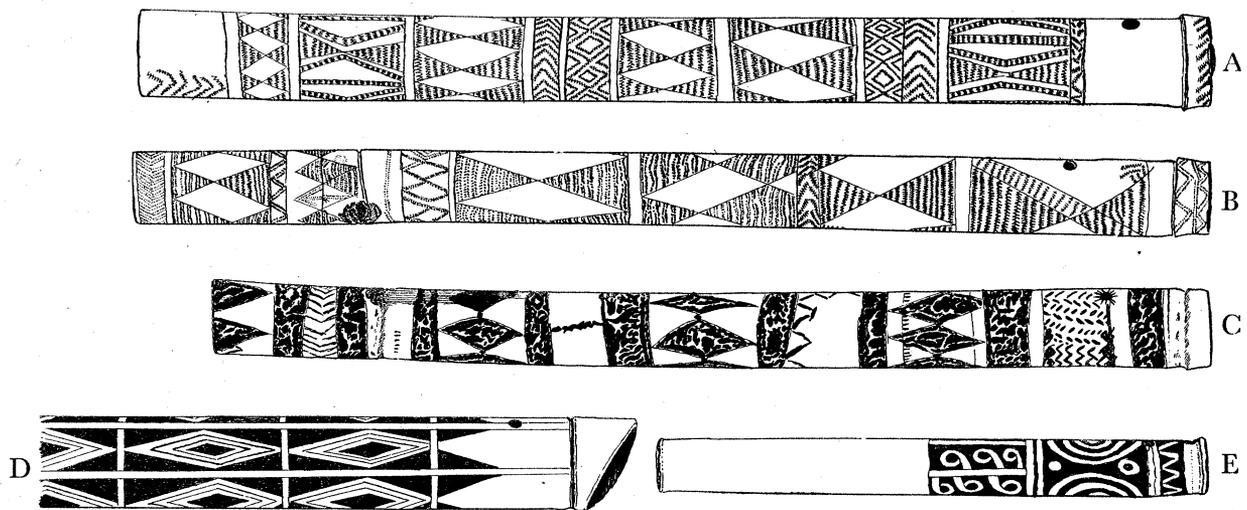


FIGURE 187. Pipes from the Gira river. Oxford, 1903. A, B, upper Gira river, with jagged lines; C, D, lower Gira river, with burnt triangles; D, fore end only; E, lower Gira river, in the Massim style.

There are a few pipes in the Oxford museum from the lower Gira river that were bought in 1903.

One pipe (figure 187C) is divided by fine lines into transverse bands, nine of which are irregularly burnt. There are three bands of lozenges made as such, which are

enhanced by careless burning; the bars which unite the lozenges are simply burnt and not outlined by fine lines as are the lozenges and triangles; some, at least, of the lines appear to have been scratched and not burnt. 56.5×4.4 cm. Another pipe (figure 187D) has the fore end cut in a slant. In the internode, the dorsal, lateral, and ventral double longitudinal burnt lines were first drawn, then panels were formed by double transverse lines, finally the triangles and lozenges were outlined and then burnt. 43.7×5.2 cm.

Other pipes form a class by themselves. A very small one has the decoration shown in figure 187E. The bands were outlined by fine burnt lines and then enhanced by thorough burning. 31.4×3.1 cm. A large pipe has two internodes. Fore of the dorsal hole is a burnt band and one with burnt triangles. The aft half of the pipe has two broad-patterned bands separated by burnt bands and a central band with a zigzag of whole skin and burnt triangles. The fore band contains a large concentric rectangle with a central bar, two concentric circles, simple scrolls, chevrons, and a row of white spots. The aft band contains a very large concentric circle and two rows of broad chevrons. The technique is the same as that of the previous pipe. 63.5×5.6 cm.

Summary

The Northern Division is of particular interest because we know that the introduction of the smoking of tobacco was of recent occurrence and that it had not spread to the lower Mambare and Kumusi rivers or to other coastal areas by 1894. The tobacco pipes in their way illustrate this recent intrusion of culture trait.

South-western area. The Iavanini pipe (figure 183) and the Oivi pipe (figure 184) are clearly akin to other pipes and holders from the area of the Main range, while the 'Wire rope' pipe is definitely of the type common to the Wowonga and Managalasi peoples of the upper Kumusi and the Mamama river; indeed, it may be an imported pipe. The two pipes in the Horniman museum may be equated to those of the Wowonga; one is said to have come from Manukoro, the other from the Mambare river; it may have been collected there, but it seems most unlikely that it was of local make.

The three Cambridge pipes (figure 185) from the Mambare river may safely be regarded as coming from the upper portion of that river. The technique of forming patterns by scraping, so far as my evidence goes, seems to be a local character. The pipe from 'Totulu' on the lower Mambare is, I suggest, a stray from the upper river.

The three Oxford pipes from the upper Gira river (figures 187A, B) belong to the same artistic area as the upper Mambare pipes. The jagged line technique is found on pipes presumably from the western slopes of Mount Albert Edward, and it is common in the Mekeo district (figure 136). One example of this technique is known from the Gulf Division, but the technique is characteristic of Torres Straits, the estuary of the Fly, and farther west. It is interesting to note that in the upper Mambare-Gira area the patterns are contained in bands bounded by incised lines; this is not the case for the Mekeo pipes, but it is characteristic of the pipes of Torres Straits and the estuary of the Fly. Further, in the western Papuan and Mambare-Gira areas many of the

patterns, more particularly the triangles and lozenges, were outlined by incised or scratched lines before being enhanced.

The jagged lines of the Mekeo district may be fairly coarse or fine, but they have a uniform character. The jagged lines of the upper Mambare-Gira area vary greatly in character and some are hardly recognizable as such; one variety is the feather-line and there are also double punctate lines; both techniques are found in Torres Straits and to some extent on the mainland, but I have never met with them in the Mekeo or Gulf districts.

There are numerous pipes in the Cambridge museum from the Rigo district which supply examples of jagged technique. I know of only one example (figure 156) in which the decoration is solely in jagged lines, as in some of the Mekeo pipes, but it is carelessly executed. In most of the other pipes of this class there are outlined longitudinal panels leaving a dorsal and a ventral plain strip, but they are always divided into panels by means of two or more transverse lines. Within the panels the patterns are also outlined and are enhanced with jagged lines, or with simple lines. Thus with regard to the transverse bands and the lozenges, triangles or bars within them there is an agreement with the Mamba-Gira pipes. In the Rigo district feather-lines and punctate lines appear to be absent.

Reference has been made to a pattern that occurs on two bands of one pipe (figure 158B); slight variants are shown in figure 141 A, C, D, on pipes from the Kuni country, south of the Mekeo district. Other variants are found in the Rigo district. Essentially of the same type is that of figure 158A, and in a rubbing I made at Kapakapa of a Taboro pipe; more obscure variants are found on other pipes. Other variants are shown in figures 163A, 157E; in these two examples the plain and enhanced areas of the pattern are reversed as compared with the Gira-Kuni and the other two Rigo pipes.

One lower Gira river pipe (figure 187C) has a general resemblance to certain Main range pipes. Another pipe (figure 187D), in its scheme of decoration, technique and pattern, has affinities with some pipes from the 'Cloudy bay' area and in its technique with the Wamai pipe (figure 149B*b*). It is unfortunate, as in so many other cases, that there is no history of these pipes, whether they were made locally and by whom, or whether they were imported.

There can be no doubt that the second group of lower Gira pipes were made by some Massim folk; it does not much matter whether they were made locally or were imported. Obviously their occurrence is due to the recent administration of the area by the Papuan Government.

MANDATED TERRITORY OF NEW GUINEA

It is convenient to regard the Territory of New Guinea as consisting of four main zones: Southern, Eastern, Central, and Northern.

(1) The Southern zone begins at the Victor Emanuel range at about 142°; to the north is the Central range which passes into the Bismarck range, to the east of which are the Kratke mountains at about 146°, where the divide passes southward to the

boundary north of the Albert mountains. The crest of the Muller range forms the southern boundary of the western part of the area. No definite features limit the rest of the southern boundary which is intersected by long spurs from the Bismarck range.

(2) The Eastern zone lies east of the divide and includes the Huon peninsula. It contains the upper reaches of the Ramu, the Markham river, the Watut, and the Waria.

(3) The Central zone comprises the whole basin of the Sēpik and its numerous tributaries.

(4) The Northern zone extends eastward from the Netherlands boundary north of the Bewani and Torricelli mountains.

(1) *The Southern zone*

Little is as yet known about smoking and tobacco pipes in the Southern zone.

The outstanding feature of the area is the great, ill-defined plateau south of Mount Hagen. The grass-covered Mount Hagen plateau lies at 5000–6000 ft. above sea-level; from west to east it extends from Mount Hagen to the Western Kratke mountains and from north to south from the Bismarck range to an undescribed range of mountains running along the Papuan border and south of Mounts Hagen and Joseph (Chinnery 1934*b*). From west to east the northern slopes of Mount Hagen are drained by the Miump and Boiya tributaries of the Gai river and the tributaries of the Jimi; the Gai and Jimi unite to form the Yuat, which flows into the Sēpik. The southern slopes of Mount Hagen are drained by the Gauil and Nabilya (or Nebyer), which unite to form the Kaugel that flows into the Purari. The plateau is drained by the tributaries of the easterly flowing Wahgi. At the east of the area is a mountainous country drained by the Gafuku, Bina Bina, and other rivers which unite and ultimately flow into the Purari (Chinnery 1934*b*; and Spinks and Leahy's map, Spinks 1936).

The Rev. W. Ross (1936, p. 351) says: 'Betel nut is not planted or used by the natives of the Mount Hagen area. . . . Tobacco is planted, but not extensively. It is of good quality. A few old men smoke, also occasionally an old woman, but the natives as a class can be called non-smokers. For smoking a small bamboo pipe is used called *rok ming*, *rok* being the word for tobacco. The tobacco is rolled into a small ball, stuffed into the end of the bamboo which is about six inches long, and a few puffs make the smoke. The use of tobacco seems to be an old custom, though the old men profess ignorance as to its origin.'

This information is confirmed in a letter written to me by M. J. Leahy in 1937, who states that 'round about Mount Hagen there is very little smoking, and that only by the old men. The farther one goes south the more general it becomes. The pipe [cigarette-holder] is merely a length of bamboo four to six inches [10 to 15 cm.] long and half an inch [1.3 cm.] in diameter, it is called *drog min*. The tobacco, *drog*, is rolled into a small cigarette in a piece of banana or bush-tree leaf and inserted in the end of the bamboo; the smoke being drawn through the other end. This interior population is not a smoking one.'

In 1930 Leahy (Leahy and Crain 1937, p. 90) visited the village of Kiyabbie on his exploration down the Tua, an affluent of the Purari, which arises from the south-

eastern extremity of the Bismarck range. Kiabi in Spinks and Leahy's map (1936) is about 145° and $6\cdot32^{\circ}$. Leahy was impressed by seeing two natives smoking, 'one had a roll of leaves stuffed in a small piece of bamboo, the other a thing that might have been called, by a long stretch of imagination, a pipe. It was simply a long stem of bamboo fitted into a larger bamboo that had been cut just above a joint and hollowed out like a funnel. Into this funnel was fitted a tight roll of leaves on which the smoker puffed with evident satisfaction. The stuff was obviously not trade tobacco, and we concluded that the natives must have grown it themselves. It was the first tobacco we had seen since crossing the Bismarcks, and evidently the weed was not used farther inland. We had not seen any betel-chewing, either, since leaving Lehuna.' Lehuna is a small Lutheran missionary outpost well back in the Bismarcks; the mountain barrier rises steeply up to 10,000 ft. and higher from the flat lands of the coast (p. 48).

Chinnery (1934*b*, p. 117) says that in the area between the Krätke mountains and the Garfuku river, 'tobacco, *fuka*, is grown and smoked, *kung*, a small bamboo cigar [cigarette?] holder, *fukan*, by drawing smoke into the holder from the end of the cigar and exhaling it'. The wild variety of betel nut, *kepu*, is eaten with lime, *kauti*, made from the ashes of a bark.

Bernatzik (n.d. after 1936, p. 258) gives a photograph of a man burning a longitudinal zigzag pattern on his 'bamboo container'; he has a glowing stick in his hand which he is blowing gently. He says that hollow bamboo sticks, ornamented with burnt-in designs, or scratched-on patterns, serve as water and drinking vessels. No locality is given, but presumably the photograph was taken in Sigoyabu village in the Bina Bina country.

J. S. McLeod (1939, p. 21) gives a brief account of the inhabitants of the Upper Vailala valley, who are not yet under the control of the government. The natives appear to have some of the characteristics of the Kukukuku as well as of the people inhabiting the country near the headwaters of the Ramu river. They do not seem to be the dogged fighters the Kukukuku are, nor have they the love of adornment of the Ramu people. They are not cannibals or head-hunters. The houses are circular in shape and enclosed in a fence barricade. Some of the villages are completely surrounded by a barricade. They have no pottery. 'The majority dislike tobacco, but a few pipes of bamboo eighteen inches long were seen. The tobacco leaf is rolled into a wad and inserted in the side of the pipe and smoked.'

There is in the British Museum a pipe, 1919, 254, from Paiawo, which is said to be north of the boundary, presumably somewhere about the headwaters of the Vailala river. It consists of one internode, the skin is entire and there are five triangular prolongations at the fore end (figure 188). All the decoration is in coarse jagged lines,

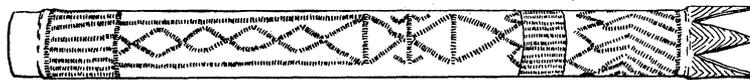


FIGURE 188. Pipe from Paiawo, near the headwaters of the Vailala river. The right side of the pipe is drawn, the dorsal hole is thus underneath; there are five prolongations at the fore end. Jagged technique. B.M. 1919, 254. Drawn by Dorothy Epps.

except for the incised lines bounding the band aft of the dorsal hole. The right side is shown in the figure in order to illustrate the longitudinal pattern, as the left side is quite plain. 65.2×5.9 cm.

I have previously (p. 114) described two pipes from the 'Kukukuku, Upper Vailala River', as they may have been collected within the Territory of Papua; the decoration of one of them is certainly related to the decoration of the typical pipes of the Gulf division.

(2) *The Eastern zone*

This zone corresponds roughly with the Morobe and Madang Administrative districts. It will be dealt with in a roughly south to north direction.

Morobe district

The following places are situated in the neighbourhood of the upper waters of the Waria river. Kunjo is 5 miles north of the territorial boundary and 14 miles west of 147° . Mowi is respectively 4 and 9 miles, both presumably in the Kwolum valley, and Dunai-ia 11 and 2 miles from those lines, all measured in a direct line on the map given by Humphries (1919). Humphries (1919, p. 64) was given native tobacco at Kunjo. At Mowi (Humphries 1923, p. 130) a man 'offered me a pull at his bamboo pipe, whereupon I pointed to a bundle of leaf he had in a bag. From this he made me a thick cigar, some six or eight inches in length, weighing several ounces. It was a cool, excellent smoke, though a somewhat heavy one. The old men seem to prefer the pipe or bau-bau, but the younger men favour the cigars. They make them in a few seconds. The leaves are simply heated on the fire and rolled together while hot, and then a light pandanus fibre is used as a binder. The only objection I had to them was their extraordinary weight.' In the neighbourhood he 'noticed extensive areas of tobacco, sugar-cane, and other crops of native food' (p. 125). At Dunai-ia, he says (p. 144), 'I shook hands with some of the older men, whereupon they lit long cigars similar to those seen in the Kwolum Valley, and I think this was a part of the friendly ceremony.' Humphries (1923, p. 28) gives a photograph of 'a mountain man and his wife smoking the bau bau'.

Chinnery (1931, pp. 44, 45) states that tobacco is cultivated throughout the Waria system, but more of it is seen in the mountain villages than in the villages lower down, where it is smoked in the typical Papuan pipe, *bori*. In the mountain villages the tobacco is smoked in a cigar- or cigarette-holder (see his pls. 14, 46). 'Sometimes in the mountains a number of tobacco leaves are wrapped round each other making a huge cigar; this is tied at the base; a small lateral hole is punched through it near the bottom, and a short reed or small piece of bamboo is applied to this, the smoke being drawn through into the mouth, a practice suggesting a rudimentary idea of the pipe.' This is probably what Chinnery (1920, p. 453) refers to as 'a method of smoking not before seen by me'. This was in the valley of the Kau, where he noted the cultivation of tobacco and the 'making of pottery by men'.

A beautifully decorated holder, *mangi* (figure 114), was obtained by Chinnery in 1927 from a man of the Ono river, one of the sources of the Ono is the Kau which

rises at the boundary east of Kunimaipa valley. Chinnery did not give the exact spot where this holder was made, but as its decoration conforms in style and technique with some of the Kunimaipa pipes, I have described it in connexion with that series (p. 132). I suspect that it came from west of 147° and possibly from the Sini people or from those on the Gene. Tobacco is called *uzhoto* by the Sini. The tribes on the tributaries of the Waria that flow from the central range in the neighbourhood of Mount Chapman are noted on p. 130.

Detzner (1921, p. 53) was surprised to find that some people on Mount Lawson not only did not cultivate tobacco but were entirely without any knowledge of smoking. In the valley of the Tiveri, the western affluent of the Lakekama, the inhabitants were very eager to get tobacco, but on the other side of Mount Lawson nobody knew of it.

Neuhauss (1911, 1, 279) states that the typical Papuan pipe of thick bamboo, 75–100 cm. long and richly decorated, is used on the Waria and northward to Braunschweighthafen in the Huon gulf at about $147^{\circ} 17'$. He says that when filled with smoke, the cigarette is removed and a bystander applies his mouth to the hole. The man who fills a pipe never inhales the smoke. He regards the purpose of this method of smoking to be to draw cooled smoke into the mouth. Evidently the true pipe was introduced from Papua.

Neuhauss (1911, 1, 260, fig. 176) illustrates two pipes for which he gives the provenance of the Waria and the neighbourhood of Adolf harbour (Morobe); Dr W. Schmidt informs me they came from the Waria river. The patterns are not shown very distinctly. Dr Schmidt in 1928 very kindly sent me sketches and rubbings of these pipes (figure 189). The rubbings (figure 190) have been redrawn. Dr Schmidt writes that the decoration is first engraved and then burnt, but a few elements are burnt only. The decoration of the pipes needs little comment as the illustrations are sufficiently explicit. It looks as if the bands of pipe B were first outlined in scratched lines, then the triangles were outlined, and finally were added the short burnt lines and the burning of the centre of the triangles. The dotted patterns in the interspaces of the bands seem rather indeterminate. Pipe A is more richly decorated, but with the same technique; the lozenges were formed as such.

An account of the people of the Upper Watut river area has been given by Miss Beatrice Blackwood (1939) and she has kindly permitted me to publish all the information she obtained about tobacco smoking in that little-known area; she has also supplied me with numerous photographs. The Upper Watut and the Bulolo rivers have their origin in the Main range and unite at about $7^{\circ} 10'$ to form the Lower Watut, which joins the Markham river. On the ridge between the Upper Watut and the Bulolo and not far from their junction is a small settlement of the Manki; the main home of the Manki is some distance off to the north-west on the Langimar river, a more northerly tributary of the Watut river. Some distance west of the main home of the Manki is the country of the Nauti. The Ekuti live on the Ekuti ranges to the south-east. These three groups have different languages, but their culture is similar. These peoples are very inartistic and appear to have only two main interests in life—food and fighting. They are fierce fighters and other natives go in fear of them. They occupy a considerable area of land which extends some distance into Papua. The white men class

them and other allied groups as Kukukuku, a term which for a long time has been applied to the analogous peoples in the neighbouring regions of Papua.

Tobacco is grown in the native gardens, planted among sweet potatoes, bananas, and sugar cane; a few plants may also be found in the hamlets near the houses and sometimes in an isolated patch in the bush (figures 214, 215). The leaves are dried in

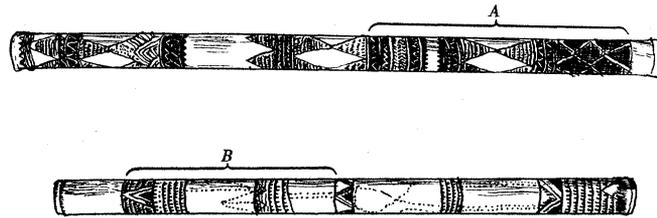


FIGURE 189. Two pipes from the Waria river. Berlin. From drawings sent by Dr W. Schmidt.

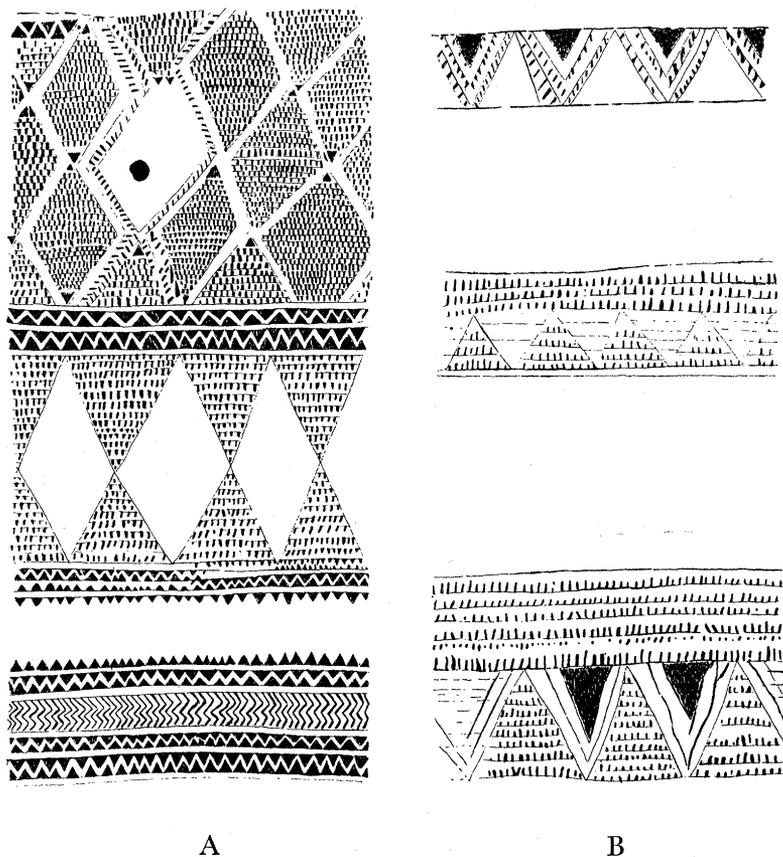


FIGURE 190. Details of the decoration of the pipes of figure 189. From rubbings sent by Dr W. Schmidt.

the sun by hanging them up or laying them on the ground, or over a fire, usually on a frame made by splitting the end of a length of bamboo, the split strips being kept apart by the insertion at intervals of transverse splinters of bamboo. Leaves are also laid on the firewood where it is not burning or on to the hot stones used in cooking. A man will put a partially dried leaf on the fire for a few minutes and then smoke it. Dried tobacco leaves are tied in bundles and hung in the house for future use (figure 216).

The pipe, *dope wipata*, of the Manki is the typical Papuan pipe (figure 191 A); a small bamboo tube, *urkoma*, 2-8 or 9 in. in length, is inserted into the dorsal hole. [The employment of a tubular bowl is characteristic of the area west of the Fly river; its isolated occurrence among the Manki is exceptional.] The tobacco is twisted up in a cone of the partly dried large leaves of the *krugwamu* plant, which are split along the midrib and twisted round the hand as we twist cones of paper. This is inserted into the end of the bowl or directly into the dorsal hole. The cheeks are distended when puffing. [Miss Blackwood is not certain that the inhaling method of smoking is employed.] (Figures 211-13.)

The Nauti holder, *heba haga*, consists merely of an internode of bamboo with the nodes cut away, so that it becomes a hollow tube open at both ends (figure 191 B). The tobacco is pushed into the distal end and lighted with a bit of burning wood before the proximal end of the tube is placed in the mouth. [This is the typical Papuan holder.] (Figures 217, 218.)

Both kinds of pipe are filled with leaves, of which several kinds may be used according to preference. One informant said he used in this order of preference: (1) a long grass which may be a wild sugar-cane; (2) sugar-cane; (3) a leaf of an edible plant somewhat resembling celery; (4) a fern. At the proximal end there is always a plug of fibre made by chewing the husks of the areca nut (wild variety only in this district) through which the smoke is drawn.

The tobacco plant cultivated by these people has been identified at the Herbarium, Royal Botanic Gardens, Kew, as *Nicotiana tabacum*, Linn. The leaves of the small *iruko* tree are also dried in the same way as tobacco leaves and smoked in the bamboo tubes in place of tobacco, but the tobacco is more usual. Small pieces of burning wood are also occasionally 'smoked', being pushed into the open tubes or holders by means of bamboo tongs. This is done only when no tobacco is available, but the natives say that they enjoy this kind of smoke.

There is no decoration whatever on these pipes. They are cut as required and when foul or broken are thrown away. The smoker takes one or two puffs only and then stops for a few minutes, or probably hands the pipe to someone else.

Miss Blackwood took a photograph (figure 217) of a Nauti man blowing smoke through the holder, this apparently is the local practice; it has not been recorded by anyone in Papua, but has been noted by H. A. Gregory among the Perakles natives at the headwaters of the Markham river (p. 222).

Miss Blackwood (MS.) gives the following terms for Manki and Nauti: green tobacco, *atchowe*, M., *tchobe*, N.; dry tobacco, *tchopeo*, M., *heba*, N.; pipe (lit. 'tobacco bamboo'), *tchope wipata*, M.; *heba haga*, N.; bowl of Manki pipe, *urkoma*; areca nut fibre filter, *pazata*, M., *padawa*, N.; frame for drying the leaf, *gwuto*, M., *tchiēbiez*, N.

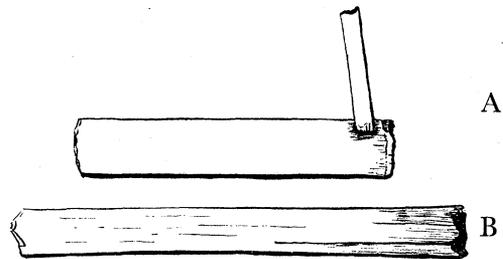


FIGURE 191. Pipes from the upper Watut river. Oxford. A, Manki pipe with tubular bowl. 26.3 × 5.7 cm.; bowl, 15 × 1.9 cm.; B, Nauti holder, 37.5 × 4.8 cm.; space for tobacco, 16 cm.

It appears that the knowledge of tobacco has reached these people relatively recently. They say that some of the Kukukuku farther west do not smoke. They will not accept the trade stick tobacco which is the usual type of smoke offered to natives by whites, and is preferred by the coastal peoples to the native-grown variety.

Huon peninsula

The valleys of the Markham river and of the upper Ramu separate Huon peninsula from the Main range. The Lae-Womba live just to the east of the lower Markham. The Bukaua occupy most of the south coast of the peninsula and the Jabim its south-eastern extremity. The Kai dwell in the eastern interior of the peninsula round about the Rawlinson and Sattelberg ranges; they are a people of mixed 'Pygmy' and Papuan descent, who speak a 'Papuan' language. The coastal tribes speak 'Melanesian' languages. The Tami islanders are said to be much more pure Melanesians than their neighbours on the mainland. The Bukaua, Jabim, Kai, and the Tami islanders have a very important periodical ceremony in which the novices are supposed to be devoured and disgorged by a monster (Haddon 1917*b*, pp. 346-7; 1920, pp. 241, 252-354).

Neuhauss (1911, 1, 279) says it is noteworthy that the Lae-Womba knew nothing of smoking till the arrival of the Germans, but they took to it very rapidly. The Jabim and Bukaua grow tobacco, *kasu* (p. 278). According to Zahn (1911, pp. 320, 325), the Jabim hang small bags containing tobacco and other things on graves. Finsch (1914, p. 304) gives *da-un*, 'tobacco', for the Jabim at Finsch harbour.

Zahn (1911, pp. 325-7), in dealing with the love magic of the Jabim, gives five examples of smoking in this connexion. (1) One way of winning the favour of a woman is by making a cigarette of a tobacco-like plant, *daunbum*; this must be so small that the woman to whom it is given cannot pass it on to anyone else. (2) A long time ago when the Jabim were joining in a dance at the village of Digetu, the women rolled fibres from their skirts into the cigarettes, the tobacco had a strange taste and when next morning the dancers looked at the fag-ends they saw what had been done. (3) Men of the Segong Kai, beyond the village of Busega, had a white powder composed of *dilo dilo* and *sanggalum* rolled up in their very small cigarettes; this substance is said to produce a strong sweat and makes a girl mad for the giver of the cigarette. The girl took a few puffs and threw the fag-end away. The magic would be ineffective if any other woman smoked it. (4) A bachelor rolls a kind of alga that is found in the forest into a cigarette that is wrapped in the leaf of the *kabolaun* tree; he puts it under his armpit and speaks a charm over it. The woman who smokes it is overcome by a trembling. (5) A man speaks a charm when rolling a cigarette, gives it to a child to take to the beloved woman. The meaning of the words of the charm is not known to the natives.

Neuhauss (1911, 1, 260) says that for smoking his ingeniously twisted cigars [cigarettes] the Papuan uses bamboo tubes (fig. 173*i*; 'Jabim and Bukaua: *kasu* Sattelberg-Kai: *quenqueng*'). These terms evidently apply to the cigarettes and not to the holders. On p. 278 Neuhauss says that the cigarettes are always freshly rolled and not kept in store; they have the thickness of a cigar, and especially in the district of the

Sattelberg are smoked with the help of a long thin bamboo tube. He shows (vol. 2, pls. 150, 155) two Tami men with a cigarette carried behind the ear.

Stolz (1911, p. 254) refers to the use of betel and tobacco by the natives north of the Sattelberg in the neighbourhood of Cape King William, but he does not state whether tobacco smoking is an old or a recent practice.

Keysser (1912, pp. 16, 17) says that tobacco was formerly unknown to the Kai, but not smoking. Instead of tobacco certain other leaves were used, which have now been entirely replaced by tobacco. [It is presumptuous to question a statement by Keysser, but I venture to suggest that the Kai did not recognize the connexion between the native tobacco which presumably they smoked and the trade tobacco introduced by the Germans. On the other hand, it is possible that the native tobacco had died out

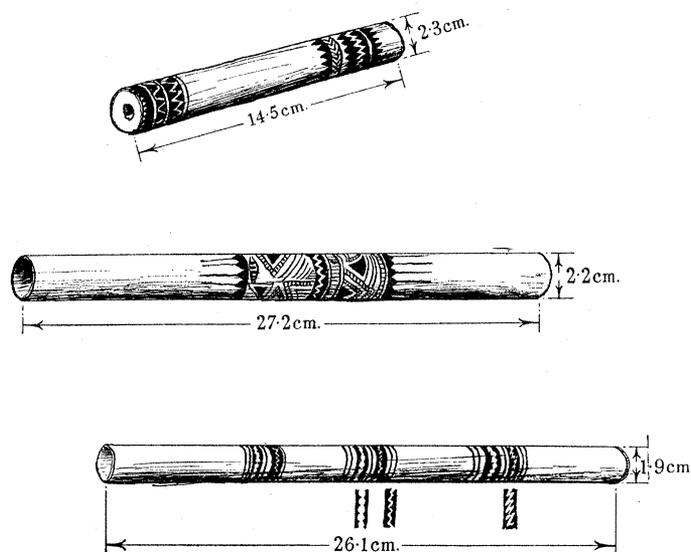


FIGURE 192. Three holders from the Kai, Maimu, Sattelberg. Berlin. A, 14.5×2.3 cm.; B, 27.2×2.2 cm.; C, 26.1×1.9 cm.; see Neuhauss, 1911, 1, fig. 173*i*.

and the Kai were forced to use substitutes.] As a covering leaf they do not use tobacco itself, but various other leaves or even a piece of paper; they like best soft newspaper. In contrast to the Jabim and especially to the Tami Islanders the Kai are moderate smokers; each one takes only a few pulls and then hands on the cigarette to his neighbour. The women smoke just as much as the men, but children are forbidden the enjoyment of tobacco as it is supposed to hinder their growth. The Kai cultivate so much tobacco that they trade with it to the Jabim, and they can detect differences in tobacco. The light, or as the Kai call it the 'soft' and 'cool', is not much thought of; but tobacco ought not to 'burn', but only be 'strong'. The tobacco leaves are hung up in the huts to dry and then stored either in bundles or plaited. The Kai people have recently taken to rubbing their legs with the sap of tobacco leaves to keep off leeches.

Dr W. Schmidt kindly sent me sketches of three holders from the Kai of Sattelberg, which were collected by R. Neuhauss and are in the Berlin museum (figure 192). The decoration has a general resemblance to that of the tobacco pipes shown in figures 189, 190, and the technique evidently is similar.

Neuhauss (1911, 1, 345) states that lime gourds as well as the tobacco pipes, cigarette holders, and small bamboo receptacles (his fig. 173*k-m*) are decorated invariably with scratched and burnt designs. The burning is done by the Sattelberg-Kai with thin, glowing pieces of tree-fern. Others make use of glowing pieces of coconut shell. Burn-painting is developed to great perfection on the Waria and Augusta (Sëpik) rivers.

Detzner (1921, p. 103) says that the tobacco plant is cultivated everywhere in the mountains of the Huon peninsula and provides a most vile rank smoking weed, the odour of which combined with the wrapper of a fresh green forest leaf makes an unbearable smell. He adds (p. 286) that as an habitual smoker he felt the lack of his usual means of solace very much, but he could never enjoy smoking native tobacco. At intervals he made a cigar, but after a couple of pulls he had had enough for a whole week.

Tobacco forms part of the trade of Tami island with the Siassi islands, whence it passes to New Britain. Captain Cyprian Bridge (1885, p. 103) found in 1885 that although the natives of Umboi (Rook island) 'had words for tobacco (*buasi*) and pipe (*baraw*), they had no idea of the way to use them'.

Finsch (1914, p. 305) refers to Madugur, south of Cape Croisilles, as being a tobacco market for Karkar (Dampier island) and a series of villages on the mainland.

The Maclay coast extends along the northern shore of the Huon peninsula as far as Astrolabe bay. In describing the plants used by natives of this coast, Maclay (1886, p. 352) states: '*Nicotiana tabacum* (*kas*). The old natives of this Coast remember, that they were told by their fathers, that in their youth (the fathers) were not acquainted with the use of tobacco and that the seeds and knowledge of smoking have been introduced and have spread from village to village from the west. There are some villages in the mountains of the Maclay coast where the custom of smoking has not yet been introduced. The dried tobacco leaves are, before smoking, dried on a fire after which they are torn, crushed and rolled in a leaf (the leaves of several undetermined plants are used as covering for the cigarettes), also previously dried on a fire, in the shape of a big cigarette and smoked. In some hill villages, the natives have large bamboo pipes (as on the south coast of New Guinea), which are filled with tobacco smoke from a cigarette and smoked by many people in turn, every one trying to inhale and swallow as much of the cold smoke as he can. The use of the pipe has not been adopted by the coast natives, who prefer to smoke cigarettes.' I have not found any confirmation of the implication that the Papuan tobacco pipe is smoked in the Huon peninsula.

When travelling from Sattelberg to the Markham river, Keysser (1912, p. 576) found in the valleys south-west along the Tueming that tobacco was known everywhere. When smoking, the natives knocked off the ash and ate it—a habit that was new to him. Betel chewing was not known.

Two holders from Perakles, Wampet valley, at the head of the Markham river were collected by H. A. Gregory in 1928. He gave them to E. W. P. Chinnery who handed them over to the Cambridge museum with the following information. The ripe leaf of the tobacco plant, *nenyagalu*, is rolled in the broad, serrated leaf of the *dalonde*; the

average size of this leaf is 9 in. long and 6 in. wide; it has an elongated tip and is green above and white below. The cigarette is inserted into the bamboo holder, *peiye*, a full inhalation is made from the cigarette through the tube, the cigarette is removed and the smoke exhaled through the tube. Smoking, *avei*, has some ceremonial significance and is prominent during harangues.

Figure 193 shows the character of the simple patterns that are lightly burnt on the whole surface of holder 30.118. There are no scratched lines. 19.3 × 2.3 cm. Holder 30.117 is very similar. 19.2 × 2.2 cm.

These holders are unusually small. The final act of smoking by blowing the smoke out of the holder is similar to that done by the Nauti on the upper Watut (p. 219), and according to a photograph in my possession this method is also practised in South New Britain.

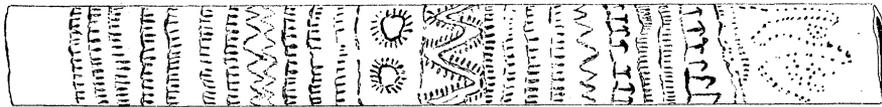


FIGURE 193. Holder. Perakles, Wampet valley, head of Markham river. Cm. 30.118.

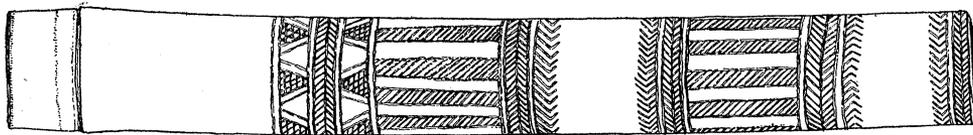


FIGURE 194. Holder. Adzera, near Khani valley, headwaters of the Markham river. Cm. 30.100.

A holder Cambridge 30.100, was collected by E. W. P. Chinnery in 1928 at Adzera, near Khani valley, Upper Markham river. The simple decoration of this holder is shown in figure 194. The patterns were made by burning, but superficially they look as if they had been incised as the charring has been cleaned off. Holder, *vaumu*; tobacco, *pau*. 25.3 × 3.2 cm.

The Wanzif or Wantsif is the name in Neuhauss's map for the upper waters of the Markham which skirt the north-eastern flanks of the Krätke mountains. Some of the headwaters of the Ramu (Jagei) flow from the northern flanks of these mountains. Communication between these two areas is not difficult.

A holder, Cambridge 30.119, from the Upper Ramu, was given by Chinnery. Both ends seem to have been used to hold the cigarette. The decoration is solely in burnt technique. The peculiar features of this holder are the sun-like design near the fore (?) end and an insect-like design in the broad aft (?) band. Other longitudinal patterns in this band are illustrated below (figure 195C). 42.6 × 2.2 cm.

Bearup (1936, p. 13) refers to tobacco being carried in string bags by the men at Kainantu, near the source of the Ramu river. He gives a photograph (fig. 9) of a man smoking a holder in the usual manner. He says the holder is about 8 in. (20 cm.) in length.

Two holders, obtained by C. B. Humphreys, Cambridge, 30.590, A, B, are labelled as coming from Korogapa on the Karam, or Töpfer Fluss, the most easterly of the

southern large tributaries of the Sēpik. The Karam rises in the Bismarck range at about 144° . In W. Behrmann's map Gölogöpa is at $4^{\circ} 22'$.

Both holders have a perforated septum, respectively 11.9 and 8.1 cm. from that end in which presumably the cigarette is inserted. These are the only holders known to me in which there are inner tubes of thin bamboo—short ones at the fore end and longer ones at the other end. In A there is one of each of these, but in B there are three inner tubes. The decoration is solely in burnt technique. Most of the patterns are shown in figure 195A, B. A, 47.8×2.6 cm.; B, 43.5×3.1 cm.

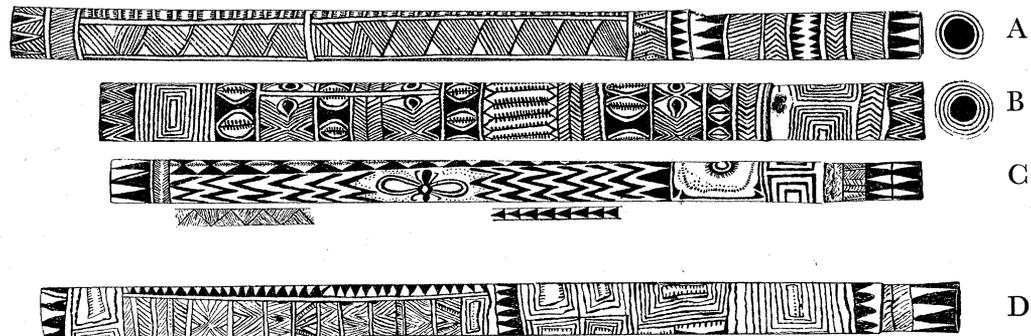


FIGURE 195. Three holders. Karam and upper Ramu. Cm. A, B, Korogapa, Karam (Töpfer Fluss), A with two internal tubes; 30.590A; B, with three tubes, 30.590B; C, Upper Ramu, 30.119; D, 'Sepik', 30.428.

Although the two Korogapa holders came from a tributary of the Sēpik, I deal with them here as their decoration is allied to that of the Ramu holder, and both rivers are derived from streams that rise in the Bismarck range, some of which are fairly close together. We may therefore regard the valleys of the upper Karam and the upper Ramu as belonging to the same cultural region or at all events as having received common cultural elements from the same source.

A holder, Cambridge 30.428, was given to Gregory Bateson by Dr MacKay. The decoration is shown in figure 195D; the patterns are burnt and the triangles were first outlined by burnt lines; there are no incised lines. 35.8×2.1 cm. Although it was said to come from the Sēpik river, the style of decoration shows that it belongs to this area and it may have come from the Karam river, or from the upper Ramu.

Astrolabe bay

Finsch (1888*a*, pp. 58, 59) states that tobacco, *kas*, was known by the natives before the arrival of the white man and that Maclay found it smoked and cultivated at Konstantinhafen. In all the districts he visited on the north and south coasts of New Guinea he found tobacco traded by the natives among themselves.

Hagen (1899, p. 215) says that excellent tobacco, *kas*, or *kasch*, is cultivated in several districts in Astrolabe bay, that of the Tamo [of Bogadjim] is of a specially good quality. As we have in Europe fine brands of cigars, Havana, Sumatra, etc., so the Astrolabe men have their local brands: Matukar, Bunu, Birkam, or Waskia. The tobacco-cultivating villages prepare their produce in the following manner, as described by

Künze (1897, p. 21). When they have gathered the tobacco leaves, they are beaten separately with little sticks so that the ribs are smashed; then they are arranged on strings, dried, and tied together in little bundles. Later these are wrapped up tightly in leather-like pieces of bark, by which means the tobacco ferments and obtains its brown colour.

Hagen says (p. 245): 'As a keen smoker the Tamo man prepares his evening cigarette in the following manner. He fetches his receptacle of Matukar or Waskia tobacco, but it may have been grown by himself, he tears up the leaf into quadrangular pieces, takes one or two of them, rolls them together with some fragments or ribs as contents and folds the resulting cigarette in a certain leaf. In Bogadjim, where the leaf is called *warr*, the green leaf of the *Hibiscus tiliaceus* is used as a wrapper which is rolled with the fingers in the shape of a cone and held firmly until after a few puffs the cigarette has been smoked out.' Lauterbach, on his Gogol expedition, saw banana leaves used as wrappers.

According to Biro (1901, p. 98) tobacco smoking was known in Astrolabe bay before the coming of Europeans; he says tobacco plants even grow wild in the interior. As the variety of tobacco is similar to the tobacco of the Malays, Biro concludes that the inhabitants of Astrolabe bay have taken over tobacco from the Malays; but I do not regard this as admissible. To smoke tobacco the leaves are twisted into a pointed conical roll [Finsch (1891, p. [202] 64) definitely refers to a tree-leaf wrapper for the cigarettes of Astrolabe bay]. Tobacco is kept in a bamboo or palm leaf receptacle; he illustrates (fig. 50) a receptacle made of the folded leaf of an areca palm, made fast by a plaited ring of red bast. These are often stuck behind arm bands. The bamboo receptacles may be partially decorated with simple incised patterns or they may be plain (Biro, pp. 60-2). Biro (p. 99) says that in Astrolabe bay, besides the areca nut, a little tobacco and some lime is folded up in a siri leaf for chewing betel. Van der Sande (1907, p. 20) says this is never done in Humboldt bay.

Van der Sande (1907, p. 16) reports that banana-leaf wrapping for cigarettes occurs sporadically among the mountain tribes on the upper reaches of the Gogol river, in the hinterland of Madang. '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 in a specimen collected by Van der Sande at Ingrås, Humboldt bay, and corresponding with what Biro found at Astrolabe bay.

From Bilibili island, in Astrolabe bay, off the mouth of Gogol river, Dempwolff (1911, p. 101) records a folk-tale about the origin of tobacco. A comet [presumably a shooting star] repeatedly had connexion with a woman when her husband was sleeping in the men's-house. She told her husband who hid himself near the door of the house; he shot with an arrow the stranger [who evidently had assumed human form] and killed him and the blood flowed towards the door. They buried the stranger and from his blood sprang tobacco plants which ripened. At this time men did not smoke. They gave some seed to neighbours which they sowed. When the plants came up they plucked the leaves, beat them and laid them out to dry in the sun. When the leaves were dry they smoked them and found it was good.

(3) *The Central zone*

The Central zone comprises the whole basin of the Sěpik and its tributaries.

Kienzle and Campbell (1938, pp. 466, 467) include under the term of the 'Mountain People' numerous tribes that occupy the region between Kaban or Williams range in the south and Thurnwald range in the north and from the border of Netherlands New Guinea to at least as far east as the upper Strickland river. Between the Kaban and Hindenberg ranges are the most northern tribes of the basin of the upper Fly river. From the northern slopes of Hindenberg range arise several tributaries of the upper Sěpik.

The Feramin live just west of the junction of the Takin and Lutap rivers which rise from the western end of Victor Emanuel range; these streams may be regarded as the real headwaters of the Sěpik. Seven tribes, termed the Telifomin group, inhabit the grassy terraces of the central valley west of the Feramin and between the Behrmann hills to the south and the Mittages mountains to the north and south of where the Ok Fek joins the main river. The Eliptamin or Aliptamin live about the Ok Elip or Donner river immediately north of the Telifomin. The Omptamin live at the headwaters of the Ok Om or Crystal river, that flows into the Wungop or upper course of the Strickland. These geographical features are best shown in Kienzle and Champion's map. The culture of all these mountain peoples is of the same type.

Kienzle and Campbell (p. 481) state that tobacco 'is cultivated by all the peoples of the upper Sěpik Valley and is used as a medium of trade with the Eliptamin and Omptamin tribes. It is used as follows: A special leaf about four inches long and elliptical in shape is heated in the ashes until it curls up. The midrib is then pulled out without breaking the leaf. The tobacco is rolled up in this into a small conical cigarette, about three-eighths of an inch in diameter [9 mm.] at the large end and about two inches [51 mm.] long. This may be smoked either plain or in a holder.' The cigarette holder 'is a piece of hollow bamboo from four to ten inches [10-25.4 cm.] long, and invariably decorated with a crude design of either carving or poker work. It may be carried through the septum of the nose, in a string bag or stuck into an armband. It is sometimes seen passed diametrically through what appears to be a partially finished armband of thin rattan. The reason for this we were unable to ascertain' (p. 480). They also refer (p. 473) to a rack over the fireplace in the centre of each house which is used for the storage of wood or for the drying of tobacco leaves; on p. 474 they mention tobacco leaves hung up to dry in the inside of the houses.

Campbell (1938, p. 252) says: 'Tobacco is cultivated and all men smoke, but the women do not. A fat conical cigarette is rolled in a leaf and smoked without a holder, or in a thin bamboo 4 to 10 inches long and about half an inch in diameter.'

Champion (1932, p. 205) had previously visited the Telefomin ('Kelefomin') and says that they make cigars of native tobacco; trade tobacco was unknown to them.

North of Hoffnungs river, at the extreme north of Thurnwald range, Champion (1932, p. 235) saw large bundles of tobacco drying in a communal house.

Schultze (1914, p. 61) says that the tobacco pipes which he saw in use in the 'middle' Sěpik consist of two pieces: a bamboo 16-50 cm. long and about 6 cm. in circumference may be described as a 'tobacco holder'. Into the wide opening of its free end

are inserted the tightly twisted tobacco leaves, as with our cigar holders; at the other end is a perforated septum which is pressed free-hand against a corresponding perforated septum of the second bamboo. This bamboo mouthpiece, as Schultze calls it, [the container] has nearly three times the circumference of the tobacco holder; it serves as a collecting and cooling receptacle for the smoke sucked in; occasionally the lips disappear into the wide opening when sucking. Rich burnt decoration, which gives beautiful dark brown tones on the tube, covers both parts of the pipe. The specimen illustrated by Schultze (pl. xlii, *i*) came from village 30, lat. 4° and about $141^{\circ} 40'$ or about halfway between the junctions of the North and Sand rivers with the Sěpik (figure 196B).

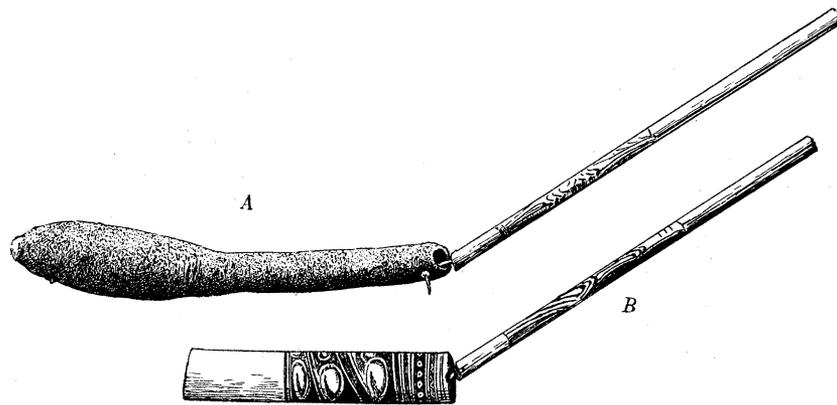


FIGURE 196. Two-piece smoking apparatus. Sěpik river: after Schultze (1914, pl. xlii, *h, i*). A, gourd container and holder. Settlement 47, about $4^{\circ} 15'$, just east of 141° ; B, bamboo container and holder. Village 30, between the junctions of the North and Sand rivers with the Sěpik.

Frequently, but only in the settlements near the mountains, the bamboo is replaced by a flask-shaped gourd, which may be more than half a metre long, as the mouthpiece; it may or may not be covered with membrane. The specimen illustrated by Schultze (pl. xlii, *h*) came from settlement 47, about $4^{\circ} 15'$, just east of 141° . The illustration shows the two portions connected by a string (figure 196A).

In the neighbourhood of the Hauser river there appear to be two kinds of smoking apparatus: one is a definite bamboo cigarette holder with burnt decoration. The other consists of a bamboo holder or tubular bowl and a gourd. Gregory Bateson informs me that the cigarette is put in the far end of the bamboo tube; the near end of the tube is held against the far end of the gourd; the hole at the near end of the gourd is put to the mouth and sucked. There seems to be some difficulty in making an airtight connexion between the tube and the gourd; in his specimen they certainly do not fit accurately. Mr Robertson, a Patrol Officer, was not sure whether there was any actual contact between the tube and the gourd, but he was sure that the middle finger of the left hand is curled over the two orifices so that a short tube is made by the finger and part of the palm and this tube forms an airtight connexion between the tube and the gourd.

This may explain the V-shaped pipe from the upper Fly described on p. 46, where a permanent bark tube connects the holder with the container or mouthpiece.

Gregory Bateson gave to the Cambridge museum in 1939 a bamboo holder or tubular bowl with its gourd container and a bamboo cigarette holder; Wiari, neighbourhood of the Hauser river. The specimens were collected by the late Mr Eve, of the New Guinea Oil Survey.

The holder (figure 197A) has a perforated septum at one end, the other end is widely open and as it is more charred than the other, it doubtless was the end into which the tobacco was placed. The decoration is solely by burning, but in the broader lines and spaces of the pattern and in the terminal zigzag, the charring is mainly rubbed off and thus the colour is a light brown. The pattern is shown in the figure. 43.4×2.4 cm. The gourd container (figure 197B) is undecorated. 46.6×3.3 to 6.4 cm.

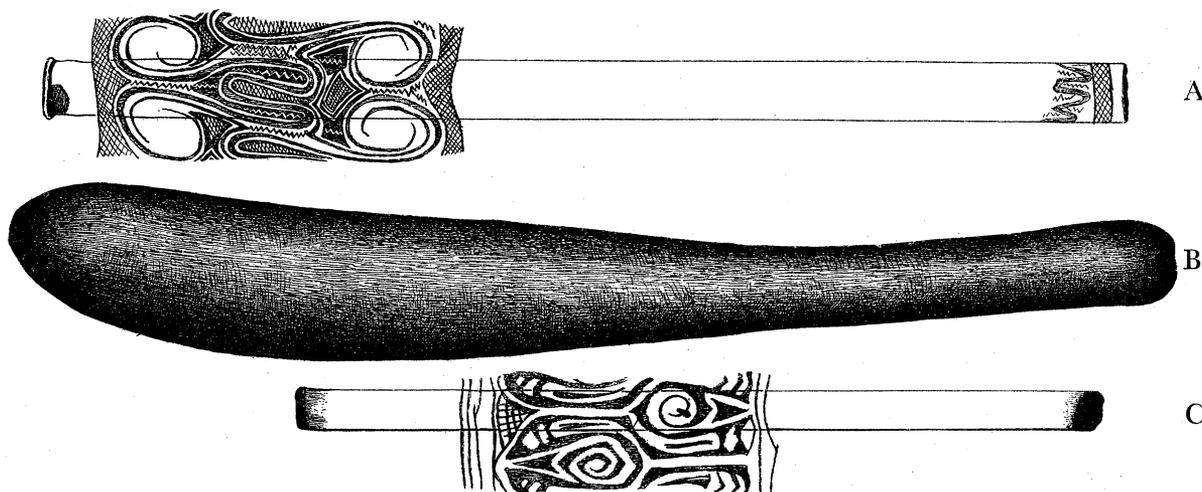


FIGURE 197. Two-piece smoking apparatus and cigarette holder. Wiari, neighbourhood of the Hauser river, Sëpik. Cm. A, holder; B, gourd container; C, cigarette holder.

The bamboo cigarette holder (figure 197C) has a perforated septum at one end; this shows signs of use; the other end is widely open with an irregular contour and is much charred with use. The pattern is shown in figure 197C; it has the same technique as the other holder. 32×1.6 cm.

In the Amsterdam museum there is a two-piece apparatus, 16.277; the decoration of the bamboo container resembles that of figure 196B. 30.5×4.5 cm. The holder has at its centre a bold zigzag of three scraped bands. 41×1.5 cm. The intaglio parts of both are stained a reddish brown. No definite provenance.

In the Leiden museum is a bamboo container, 1904.49, with three rows of scrolls; it is filled with vegetable fibre. 39×5.9 cm. The holder is also decorated with a band containing scrolls. 39×5.5 cm. One holder, 1904.837, has sigmoid curves and another, 1904.688, has a simple looped pattern. No definite provenance.

The two-piece smoking apparatus seems to be confined to the basin of the Sëpik west of about $141^{\circ} 50'$ and north of $4^{\circ} 30'$. The bamboo container is perhaps restricted to the more eastern portion of that area. The gourd container certainly extends as far east as the Hauser river. This apparatus is of especial interest as it is of the same type as that seen by Lyons in use by natives from the Muiu river, Netherlands New Guinea

(p. 31). It is also allied to the use of a bracer as a container described by Zimmer from the region of the middle Fly river (p. 48).

Schultze (1914, p. 61) states that tobacco smoking and betel chewing are firmly established on the Sěpik. The natives of the October river, east of 141° , dry tobacco leaves on a simple frame. A piece of bamboo, a metre in length and with a septum at one end, is bisected longitudinally and then one-half is split into several strips as far as the septum. Cross-pieces are inserted to keep the strips expanded and flat (figure 198).

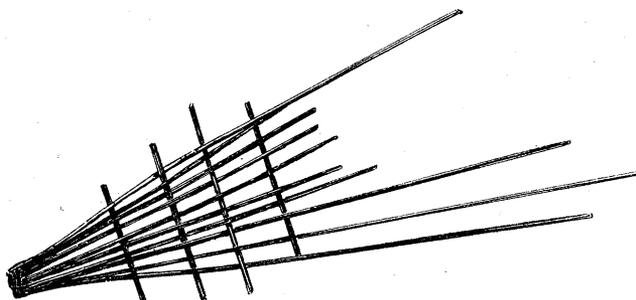


FIGURE 198. Frame for drying tobacco leaves. October river, Sěpik. After Schultze (1914, pl. xliii g).

Behrmann (1917, p. 88) says the natives set great store on their little tobacco plantations; these were always surrounded by a fence or concealed among the sedges. The destruction of even a few leaves would almost have brought about a violent quarrel with the Malu people. [Malu is on the Sěpik at about $142^{\circ} 45'$.] Quickly dried at a glowing wood, the tobacco is smoked wrapped up in a banana leaf.

Hagen (1899, p. 245, f.n. 2) says that the Malu people cultivate tobacco in an expert and technically correct manner as though they had been taught by Europeans or Malays; the latter he thinks may have been the case a long time ago. He states that Hollrung relates that the Malu people first raise the tobacco in a seed-bed, then separate the little plants when they are 15–20 cm. high, about 2–3 months after sowing. The little plants are set at distances of 40–50 cm. apart, sometimes in a triangle, sometimes in a quadrangular band, and are suitably roofed over with palm leaves as a protection from the sun. In some plantations the tobacco plants are earthed up. The leaves are plucked from below upwards when the plants begin to flower, they are then strung singly on a thin strip of rattan and later taken into the *möhren* [club-house of the men], where they are stored in palm-leaf sheaths.

Since it may be regarded as within the influence of the Sěpik culture area, the following statement by Marshall (1937, p. 503) is included here. He says of the inhabitants of Witweis, a village on the Nopan river, nearly 40 miles in a direct line south of Aitape, $142^{\circ} 20'$, and about as far south of the Torricelli mountains as Aitape is to the north: 'The people smoked half-dried tobacco leaf wedged into tubes of bamboo. The leaf is for ever being relighted by bits of smouldering wood, which every smoker seems to carry. They chew betel-nut (*Areca*) enthusiastically.'

Marshall (1938, p. 38) says that at Yili, in the country of the Wapei, south of the Torricelli mountains, the natives planted tobacco in the rich soil formed by houses

which had been burnt down owing to an earthquake. Referring to villages on the upper reaches of the Nopan he mentions (p. 51) the 'badly dried bush-tobacco', and (p. 263), 'they smoke green strong-smelling tobacco, thrusting wads into the end of a polished yellow bamboo smoking-tube'. On p. 76 he refers to 'superior *brus* (tobacco) from Palei', a place not shown on his map.

The Iatmül group of peoples, who have been especially studied by Gregory Bateson, extend along the Sëpik from a short distance west of 142° to about 143° 40'. The village of Mindimbit lies opposite to where the South river joins the Sëpik.

Bateson informed me in 1930 that there were no pipes or holders among the Iatmül, who smoked cigarettes only. European pipes have since then been introduced by traders, but are still used only for trade tobacco. Native cured leaf is always smoked in cigarettes. Tobacco leaves are dried in the sun and later hung up separately in the houses for some days. When dry they are wrapped up in bundles in palm spathes. The leaves are broken into small strips and the midrib is removed in preparing the cigarette. The strips are placed lengthwise on a piece of dry banana leaf, which typically is cut into a rectangle. The banana leaf is rolled straight so that the loose edge lies parallel with the length of the cigarette. The cigarette is gently rubbed once against the glowing end of a firestick so that it presses down the free edge of the banana leaf and dries it at the same time, thus stiffening it in that position. Such a cigarette retains its form pretty well. Usually the natives smoke only a few puffs at a time, inhaling the smoke, and then put the cigarette away over the ear. They were shocked at Bateson for not inhaling the smoke and regarded this as wasteful. Tobacco and the bits of banana leaf are often carried by the Iatmül in a kind of wrapper.

There are three named varieties of native *Nicotiana*, *iegi*, on the middle Sëpik: (1) A narrow-leafed plant called *Mwaim iegi*. This is placed in the totemic system and regarded as having been discovered by the long-nosed hero, Mwaim, who collected the seeds out of his urine. This is used for love magic. (2) A peculiar petiolate form with a very wide blade to the leaf is called *Nogwei mangka iegi*; this is a distinctly totemic name, but the plant does not seem to belong to any of the groups represented in Mindimbit. There is a tradition that this variety came down the river; it is apparently an inferior variety and is not much cultivated. (3) The third variety, *kalava nganga iegi*, has a big long leaf with an embracing base; it seems to be unattached socially and has no totemic name. The name is descriptive of the shape of the leaf, which resembles that of a tree called *Kalava*. Bateson collected a specimen of a plant (*Polygonum* sp.) which is said to have been smoked before *Nicotiana* was discovered.

There is a story of stealing tobacco seeds from a village which had tobacco. The thieves went home and sowed the seeds, and in due course they smoked the leaves; they fell over backwards and the smoke came out of their anuses.

Very little ritual is connected with tobacco either on the Sëpik or elsewhere in New Guinea. Some love magic is put in cigarettes, and cigarette giving plays a part in courtship, but it is not so important as betel. Mwaim is much associated with love magic; he was a much-loved man who was murdered by all the husbands.

In the area between 143° and 144° is a great plain through which the Sëpik flows from west to east. To the south is the Central range of mountains and to

the north is the Prince Alexander range, beyond which is a narrow coastal strip of land.

The mountain Arapesh live on the Prince Alexander range, but there are Arapesh settlements in the plains south of the range and on the coast to the north.

The Nugum are a plains people to the south-west of the Arapesh; east of them are the Abelam, who are called Tshwosh by the Iatmül, a riverine folk to the south of the Abelam. The Yuat (Dörfer river) flows north from the Schrader range and west of 144° to join the Sëpik. The Mundugumor (Mundoguma) live on the Yuat about 25 km. south of the Sëpik.

According to Margaret Mead (1938, p. 182), 'Tobacco is grown, with greater or less success, in most of the area. The Abelam and Nugum peoples are famous for their tobacco which they trade to the northeast coastal and island peoples; the Mundugumor high lands along the Yuat are equally well suited to tobacco growing. Among the Mundugumor it is almost entirely a woman's activity, with the large polygamous households depending for their wealth upon the tobacco growing of the many women. In the mountains, among the Arapesh, tobacco is cultivated by both men and women. Tobacco is prepared for export and sale in a great variety of ways: the Nugum and Abelam and Plains Arapesh do it up in long packets, round in cross-sections and tapering at each end, and covered with the spathe of the *limbum* palm; the Yuat River people wrap it in ovaloid coils of rattan. The cigarette wrapped in banana leaf is typical of the area. In general, it may be said of tobacco that it is regarded as an important trade object, that the greatest variation is in its preparation for the market, that it is surrounded with a definitely commercial aura, and is extraordinarily unintegrated with the social-ceremonial life. This is important in the light of the current discussions as to the possible origins of tobacco in New Guinea. While the chewing of areca nut is an essential part of many magical ceremonies, tobacco remains distinctly secular. Its only use in connection with the supernatural is when a half-smoked cigarette is classified as *exuvia*, available for sorcery, or when a cigarette is charmed and given to a girl by a youth to obtain her favors.'

In a section on 'Tobacco growing and smoking' (pp. 276-7) Mead says: 'The Mountain Arapesh grow tobacco and occasionally have a slight surplus which can be used for trade. It is grown by either men or women. We made no record of any ritual. It is dried on a fan-shaped bamboo frame called an *atuga*, about two feet long and eight inches wide at the top (fig. 61). After drying, the tobacco is wrapped in a piece of *limbum* palm spathe to make a cylindrical bundle tapering at each end. They distinguish four varieties of tobacco, *misisial*, *tabonal*, *baluwes*, and *aheliuh*. Until the importation of European pipes, only cigarettes were used. The Sëpik practice of making a cigar out of the whole leaf of the tobacco plant is not known. Three varieties of banana leaf, *wapu*, *belehitep* and *aloap*, are used to make the cigarette wrapper. The tobacco leaves are spread over a fire to dry and are crumbled before they are rolled into a cigarette in a wrapping which has also just been spread out to the fire.'

Friederici (1912, p. 143) found the best native tobacco from the middle to the lower reaches of the Sëpik. The samples brought back by him and submitted to experts received the unanimous opinion that it was a tobacco with a beautiful aroma, which

burnt well and left a peculiarly white ash, but it was frightfully strong. This effect is probably the result of the primitive preparation by the natives. The soil is clearly quite good for tobacco, as is also shown by the good reputation which this tobacco enjoys among the natives.

For obvious reasons I have described two holders from the Karam tributary of the Sēpik in another section (p. 224).

(4) *The Northern zone: the northern coastal areas*

I have been able to find very little precise information about tobacco smoking along the northern coastal districts of the Mandated Territory of New Guinea. It appears that native pipes of any kind, including cigarette holders, are absent. Neuhauss (1911, 1, 279) says that the chewing of tobacco and snuff-taking are unknown.

Finsch (1888, p. 59) states that the natives of the whole north coast do not have a smoking implement and so have adopted our clay pipe. They roll the unfermented, but semi-dried leaves into a crude cigar or cigarette, with a green tree-leaf as a wrapper. These cigarettes obviously burn very badly, and burning pieces of wood have to be applied constantly to keep them alight. But the Papuans are not smokers in our sense of the term; a few whiffs are taken and the cigarette passes from mouth to mouth.

Van der Sande (1907, p. 16) says that it is remarkable for north Netherlands New Guinea and for the area now under consideration that tobacco leaves themselves are never used as wrappers. On the west (presumably the north coast of Netherlands New Guinea) the young pandanus leaf is used; this is also the case in the coastal districts of the territory of New Guinea, although here the fresh leaves of *Hibiscus tiliaceus* also serve the purpose. Between these areas lies the district with banana-leaf wrappers. He says that banana leaf is thinner and less strong than pandanus leaf and is carried about wrapped in a strong piece of the sheath of a palm leaf, as at Ingrås.

Neuhauss (1911, 1, p. 278) states that at Sissanu, on the coast at 142°, small plaited rattan trays are held in the hand over a fire to redry tobacco when it has become damp. The name for tobacco is *sobache* which, as he says, is probably derived from tobacco.

Biro (1901, p. 98) states that in the neighbourhood of Berlin harbour are to be seen tobacco receptacles of palm leaf similar to those of Astrolabe bay, which with medicine and other small objects are carried in bags or stuck behind arm bands. Bamboo receptacles are also employed for tobacco.

It has already been noted (p. 231) that the people on the coast north of the Prince Alexander range obtain their tobacco from the Arapesh who live in the mountains, but have settlements on the coast.

PART III

THE SPECIES OF TOBACCO CULTIVATED IN NEW GUINEA

Before a discussion of the origin of smoking in New Guinea can be profitable it is necessary to determine what is the species of tobacco that is grown by the natives of that island.

Maclay (1886, p. 352) identified the tobacco from the Maclay coast, north of Huon peninsula, as *Nicotiana tabacum*. Finsch (1888*a*, p. 58) says that the specimens he collected on the south coast [in 1884] were identical with *N. tabacum*.

Hugh Dixson, a high authority on tobacco in New South Wales, reports on leaves and petioles collected by T. Bevan at the village of Tumu, 50 miles north of Cape Blackwood (in Maiden 1888, p. 463), as being of 'the same species as the tobacco of commerce . . . it is essentially a cigar tobacco in contradistinction to a manufacturing tobacco, having a very decided cigar tobacco flavour; the strength of the flavour is remarkable. The variety is that grown in the Eastern Seas and China, of which the best is Manila tobacco.' Maiden added a note to the effect that the presence of a longish petiole at once excludes this tobacco from *N. tabacum*, and of all species described by Asa Gray it certainly comes nearest to *N. rustica*. 'It is not very remote (I speak of the foliage alone) from our *N. suaveolens*.' Gilmour (1931, p. 4) says 'by the tobacco of commerce' Dixson 'doubtless meant *N. tabacum* Linn., since he mentions Manila tobacco which is a variety of that species. Maiden, on the other hand, made the double mistake of thinking that Manila tobacco was a form of *N. rustica* Linn., and also of excluding all petiolate forms from *N. tabacum* Linn. It should, however, be remembered that, at that time, the various forms of tobacco had not been fully worked out by Dr Comes, whose *Monographie du genre Nicotiana* did not appear until 1899, eleven years after Maiden's paper.'

H. N. Ridley (1916, pp. 3, 5, 120) records *N. tabacum* from the foothill area of the Utakwa river, Camps I-III, 500-2500 ft., and from the Main range, Camps IX-XI, 5610-8075 ft.

A. Wichmann (1917, p. 187) reports finding *N. tabacum* on Lake Sentani, near Humboldt bay, in 1903.

C. T. White, the Government Botanist, Botanic Museum and Herbarium, Brisbane, Queensland, says in a letter dated 19 November 1928: 'The Australian plant *Nicotiana suaveolens* has not been recorded for New Guinea. The common plant there is *N. tabacum*. This is a native of America but is recorded as having been planted in native gardens in New Guinea before the time of white occupation. I have no references to *N. rustica* as a Papuan plant.'

Merrill (1930, p. 103) was informed by Dr Matthew Stirling (who made an expedition in 1927 to the country of the Nogullo, north of the Nassau range, Netherlands New Guinea) 'that in his opinion the tobacco commonly grown and used in New Guinea is the ordinary American species *Nicotiana tabacum*.' This view is substantiated by Dr W. Docters Van Leeuwen, Director of the Botanical Garden at Buitenzorg, who accompanied Dr Stirling on his New Guinea trip. Dr Docters Van Leeuwen, writing under date of 17 June 1929, states that all the tobacco he saw in New Guinea, both in the plains and in the mountains, was almost without doubt *Nicotiana tabacum*, and that he has seen no botanical material from New Guinea representing other than this species. Merrill further stated that Dr Baumée of Buitenzorg is of opinion that the tobacco grown in New Guinea is *Nicotiana tabacum*, but that *N. rustica* may also be cultivated there [but this is merely a supposition]. . . . Plants grown at Berkeley, California, by Dr T. H. Goodspeed, from New Guinea seed, and those recently received from the

Brandis expedition to New Guinea [of 1928] all represent a form of *Nicotiana tabacum* with relatively narrow, strongly petioled leaves. This is an inferior commercial type closely approximating to the forms that first reached Europe as figured in some of the Herbals published within the first century after Columbus' voyages.

Lewis (1931*a*, p. 136) gave a few dried native tobacco leaves from New Guinea to Dr C. F. Millspaugh, then curator of Botany in the Field Museum, Chicago, who reported: 'It is not possible to determine the species of the Nicotianae from leaves alone.... However I judge that the species you submit from Guinea is *Nicotiana suaveolens*.... My opinion that the species is *N. suaveolens* is based mostly on the fact that that is the prevailing species cultivated in Africa (south) and on the islands adjacent.' Millspaugh evidently mistook New Guinea for the Guinea coast, and his statement that *N. suaveolens* is cultivated in South Africa is entirely unsupported by other writers. Laufer (1930, p. 3) refers to *N. tabacum* and *N. rustica* as the only species of tobacco in Africa, where they were introduced from America.

In order to gain positive evidence concerning the species of the native tobacco, I requested, in 1928, my friend Sir Hubert Murray, then Lieutenant-Governor of Papua, to obtain specimens of the plants grown by the natives in widely separated areas in order that they might be identified. Owing to his temporary absence from Papua, he passed on my request to the Hon. H. W. Champion, the Government Secretary, who at once enlisted the co-operation of numerous Government officials. The time of these officials is fully occupied by their strenuous and often difficult and dangerous duties, so I felt some compunction in suggesting that they should add to their labours, but their ready response proved that they are as keen in the cause of pure science as they are for the welfare of the Territory. My best thanks are also due to Brigadier-General E. A. Wisdom, Administrator of the Territory of New Guinea, for asking Mr G. H. Murray, the Director of Agriculture, to make collections of tobacco for me; these have greatly extended the area from which specimens have been obtained. My friend J. S. L. Gilmour, then Curator of the Herbarium of the Botanical Museum, Cambridge, and now of the Botanic Gardens, Kew, undertook the investigation of the material sent to me.

Gilmour (1931, pp. 3-4) follows the terminology adopted by Comes (1905) who recognizes six main varieties of *N. tabacum* Linn. and a large number of subsidiary forms regarded by him as hybrids between them. In the New Guinea plants examined, three of these subsidiary forms are represented: (1) 'China' tobacco (according to Comes) is a hybrid between the varieties *fruticosa*, *brasiliensis*, and *lancifolia*, and is one of the petiolate forms; (2) 'Java' tobacco, a hybrid of *fruticosa*, *brasiliensis*, *havanensis*, and *macrophylla*, is also petiolate but has broader leaves than 'China'; (3) 'Manila' tobacco is a simple hybrid between *havanensis* and *macrophylla* and has leaves tapering to the stem in a broad wing. One of the petiolate varieties must have been the original cause of the uncertainty regarding New Guinea tobacco, and it is clear that it was Maiden who made the original mistake.

Gilmour has dealt with thirty-six samples (four of which were determined after his paper was in print) and has tabulated their distribution, native names, and the forms to which they belong—which, however, do not appear to follow any recognizable

order of distribution. The localities include the upper Morehead river in the extreme west of Papua; the middle region of the Fly river; near the Kiko river; Samberigi valley, north of Mount Murray, altitude 5000 ft.; neighbourhood of Mount Yule; the upper Waria and Gira rivers; Chirima valley; the region east of the Owen Stanley range including the headwaters of the Mamba and Kumusi rivers—all in Papua. The Markham valley; Madang district; the Sēpik river—Mandated Territory of New Guinea. Rabaul in New Britain. Thus the material has been gathered from a sufficiently wide area to satisfy any reasonable demands and most of it has been obtained from inland mountain territory. Gilmour's investigation shows the definite and consistent result that 'the species of tobacco cultivated in Papua, and doubtless in the rest of New Guinea, is *N. tabacum* Linn., and that there is no evidence of the occurrence of any other species, indigenous or introduced' (1931, p. 2).

THE CONQUEST OF INDONESIA BY EUROPEANS

The following very brief account of the acquisition of Indonesia by Europeans is epitomized from Guillemard (1894). This history has obvious bearings on the problem under consideration.

The Spaniards sent an expedition for the annexation of the Philippine islands in 1565, and in 1571 Manila was taken and the greater part of Luzon brought under Spanish rule.

The Portuguese never established themselves upon Java. The Dutch landed for the first time in 1595, and in 1610 they built a fort at Batavia, but it was not till 1677 that any territorial acquisition was made.

The Portuguese never succeeded in establishing themselves in Sumatra, any more than in Java. The Dutch first came in 1598.

The term Moluccas, or Maluco islands, was originally applied to the five small islands which are situated on the west side of Gilolo (or Halmahera, as the island is more properly termed), and in which alone the precious clove was cultivated. Now it is extended so as to include almost all the islands which lie directly between Celebes and New Guinea. Thus limited the Moluccas, or Spice islands as they are sometimes called, fall naturally into two subdivisions—that of Gilolo on the north, and that of Buru and Ceram on the south. For nearly two centuries they were the scene of ceaseless and sanguinary struggles between the Spaniards, Portuguese, and Dutch for their possession. In the Moluccas at least three native races encounter each other and intermingle—the Malays, the Papuans, and the Indonesians or pre-Malays. The Ternate and Goram people are great traders to New Guinea, and Papuan slaves are very common.

Cloves have been known since the time of Pliny and they were traded to Europe by Arabians and Persians, but it was not until the Portuguese reached the Indies that any definite knowledge of the position of the Moluccas was obtained. Sequeira visited Malacca with his squadron in 1509 and found spice-laden ships in that port; but Italians had been at Banda and Ternate (or Tidor) three or four years previously. Albuquerque took Malacca on the Malay peninsula in 1511. In 1522 the Portuguese rule was established in the Moluccas, which for more than 60 years was characterized

by the most atrocious cruelty and treachery. Spaniards from Manila took Tidor and Ternate in 1606 but did not establish themselves. Amboina was first known to Europeans in 1511 and soon came into the possession of the Portuguese; the Dutch took the island from the Portuguese in 1609, and in 1613 they concluded a treaty with the Sultan of Ternate by which it was agreed that the trade in cloves should be the exclusive property of Holland. In the middle of the seventeenth century the Dutch brought the clove cultivation to Amboina (Ambon), having extirpated the tree in its native islands of Ternate, Tidor, and Makian. The Sultans of the two insignificant islands, Ternate and Tidor, were the most important in the archipelago in bygone days. The Sultan of Ternate ruled southern Mindanao, the Sangir group, the greater part of the eastern half of Celebes, the Timor, Buru, and almost all the Ceram group; while the Sultan of Tidor's possessions lay chiefly to the east, and comprised half of Gilolo and Ceram, and the whole of western New Guinea and its islands. It is thus in virtue of their treaties with the Tidor potentate that the Dutch claim sovereignty over New Guinea up to the 141st degree of east longitude.

The existence of New Guinea was probably known to Albuquerque after his conquest of Malacca in 1511. Don Jorge de Meneses, the Portuguese commander, was the first to discover it in 1526; he appears to have reached Waigu island. In 1528 and 1529 Alvaro Saavedra visited the north coast, probably nearly as far as Astrolabe bay. The natives were at that time known both to the Spaniards and Portuguese as 'Papuas', a name given them by the people of the Moluccas; Galvão tells us 'because they are black, with frizzled hair'. Another Spaniard, Ynigo Ortiz de Retes, also sailed along the north coast in 1546, and was the first to give the country the name of New Guinea. In 1606 Luis Vaz de Torres passed through the straits which bear his name and sailed along the south coast. In the same year the Dutch began their explorations in these seas and sailed along the west and south coasts of New Guinea; and from that time, for more than two centuries, almost all the exploration of the coasts was made by that nation. It may be added that for a very long time the Dutch did very little in the way of exploration or of making settlements in New Guinea.

THE INTRODUCTION OF TOBACCO SMOKING INTO EASTERN ASIA, INDONESIA, AND NEW GUINEA

In the following discussion on the introduction of tobacco smoking into Eastern Asia, Indonesia, and New Guinea, I am indebted to the writings of others. I regret that it has not been possible for me in every case to verify the statements by consulting the original sources.

Eastern Asia. Laufer (1924, p. 2) states that 'tobacco was introduced into Japan about the year 1605 and that it was planted and eagerly indulged in by all classes of the population within a decade of its introduction. . .'. The Japanese records inform us 'that the tobacco plant is not a native of Japan and that tobacco-leaves were first traded to the country by the Portuguese (Namban) towards the close of the sixteenth century. . . . The word *tabako* used by the Japanese in both their literature and colloquial speech is based on the Spanish-Portuguese form *tabaco*.'

'The Portuguese, however, are not responsible for the transmission of the tobacco plant into China. This is outwardly demonstrated by the word *tan-ba-ku* or *tam-ba-ku* under which tobacco first became known in Fu-kien Province in the beginning of the seventeenth century when the Ming dynasty was still in power. The Fukienese were enterprising mariners and maintained regular intercourse with the Philippines, in particular with the island of Luzon, several centuries prior to the Spaniards' conquest and colonization.' On p. 4, Laufer says: 'No species of the genus *Nicotiana* is a native of China; in fact, none is indigenous in any other part of Asia. Nor can there be any doubt that the species first introduced into China from Luzon was *Nicotiana tabacum*, the typical species of America, the species with large cabbage-like leaves and purple flowers. This becomes perfectly evident from the descriptions of the plant in the early Chinese sources. Moreover it is this species which at present is most commonly cultivated all over China and the adjacent territories. *Nicotiana rustica*, the species with yellow flowers and broader leaves, is cultivated only to a limited extent, chiefly in northern Shen-si and in the mountainous districts of Hupeh and Se-ch-'wan. . . . At these high elevations the other species would not succeed' . . . 'the foreign word *tam-ba-ku* has always been restricted to the written language, and is now obsolete, but it survives in the form *ma-ku* (abbreviated for *ta-ma-ku*), which is commonly used for cigarette among the Canton and Fu-kien men at the ports' (p. 7).

About 1608-18 the Koreans adopted the cultivation and use of the tobacco plant from the Japanese.

Indonesia. Laufer (p. 11) says: 'According to a Javanese chronicle, tobacco was first introduced into Java in 1601. Probably it was introduced there by the Portuguese, and possibly re-introduced by the Hollanders. G. E. Rumpf, a botanist, who explored the fauna of the Malay Archipelago in the latter part of the seventeenth century, writes that old Javanese, according to what they had learned from their parents, told him that the tobacco plant had been well known on Java prior to the arrival of the Portuguese, but solely for medicinal purposes, not for smoking; they stated unanimously that they acquired the custom of smoking from Europeans. Such oral traditions, as a rule, are devoid of historical value. . . . Rumpf also learned in Java from an Amoy Chinese that the tobacco plant had from ancient times existed in China, but was rarely cultivated; and this plainly contradicts the Chinese records concerning the recent introduction. No species of *Nicotiana* is a native of Java. . . . nor do the Javanese have an indigenous name for tobacco. They have only the foreign *tabako* or *tambako*.'

Crawfurd (1856, p. 436) says the Malay and Javanese term *tambako* for tobacco is only a slight corruption of the Spanish and Portuguese *tabaco*. According to a Javanese chronicle tobacco was first introduced into Java in the year 1601, which was 90 years after the conquest of Malacca by the Portuguese. It was probably introduced by the Portuguese as the Dutch had appeared there as traders only four years before. There is no record when it was first introduced in other parts of the Archipelago; most probably it was earliest introduced into Malacca, and could not have been introduced into the Philippines sooner than 1565, the date of the first settlement of the Spaniards in these islands.

Van Nouhuys (1931, p. 75) has found the reports of the first Dutchmen who came to Ternate in May, 1599, and quotes that 'there was also some tobacco, but not of such good quality as that which comes to us from the West Indies', and that it was mainly the slaves (read Papuas) who regarded 'tobacco-sucking as a refreshment and comfort', and it is expressly stated that they 'always had tobacco on them'. He adds that it is impossible to say how long previously tobacco was popular there; the old Portuguese or Spanish archives might throw some light on this question, and possibly the situation was exactly the same a century ago and dated back to the times when the Tidorese hongi-fleets began to plunder the coasts of New Guinea. From Schouten's journal we know that in 1616 on the east coast of Halmahera the sailors bartered tobacco which evidently grew there, and four days later gave rise to tumult and wantonness between them. Van Nouhuys considers it impossible that tobacco could have been so popularized before the end of the sixteenth century if it had been brought there only a short time ago by the Portuguese. Tobacco had not then the slightest significance as an article of trade by the Portuguese in the sixteenth century, nor was there any reason for them to spread the tobacco plant. But, he points out (p. 76), there are several sources, some of which are native, that show absolutely conclusively that until the end of the sixteenth century the smoking of tobacco and tobacco itself were completely unknown along the entire eastern border of Asia, Japan and Java included, notwithstanding the fact that the Portuguese were in Goa in 1498 and that they or the Spaniards had definite settlements since 1511 on the coast of Malabar, at Malacca, and on the Philippines, omitting the temporary settlements of the Portuguese during the sixteenth century on Java. There is not the slightest reason to believe that the Portuguese of that period would have taken more trouble to plant tobacco elsewhere. In a letter to me Nouhuys says: 'it is curious that Linschoten in his famous *Itinerario* [1596] does not mention tobacco from the western part of the Malay archipelago, though he discourses on the use of betel and opium and refers to all kinds of drugs and herbs. Pigafetta, I think, also never mentions tobacco in the Philippines, and in 1521 it is reported that in any case there were islands of this group where the smoking by Europeans caused the greatest astonishment.'

Merrill (1930, p. 103) says: 'Rumphius clearly describes the American *Nicotiana tabacum* in his monumental Herbarium Amboinense (Rumphius, G. E., *Herbarium Amboinense*, 5, 225, 1747) but the date of publication (1747) is misleading as the work was published many years after the author's death; the manuscript was complete in 1690, but most of it was written before 1670.'

We thus have two dates for the introduction of tobacco into Indonesia: 1601 for Java, and before 1670 for Amboina. I have not come across any definite statements with regard to the other Indonesian islands.

New Guinea. The use of tobacco in New Guinea opens up some interesting problems apart from the various ways in which it is used and the distribution of the different kinds of pipes.

As Dr van der Sande points out (1907, p. 15), its use was until recently quite unknown in several places along the coast, whilst it is found in good quality on the upper reaches of the Fly and Sēpik rivers. For an undetermined time, at least as far back as

human memory, the tobacco of the Arfak mountains had a good reputation and served on a large scale as an article of barter. L. Biro (1901, p. 98) says that tobacco smoking was known to the natives of Astrolabe bay before the advent of Europeans. The plant grows wild in the interior, and he is of opinion that it was introduced to the Astrolabe natives by the Malays. The tobacco is smoked with the leaves formed into conical rolls (cigars) and is kept in bamboo receptacles, *imba*, or in holders of palm leaves, as is also done in the Berlinhafen district. Krieger (1899, p. 215) says that tobacco is without doubt indigenous to New Guinea. It is grown in gardens near the houses, especially abundantly on the north-east coast. It is first sown in regular seed beds and when the plants are about 20 cm. high they are transplanted at intervals of 50 cm. apart from each other. When blooming the leaves are gradually plucked and ranged on thin rattan wands. No tobacco was cultivated at Adolph-Hafen; much comes from the Sēpik, Dollman-Hafen, and other places. The native tobacco is formed into rolls for local trade. The sun- or fire-dried leaves are smoked as cigarettes. The leaf of the banana, or more rarely the leaf of a tree, is used as a wrapper. Hagen (1899, p. 245) believes that the people living in central New Guinea have introduced, together with the tobacco, the method of cultivation. Van der Sande concludes, 'from the fact that the people of the mountains actually produce the best tobacco, this luxury has reached the coast population from the interior' (1907, p. 15).

Laufer (1931, p. 139) says: 'Tobacco was known in New Guinea at least in the beginning of the seventeenth century, for it is mentioned by Jacob Le Maire, who sailed along the coasts of the island in the year 1616 (Australian Navigations, ed. by De Villiers pp. 223, 226). On the 23rd of July of that year Le Maire, when he was a short distance from the land, reports that he was followed by six big canoes of natives bringing dried fish, coconuts, bananas, tobacco, and small fruit like plums. The date in question is rather early and almost coincides with the first introduction of the tobacco plant or plants into Japan, China, Java, India and Persia. Le Maire's notice, of course, is inconclusive as to whether the tobacco to which he alludes was imported or indigenous.'

Nearly all the modern travellers to New Guinea who allude to tobacco smoking by the natives state that this custom was practised before the coming of Europeans, but it is evident that in all cases they refer solely to the arrival of Europeans into the area with which they are particularly concerned and not to the early Portuguese and Dutch voyagers.

Merrill (1930, p. 101) unfortunately complicates the matter when he says: 'The myth that is more or less prevalent among some ethnologists, but not among botanists, to the effect that tobacco was known to and used by the natives of New Guinea previous to the arrival of Europeans in Malaysia, apparently originated with Dr O. Finsch.' In this, as Lewis (1931a, p. 135) points out, he 'has misinterpreted Dr Finsch's meaning. . . . This, of course, refers to its use in modern times, which even Dr Merrill admits. The real problem, also stated by Dr Merrill, is whether American tobacco could have come into New Guinea in early times by way of the Moluccas through Malay (or Chinese?) traders.'

In discussing this problem it is essential to distinguish between statements which are founded on observation or on the definite opinion of the natives of a particular area, and the suppositions of writers on the subject.

HYPOTHESES CONCERNING THE ORIGIN OF TOBACCO SMOKING IN NEW GUINEA

Merrill (1930, pp. 102, 103) says, 'Unquestionably tobacco was known to and used by the Papuan aborigines *long before Europeans established any permanent settlements in New Guinea*'. He refers to Amboina as being the first important centre in Indonesia for the introduction and dissemination of economic American plants and says the Portuguese were pioneers in this field because of their colonies in the tropics of both hemispheres. They were soon followed by the Spaniards operating through the Philippines, and thus Amboina and later the Philippines became the centres of introduction and dissemination of economic American plants in Malaysia. He regards it as 'only logical to conclude that as the true American tobacco was well known in Amboina at a very early date in colonial history, it was thence transmitted with its uses to New Guinea, which is only a few miles [actually some 300 miles] from Amboina. One can readily determine from an examination of Rumphius' classical work that even in the early colonial period trade existed between Amboina and New Guinea.'

He says (p. 104) that he is 'merely attempting to substantiate the probabilities that the commonly grown and used tobacco in New Guinea is a form of the common American *N. tabacum*; that it was unquestionably introduced into New Guinea from Amboina, shortly after the Portuguese established their factory in the latter island in 1521; and that the use of tobacco, i.e. smoking, was introduced into New Guinea with the plant and did not originate independently in that island as Dr Lewis seems to infer'. This paper led to a discussion by Lewis and Laufer in the *American Anthropologist*, 1931.

Lewis (1931*a*, p. 134) quotes Krieger's statement (1899, p. 215) that tobacco is without doubt an indigenous plant in New Guinea, and adds: 'Few, however, went further than to suggest the possibility or probability of an indigenous species. . . . All of these were mere opinions, however, held as more or less probable from the evidence at hand, but recognizing that only the botanists could decide the problem.' He admits the identification by Finsch of the tobacco of the south-east coast of British New Guinea as *N. tabacum*. He (p. 136) was unable to find a single growing plant of tobacco when he was in New Guinea, but, as referred to above (p. 234), a few dried leaves were identified by C. F. Millspaugh as *N. suaveolens*, who admits 'it is not possible to determine the species of Nicotianae from the leaves alone'. Lewis alludes to Maiden's opinion of the dried leaves and petioles submitted to him that the species comes nearest to *N. rustica*, but is not very remote from *N. suaveolens*; he definitely excludes *N. tabacum*. Hugh Dixson regarded the same specimens as comparable with the variety 'grown in the Eastern Seas and China, of which the best is Manila tobacco'. This 'variety' is acknowledged by botanists as being *N. tabacum*.

Lewis, relying upon the data then available, says (1924, p. 10): 'Altogether the facts seem to point to an ancient use of an indigenous New Guinea species of tobacco prob-

ably closely related to the Australian species.' He stated later (1931*a*, p. 136): 'The Dutch expeditions of recent years have apparently found what they regard as *N. tabacum* in the Dutch territory. . . . This did not seem to me conclusive evidence for the whole of New Guinea.' Lewis was not then acquainted with Gilmour's investigations, which as I point out on pp. 234-5 cover widely separated areas in Papua and the Mandated Territory of New Guinea, and also Rabaul in New Britain. This investigation confirms the conclusions of Dutch botanists for Netherlands New Guinea and renders it improbable that there is an indigenous species of tobacco in New Guinea allied to or identical with *N. suaveolens*. I understand that Mr Lewis has for some years held a similar opinion.

Laufer (1931, p. 139) supports the position adopted by Lewis and refers to the statements by Engler and Prantl and A. de Candolle as 'sufficient botanical evidence to an ethnologist for assuming a native *Nicotiana* species in Melanesia and Australia. Dr Merrill states from hearsay that *N. tabacum* occurs in New Guinea. I should be the last to doubt it; its non-occurrence there would be next to a miracle. This fact, however, does not disprove that a native species might not occur there. Dr Merrill's informants have assuredly not explored the entire length and breadth of New Guinea.'

'Tobacco was known in New Guinea at least in the beginning of the seventeenth century, for it is mentioned by Jacob Le Maire, who sailed along the coasts of the island in the year 1616. . . . Dr Merrill's supposition that tobacco was introduced into New Guinea from Amboina is purely subjective and does not constitute historical evidence.' Laufer refers to his own efforts to do away with 'all wild guesswork and speculation. . . and replacing it with facts based upon documentary evidence', but he admits the possibility of a native species of tobacco in New Guinea, for which there has never been any documentary evidence. Had he been alive he might have modified his views in accordance with later information.

In a letter to me (1928) Van Nouhuys writes that, when he was with the Lorentz expeditions of 1907 and 1909-10, he was struck by the fact that the natives of the Lorentz river and its tributaries were absolutely ignorant of the use of tobacco and betel, which was in strong contrast to the Pěšěgěm, on the southern slopes of the Central Range, who smoke their home-grown tobacco, *mbali*, though they do not chew betel nut, which, however, is done by the Timorini and Baliem on the opposite northern slopes, where locally grown tobacco is called *tavo*. He considers the word *mbali* as belonging to the purer Papuan language, whereas the northern tribes accepted the term *tavo*; which is nearer to the name of the imported tobacco; for tobacco has always been in strong demand along the northern coast of New Guinea. He is convinced that at the time of the early voyagers, tobacco came from the interior of New Guinea to the north coast. He considers it impossible if tobacco came to New Guinea in recent times as an article of barter that it could be growing now in that remote part where the Pěšěgěm live. Van Nouhuys (1931, p. 77) says, the manifold and great morphological differences existing in New Guinea far into the most isolated territories in smoking itself and in the appliances are such as can be explained only by very old and slow local or regional developments, independent of each other. This agrees

entirely with what is known about other cultural objects, namely the great diversity of forms even among closely related groups of the population, such as the type of corporal mutilation, the covering of the privy parts, hairdressing, bows and arrows, stone axes, and the way of building their houses. The cultivation of the tobacco plant in New Guinea has always been in the hands of the oldest elements of the inland population as far as the most inaccessible parts. The need of the coastal people for tobacco has always been supplied from inland; not one case of a reversed direction is mentioned in the literature, notwithstanding the fact that during the last half century a considerable amount of foreign tobacco has been imported to the coastal population. To this importation are to be ascribed the terms *tembaku* and *sembaku* with related forms such as *sabachai*, which were widely spread far down along northern New Guinea; in a number of more distant areas tobacco has quite different and apparently more native names.

Van Nouhuys (p. 78) refers to and rejects various theories to explain how tobacco seed might have reached New Guinea; carried by birds or by ocean currents, or the Polynesians at the highest period of their culture might have brought the cultivation of tobacco to New Guinea from Peru or Mexico. If that were the case why were not maize and other foods also brought? In a letter to me Van Nouhuys alludes to the absence of maize in the interior of New Guinea where tobacco is grown. It does not seem to me to be an insuperable difficulty, as the early Portuguese appear to have introduced the cultivation of tobacco but not of maize into Indonesia. It seems unlikely that had the Portuguese brought maize to New Guinea the natives would have adopted it, as they did not cultivate cereals and would not have the knowledge with which to prepare it as food. I understand, however, that in very recent years maize has been grown in parts of south-east Papua, but here there has been strong British influence.

A main difficulty Van Nouhuys then had was that he was not satisfied that the tobacco cultivated by the Pësëgëm and Timorini was *N. tabacum*. In the section on 'The species of tobacco cultivated in New Guinea' it is seen that this species is grown by the Nogullo who live on the northern flanks of the Nassau range, and by the natives of the Utakwa river who live up to 8075 ft. in the Nassau range, south of Carstensz Top. So this difficulty no longer exists.

The fact revealed by Van Nouhuys that J. de Menezes wintered in Geelvink bay in 1526-7 has already been referred to, and it is possible, though there is no evidence for it, that smoking and tobacco growing were then taught to the natives. At all events, as Van Nouhuys points out, Schouten found that tobacco was smoked and cultivated in that area in 1616. The presumption is that this tobacco was *N. tabacum*.

I have here given all the information known to me concerning the early introduction of tobacco into New Guinea. I have no desire to make guesses as to what may have happened, and it does not seem probable that we shall ever be able to say definitely when and how tobacco smoking and cultivation were established in the mountainous regions of north-west New Guinea. This tobacco is certainly *N. tabacum* and must therefore have been introduced from America.

HYPOTHESIS OF AN AFRICAN ORIGIN FOR TOBACCO SMOKING

Reference must be made to a subversive book by Professor Leo Wiener of Harvard University (vol. 2, 1922) who states (p. ix) that the accumulated evidence is overwhelmingly in favour of the introduction of tobacco, cotton, and shell money from Africa by European and Negro traders decades earlier than 1492, the supposition being that the north-east corner of South America had been seen in or before 1448.

‘Smoking for medicinal purposes is very old, and goes back at least to Greek medicine. A large number of viscous substances, especially henbane and bitumen, were employed in fumigation and taken through the mouth, sometimes through the nose, for certain diseases, especially catarrh, toothache, and pulmonary troubles. This fumigation took place through a funnel which very much resembles a modern pipe. . . . The Arabic sources make it clear that in Persia and Syria a substance, *tubbāq*, obviously the tobacco of our day, was employed for the same purpose for which the henbane and bitumen were used in the Graeco-Roman medicine, and that in Africa another plant of the same kind was in use by the Arabic physicians. These two plants are unquestionably the *Nicotiana tabacum* and *Nicotiana rustica*. From Africa the tobacco found its way into America, half a century, possibly a century, before the so-called discovery, chiefly in its sacerdotal significance’ (p. 180). ‘Now that the presence of *pombeiros* [African peddlers] in America before Columbus is made certain, we can at once see why tobacco should have been introduced by them before Columbus, and the passages in all the early writers on America receive a new interpretation. The African slaves, who swarmed in Spain and Portugal ever since the discovery of the Guinea Coast by the Portuguese, that is, since 1440, had become acquainted with the customs and vices of their surroundings and had carried these back to Guinea where they, as *pombeiros*, spread the new ideas into the interior and, simultaneously, into the New World, which their masters, the traders, kept from the knowledge of the authorities, in order to carry on their illicit and profitable trade without molestation from the Portuguese government’ (p. 119). ‘I have shown by historical and documentary proof that Latin *bitumen* and Arabic *tubbāq* were the mediaeval terms for the sovereign remedy taken through a pipe in the form of smoke, hence the *petum* and *tabak* words, whether in America, Africa, or Europe, go back to the Graeco-Roman medicine, no matter at what time, whether at the discovery of America or earlier, such habit was introduced by Negroes under Arabic influence’ (p. 186). ‘Focke [W. O. Focke, *Die Pflanzen-Mischlinge*, Berlin, 1881] remarks that *N. suaveolens* “is the only New Holland species which in its native home is unusually rich in form and variety; the authors of the *Flora Australis* know of no significant difference between it and the American *Nicotiana acuminata*, while the forms of both cultivated in Europe differ considerably”. There is no way of determining whether the *Nicotiana suaveolens* is a very old plant in Australia or a late sport from an American or African variety. . . . We have already seen that both *Nicotiana tabacum* and *rustica* have been found growing wild in Africa, and they are mentioned by H. Pobéguin as indigenous in French Guinea’ (pp. 193–5).

It is improbable that the views of Professor Wiener will meet with any support from ethnologists, as he makes too many assumptions, and they will have to share the scorn

of the author, who says (p. 195), 'Some archaeologists reckon neither philology, history, nor botany, and boldly proclaim the antiquity of tobacco and the pipe in America on the basis of archaeological data... I show how insecure and absolutely wrong the data of archaeology may be.'

NATIVE NAMES FOR TOBACCO AND TOBACCO PIPES IN NEW GUINEA

The native names for tobacco have hitherto not been seriously considered though they have an important relevancy to our problem. The names for the pipes or holders are of less value, as frequently they are the name of the material, usually bamboo, of which they are made.

It must be remembered that these names, at all events so far as Papua is concerned, have been recorded by very different kinds of persons, few of whom have received a scientific training and still fewer could profess any acquaintance with linguistics or phonology. There is very little uniformity in the methods of transcribing native words and the recorders wrote down what they heard as well as they could. There are certain sounds in the different languages which admit of being appreciated and consequently of being written down in slightly different manners. Even all the natives of a given locality do not pronounce words in precisely the same way and there are some sounds which are particularly obscure or variable. In some instances there is a further ambiguity due to the fact that the names may have been recorded or transmitted by an interpreter from another area who may have unconsciously slightly altered the sounds, or even possibly in a few cases may have given a wrong name.

In order to facilitate reference I have here retained in the main the geographical order which I have adopted in the descriptive sections of this memoir. Most of the native terms have already appeared in their appropriate places, but others have been added so as to make the enumeration as complete as is practicable. In order not to burden the text with references, I have not given the sources for these additional names. For the most part they have been taken from the *Annual Reports* of British New Guinea or of Papua, as the case may be, beginning from 1888 and continuing to the latest *Report*.

Netherlands New Guinea

North of the Nassau range. In the district of the 'Vier Radja's' which includes Waigeo, Salwatti, Misol, and Waigama, tobacco is called *tabaka*.

At Seget, near Cape Sele, the western point of 'Vogelkop': tobacco, *sabak*. In McClure gulf on the island of Argoenoeng: *anane* and *tabaka* at Roembati. At Kapaor (Kapaor) on the Onin peninsula, *mahi*, and also at Fakfak on the south of the peninsula. In the Kowiai district on the southern shore of north-west Netherlands New Guinea, facing the Aru islands: tobacco, *tobacu*, *tambacu*.

At Hatam, west of the Arfak mountains, the small wooden pipes are called *hoega*, *hoeka* or *hoga*, and at Pokembo, in the mountains, *aipie*.

In the Mor islands in the south of Geelvink bay: tobacco, *sambave*.

On Jamna, Arimoa islands: tobacco, *sabka*. In Humboldt bay, tobacco, *sabachai* or *sabagei*; and at Ingrås, *chěbăchai*, *săbăchei*. At Abar, Sentani lake: tobacco, *sebėgai* or *sachėbai*.

The northern slopes of the Nassau and Oranje ranges. Upper Rouffaer river: the Awembiak, tobacco, *taguja*; pipe, *bomoni*, bowl, *soja*. The Dem, tobacco, *jit*; pipe, *djioak*; stem, *udie*; bowl, *kibiau*. In the village of Tombe of the 'Nogullo Negritos' of the upper Rouffaer river: tobacco, *yeet*; pipe, *chē-dă wăk*; cigarette, *go ba'che*. On the lower Rouffaer river: tobacco, *mibina*. Upper waters of the Ilim (Swart) river: tobacco, *tavo*; pipe, *yerue*; different kinds of tobacco are: *anun*, *arimena*, *barenin*, *beitaram*, *givirelu*, *kelonkue*, *kelorina*, *monuanua*, *obarelu*, *urina*; pipe, *yerue*, *al'pop*.

On the Mamberamo river: tobacco, *tavora* or *savora*.

The southern flanks of the Nassau range. The Tapiro 'pygmies' of the upper Mimika, which rises in the Wataikwa mountains south of Mount Leonard Darwin: tobacco, *kapaki*. The Utakwa 'pygmies' live at the sources of the Utakwa river on the slopes of the Hanekam mountains, south of Carstensz Top: tobacco, *arenyum*. The Pěšėgēm live on the southern slopes of the Wichmann mountains south of Wilhelmina Top: tobacco, *bali* or *mbali*; pipe or holder, *bob* or *donggob*.

South of the Nassau range. The three main northern tributaries of the Digul river are, from west to east, the Miku, Kao, and Muiu (Moyu or Moie). The terms for tobacco are: Miku, *auk*; upper Miku, *waniek*; Kao, *apuk*. At Kandam on the upper Muiu, *tau*; at Anu on the lower Muiu, *apuk*. The term *apuk* or *auk* is related to the *a-up* or *aup* of the western side of the Tedi. Tobacco introduced from Netherlands New Guinea to the area of the Tedi (Alice) river in Papua is called *tamak*.

Farther south the Yee (Jee) anim and the Marind anim who extend to the south coast: tobacco, *temuku* or *tamuku* (*tamoekoe*). The Marind call the pipe *ba-ngge*, *bange*, *bonkě*.

Papua

In the region of the most northern tributaries of the Fly river there are two distinct types of the term for tobacco. The term *a-up* or *aup* extends from the Iongom people of the western bank of Tedi (Alice) river to the Miku river in Netherlands New Guinea, where it has the form of *auk*; on the Kao and the lower Muiu it is *apuk*. West of the lower Tedi the pipe is called *benget*. Tobacco introduced to the Tedi region from Netherlands New Guinea is called *tamuk*.

On the Ti, or upper Tedi, among the Star mountains: tobacco, *sok*, and pipe, *wong*. On the upper Fly near the Star mountains, 597 miles from the mouth of the river: tobacco, *suk*; the pipe, *ket*. At Bolivip, Unkia tribe (Unkiamin) on the Bol river, a tributary of the Feneng or upper Fly, tobacco, *sauk*. Among the Awin-speaking peoples east of the Tedi: tobacco, *sikube*, of those of the western Fly near Palmer junction and those of the Western Donaldson range, *s(i)kubē*; for all three the term for pipe is *kette*. On the Palmer river tobacco, *sekupe* or *sekupo*.

At an unrecorded locality on the Strickland river tobacco, *saukabata* and the pipe, *baubaka*. At 30 miles on the Fly above Everill junction the term *sukupā* has been recorded. This second series of terms links up with the *sukuba*, etc., of the south-west of Papua.

A new term for tobacco characterizes the region of the middle and part of the lower Fly river. At Biak on the east bank of the river above Everill junction, 390 miles from the mouth, tobacco, *kaga* and the pipe, *dim*. At the Tinung lagoon, also on the east bank 40 miles north of Everill junction, tobacco, *kara*. At Koumak, above the junction at 260 miles: tobacco, *kaga* and the pipe, *owi*. At Daviumbu lagoon, 2 miles above the junction, *karai*. At Bubwa below the junction, 211 miles, tobacco, *kagai* and the pipe, *mukuvam*. At Kaundoma, north-east corner of Lake Murray: tobacco, *kara* and at Maravu, south-east corner of the lake, *karai* and the pipe is called *karai-manga*. At the lake *kagai* has been reported for tobacco and *mokova* for the pipe. At Suki lagoon, about 33 miles up Suki creek, which is on the western shore of the Fly at about 100 miles south of Everill junction, the term is *karea*. At Gumak, Suki creek, the pipe is called *karai-manga* and the bowl for the pipe, *pefa*, which also is the name for the bamboo tube used in connexion with the bracer, *posiki* (figure 32). The term *kagai* or *kagoi* characterizes the Wiram country.

In the region between the Netherlands boundary and the Pahoturi, there is considerable uniformity in the terms for tobacco, and the differences in spelling have no special significance; *p* and *b* are interchangeable, with occasionally *v*, as are *g* and *k* and also *a*, *o* and *u*; *sukuba*, *sukup*, *sukuwa*, *suguba*, *sakupa*, *sakuba*, *sakaba*, *sakapa*, *sakopa*, *sakop*, *sokoba*, *sokuwa*; there may be other variants.

The Wiram call tobacco *kagai* or *kagoi*, but though they live in the north of this region they are physically and culturally very different from the other tribes and belong in these respects to the peoples of the lower Fly area. The Karigara call tobacco *sukuba* and trade tobacco *simok*, as do the Warubi who live in the Mikud country to the east of the Karigara.

Throughout this region the pipe is called *dengwe* and the bowl *waha*, but at Kunderisa in the west of the Semariji country the term for pipe is *tawan*. Wirz informed me that at Bapir tobacco is called *dimba* and the pipe *bontanikave*, but Williams calls the Gambadi pipe *dimba*. Babiri in the map given by Williams (1936) is in the centre of the Gambadi country. The Dungenwab of the Wassi Kusa call tobacco *sukuba*, the pipe *deng* and the cigarette, *segabwa tweb*.

At Bugi, opposite to Boigu island, the pipe is called *dengu* and the bowl *terku*. The Dabu, west of the Pahoturi, are said to call the pipe *turku*, the tobacco wrapper for the pipe, *toka*, and cigarette, *jakpanandig*. The pipe is called *waduri*, *waduru*, or *wadöro*, and the bowl *druku* or *truku* by the Masingara, Dirimu and Jibu, 'bush' peoples who live about the Binaturi.

The western islanders of Torres Straits call tobacco *sukuba* or *suguba*; the pipe, *sukub morap*; the bowl, *turku*. The eastern islanders call tobacco *sokop*; pipe, *zaub*; bowl, *tarkok*. The term *sokop* is analogous to the *sakop* of the Yende of the upper Pahoturi and is a variant of the *sokoba* and *sokobe* of the Morehead river tribes.

In Kiwai island, and probably throughout the estuary of the Fly, tobacco is called *sukuba*, and also on the northern coast. Trade tobacco is called *turigosuguba* by the Hiwi (Wariadai and other villages) and by the Hibaradai (Mawadai, Eriga and other villages), all north of Damira; both tribes call native tobacco *suguba*. The Tapapi at the north of the source of Sagero creek call native tobacco *oporipara* and trade *turikatugubu*.

Tukira (*turigo*) is a name for iron; in Torres Straits iron was known as *turi* (*tooree*) in 1845; later it was termed *turik*, *tulik* (Ray 1907, p. 177). Ray and Haddon (1897, p. 364) give for Daudai *turik-arubi*, a white man, from *turik*, iron, *arubi*, man. Therefore *turigosuguba* means 'white man's tobacco'.

The coasts of Daudai and Dudi are mainly occupied by settlements from the Fly estuary, more especially from Kiwai island. The pipe is called *marabo* and the bowl *toruka* at Mawata and as far east as Parama and also at Djibaru, a bush village west of the Binaturi. In Dudi the pipe is called *waduru* and the bowl *aturupo*.

In the estuary of the Fly, according to Landtman, the pipe is called *waduru* and the bowl, *aturupo*, *aturupa*, *aturuka* or *aturuko*. I, however, obtained the term *piago* for a small pipe at Saguane, Kiwai island. In the estuary of the Bamu, I obtained: pipe, *waduru*; bowl, *aturupu*.

For the Gogodara, who live about the Arimia and between that river and the estuary of the Fly: tobacco, *sakopa* or *sukup*; the pipe is called *waduru*.

At Mahigi village in the angle between the Bamu and its large eastern tributary the Aworra: tobacco, *sogo*, and by the Dibiasu tribe on the Woiwoi or upper Bamu, *sona*. At Sisiama and Sepota up the Bamu it is said that they knew tobacco as *suku*, but they were not very fond of it. It is reported that tobacco was not used at Aworra village in the delta of the Bamu.

From the mountains and plateaus of the hinterland east of the Strickland river arise the affluents of the Kiko (Kikori) and the western affluents of the Pio, as the Purari is called locally. Throughout this area the term *sogu*, *soga*, *soku* or *suku* is very commonly used for tobacco. In the Kutubu-Mubi district: *sogu* or *soga*; the pipe, *sogoru*; and the leaf for the screw, *sogu sai* or *sabora*. Tobacco is called *munda* in the upper Wage and Kawuku valleys and in the Kai basin. In this large area a few holders have been described; the pipes are very varied and for the most part are very small.

In the regions about Mount Murray and the Samberigi valley the term is *soku* or *suku*. The term *suku* is prevalent along the Turama, Paibuna, Omati, Kiko and its eastern tributary the Sirebi, and to the north bank of the Era river. It extends to the Kerewa district including Goaribari island and to the Urama islands. There are variants such as: *sowa* at Eme Eme, 2 miles south-west from Hibiri, Paibuna river; *sugarai* for both native and trade tobacco at Ibukairi, north-east of Kuro creek, Kurnic river; *sopo* at Uo Ho village, Aurama, on the upper Purari; *kutu*, Iwainu tribe, Era river and at Amipoko village, 28-30 miles up the Pio river.

Other local terms for tobacco are: *warariga*, Karami people, east of upper Turama; *geru*, Saragai village, Wariadai, west of the Turama; *sidoi*, Kibeni, east of the upper Paibuna; *kue*, Gibidai, east of the Paibuna; *sirura*, Kahanoi, south of Gibidai; *tiopaha*, Gibiteri, and *neére*, Iesso, both west of the Omati. At Kibeni village, Karima tribe at the headwaters of the Paibuna, trade tobacco is called *sigá*.

At Goaribari the pipe is called *dave* (*dorve*, without stressing the *r*) or *dowea*, the leaf screw, *adea*, a cigarette, *auapoi*.

In the Purari delta tobacco is called *kuku* and the pipe *ina*. At Ipikoi, 30 miles up the Pio (Kapaina river): *kutu*.

The term *kuku* also extends along the coast of the Gulf Division among the Elema tribes, but at Kerema the term *siomu* is remembered as the old name for tobacco before the arrival of the white man; here the pipe is called *kika* or *hika*. The Gigori village, Iwainu tribe, Era river, have *kutu* for tobacco; the Maiheari tribe, between the Nabo and Albert ranges, behind Kerema, have *hoapi*. Natives living across the Arabi and Lakekamu (Williams river) have *yeb*.

The eastern mountain peoples of Papua. In the Kunimaipa valley and its neighbourhood tobacco is called *mau-upu* by the Goi-efu (Kuefa), and trade tobacco, *kaniji*. Native tobacco is called *itolu* by the Kunimaipa and Gaizhiri tribes, *munamuna* by the Biaru (Kovio) and Loloipa tribes, and *uzhoto* by the Sini of the northernmost slopes of Mount Strong. Large cigars are smoked in holders, *nerere*. The Goilala, south of Mount Nelson, call tobacco *emuneta*, but trade tobacco is *topako*; they use holders, *kugile*, as well as the pipe, *togu*. The Giumu, 8 miles east of Mount Nelson: native tobacco, *paosi*. Tobacco is called *ewuta* at Kambisi in the Chirima valley and *hewutu* at Neneba on Mount Momoa; the pipe is *togu* or *bagu*. In the Yodda valley the pipe is called *aponga*. At Gagara in the Main range, probably one of the Biagi group, Mambare Division: native tobacco, *ewuti*; trade tobacco, *kuku*.

In the Wowonga, Biagi, and Isurava languages: tobacco, *ewuti*; trade tobacco, *bilu*.

In the area of the upper Kumusi river the pipe is called *soru* at Barubila village, Wowonga district, but at the Wowonga villages of Uruaba, Viamebe, and Iaro, and at Wasairo, *Iwuadi* tribe, Kokoda, it is called *bagui*. The Managalasi of the Mamama valley call the bamboo of which the pipe is made *kuguhoni*, which probably is also the name for the pipe.

In the Mekeo district tobacco is called *kuku*, but *kialé* has been noted; at Waima (Maiva) it is *kuku* or *kukumeo*. The pipe is called *ireire* at Waima and *ileile* at Yule island.

In the mountainous Kovio district to the north around Mount Yule: native tobacco, *jowwata* and trade, *kanisi*. At Lopiko in the Inava valley: tobacco, *munamuna* and the pipe, *nerere*.

At Epala, Boboi tribe, north-west of Mount Eleia at about 146° 45', the cigars are about 10 cm. (4 in.) long and 1.9 cm. ($\frac{3}{4}$ in.) in diameter; the holder is called *nelele*.

In the area of the upper Angabunga, or Arabule, river, native tobacco is called *kaire* and trade tobacco *kuku*, *kamake*; the pipe, *biengi malanga*.

The Afoa of Mount Pitsoko (Pizoko) call tobacco *emuna(te)* and the pipe, *ila*. The Ambo (Apekoma) of Goda (Pitsoko) village: tobacco, *emunata*, and trade tobacco, *kukunove*.

The Mafulu call native tobacco *vilu*; foreign, *kuku*; stick tobacco, *matsika*; and the pipe, *e(re)*. At Sivu (Sibu) village native tobacco is called *kuku akaige*; trade, *matsika*.

At Suku and Amaseba on Mount Cameron in the Fuyuge country, the terms are: tobacco, *kuku*; pipe, *berifi*; holder, *iafa*, 'carvings' on holder, *iehavano*. In Nara (Pokau), tobacco, *kuku*. At Kapatsi (Kabadi), tobacco, *kuku*; pipe, *kemona* or *gemona*.

There is little information concerning the names for tobacco in the mountainous hinterland of the Central Division. Among the Gosisi and Tobiri at the headwaters of the Vanapa between Mounts Knutsford and Musgrave: tobacco, *kuku*; the pipe, *baga*

and its 'carvings', *hiaive*. At Sikube in the Vanapa valley, *kuku* is recorded. Among the Koiari-speaking peoples there is *kuku*, tobacco and *baubau*, pipe for the Koiari. The Hagari and Boura: native tobacco, *naidi kuku*; trade, *kuku*; the pipe, *bagu*, *bagui*. The Sogeri call the pipe *kukudihi*. The Koita (Koitapu) who live in the coastal area about Port Moresby have *kuku* and *baubau*.

Although tobacco is still called *kuku*, the term for the pipe changes from *baubau* to *kapakapa* by the Keakalo (Keakara) from Paramana point to Vererupu. Here the name for the screw or cigarette is *mapere*, which is the name of the leaf that is used; this extends to Mailu.

In the coastal areas inhabited by the Motu and allied peoples as far east as Aroma, tobacco is called *kuku* and the pipe, *baubau*. But at Port Moresby the old term *siomu* or *siuma* is remembered; this is an old term for tobacco at Kerema in the Gulf Division whence it was brought to Port Moresby by the traders in the *lakatoi* vessels.

In the Rigo district the screw, or cigarette, used in the *baubau* is called *napere*.

The tribes at the back of Keapara Hood lagoon to MacFarlane harbour: the term for tobacco is recorded as *gugu*.

The Eastern Division extends from Marshall lagoon to Amazon bay. I have adopted Grist's linguistic districts (1927, p. 92 and map) and have given other terms and localities for tobacco than those recorded by him, more especially from the lists edited by Strong (1919, pp. 88 ff.). These districts are enumerated from west to east, those in the interior being taken first.

Gebi, with the Kuru villages on the southern slopes of Mount Brown to Kanigaba village north of Marshall lagoon. This language is spoken to the west along the Owen Stanley range to the Korigio people: native tobacco, *lau-upu*; European, *kuku*.

Abia from the headwaters of the Mori and Aisa over the divide into the North-east Division, whence the people have come: no term recorded for tobacco.

Bauwaki or Bawaki from Mori river and Mount Clarence, along the Keveri valley and the Owen Stanley range from Mount Suckling to Mount Dayman: native tobacco, *lara*; European, *kuku*. Doriaidi tribe around Mount Clarence and to the west: native and trade tobacco, *kuku*.

Bina-Hari inland of Cloudy bay and south of Bauwaki: native tobacco, *waru-au*; European, *kuku*.

Nawp from the summit of the divide west of Mount Dayman to within 25 miles of the coast. The Dimuga tribe of the upper waters of the Bailebo and Irumani rivers: native tobacco, *lugu* (Grist); Strong gives *tounabaiwa*, and for trade, *dagin kuku*. The pipe is called *hog*. At Udama, foothills of Main range near Mount Simpson, north of Point Glasgow, the pipe is called *orau*.

Magori, south of Nawp to near the coast, Goliauwa village: tobacco, *lugulugu*; trade, *kuku*. Lawa village: tobacco, *larakuku*. Ooku, west of Lawa: tobacco, *warowaro*.

Coastal areas, from west to east. Keakara or Keakalo, the language of the Aroma peoples, is spoken around Marshall lagoon, and Cheshunt bay and to Cape Rodney. Karo tribe: tobacco, *kukulau*; trade, *kuku*; pipe, *kapakapa*.

Domu, north-east of Cheshunt bay and Cape Rodney, to Domara river and Sandbank bay. Merani tribe, 6 miles north-east of Cape Rodney: tobacco, *kukuhaha*; trade,

kukudamona. Lau-una, an extinct tribe on the eastern border: tobacco, *kukulauna*; trade, *kuku*. Neme tribe, north of Kapari: native and trade tobacco, *kuku*.

Morawa around Cloudy bay: native tobacco, *varovaro* or *waruwaru*; trade, *kuku*. Nemea tribe inland from Cloudy bay: tobacco, *walowalo*; trade, *kuku*.

Magi is the name the people of the following places give for themselves and for their near relatives, though they are commonly spoken of as Mailu. They occupy the coast from the east of Cloudy bay to Amazon bay, including Baxter bay and Table bay, Mailu and neighbouring islands. Saville (1926, p. 18) says along the whole coast-line from Cape Rodney to the middle of Orangerie bay the Mailu language is spoken, with slight variations in places. The Magi-speaking people migrated westward from Mailu island. The isolated and most westerly of the settlements is at Domara in the west of the Morawa country: tobacco, *lugulugu* or *lugu*; pipe, *kapakapa* (also name for bamboo). At Domara the cigarette or screw is called *didibo*, *dibodibo* and the wrapper *napera*. In all these places trade tobacco, *kuku*.

Massim area. South cape: tobacco, *kuku*; pipe, *baubau*. Kehelala, Milne bay: tobacco, *lugulugu*. Killerton islands: pipe, *kirä*. Sariba (Hayter island) and neighbourhood: tobacco, *puaisa*, and *tabak*. Tubetube, Engineer group: native tobacco, *ligu*; trade, *tabak*. Bohilai: tobacco, *ligu*. Louisiade archipelago. Misima: tobacco, *tabaken*; pipe, *mabu*. Panaieti: tobacco, *lamwa*; trade, *tabak*; pipe, *paipu*. Calvados chain, Panak rusima (Earle island): native tobacco, *lama*; trade, *tabak*. Sabari islands: trade tobacco, *tabak*. Pana tinani (Joannet island): native tobacco, *dama*; trade, *tabak*. In various parts of Tagula (Sudest island) native tobacco is termed *dam*, *damu*, or *kabis*; trade tobacco is everywhere called *tabak* or *tobako*, though in the east it is *tabwak*. Yeina (Piron island): native tobacco, *basibasi*. Yela (Rossel island): tobacco, *tabak* or *tabwak*; pipe, *bubua*, *mbuwo*, or *buago*. D'Entrecasteaux islands, Dobu: tobacco, *tapwaki*, *tapwa'i*, or *tobaki*; pipe, *dumo*; cigarette smoked without a holder, *lipupu*. Kiriwina (Trobriand islands): tobacco, *muku*, *tobakki*; pipe, *bobao* (also name for bamboo); cigarette for pipe, *kululu*. Marshall Bennet islands: tobacco, *taubaki*. Murua (Woodlark island): tobacco, *muku*; pipe, *rusi* or *lusi*. Nada (Laughlan islands): tobacco, *muku*; pipe, *baubau*.

North coast of Papua from East cape to the boundary. At Awaiama, Taupota, and Garua, between East cape and Cape Frere: tobacco, *mutamuta*; pipe, *baubau* (also name for bamboo).

At Wedau, Wamira, and Jiwari in Bartle bay: pipe, *kaberaua*.

In the Pudi and Manasia districts on the mountains at the back of Boianai, Goodenough bay: tobacco, *tabaki*. The people of the Gwoiru mountains and the Kanamara on the Main range inland from Paiwa, Goodenough bay, call tobacco, *kuku* and the pipe, *poka*.

At Paiwa on the south coast of Cape Vogel: tobacco, *tapake*. At Mukawa at the extremity of Cape Vogel: tobacco, *kasu*. On the north coast of Cape Vogel the Warakauta around Posaposa inlet call tobacco, *tabaki*. Dauakerikeri, midway between Posaposa and Paiwa: tobacco, *tabaki*. The Damwapa tribe, 4 miles east of Posaposa, call native tobacco *arara* and trade, *tapaki*. The Doga on the cliffs of the north side of the promontory of Cape Vogel: tobacco, *tapaki*. At Galeva, also on the north side of the promontory of Cape Vogel: tobacco, *tauna*.

Of the Maneao group of languages, the Onjo is spoken by three villages inland from Collingwood bay and by the Maisin village of Uiaku: native tobacco, *botawan*; trade, *kumpoa*. The Jimajima call tobacco *tabaki*. These two languages have a possible relation with the Mailu group. At Maneao, south-east of Maneao range and at Pue, a little way inland from Moibiri, Collingwood bay: tobacco, *tauna*.

The Maisin language is spoken in many villages along the coast of Collingwood bay and in the villages of the Kosirava district between the lower Musa and Barigi rivers (Dyke Acland bay), whence they emigrated and, passing inland of the mountainous peninsula of Cape Nelson, reached Collingwood bay; here native tobacco is called *tauna* and trade, *kasu*.

The languages of the Gwoira group are said to be spoken over a large area inland on the boundary of the Eastern and North-eastern Divisions. From the vicinity of the Gwoira range are Gwoiden: tobacco, *bautawa*; Gigarebi: tobacco, *kuku*; Tevi village: native and trade tobacco, *kuku*.

The Kwatewa tribe, between the Gwoira range and Lakwa, Collingwood bay: tobacco, *tauna*; pipe, *kapakapa*. The Lakwa group of villages in Collingwood bay: tobacco, *sowa*. The Ubiri language is spoken at Waiuan near Lakwa: tobacco, *babuki*. At Moitu, farther inland: tobacco, *tampika*.

Okeina is spoken in villages north of Cape Nelson: tobacco, *tabaki*. Korapi is spoken at Cape Nelson and between Pongani and Barigi river: tobacco, *tabaki*.

In various languages of the upper Musa river group: tobacco, *kuku*. The Moikoidi or Doribi tribe, Urere creek, Alawa river, a tributary of the Moni or upper Musa river, call tobacco *kariri* and trade tobacco *midamu* (Strong 1919). In Tewara village of the Boli tribe, Doriri district, Ibenambo river, middle Musa river: tobacco, *befa*; trade, *tafaki* ('tobacco'). The Baruga of the lower Barigi and lower Musa rivers call tobacco, *tabaki*.

On the south side of the Hydrographers range is found a distinct group of languages: the Akabara is spoken by villages on the hills just behind Emo in Dyke Acland bay: native tobacco, *ue*; trade, *tapai-e*. The Numba villages are on the other side of the coastal range: native tobacco, *ue*; trade, *tahake*. The Jimuni are neighbours of the Numba: tobacco, *u-he*. The Bavaru or Kairira villages lie between Pongai and Jimuni-Numba: tobacco, *kuku*.

Among the Orokaiva, the most common names for tobacco are *orokaiva* or *kaiva* and *kuku*; the latter was in use before the arrival of the white man. More or less local terms are: *hajojo*, *tonaki*, *masati*, and *soka*. The pipe is called *poru*. In the Dobodura group of villages in the Sangara district: tobacco, *kuku*.

Mandated Territory of New Guinea

Southern zone. In the region around Mount Hagen tobacco is called *rok* or *drog* and the holder *rok ming* or *drog min*. Between the Krätke mountains and Garfuku river: tobacco, *fuka*; holder, *fukan*.

Eastern zone. The upper Watut and Bulolo rivers rise in the Main range and unite to form the lower Watut which joins the Markham river. The Manki mainly live between

and near the junction of the upper Watut and the Bulolo: green tobacco, *atchowe*; dry tobacco, *tchopeo*; pipe, *tchope wipata*; bowl, *urkoma*. To the west is the country of the Nauti: green tobacco, *tchobe*; dry tobacco, *heba*; pipe, *heba haga*.

The Sini live on the northernmost slopes of Mount Strong about the Gene river, which lower down is known as the Ono, a tributary of the Waria river: tobacco, *uzhoti*. On the Ono a holder is called *mangi*, but lower down on the Waria the pipe is called *bori*.

The Bukaua and the Jabim of the south coast of Huon peninsula: tobacco, *kasu*, but the Jabim of Finsch harbour term it *da-un*. The Kai of the Sattelberg: tobacco, *quenqueng*.

At Perakles, Wampet valley, at the head of the Markham river: tobacco, *nenyagalu*; holder, *peiya*. At Adzera, near Khani valley, upper Markham river: tobacco, *pau*; holder, *vaumu*.

In Astrolabe bay: tobacco, *kas* or *kasch*.

Central zone. On the middle Sēpik there are three named varieties of tobacco, *iegi*: *mwaim iegi*, *nogwei mangk iegi*, and *kotava nganga iegi*.

The Arapesh on Prince Alexander range have four varieties of tobacco: *misisial*, *tabonal*, *baluwes*, and *aheliuh*; only cigarettes are used.

The Wapei on the southern slopes of the Torricelli mountains call tobacco *brus*.

Northern zone. At Sissanu on the north coast at about 142° tobacco is called *sobache*, a term which probably is derived from 'tobacco'; variants are found in the Arimoa islands, Humboldt bay, and Lake Sentani in Netherlands New Guinea.

REMARKS ON THE NAMES FOR TOBACCO IN NEW GUINEA

Almost everywhere, especially in the mountainous interior, there are unrelated terms for native-grown tobacco, some of which seem to have a very limited range. This fact probably may be explained by the nature of the country which consists for the most part of high mountains, the numerous valleys of which have steep sides. These geographical features conduce to isolation, which is further increased by the almost universal hostility between neighbouring groups of peoples. But such hostility, though chronic, is not continuous, as there is always a need for the exchange of commodities, such for example as a trade in stone implements, and the strong desire of inland peoples for marine shells or objects made from them; for these, feathers or other local products may be exchanged, but perhaps the most important article of barter is tobacco.

We may envisage a condition of self-contained communities living in partial isolation who received the practice of smoking and tobacco itself from their neighbours and then grew tobacco for themselves. In such a manner it may be supposed the smoking and cultivation of tobacco gradually spread by simple diffusion. It is not possible to say why the name for tobacco was not transmitted as well, or how the local names were arrived at. In a few cases the local term has a somewhat wider distribution than is generally the case. This is particularly noticeable in the distribution of the term *kaga*, *karai*, *kara*, *karea*, of the middle and part of the lower regions of the Fly river, an area which extends at least 40 miles north of Everill junction to the country of the Wiram

west of the lower Fly at $8^{\circ} 30'$. We know from official sources that even in recent times there have been predatory movements southwards, and in this case it is evident that the settlers in the south have brought with them the term for tobacco that was current in the area to the north from which they came. Thus this distribution is not strictly comparable with the simple process of diffusion previously mentioned.

This southward migration seems to be part of a general tendency. On several occasions I have indicated that most if not all of the cultures now existing on the south coast, from the extreme west to Cape Possession at the eastern limit of the Gulf of Papua, came down from the interior. This, too, was a process of the migration of peoples and not merely a drift of cultures. Whether any of the migrants brought tobacco smoking with them is a different matter and can be proved only by detailed studies.

In Netherlands New Guinea, apart from the local unrelated terms in the mountainous interior, the names for tobacco are clearly modifications of the Portuguese or Dutch terms which have been introduced during a long period of time. Van Nouhuys has found that the Portuguese first spent the winter of 1526-7 in the Schouten islands, Geelvink bay, and that Schouten in 1616 recorded the natives of Geelvink bay as being in possession of tobacco, which suggests that either in 1526 or at some later date before 1616 tobacco had been introduced into this area. There is no indication by what name it was then termed. Since these dates there have been numberless occasions on which tobacco could have been reintroduced to the northern coasts of New Guinea by Europeans and natives of Indonesia, all of whom would use words equivalent to 'tobacco'; thus the terms *tabaka*, *tobacu*, *tambacu*, *temuku*, *tamuku*, *tamak* need no comment.

There is a series of terms, *sabak*, *sabka*, *sabachai*, *sabagei*, and the like, along the north coast, in which the initial *s* replaces the usual *t*, and the same change is found sporadically in Indonesia. If these variants crossed the Main range, then an explanation is afforded for the occurrence of the terms which will be considered immediately following. That this is not improbable is proved by the interrupted distribution of the rattan cuirass from Vanimo on the north coast of the Mandated Territory, near the Netherlands boundary, to the Tedi river area, Snow mountains, south of the Main range.

In Papua the distribution of the main terms for tobacco is as follows. On the northern tributaries of the upper Fly east of the Tedi and on the Palmer river: *sikube*, *sekupo*, but higher up, *sok*, *suk*, *sauk*. The term *sukupu* has been noted above Everill junction and with a great number of variants this becomes the name for tobacco in the region including the estuary of the Fly to the Netherlands boundary and also the Torres Straits islands and for the Gogodara on the north of the estuary of the Fly. This distribution is broken, as we have seen, by the *karai-kaga* term for tobacco in the middle and part of the lower regions of the Fly river.

East of the Strickland as far as the Purari river the terms *soga*, *sogu*, *soko*, *suku*. *Suku* is the most prevalent and is evidently derived from the *sukuba* of the west.

The variant *kuku* is found in the Purari delta and it extends through the Gulf Division, the Mekeo district, Nara, Kapatsi, to the mountainous hinterland of the Central Division, including the Koiari-speaking peoples, the Koita of the coast, and among the Motu and allied peoples as far east as Cape Rodney. At the back of Hood lagoon to MacFarlane harbour it has the form of *gugu*. A variant *lugu* is found in the

interior south of Mount Dayman and is the term used by the Magi or Mailu and in Milne bay. *Kuku* is found at a few places on the eastern side of the southern portion of the Main range, and it has spread into the southern and western districts of the country of the Orokaiva.

The Motu and other Western Papuo-Melanesians obtained tobacco, with its name *kuku*, from the interior tribes, and this term was doubtless reinforced, so far as the Motu were concerned, by the traders in the *lakatoi* who made annual voyages to the shore of the Gulf of Papua—and incidentally the different word *siomu* for tobacco reached Port Moresby.

In the Eastern Division the name *kuku* is given to foreign or trade tobacco; this may be due to the natives from other parts who accompanied the Europeans into the Division.

Many of the mountain peoples still smoke with a tubular holder, and this may be regarded as the primitive method; but in a number of places in the central mountain zone the true Papuan pipe is smoked as well or even it alone is used, as among the Managalasi. Over the greater part of Papua the tobacco smoked in the pipe is called *kuku*, and it may be suggested that frequently when the pipe penetrated into the Main range and even beyond it, as in the south-eastern peninsula of Papua, that the term *kuku* travelled with it and was used instead of the local name for tobacco, or both terms were used, or in some places a combination of the two words took place.

In the Massim area and on the north coast from Cape Vogel westward and in places some miles inland, either the only word for tobacco or the name of trade tobacco is some attempt at the pronunciation of the English word; thus there is found *tabaki*, *taubaki*, *babuki*, *babubi*, *bautawa*, *tampika*, *tabwak*, and other variants. So far as the north coast is concerned tobacco was not introduced till 1890 at the earliest.

In the Mandated Territory of New Guinea there is a number of unrelated terms for tobacco, but *sobache* is found on the north coast. Thus the Territory agrees on the whole with Netherlands New Guinea.

INDONESIAN TERMS FOR TOBACCO

The following list of words was sent to me in 1928 by Sidney H. Ray. I do not regard any of them as having the slightest direct connexion with a term in New Guinea.

Malay: *těmbakau*. Sumatra: Batak, Toba, *tambaho*; Kubu, *tombokau*; Lampong, *tamako*; Nias, *bago*. Java: *těmbako*; Madura, *pökô*. Borneo: Sarawak Malay, *tomako*; Sentah Land Dayak, *bako*; Singgi Land Dayak, *tibakau*; Iban or Sea Dayak, *samakau*, *semakau*; Kayan, *jako*; Kenyah, *jaku*; Kalabit, *sigop*; Netherlands Borneo: Busang, *bako*; Kayan, *sěbako*; Penihing, *pako*; Tarakan, *sigup*. In the Tidong language of east Borneo: Tarakan, *sigup*; Bolongan, *t'mbaku*; Malay, *t'mbakau*. Celebes: Macassar, *tambāko*; Holontalo, *tabaa*; Tontemboan, *towaku*. Philippines: Tagal and Nabolai, *tabako*; Igorot, *tafako*. Halmahera: Tobelo-Boeng, *tabako*. Buru, *tabako*. Sumba, *tambaku*. Ende, *bako*. Bima, *tambaku*. Ceram, *tabacuru*.

THE SOCIAL VALUE OF TOBACCO SMOKING IN NEW GUINEA

The broad geographical features of New Guinea are a mountainous interior, alluvial plains, and the sea coast. The interior people have an overwhelming desire for shell ornaments which can be supplied only by the fishing population of the coast; these, in their turn, require certain objects that can be provided only by the people of the hinterland, as, for example, stone for adze or axe blades, stone-headed clubs, plumes of the birds of paradise and other feather ornaments, and tobacco.

It is well known that the various groups of people in New Guinea speak different languages, and though they are frequently in hostility with each other, yet the necessity for trade breaks down these barriers. In the intervals of hostilities groups meet for barter and in many cases to attend ceremonies and other festive occasions. This intercourse is facilitated by the fact that on the borders of linguistic areas there are always some bilingual persons.

The hypothesis is here adopted that the cultivation of tobacco spread from the north-west of New Guinea to the south-east along the main and subsidiary mountain ranges, whence in many places it extended by secondary spreads to the plains or even to the coast. There are several definite records which prove that there is a recognized trade in tobacco between the very short mountain people and those who live at lower altitudes, and there is a similar trade between the interior folk and the coastal fishermen. It is by the mediation of the lowland people that ornamental sea shells or manufactured shell ornaments find their way to the mountain zone; in Papua the Kiko river seems to be perhaps the most important of the river trade routes. Shells and shell ornaments and stone implements are durable and readily transportable; tobacco is equally transportable, but it has the great advantage to the cultivators that it is quickly consumed and confirmed smokers are always unhappy when their supply of tobacco is exhausted.

The ever-present need for tobacco by coastal and other folk who do not grow tobacco but have to obtain it from the interior people who cultivate it, is an important element in the need for friendly relations, and it must have had, and still has, an ameliorating influence throughout New Guinea.

Numerous instances have been recorded of the recognition by the natives themselves that smoking together is a sign of friendship, and that within certain limits this social act precludes any immediate act of violence.

I am quite aware of the incompleteness of the data relating to the smoking of tobacco and of the apparatus employed, and also of the theoretical discussions that are to be found in this monograph. These deficiencies are due to different causes; for those that are personal, I accept responsibility. It would easily have been possible to add largely to the number of the decorated pipes here illustrated, but this would have entailed so much extra expense and space that I felt obliged to limit myself in this matter. This limitation will give opportunities for other students to supplement and even to correct what has here been presented; what I have tried to do is to lay sure foundations upon which others may build.

RETROSPECT

Tobacco has been cultivated for an unknown length of time in New Guinea by peoples inhabiting the mountainous interior, under circumstances that preclude any direct introduction of the plant or of the practice of smoking from the western, southern, eastern, or from the greater part of the northern coasts. Thus the practice of smoking tobacco must have been introduced from the north-west and thence spread over the mainland and adjacent islands, with the exception of a few areas. The evidence is against the supposition that the Papuans smoked an indigenous tobacco before there was any contact with Europeans. There are, however, a few statements that some Papuans smoked the leaves of other plants; it seems highly improbable that this was an ancient and widely spread custom, but it is more reasonable to suppose that the knowledge of smoking had spread to these areas before the tobacco plant had there been cultivated.

So far as this problem is concerned, our knowledge of the extreme north-west of New Guinea is so incomplete that no profitable suggestion can be made. To a large extent the same may be said for the extensive area around Geelvink bay and the neighbouring islands. Tobacco was reported by Le Maire and Schouten as being in the possession of the natives of this area in 1616 (p. 239). The Portuguese voyager de Menezes spent the winter of 1526–7 in this neighbourhood, but it is impossible to say whether he introduced tobacco to the natives or whether some unknown voyager did so before the end of the sixteenth century.

There is no information when or how the short Papuans (usually termed pygmies) of the great mountain ranges of Netherlands New Guinea obtained tobacco, it could equally well have been passed on from Vogelkop as from Geelvink bay.

METHODS OF TOBACCO SMOKING

Netherlands New Guinea

In the neighbourhood of the Arfak mountains of Vogelkop, the pipes, whether single or double, appear to be variations of the European type, which itself was a variant of the aboriginal North American pipe. Some must be held in the mouth as with us, but others, such as those shown in figures 11 and 12, apparently are smoked with the bowl in a horizontal position (figure 13). In any case, the Vogelkop pipes form a group by themselves, unlike any others in New Guinea.

Throughout the whole of north Netherlands New Guinea cigarettes are smoked in Vogelkop and north of the main mountain ranges in the area of Geelvink bay and along the coast to the Humboldt bay area and Lake Sentani.

Pipes with a nut bowl inserted horizontally in the stem characterize the natives on the northern slopes of the Nassau range. South of the range the Tapiro 'pygmies', who live at the sources of the Mimika river, and the 'pygmies' who live at the sources of the Utkwa river, mostly smoke cigarettes, but they also smoke tobacco in holders which are held upright in the mouth. The Pěšěgěm, who live on the southern slopes of the Wichmann mountains, about one of the sources of the Lorentz river, in addition to

cigarettes, smoke tobacco in holders or in pipes with a nut bowl similar to those of the Swart valley north of the range; this anomaly is due to there being a trade route over the range between these two areas. The Tapiro never make large 'cigars' like those of taller Papuans of the Mimika river, who never smoke pipes. Tobacco is not known on the lower course of the Lorentz river.

The employment of simple tubular holders, either for a plug of tobacco or more generally for a cigarette, is characteristic of all the mountain peoples throughout the rest of New Guinea.

Natives of the Muiu, a north-eastern tributary of the Digul river in Netherlands New Guinea, not far from the Tedi tributary of the Fly (p. 31), employ a two-piece smoking apparatus with a bamboo container. Pipes with tubular bowls are found on the Miku tributary (p. 32), but from the area of the upper Digul only holders are represented in the Dutch museums; it is probable that they also occur in the northern tributaries.

In south Netherlands New Guinea pipes with tubular bowls are smoked, but holders are not unknown (pp. 33 and 34). A leaf screw instead of a bowl is sometimes employed by the Kanum (p. 35).

Papua

In the neighbourhood of the Tedi (Alice river), a northern tributary of the Fly, holders for cigarettes are in common use; these may be straight or slightly curved, though among the Worom on the upper Tedi river the true pipe is also employed. A V-shaped apparatus is used by the Awin, who live east of the Tedi river; it consists of two short bamboo tubes connected by a bent piece of bark, bound round with bast and coated with black gum (figure 31); in one of the tubes is an inner tube which contains the tobacco, and this I regard as the holder of a two-piece apparatus; the other tube is equivalent to a container, though not used as such. The Unkia smoke cigarettes in holders, and probably this is the habit of all the other peoples in the extreme northern area of the Fly.

In the region of the middle Fly and farther south, only the true pipe with a tubular bowl appears to be smoked in the villages, but while hunting or away from the village it is a common practice for a man to procure a narrow bamboo tube which he uses as a holder and through which he blows the smoke into the bracer which he has removed from his left arm; the tube is removed and the smoke is inhaled from the bracer which thus represents the container of a two-piece apparatus (figure 32). This method of smoking is employed by the bush natives on, and to the west of, the Fly, about 400 miles from its mouth to approximately 9°, and apparently also by the natives of the Strickland river and Lake Murray.

In the south-west of Papua the bracer container is used in the absence of a pipe. The thick spathe from the stalk of a banana tree bent round to form a flattened tube, or a tube made of a twisted strip of ti-tree bark is used as a substitute for the bracer by the Semariji, Keraki, and Mikud, and probably by other groups.

The Papuan pipe (for which in Papua the Motu term *baubau* is generally employed by Europeans) is really another form of the two-piece pipe. It is used in Netherlands

New Guinea from the northern tributaries of the Digul to the south coast, throughout the greater part of Papua, and in a few places in the south-eastern part of the Mandated Territory. The apparatus consists of a thin bamboo tube or a leaf screw in which the tobacco is placed; the tube may be termed a bowl; in the south-west of Papua a cigarette is inserted into the bowl. The bowl or the leaf screw is inserted into a hole, the dorsal hole, near one end of the container. This is a section of bamboo with one septum intact, near to which the dorsal hole is pierced; the other septum, if not cut away, is pierced, as are the intermediate septa, if any are present. The smoke is sucked into the container and frequently, when a bowl is used, the smoke is also blown from its free end into the container. A bowl is employed in Papua only west of the Fly and in Torres Straits, but there is a curious exception of its use in a small area about the upper Watut river in the southern Mandated Territory, which is referred to later.

The leaf screw for the tobacco is found throughout the rest of Papua. It is, however, employed by the Gambadi in the extreme south-west of Papua, who dispense with the tube and put the cigarette directly into the dorsal hole of the pipe (p. 54).

When the container is filled with smoke, the bowl or the screw is removed and the smoke inhaled through the dorsal hole. The container is always a section of bamboo which varies very greatly in length and diameter.

In border regions in the mountainous interior, the use of the holder and pipe overlap, but there seems to be a tendency for the pipe to replace the holder.

Mandated Territory of New Guinea

The Southern Zone. In the south in the Mount Hagen area, a few old people smoke, but the natives as a whole are non-smokers; it seems to be an old custom. The tobacco is rolled into a small ball which is inserted into one end of a holder. The farther one goes south, the more general smoking becomes (p. 214). One observer refers to cigarettes inserted into holders 4–6 in. long and $\frac{1}{2}$ in. in diameter.

On the Tua river, an affluent of the Purari which flows from the south-eastern extremity of the Bismarck range, it is recorded that a roll of tobacco leaves is smoked in a holder or in a bamboo funnel which is inserted into a long narrower piece of bamboo. This may be described as a bowl inserted into a holder, for the smoke is not stated to be inhaled, but puffed, presumably as we do. Farther inland, that is, in the Bismarck range, tobacco is not smoked (p. 215).

In the area between the Krätke mountains and the Garfuku river tobacco is grown; a 'cigar' is smoked in a small holder and exhaled (p. 215).

The majority of the natives of the upper Vailala river dislike tobacco. A few pipes, 18 in. long, were seen; the tobacco is rolled into a wad and inserted into the side of the pipe, evidently into a dorsal hole (p. 215).

The Eastern Zone. At Mowi, in the neighbourhood of the upper waters of the Waria river, a thick heavy cigar is smoked, mainly by the younger men; the older men prefer a pipe, but it is not clear whether this is really a pipe or a holder (p. 216). One observer says that throughout the Waria system, tobacco is smoked in a holder, but sometimes a large cigar is smoked; this is tied at the base and near it a short reed or a

small piece of bamboo is inserted through which the smoke is drawn into the mouth; it is not stated whether it is inhaled. In the villages lower down, tobacco is smoked in a typical Papuan pipe. On the Ono river, holders are used (p. 216). In the valley of the Tiveri, the western affluent of the Lakekama, the inhabitants were very eager to get tobacco, but on the other side of Mount Lawson the natives were entirely without any knowledge of smoking (p. 217). Pipes are smoked in the lower reaches of the Waria river and perhaps in the neighbourhood of Adolf harbour (Morobe) (p. 217).

In the area of the upper Watut river in the southern part of the Territory, the Manki smoke an undecorated typical western Papuan pipe with a bamboo tubular bowl, 8 or 9 in. high, into which a leaf screw is inserted (figure 211). But the Nauti smoke a holder; the tobacco is pushed into one end and lighted before the other end is put into the mouth (figure 217). The holders and pipes are filled with leaves of various plants, and a plug of chewed husk of the areca palm is inserted in the mouth through which the smoke is drawn. The leaf of a tree is also smoked instead of tobacco. When tobacco is not available, a small piece of burning wood is occasionally smoked in a holder (p. 219). A photograph shows a Nauti man blowing smoke through the holder (figure 217), as is done by the Perakles natives at the headwaters of the Markham river. It appears that the knowledge of tobacco has reached these peoples relatively recently; they say that some of the Kukukuku farther west do not smoke.

In the Huon peninsula the Lae-Womba knew nothing of smoking till the arrival of the Germans, but at that time the Bukaua and Jabim grew tobacco and smoked their thick cigarettes in long holders. It is stated (p. 220) that the Kai of the Rawlinson and Sattelberg ranges, who are of mixed 'Pygmy' and Papuan descent, formerly did not know tobacco, but other leaves were used which are now entirely replaced by tobacco, which is smoked as cigarettes, but some of the Sattelberg Kai use holders (figure 192). Unlike the Jabim, and especially the Tami islanders, the Kai are moderate smokers; both sexes smoke, but not children. The Kai grow so much tobacco that they trade with it to the Jabim. Some three or four generations ago, before 1886, tobacco was not known to the natives of the Maclay coast; later it spread from the west, but there were in 1886 some villages in the mountains where tobacco had not been introduced. On the coast they smoke large cigarettes; in some hill villages they are said to smoke the typical Papuan pipe.

At Perakles and other places at the headwaters of the Markham river, cigarettes are smoked in very small holders (figures 193, 194). At Korogapa on the upper Karam river (Töpfer Fluss), the most easterly southern tributary of the Sëpik, there are holders with two or three internal tubes (figure 195A, B), a feature which has not been recorded from elsewhere. Holders are also used on the upper Ramu river (figure 195C).

In Astrolabe bay tobacco was cultivated and smoked as cigarettes before the arrival of Europeans. There are several local named brands.

The Central Zone. This zone includes the basin of the Sëpik and its tributaries. Along the river from its mouth to about $141^{\circ} 5'$, if tobacco is smoked at all it is as cigarettes, holders or pipes being unknown. Holders are employed up the Karam tributary, and there is one, doubtfully, from the 'Sëpik', but these are allied to those from the upper

Ramu river and all of them may confidently be regarded as having their direct or indirect origin from the main central mountain ranges, and therefore can scarcely be regarded as belonging to the culture of the area of the Sěpik. In the region of the middle Sěpik, the Iatmeül group of peoples have three named varieties, two of which are totemic. North of them is the Arapesh group of peoples, the Abelam (or Tshwosh) and the Nugun, who live south of the Prince Alexander range; they are famous for their tobacco which they trade to the north-eastern and island folk (p. 231). The mountain Arapesh have a slight surplus which can be used for trade; there are four named varieties. Until the importation of European pipes, only cigarettes were used; the Sěpik practice of making a cigar out of the whole leaf of the tobacco plant is not known. Among all these peoples tobacco is regarded as an important trade object and is not integrated with the social-ceremonial life; unlike the chewing of areca nut it remains distinctly secular (p. 231).

At about $141^{\circ} 50'$, the two-piece apparatus (figures 196, 197) makes its appearance. This consists of a holder into which a cigarette is inserted; the other piece is a gourd, or a section of a bamboo, both of which are perforated at each end. After the cigarette is lighted, the other end is placed at one end of the bamboo, or at the narrow end of the gourd, and the right hand of the smoker is cupped between them so as to make as airtight a connexion as possible. The tobacco smoke is sucked into the gourd or bamboo which serves as a container to cool the smoke. The use of this apparatus appears to extend along the Sěpik and its tributaries to about $4^{\circ} 30'$, that is, about halfway between the junction of the North and Sand rivers with the Sěpik. It is said by one observer that frequently, but only in settlements near the mountains, the bamboo is replaced by a flask-shaped gourd which may or may not be covered with membrane. Of the specimens in Dutch museums, only one has a definite provenance, and that in the Cambridge museum is said to have come from the neighbourhood of the Hauser river; with this one there is also an ordinary cigarette holder; but probably cigarette holders are smoked throughout the area. The two-piece apparatus is of the same type as is found on the Muiu river in Netherlands New Guinea (p. 31), and the use of a bracer as a container in the region of the middle Fly river is an allied method of smoking (figure 32), as is also the V-shaped apparatus of the Awin who live east of the Tedi river, a northern tributary of the Fly (figure 31).

In the area at the sources of the Sěpik, cigarettes are smoked without or with a holder (p. 232).

The Northern Zone. Cigarettes alone are smoked on the north coast of the Territory as far as and including Astrolabe bay, in those places where tobacco is indulged in; holders and pipes being unknown. In these respects the zone resembles the north coast of Netherlands New Guinea.

The techniques, styles, motives and patterns are of prime importance in the decoration of the holders and pipes, and it is an interesting speculation to what extent they are the result of local development or of borrowing, for it is known that there have been very numerous movements of peoples in New Guinea, some of which have been for relatively considerable distances. The significance of the designs and patterns is of equal importance, but for this definite evidence is extremely scanty.

The different techniques are described on pp. 9–10. Incised jagged lines are usually arranged in simple patterns, which when combined afford a pleasing decoration. There are several varieties of this technique to which must be added the various forms of punctate lines.

I do not know of any example of this technique from Netherlands New Guinea, except for the southern portion of the south-eastern area. It is very characteristic of the southern portion of the Western Division of Papua and of Torres Straits. It does not seem to occur in the areas of the middle or upper Fly river. I have found one example (figure 100) in the Gulf Division, but none in the mountainous hinterland of the Delta and Gulf Divisions.

In the Mekeo district, except for the coastal zone, decoration by means of jagged lines is predominant, as it is in the Albert Edward range. One pipe (figure 142) from the north Kuni country is decorated with burnt jagged lines. Jagged lines appear to be absent from the hinterland between Redscar bay and Kapakapa. From the Rigo district one pipe (figure 156) is decorated solely with jagged lines, but there are a number of pipes on which it is associated with fine simple lines (p. 174). The jagged lines seem here to be made by incision and subsequently slight burning (pp. 171–2). This technique is absent from the mainland farther east, from the Massim area, and from the whole of northern Papua with the exception of the upper Mambare-Gira area, where it is varied in character and punctate lines occur (p. 211).

No example of this jagged-line technique has been noted on pipes from the Mandated Territory of New Guinea, with the exception of a pipe (figure 188) from the southern zone close to the Papuan boundary near the source of the Vailala river.

It seems probable that this technique characterizes a very old stratum of the population. On the whole it has a marginal distribution and with few exceptions it does not extend far from the southern coast.

A widely spread technique in Netherlands New Guinea and Papua is that of simple lines. These may be scratched or definitely incised, incised and partly burnt as in the Rigo district, or apparently burnt and then cleaned by rubbing off the charring, as in the Kunimaipa valley (figures 110, 113). Lines may be simply burnt.

In the extreme south-east of Netherlands New Guinea and in the west of the Western Division of Papua scratched lines may form the axis or contour of isolated designs in jagged lines (figures 26, 27, 40, 41). In the Western Division of Papua where jagged lines are employed, more especially in Torres Straits and the estuary of the Fly, the borders of the transverse patterned bands are scratched or incised, but in the Mekeo district this is never done and but little use is made of incised lines. On a pipe from 'Mekeo' (figure 139) the stripes and animal figures are outlined in scratched lines and enhanced with fine jagged lines, and one pipe obtained at Veipa is decorated with similar stripes.

In the Rigo district the technique of the decoration of a large number of pipes is puzzling at a first glance. Some of the lines are scratched but most appear to have been burnt; the method of producing them is given on pp. 171–2, but the general effect is one of scratched or incised lines (figures 155–60). The technique of scratching simple lines on the bamboo in definite patterns and then charring the alternate spaces

begins in the Cloudy bay area and extends to the Massim area. From Millport harbour there is a pipe (figure 166C) in which simple lines enhance the unburnt areas; most of the lines look as if they also had been burnt and the charring cleaned off. Patterns formed by scratched lines appear to be absent from north Papua.

Patterns made of scratched or incised lines seem to be absent from the Mandated Territory of New Guinea.

The most widely distributed technique in New Guinea is that of burning or charring the skin of the bamboo in fine or broad lines or in areas. The burning of the areas may be incompletely done in spots or streaks, but mostly it is complete; in a few cases the areas are scraped after burning. Reference can be made here to only a few examples of these varieties.

There are only a very few pipes from Torres Straits which have the skin charred by burning limited parts of a pattern. It is doubtful to what extent this was practised in former times (p. 68). One pipe from Parama has a more definite pattern of burnt triangles (p. 82).

In the estuary of the Fly, a few plain pipes have the pattern partly burnt in the fore area (figure 74). One untypical pipe (p. 94) has some carelessly burnt spaces in the pattern.

Patterns formed by burnt lines are found on pipes in the lower Wage valley (figures 106F, 107A). On holders in the Kunimaipa valley (figures 109, 110A, 111D) (but usually they are here combined with burnt areas, mostly triangles; scraped burnt triangles are seen in figure 112), in the Chirima valley (figure 119), among the Agi (figure 123), and on pipes in the upper Kumusi area (figures 124-7), and in a few other places. Thus they are characteristic of the central higher mountain ranges of Papua. Examples of broad burnt bands are seen on a holder from Mafulu (figure 145) and on pipes from the Cloudy bay area (figures 164, 165), Millport harbour (figure 166), and to a less extent in parts of the Massim district (figure 176).

Spots, separate designs, patterns, or parts of patterns are frequently made by burning. Examples of separate designs are: figure 107B, Wage valley; figure 118, Chirima valley; figure 145, Mafulu; figure 153, Koiari and related tribes. In some cases, as in the Tari valley (figure 104); a Goilala holder (figure 116); and some holders from the Kunimaipa valley (figures 109-12), the outlines of the patterns are in burnt lines. Burnt patterns characterize the pipes on the coast of the Mekeo district (figure 133); a Mafulu pipe (figure 145); the pipes of the Central Division from Redscar bay, Kapakapa, coastal and interior, but in a Wamai pipe (figure 149B) the outlines of the pattern were scratched first and also in a Rigo pipe (figure 163B, C, D). One Rigo pipe (figure 160A) has a burnt decoration which suggests strong 'mountain' influence, but most of the burnt patterns, which are confined to the central and southern Rigo district, have patterns characteristic of the coast and interior of the Central Division.

In the Cloudy bay district and along the coast eastward and in parts of the Massim area, the patterns are first outlined by scratched lines and then the spaces are burnt (Cloudy bay pipes with scratched outlines to the patterns (figures 164, 165); analogous pipes from Millport harbour, figure 166). This technique is found in the Massim area on Misima (figure 171), Panaieti (figure 172A), and in the Trobriands (figure 176), but

on a pipe from Fergusson island (figure 174) most of the patterns are outlined by burnt lines. Similar variations occur on a few pipes from the coast and inland of north Papua.

Pipes from the south-eastern parts of the Mandated Territory are related to some of those from north-eastern parts of Papua. Thus on the lower Waria river the decoration is first incised and then burnt, but a few elements are burnt only (figures 189, 190), and that of the holders of the Kai of the Sattelberg (figure 192). In the region of the upper waters of the Markham and Ramu rivers, there are no incised lines (figure 195A, B), but the triangles in one instance (figure 195D) were first outlined by burnt lines. The holder (figure 197A) of the two-piece apparatus from the Hauser river, a tributary of the Sēpik, has a solely burnt decoration, as has the cigarette holder (figure 197C). The patterns are typical of the Sēpik area and quite unlike any from Papua.

According to my material, which is by no means exhaustive, several types of burnt technique may occur in the same area and any variety may be found in widely separated areas, but, on the other hand, each area has its predominant type, and indeed may have but one type. There is no essential difference between the decoration of holders and pipes. Owing to the small size of the former, burnt areas are very small, whereas the larger size of the pipes admits of greater use and size of burnt areas.

The scraping of large areas is especially characteristic of the Western Division of Papua and of Torres Straits. Scraped bands are found sporadically in a few other areas in Papua, but seem to be absent throughout the rest of New Guinea. Crude scraped designs appear to be confined to a small area in the Kuni country (figure 143).

What here is termed 'intaglio' is a special and refined form of scraping so as to form definite and frequently elaborate patterns and designs. The scraped surface is coloured, usually with a dark reddish brown pigment, which offers a strong contrast to the unscraped portions. The designs or patterns are either formed by the intaglio, as in figures 86, 87B, or they are formed by the skin of the bamboo, the intaglio serving as a background, as in figures 85, 91, 96, 99, but in some cases both methods are employed together, as in figures 95, 100.

So far as Netherlands New Guinea is concerned, patterns formed by scraping and the colouring of the scraped surfaces are confined to the area of the upper Digul where most of them seem to be based on stylized human forms.

In Papua the technique is seen in a rather crude form on the Tedi river, upper Fly (figure 30). It is well developed in the region of the middle Fly (figures 33-8), where many of the patterns appear to be derived from vegetation. In the extreme west of the Western Division at Suki creek (p. 58), and among the Wiram (figure 4), the Karigara (figure 46) and the Semariji (figure 44), there are pipes decorated in the same style as those of figures 34-6 from the middle region of the Fly. This technique has thus spread south to the area of the upper Morehead river.

The intaglio decoration of the Gogodara pipes is peculiar in several respects; the motives for the most part are expressions of the totemic beliefs of that people, and there are no representations of the human form on the pipes. The few data concerning the region between the Bamu and Era rivers show varied and mainly simple designs

about which no generalization is at present profitable; most are in incised lines and there is very little intaglio.

It is very different, however, in the region of the Era river and in that of the Purari delta. Here there is an intaglio technique with motives largely based on either the whole or parts of the human form, but some animals (mainly reptiles, but they may also be presumed to be mythical animals) are depicted. Intaglio technique extends along the area of the Papuan gulf, where it is neater than that of the Purari delta. This type of decoration does not extend beyond the most eastern of the Elema tribes at Cape Possession, so far as tobacco pipes are concerned, but extensions of the Gulf culture are found in the Mekeo district. Thus the intaglio technique is found on the northern tributaries of the Digul and Fly rivers, the region of the middle Fly with its southward extension to the Wiram and Karigara districts and to Setavi in the Semariji district; the Gogodara; it then almost disappears till the Era river, Purari delta and Gulf areas are reached where it becomes predominant and finally disappears at Cape Possession.

Though there are important differences between the Gulf and Delta cultures, they are closely allied and there are links between them and the Kerewa and Gogodara cultures, as Wirz has pointed out. All these cultures appear to have a common though remote source and there are also traces of a connexion with the culture of the middle Sëpik in the Mandated Territory but not in their smoking apparatus. We may therefore postulate a cultural and probably an ethnic spread from north to south, mainly down the Kikori and Purari river systems. A great difficulty in accepting this hypothesis is that no traces of this general culture and the intaglio technique have as yet been reported from the intermediate area. Until very recently the whole of this intermediate mountainous hinterland has been unexplored and its ethnography is still very incompletely known.

(A) North of the Mandated-Papuan boundary, in the Mount Hagen district, which extends as far east as the western Krätke mountains, there is a distinctive culture characterized by extensive well laid-out gardens and especially by the elegant axes, the beautiful blades of which with squared sides are unlike any others in New Guinea and clearly indicate a spread of culture from Indonesia; the route as far as New Guinea is concerned was probably to the north-west of the zone, where traces of the higher cultivation have been observed. Tobacco of good quality is planted, but not extensively in the Mount Hagen district. A few old men smoke, but the natives as a whole are non-smokers; smoking becomes more general the farther south one goes. The holder only is used. (B) South of the boundary the cultures appear on the whole to be backward. The pipes and holders are dealt with on pp. 123-128; it is only in the north-western area in the Tari valley that the pipes are decorated with well-defined patterns in the burnt technique.

The foregoing facts strongly suggest an irruption of a new culture brought by an unknown immigration into an area of lower culture which coincides with the southern zone of the Mandated Territory; this lower culture also extended into the most northerly portion of Papua. This immigration may have been one of the contributory causes for the isolation of the rich ceremonial cultures of the coastal areas from those

of the area of the Sēpik river. If that be so, the immigration must have taken place at a comparatively recent date, but it does not explain why the presumably early low culture had not been affected by the Sēpik-south coast culture. All this is pure hypothesis.

There are traditions (p. 112) that some of the Elema tribes on their journey from the interior to the coast fought with the original inhabitants, who lived on the southern coast and the country inland, about whom nothing is known. There are a few pipes (pp. 116, 117) from the Gulf Division with a decoration wholly or in part executed in an incised technique of simple or jagged lines—a decoration which in technique, motives and feeling is radically different from that of the Purari-Gulf culture. It therefore seems reasonable to regard these pipes as relics of the older culture, since they form a link between the incised technique of the estuary of the Fly and farther west, and that of the Mekeo district to the east. It seems as if the incised technique is no longer employed and indeed the decoration of the pipes has ceased in the coastal villages of the Gulf Division.

Decorative motives and patterns made in various techniques are so numerous that they can be referred to here but very briefly; they are described in consecutive geographical order in the second part of this monograph.

'Geometric' motives and patterns are found everywhere. It is in such areas as Torres Straits, the estuary of the Fly and parts of the Mekeo district where the incised technique of jagged lines vastly predominates over simple lines, or in the Rigo district where simple lines predominate, that 'angular geometric' patterns flourish and may attain considerable complexity.

In the west the lines of patterns are predominantly straight or angled, though slightly curved or semicircular occur, but spirals are absent. Spirals and squared spirals occur on pipes from the Delta and Gulf Divisions, usually they are associated with human figures and heads.

Throughout the eastern chain of mountains spirals appear to be absent, except in the upper Kumusi river and Mamama river area where simple coils are common: Wowonga (figures 125, 127), Managalasi (figures 128, 129).

In the Mekeo district spirals rarely occur (figure 135), but when combined with ordinary geometric patterns, as in figures 136B and 145, they are rectangular or frets; the pipe from Mount Albert Edward (figure 117) belongs to the Mekeo series. In the Nara country reversed spirals in jagged technique are found on pipes (figure 147); they occur on lime gourds and tattooed on women. Scrolls are present on a Kapatsi (Kabadi) pipe (figure 150F).

Spirals appear to be absent from the Central Division among the Koiari and allied interior peoples and also from the coastal peoples. In the Rigo district, however, one pipe (figure 158C) has spirals in a jagged technique.

Going eastward, it is not until the Massim region is reached that spirals occur again; they are simple and reversed spirals and interlocking reversed spirals. They are however not so common on pipes as one would expect from their abundance in wood carvings. They are stylized bird's heads or degenerate portions thereof (Haddon 1895, pp. 49–58).

On the north coast of Papua coils are found on one pipe from Maisina, upper Musa river inland from Collingwood bay (figure 182B), though concentric circles are common there. Otherwise spirals seem to be absent there and also in the Northern Division.

Spirals are absent from the south-eastern portion of the Mandated Territory, including the upper Ramu river area, but high up the Sēpik river, in the neighbourhood of the Hauser river, burnt spirals are found with a local style of decoration (figure 199).

In Netherlands New Guinea, a simple spiral is found on a few pipes (figures 11, 12) from the Arfak mountains, and reversed spirals on a pipe (figure 6) from Hatam, Vogelkop. Spirals, some more or less squared, occur on a pipe and a holder from the Miku river (figures 20, 21).

A few remarks on the distribution of the holders and pipes of the mountain peoples may be made here, as they often have had an influence on other regions of Papua. In the Cambridge museum there is now an incomplete, but probably a representative, series of holders and pipes from (A) the remote mountain peoples of the Delta and Gulf Divisions and (B) of the peoples inhabiting the south-east Main range of Papua. A study of the decoration of the holders and pipes of group A reveals considerable local diversity, as might be expected from the nature of the country and the disposition of its inhabitants. Almost the only generalization that can be made is that in the Tari valley the pipes are decorated with well-defined angular geometric burnt patterns (figure 103), but to the south in the Kutubau area they are plain or with very simple patterns (figure 105). To the east among the upper waters of the Kikori and Purari rivers the holders are mostly plain, but some have simple crude decoration in burnt technique.

Group B. It is not until farther to the east in the Kunimaipa valley that well-decorated holders are found with a considerable range of angular geometric patterns (figures 109–13), most of which illustrate the technical and artistic skill of the makers. Some of the patterns are found in the Mekeo district, though in a different technique.

From the area immediately to the south the number of pipes seen by me is scanty and they show a coarse and careless decoration in burnt technique (pp. 137–139). Neater decoration is found farther south among such mountain groups as the Agi (p. 140). A distinctive type of well-designed and executed patterns in burnt technique characterizes the peoples of the upper Kumusi, and especially so the Managalasi of the Mamara river area (figures 128–30). In this last area there are several patterns which have a wide distribution, such as the chequers (figure 128), and also the decoration by means of longitudinal or semi-spiral stripes or bands containing simple patterns which are characteristic of the southern main range.

West of the main range there are a few pipes definitely known to have come from the Koiari group of peoples, but there are many others in museums which probably have that provenance. It is hardly to be expected that these few pipes, some of which are illustrated in figures 149–54, are more than random samples of the decoration of the pipes of this wide area. On the whole they show careless craftsmanship.

The patterns on the Koita pipes appear to be more regular than those on the Koiar pipes and this regularity, combined with new patterns, applies to the pipes of the

immigrant Motu and allied peoples from the coast of the Mekeo district as far as the coastal area of the Rigo district; along this stretch of coast the patterns are solely in simple burnt technique. As was stated on pp. 162, 163, the Motu and Koita are so intermingled that it does not seem possible to distinguish between their pipes, but we may assume that the technique and to a very large extent the actual patterns were borrowed by the Motu and allied peoples from the Koita, and to some extent from the Koiari.

Farther east, including some of the pipes of the Massim district, the patterns were first outlined by scratched lines and then burnt.

There is in New Guinea a very large number of communities which vary greatly in size and collectively are termed 'Papuan'. They speak languages that for the most part are unrelated and within certain limits they vary considerably in physical characters; nothing definite is known about their origin and the causes for these variations. The mountain people are of very short stature and are often spoken of as pygmies; the coastal communities are of medium, or even tall stature. Their cultures have a considerable range in complexity; the higher cultures are due to cultural drifts, in most cases associated with ethnic drifts. There is reason to believe that the main distinctive features of these cultural drifts are due to gradual modifications of the cultures coming into New Guinea at a later date than the Papuan peoples who first populated the island.

Various groups of Indonesians for an indeterminate period have settled more especially on the north coast of New Guinea, but the west coast, except its northern part, appears to have been unattractive to them; probably few of them spread into the interior of the island. There is, however, the puzzling culture of the Mount Hagen plateau, about which we have insufficient information; presumably it was brought by a few people, as the 'Papuan' physical characters of the population do not appear to have been appreciably affected.

Migrations of 'Melanesian'-speaking peoples have colonized the south-east end of the island. Two main migrations can be distinguished. Probably the earlier was that which settled in the Massim area and there fused with the pre-existing 'Papuan' population; doubtless there were several of such movements. The other was that of the Motu and allied peoples; perhaps it was by two or even more groups who came at different times and also had a Melanesian language. They appear to have passed through the Massim area after it had been colonized by the other 'Melanesian'-speaking peoples. The Motu went farther west and had their headquarters round about Port Moresby gradually reaching the coast of the Mekeo district. The Hula group settled more to the east. Both these groups came into contact with the aboriginal coastal 'Papuan' and arranged more or less friendly relations with them.

There may have been other migrations from outside of which nothing seems to have been recorded. There have, however, been very numerous internal movements, and some of these introduced new cultures or new elements of culture to the peoples they invaded.

Most of the migrations into New Guinea influenced the decorative art of the indigenous populations, but in the case of the 'Melanesian' immigrations it is not always easy to determine how great was their influence.

With regard to the decoration of the pipes, some technique and patterns—for example, the jagged and simple lines technique and their patterns, and perhaps the cruder designs in burnt technique—appear to characterize the oldest Papuan element of the population. Other techniques and patterns may belong to a somewhat higher Papuan culture, as shown in the more refined and symmetrical burnt patterns. Others again seem to derive from the spread of a culture from outside New Guinea, as for example the general culture of the middle Sēpik area and its extensions to the south coast of Netherlands New Guinea and of Papua. Most of these ethnic and cultural migrations have found expression in the decoration of the pipes in very numerous artistic areas, but they had little effect upon the spread of tobacco smoking in New Guinea. This in the main appears to have been a case of simple contact diffusion with the occasional exceptions when the spread was rapid owing to internal movements. In this connexion it is necessary to consider the distribution of the terms for tobacco and tobacco pipes.

NATIVE NAMES FOR TOBACCO

I have dealt as fully as is at present possible with the native names for tobacco and pipes in New Guinea (pp. 244–54); here I give a summary.

Broadly speaking, the main facts that emerge are that there are very numerous unrelated and usually very local native terms for tobacco among the mountain peoples of the central main ranges. Most of these peoples are static communities. Among the other peoples of the mountainous interior to a certain extent the same holds good, but for these there frequently have been large or small movements which have extended their local terms for tobacco.

Netherlands New Guinea. Apart from the local unrelated names for tobacco in the mountainous interior, the names are modifications of the Portuguese or Dutch terms, or possibly Indonesian words adopted from these sources; thus are found *tabaka* (Vier Radjas), *tobacu*, *tambacu* (Vogelkop), *tamuku* (Yee and Marind-anim). A substitution in various places of the initial *s* for *t*, which also occurs in a few places in Indonesia, is a noticeable feature, for example, *sabak*, *sambave*, *sabka*, *sabachai*, *sabagei*, *sachēbai* and other variants; it will be noticed that all the *s* forms are on the north coast.

Papua. In the region of the most northern tributaries of the Fly river, there are two distinct terms for tobacco. (1) Variants of the word *a-up* or *aup* extend from the west bank of the Tedi (Alice river) to the Muiu (*abuk*), Kao (*apuk*), Miku (*aik*); these three rivers are northern tributaries of the Digul river in Netherlands New Guinea. (2) In and near the Snow mountains tobacco is called *sok* or *suk* and *sauk* on the Bol river. The Unkia of the Bol river have *seuk*; the Awin, east of the Tedi and west of the Fly near Palmer junction, and those of the western Donaldson range have *sibuke*. Farther up the Palmer river the term is *sekupe* or *sekupo*. At about 30 miles on the Fly above Everill junction *sukuba* has been recorded. This second series of terms links up with the *sukuba*, with its many variants, of the south-west of Papua.

Another name for tobacco characterizes the region of the middle Fly and parts of the lower region of the Fly. From north to south are the variants: above Everill

junction, 390 miles from the mouth of the Fly, *kaga*; Tinung lagoon, also on the east bank of the Fly, *kara*; at Koumak, *kaga*; two miles above the junction, *kara*; below the junction, *kagai*; Lake Murray, *kara*, *karai*, *kagai*. Suki lagoon on the western side of the Fly, about 100 miles south of Everill junction, *karea* and *karai*; Wiram country, *kagai*, *kagoi*; see map.

In the region between the Netherlands boundary and the Pahoturi (Map II) there is considerable uniformity in the name for tobacco; the differences in spelling appear to have no special significance. Some variants are: *sukuba*, *suguba*, *seakupa*, *sakop*, *sokuwa*. In the western language of Torres Straits the name is *sukuba* or *suguba*, but in the eastern, *sokop*. The term *sukuba* is common to the islanders of the estuary of the Fly; the Gogodara, who live between its north coast and the Arimia river, have *sakopa* and *sukub*. On the Bamu river are *sogo*, *sona*, *suku*.

Among the mountains and plateaus from which flow the northern affluents of the Kiko (Kikori) and Purari, the names for tobacco commonly are *sogu*, *soga*, *soku* or *suku*. The term *suku* is prevalent in the Samberigi valley, along the Turama and all the other rivers as far as the north bank of the Era river; it extends to Goaribari and other islands. Throughout this large area there are also strictly local and unconnected words for tobacco.

The variant *kuku* is used in the Purari delta and by the Elema tribes of the Gulf Division.

In the Mekeo district along the coast and in the plains we find *kuku*, but quite different names are used in the mountainous interior, though among many of these *kuku* is the usual term for trade or stick tobacco. Along the coast and among the Koiari-speaking and allied tribes of the hinterland of the Central Division, tobacco is called *kuku*. Speaking generally the word *kuku* is employed by the coastal peoples and for some distance inland as far as the Massim district, though among the Magi (Mailu)-speaking peoples who extend from the east of Cloudy bay to the middle of Orangerie bay, the word is *lugu* or *lugulugu*. All these peoples have *kuku* for trade tobacco but in a few places other words for native tobacco seem to have spread from far inland.

In the parts of the west Massim area, the terms *lugulugu*, *ligu*, prove Mailu influence. Other terms farther east are *lamwa*, *lama*, *dam*, *damu* or *kabis*. From the Trobriands to Nada tobacco is called *muku*, which may be a variant of *kuku*. Throughout the Massim area trade tobacco is *tabak*, with occasional variants.

On the north coast and in the adjacent hinterland there are a few unrelated terms for tobacco, of which *tauna* is the most frequent in the neighbourhood of Collingwood bay. In some places, variants of tobacco such as *babuki*, *tampika*, *tabaki* are used, perhaps where native tobacco is or was not grown, and occasionally *kuku*, which may have come from the western side of the Main range, but *kuku* is generally the name for trade tobacco.

Among the Orokaiva the most common names for tobacco are *orokaiva*, or *kaiva* and *kuku*, the latter is said to have been in use before the arrival of the white men, but there are also often unrelated and local terms.

The main conclusions which emerge from this account of the distribution of names for tobacco in Papua are that the more or less isolated peoples of the Main range have

local and unrelated names for their home-grown tobacco, which usually is smoked as some kind of cigarette inserted into a simple tube or holder. This may be regarded as the most primitive method, except the direct smoking of a cigar or cigarette. In a number of places in the central mountain zone the true Papuan pipe is smoked as well, but it is intrusive and appears locally to be replacing the cigarette holder.

Over the greater part of Papua the tobacco that is smoked in a pipe is called *kuku*, and it may be suggested that frequently where the pipe was brought into the Main range or even beyond it, as in the south-east peninsula of Papua, the word *kuku* travelled with it and was used instead of the local term, or concurrently with it.

The assumption is that when the Portuguese, or Dutch, or perhaps Indonesians brought tobacco to the north coast of Netherlands New Guinea, they also introduced their name for it. From the foregoing summary it is clear that many variants of the introduced word spread southwards west and east of the Fly river, and farther east of the Fly, in the neighbourhood of the Purari river the word became *kuku* and was carried, together with the cultivation of the plant, to the south-east of Papua and to some extent to the archipelagoes beyond it by native trade before the arrival of the white man. A complication then ensued in the remote regions of the east where native tobacco had not yet been grown or was being slowly acquired. As Government officials brought natives as constabulary or carriers from those regions where *kuku* was the term for tobacco, the latter may have used the word for the local native tobacco as they certainly did for the trade tobacco they brought with them. It was in this manner also that our word tobacco, with its minor variants, was very recently introduced into these remote areas.

The numerous unrelated names for tobacco among the central mountain short people afford an argument for those who regard tobacco as having been smoked by these peoples before the arrival of Europeans. Against this view must be urged what seems to be an established fact, that the only tobacco grown and smoked in New Guinea is the American species *Nicotiana tabacum*. This is discussed in part III.

I omit here any mention of the native names for pipes, as in a number of cases they are merely the word for bamboo, and it may well be the same in other cases. There are numerous examples of an object being named after the material of which it is made.

Mandated Territory of New Guinea. In the region about Mount Hagen, *rok* or *drog* is a common name for tobacco. On the upper Watut river the term was *atchowa* and *tchobe*. The Bukau and Jabim of the south coast of Huon peninsula use the word *kasu*, which becomes *kas* or *kasch* in Astrolabe bay; but in the eastern zone (Morobi and Madang districts) there are several local names. In the central zone (Sëpik river area) tobacco is not universally grown. In the middle Sëpik the Iatmül have three named varieties of tobacco, *iegi*, and there are four named varieties of tobacco among the Arapesh in Prince Alexander range. Along the northern coastal zone tobacco is grown in only a few places; at Sisam it is called *sobache*, a word which forms a series with those of the north coast of Netherlands New Guinea, all of which are mispronunciations of the Portuguese or Dutch words for tobacco.

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FIGURE 199

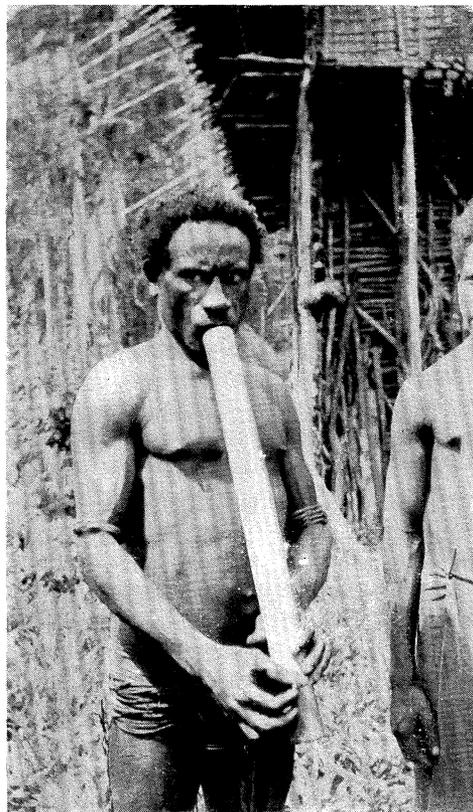


FIGURE 200



FIGURE 201

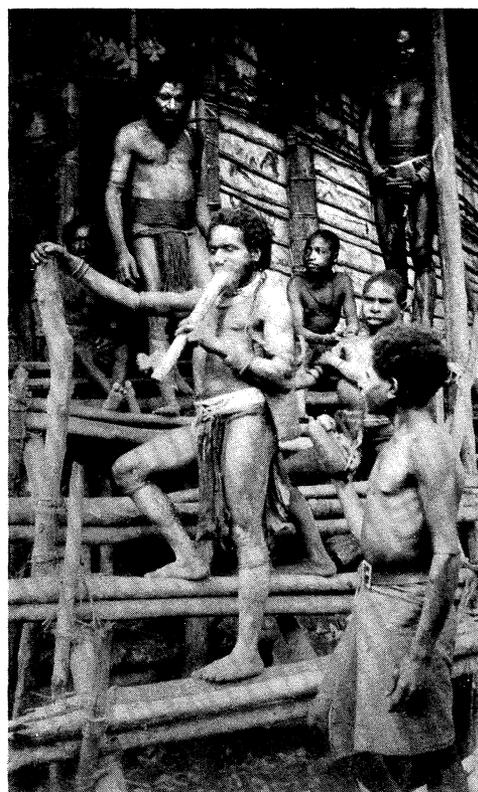


FIGURE 202

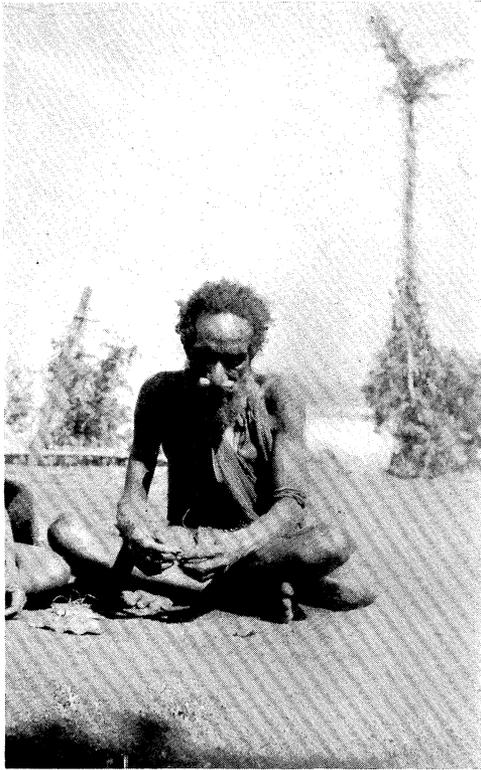


FIGURE 203



FIGURE 204



FIGURE 205



FIGURE 206



FIGURE 207



FIGURE 208



FIGURE 209



FIGURE 210

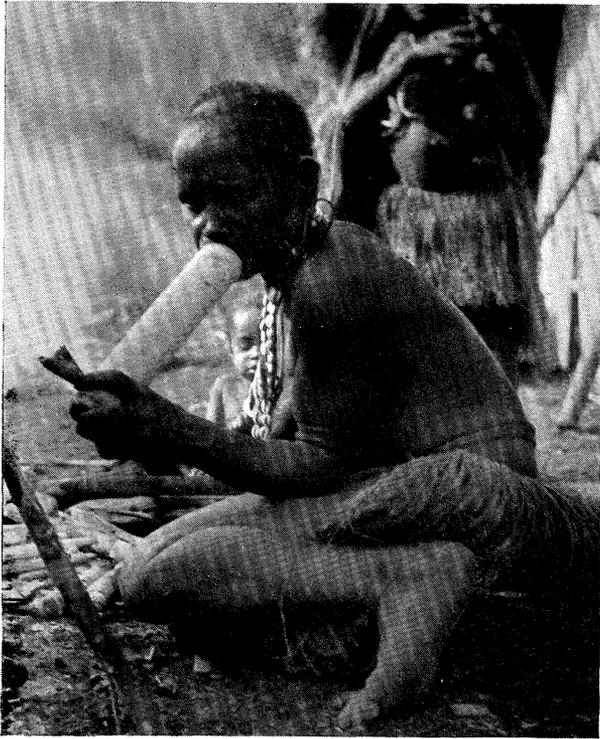


FIGURE 211

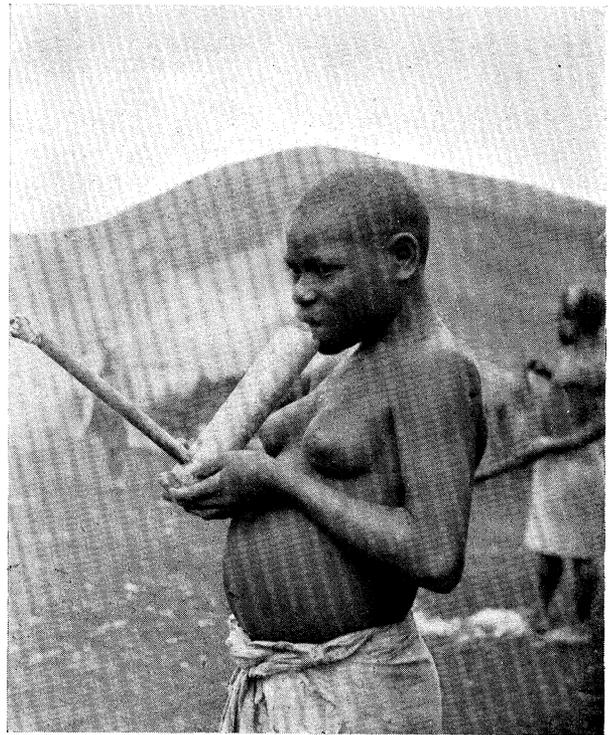


FIGURE 212

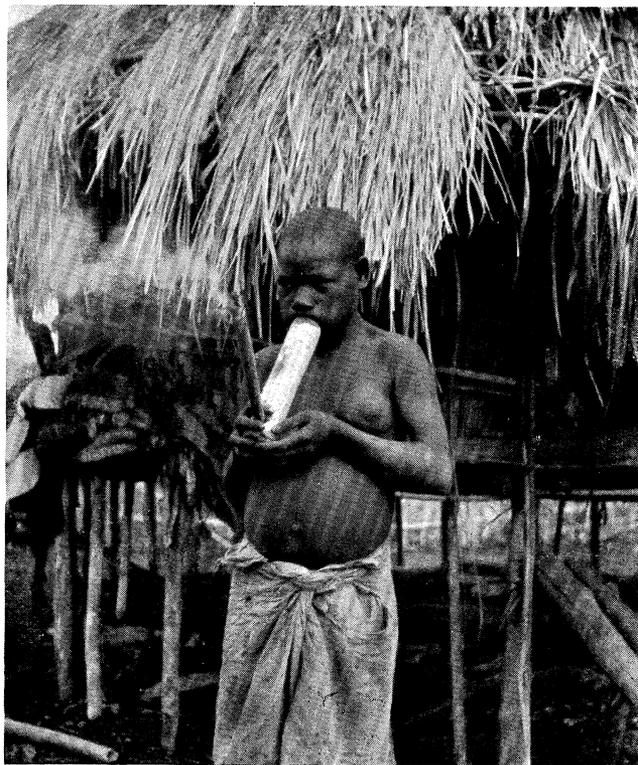


FIGURE 213



FIGURE 214



FIGURE 215



FIGURE 216

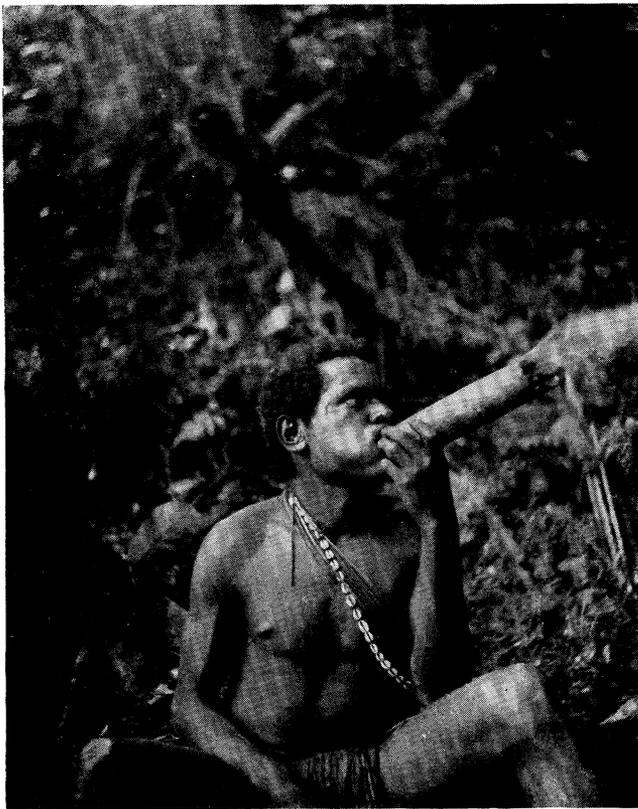


FIGURE 217

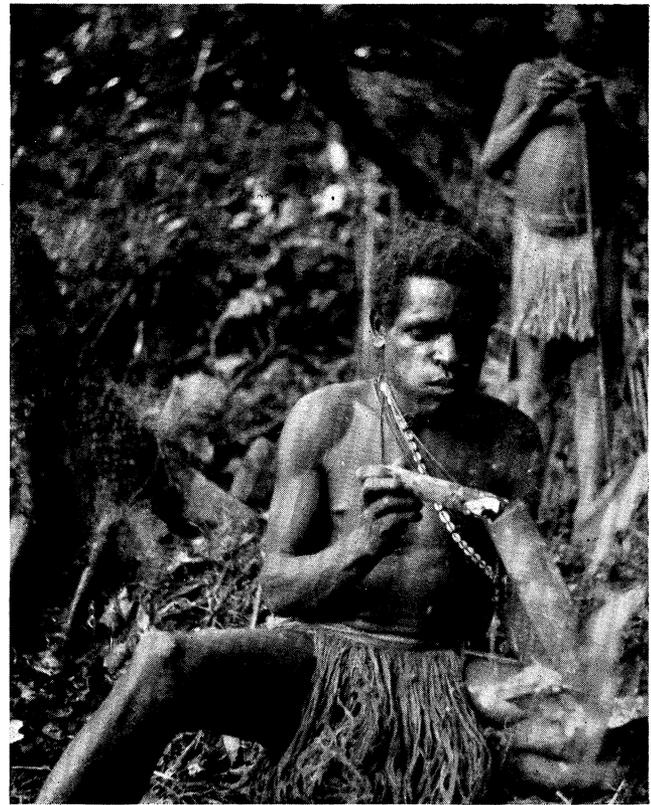


FIGURE 218

132°

134°

136°

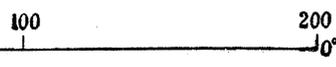


130°

132°

134°

Heights and depths in metres





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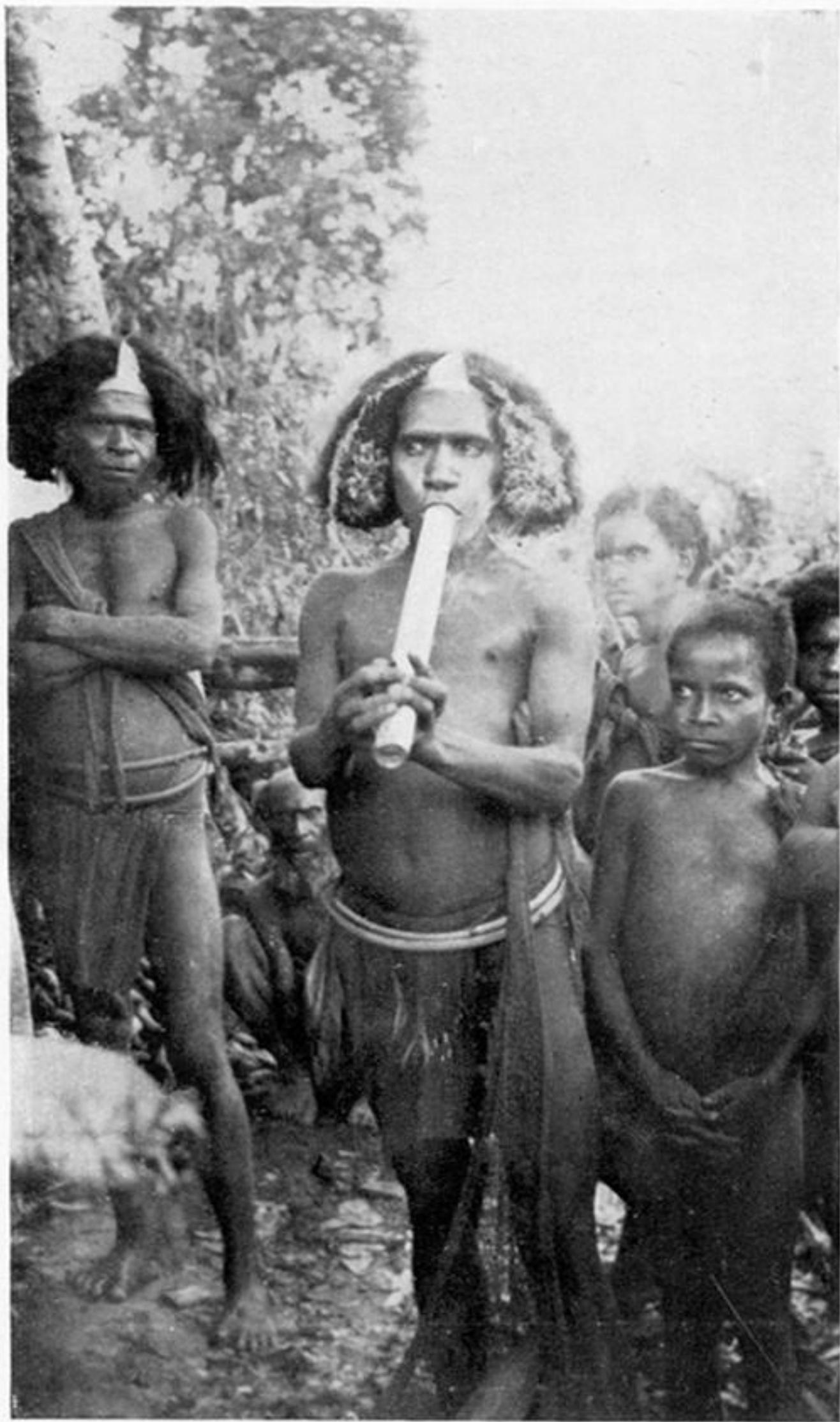


FIGURE 199

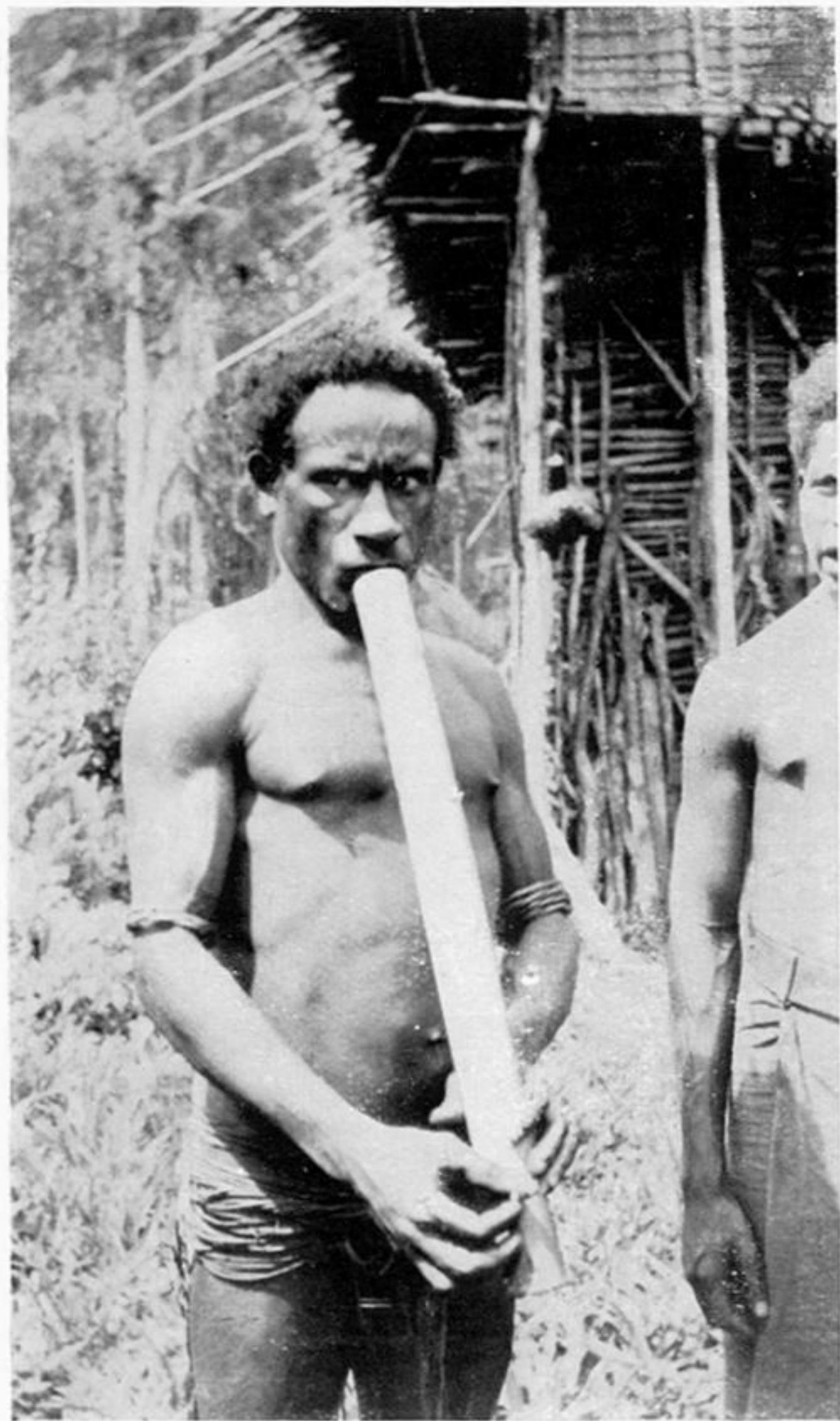


FIGURE 200

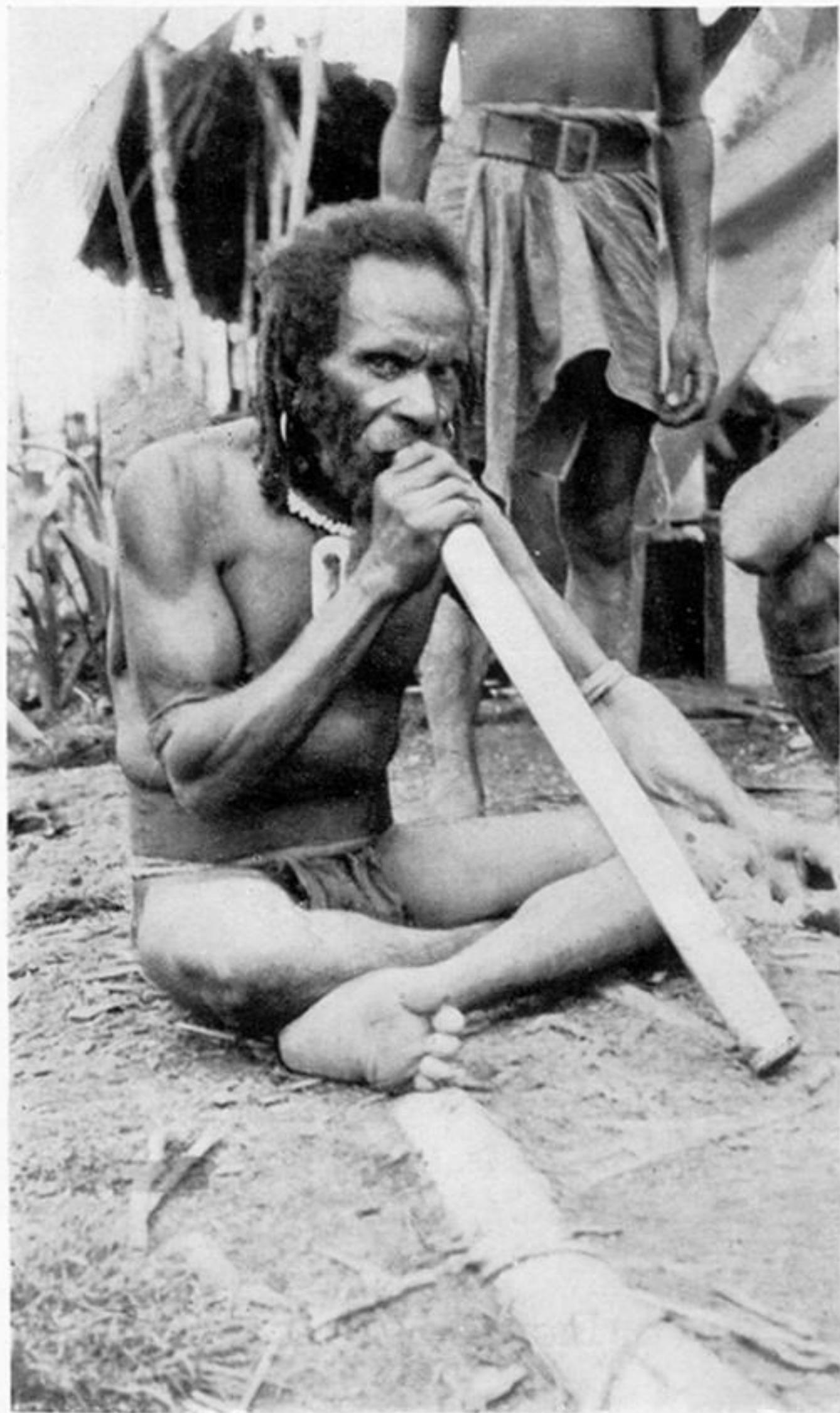


FIGURE 201

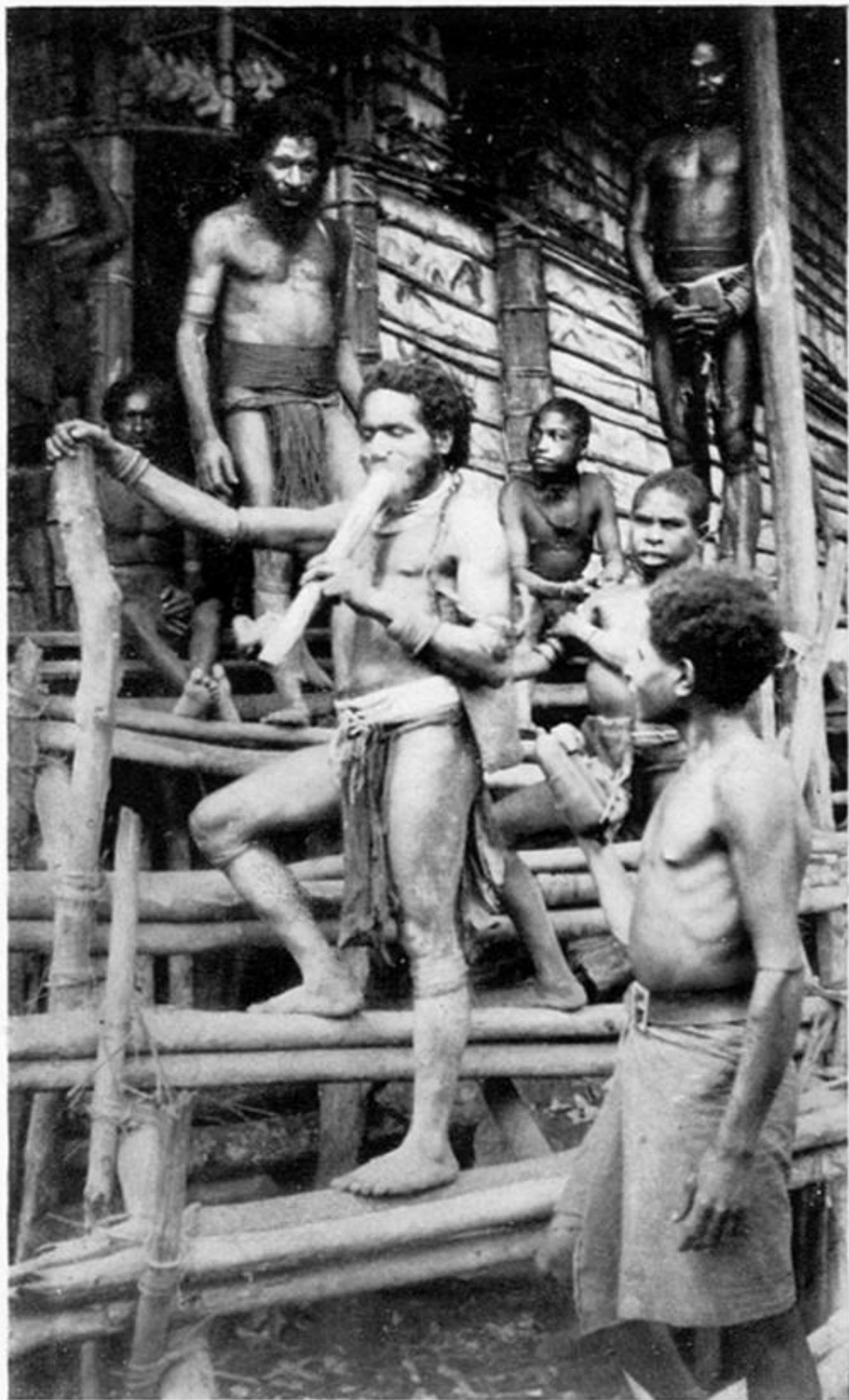


FIGURE 202

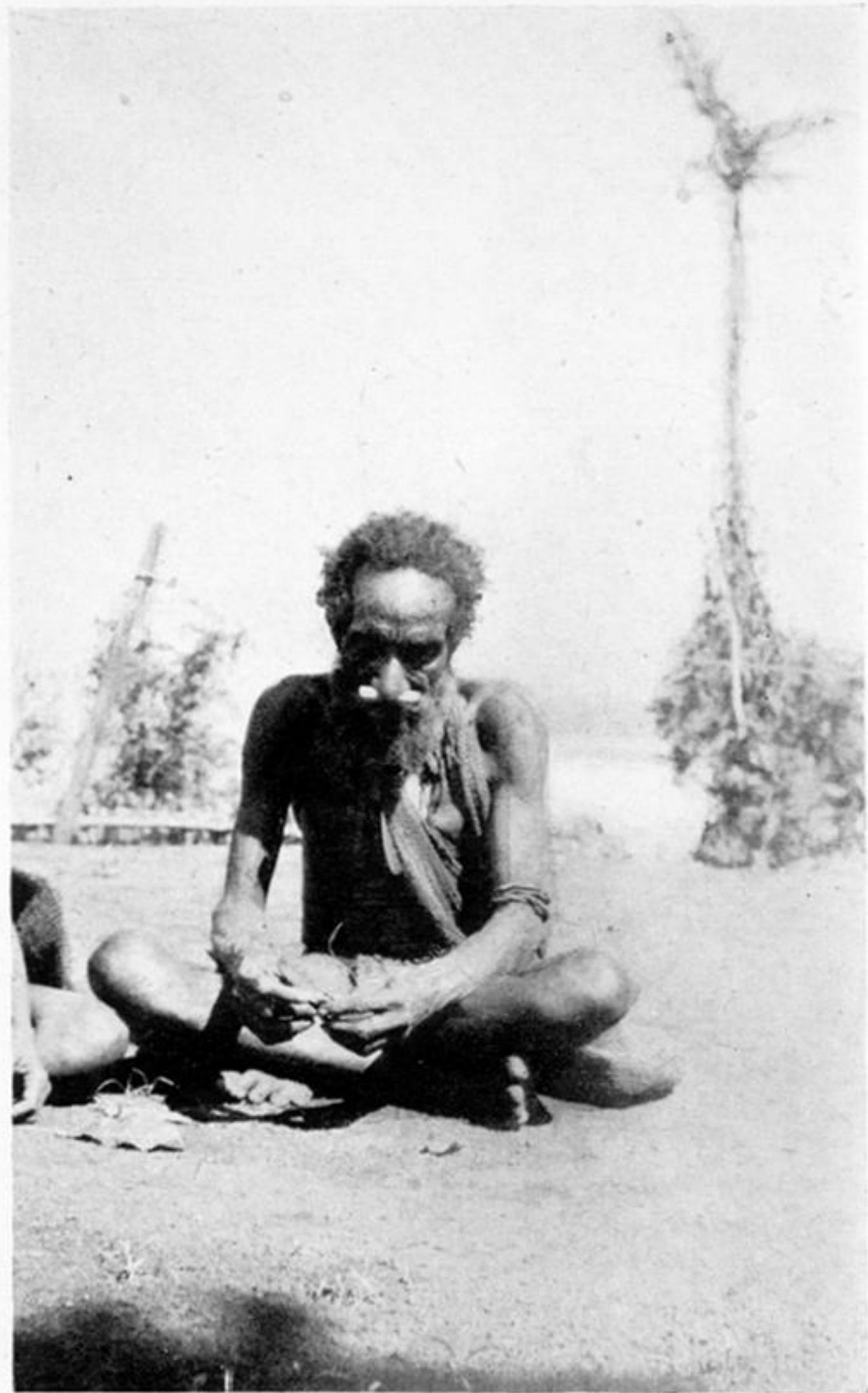


FIGURE 203



FIGURE 204



FIGURE 205

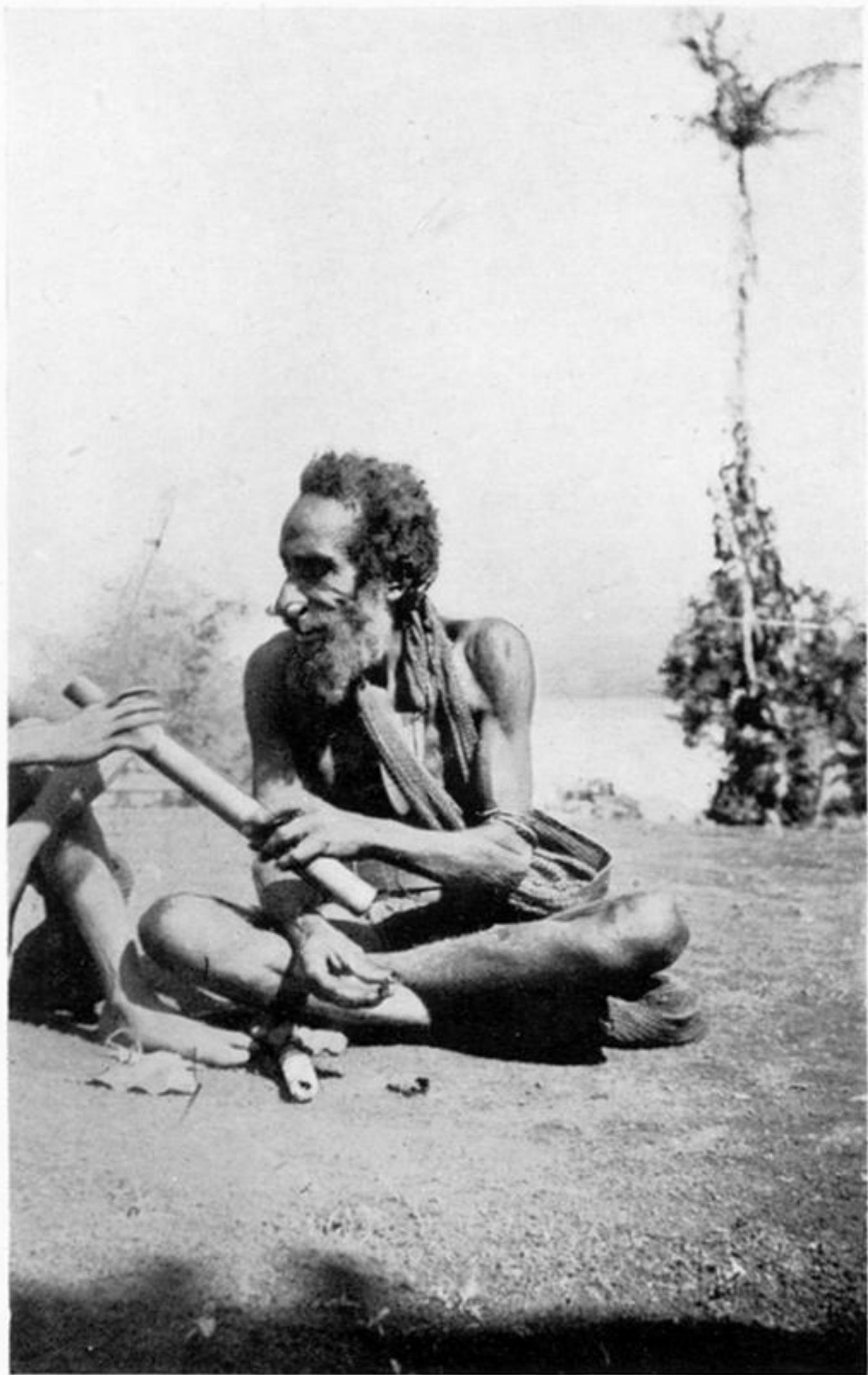


FIGURE 206



FIGURE 207



FIGURE 208



FIGURE 209



FIGURE 210

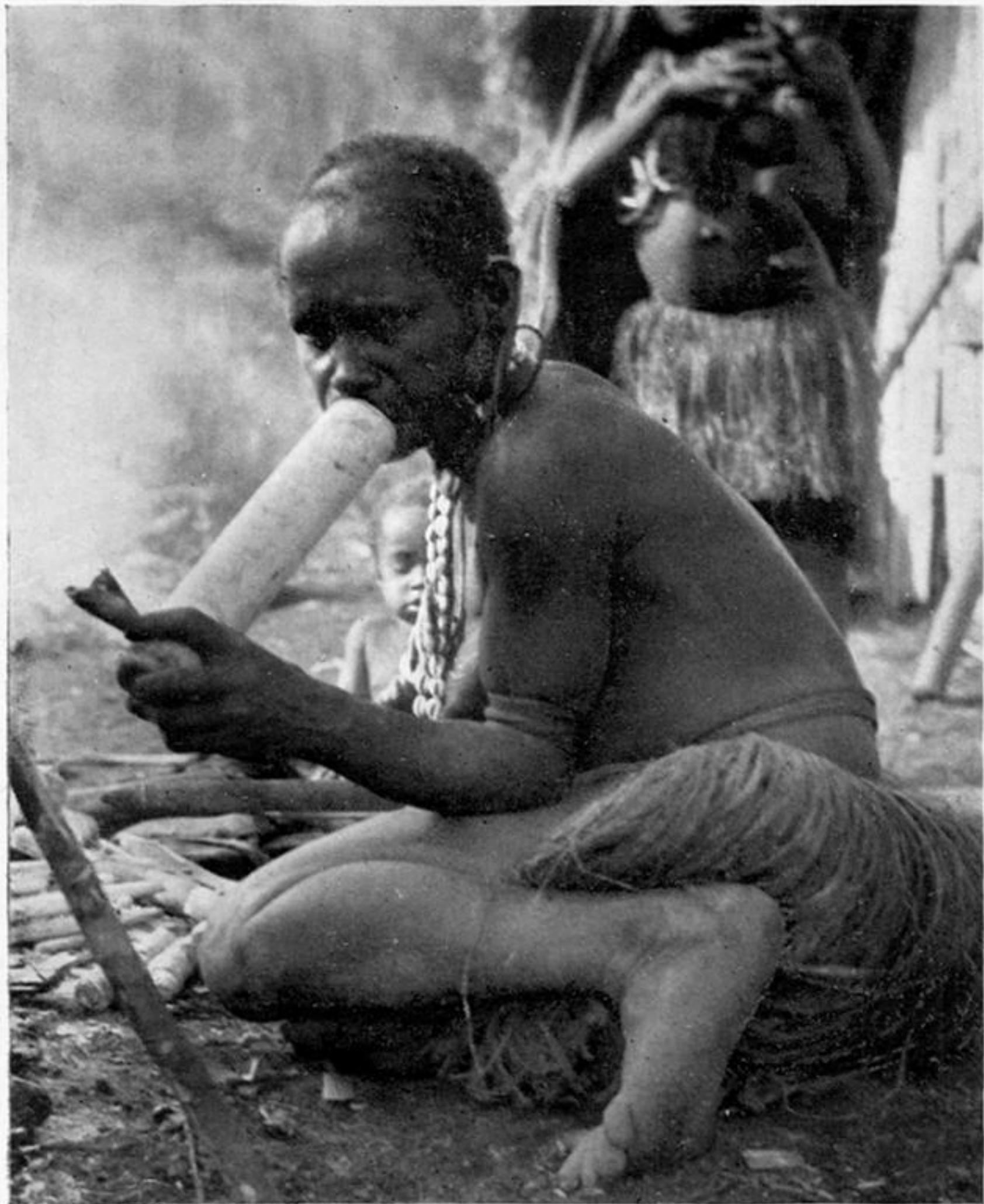


FIGURE 211

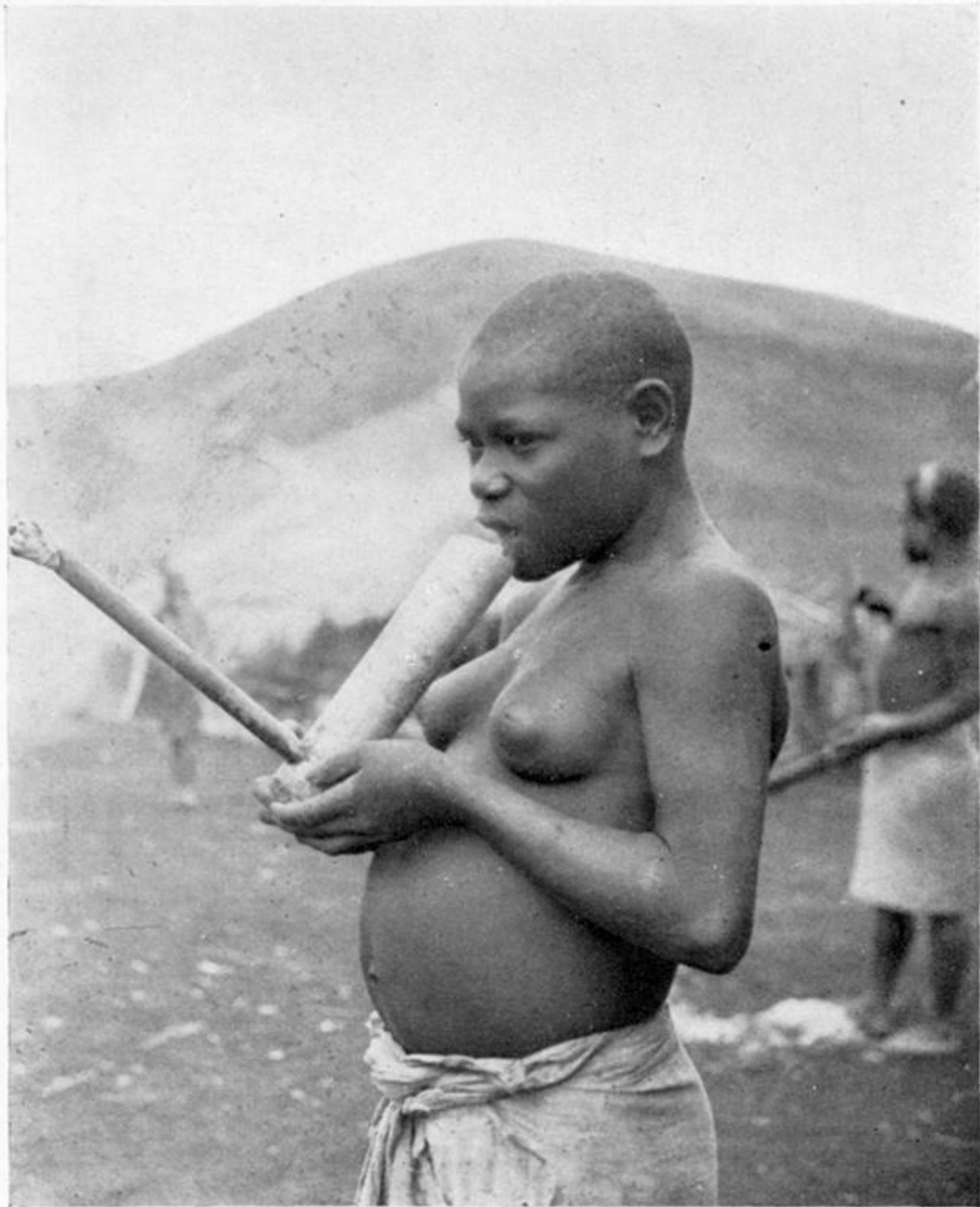


FIGURE 212

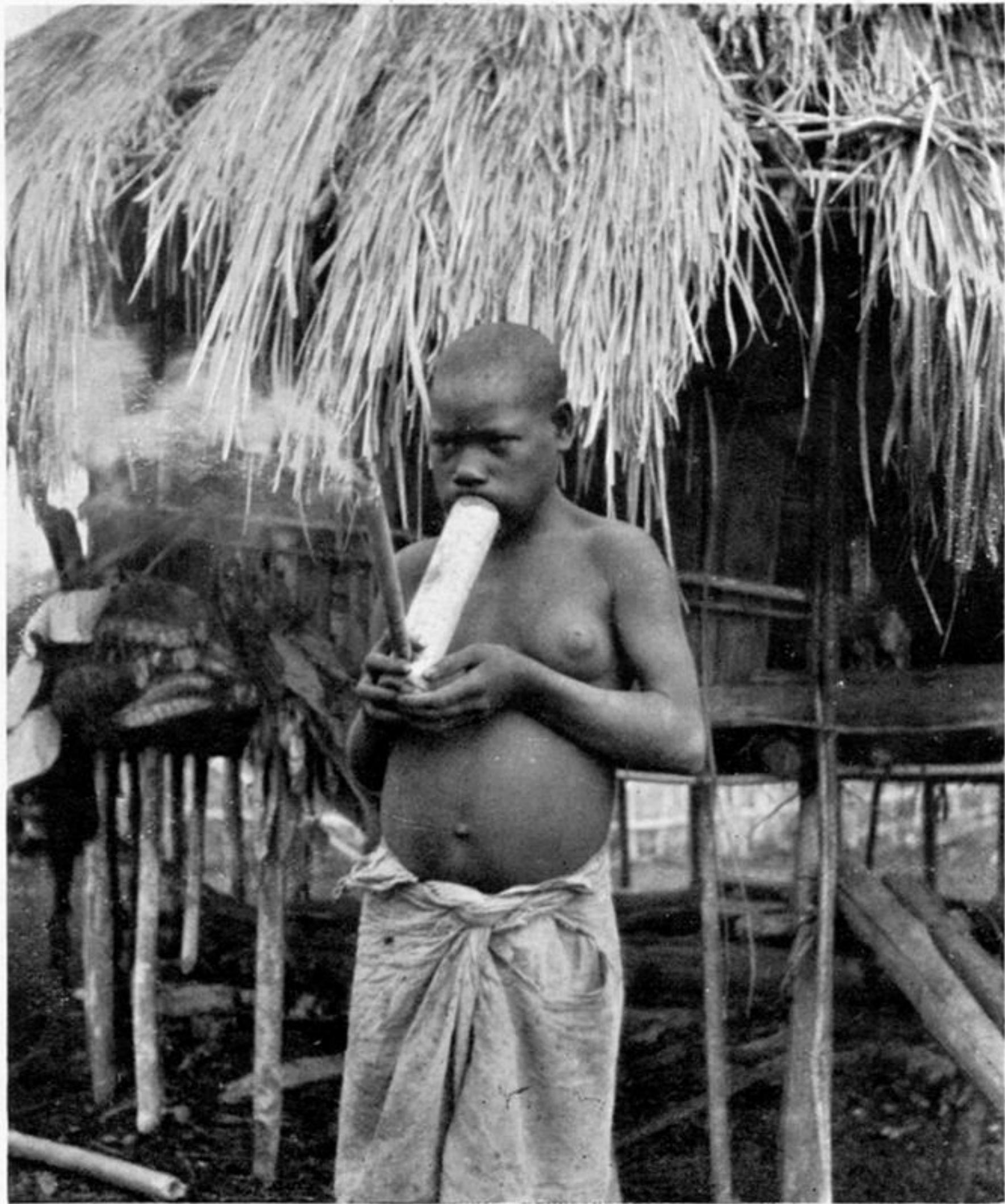


FIGURE 213



FIGURE 214



FIGURE 215



FIGURE 216

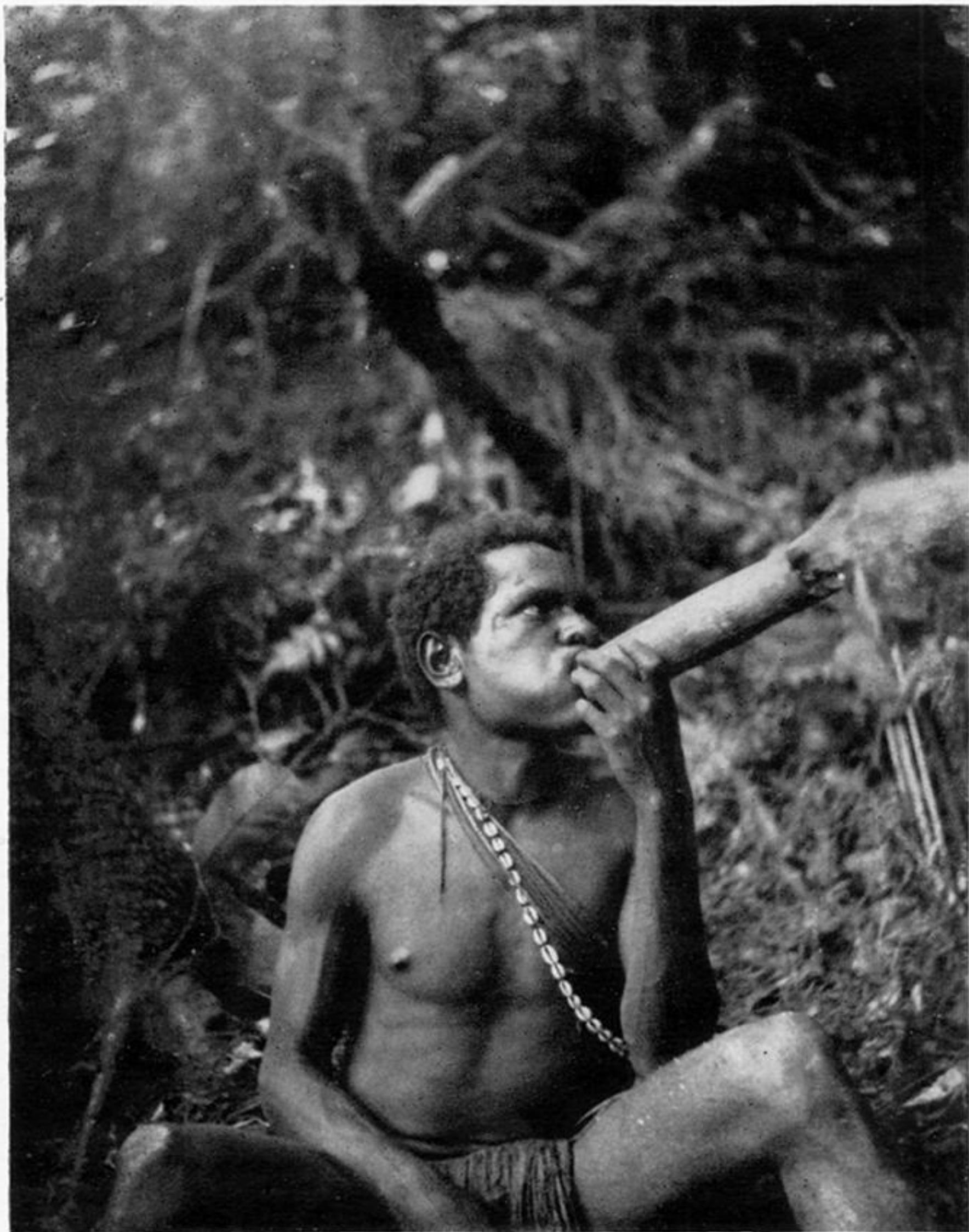
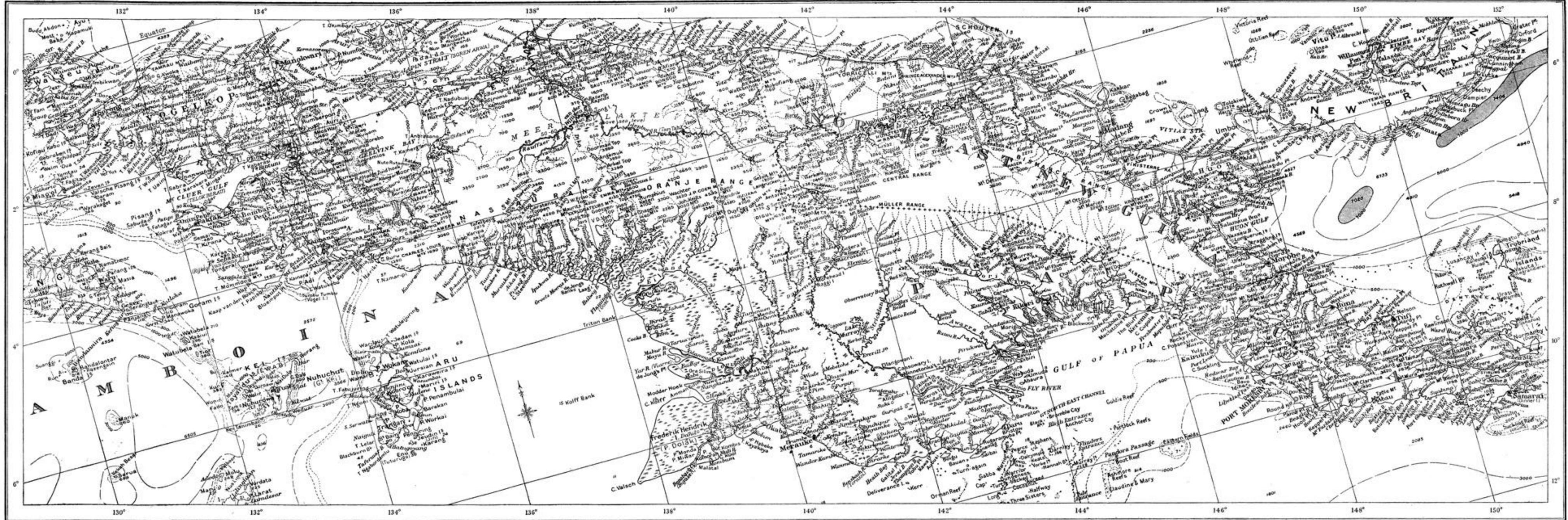


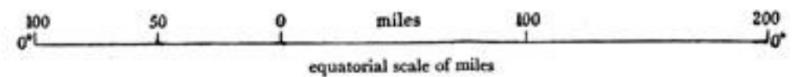
FIGURE 217



FIGURE 218



Heights and depths in metres



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