In asking you to pass a vote of thanks to Mr. Borchgrevink for his paper, which is an extremely interesting one, and for his excellent series of photographs, I would also wish to include the members of his staff present here this evening, who have worked so hard and done so excellently in their different departments; and I think we cannot forget Sir George Newnes, who, through his munificent generosity, enabled this work to be done. I now propose a vote of thanks to Mr. Borchgrevink, his staff, and Sir George Newnes.

STUDIES IN THE ANTHROPOGEOGRAPHY OF BRITISH NEW GUINEA.

By Prof. ALFRED C. HADDON, Sc.D., F.R.S.

With regard to the Gulf natives, we may safely regard the short, very dolichocephalic people of Maipua as belonging to a primitive stock. The skulls from the Purari river, which is the same district, have a somewhat higher average index (72 to 73) than the six Maipua men measured by Chalmers (70). Perhaps the skulls are those of enemies taken in battle. The Orokolo and Toaripi people may be regarded as belonging to one group; their cephalic index on the living subject may be taken as 77. They are tall men—1'677 metre (5 feet 6 inches) for the former, and 1'702 metre (5 feet 7 inches) for the latter; but the Rev. J. H. Holmes has measured the stature of twelve Orokolo men, and obtained the high average of 1'715 metre (5 feet 7 1/2 inches)—min. 5 feet 3 inches, max. 5 feet 11 inches. Bevan refers to the high stature of the men on the Aivei (Purari river). He says, “Some would measure at least 5 feet 10 inches (1'778 metre) in height,” and states that they approximate to the Toaripi.

Up the Fly river, well in the interior, there is a decidedly dolichocephalic population, which Mantegazza and Reglia have shown to be craniologically allied to the Geelvink bay natives; but even high up the Fly river there are traces of brachycephalism. This is well marked in its delta, where a mixture of peoples has taken place. Some of the inland or “bush” tribes are certainly of the ordinary dolichocephalic type. These appear to be pressed back by a mesaticephalic or low brachycephalic people, who have established themselves at Canoe island, Kiwai, Oriomo, and probably at other places on the coast of Daudai, as I measured a Parama man with an index of 77·2, and a Mawatta man with one of 80.

Torres strait is inhabited by a dolichocephalic people, which has probably remained pure in the eastern group—Erub (Darnley island) and Mer (Murray island), but the western islands appear to have been overrun by a more or less brachycephalic people, who are doubtless of the same stock as those who have occupied the adjacent coast of New Guinea and the delta of the Fly river.

* Continued from p. 291.
These facts can be seen at a glance in the following table:

<table>
<thead>
<tr>
<th>Length-breadth index of skull</th>
<th>Interior, Fly river</th>
<th>&quot;Bush-men,&quot; Daudai</th>
<th>Kiwal.</th>
<th>Oriomo.</th>
<th>West tribe, Torres strait</th>
<th>East tribe, Torres strait</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>-73.9</td>
<td>16</td>
<td>10</td>
<td>1</td>
<td>—</td>
<td>33</td>
<td>25</td>
<td>85</td>
</tr>
<tr>
<td>74-75.9</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>—</td>
<td>8</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>76-77.9</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>78-79.9</td>
<td>—</td>
<td>—</td>
<td>2</td>
<td>2</td>
<td>9</td>
<td>—</td>
<td>13</td>
</tr>
<tr>
<td>80+</td>
<td>—</td>
<td>—</td>
<td>4</td>
<td>—</td>
<td>11</td>
<td>—</td>
<td>15</td>
</tr>
<tr>
<td>Total, male and female</td>
<td>21</td>
<td>14</td>
<td>12</td>
<td>3</td>
<td>64</td>
<td>33</td>
<td>147</td>
</tr>
</tbody>
</table>

So far as I have had time to work it out, the available anthropometric evidence appears to me to warrant the following conclusions; but, in all fairness, I should say that I do not consider that sufficient material has as yet been collected to enable us to form otherwise than tentative hypotheses. I am aware that Dr. Loria has made numerous measurements in British New Guinea, but these have not yet been published, and I have not had time to calculate and tabulate all our own measurements; probably the cranial height, facial, nasal, and naso-malar indices will throw more light on the problem of the distribution of people in British New Guinea.

There appears to be, in the central range, a low brachycephalic people of rather short stature, who harry the short dolicho- or mesaticephalic hill tribes. In certain places they seem to have burst through this somewhat dolichocephalic zone and to have reached the coast. In the Mekeo district this movement is completed, but in the Rigo district the mountaineers are forcing the hill tribes towards the coast, which they themselves do not appear to have yet reached, although they are very close to it. In the central district they have devastated the hill tribes, and in one of their recent raids they came within a few miles of Port Moresby.

There is a dolichocephalic or subdolichocephalic population, which is usually above the average in stature, all round the Papuan gulf. At the eastern end the indices are mesaticephalic, and the stature is remarkably high for Papuans. At Maipua the stature is much lower, and the cephalic index extremely so.

The whole of the Fly river district, including Daudai, appears to be dolichocephalic with distinct traces of low brachycephalism, which appears to be especially strong in the delta of the Fly river. The brachycephals have invaded the western islands of Torres strait, where they appear to have amalgamated with the previous dolichocephalic population, but this movement has not extended to the eastern islands.

The dolichocephals, distributed over the whole of New Guinea and...
the adjacent islands, may belong to one ethnic group which has developed along various cultural lines in different places.

The problem of the brachycephals does not appear to me to be anything like so simple. One result of the Cambridge Expedition has been to establish a low brachycephalic population on the western slopes of the central range. Some of these are decidedly short; but, on the other hand, Macgregor speaks * of the natives of Gosisi and Tobiri at the foot of Mounts Knutsford and Musgrave, on the upper reaches of the Yanapa river, as "the best-built men yet met with in this colony. In the gulf, for example, there are as tall men, but they are greatly inferior to these mountaineers in general muscular development, especially in the lower extremities. There was no straight or wavy-haired individual there." We do not know what shaped head these people have. There is no reason, so far as I am aware, to believe that they are otherwise than an autochthonous population. The same may be said for the brachycephals in the Fly river district.

Having been struck by the differences between certain crania from Tud (Warrior island, Torres strait) and those from Erub, Sir William Turner † suggests: "it is not unlikely that these islanders may have had a large admixture of Malay blood." As there is no trace whatever of Malay physical character, culture, or language, this theory does not appear to me to be adequate, and for the present I do not seek outside of New Guinea for the ancestral stock of these people.

The coast brachycephals of the Motu stock—for example, the Bulaa folk—belong to quite a different category. So far as I am aware, the characteristic frizzly hair of the Papuans is universal among the mountain group of brachycephals, but in the Rigo district, ‡ and strangely also to a less extent in the Mekeo district, great variation prevails as to the nature of the hair. I have collected every variety, from straight, through wavy and curly, to the most pronounced frizzly or woolly. The Motu people admit they are immigrants.

Finally, there are the brachycephals of Murua, the D'Entrecasteaux, and China strait. The cultural evidence points to their being of a different stock from the Motu. I have elsewhere § spoken of this ethnographical region as the Massim district; hence these broad-headed people may be termed the Massim brachycephals.

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‡ We understood that the boy photographed by Mr. Wilkin (p. 270) belonged to the Sinaugolo tribe. If this tribe came from the interior I do not understand how the wavy hair is present; certainly we saw several other examples in the villages near Rigo. Perhaps the Sinaugolo originally migrated up the Vanigela from the coast, and then returned towards the coast in a westerly direction.
§ 'The Decorative Art of British New Guinea,' Cuningham Memoir, x., Royal Irish Academy, 1894.
Dr. A. B. Meyer has recently published a translation,* with additions, of two chapters of his great monograph on the Negritos of the Philippines. This critical and cautious essay is a needed correction to loose generalizations, and I can scarcely hope to escape from the criticism of my learned friend, as he considers that "the question whether the Papuans are a mixed race or no is not yet ripe for decision." He himself inclines to the view of the variability of the race as the simplest hypothesis, and as provisionally sufficient. Further, Sir William Macgregor, the late Lieut.-Governor of British New Guinea, who has a unique knowledge of the natives he has so successfully ruled, also rather deprecates an ethnological analysis of the people. On the other hand, it is difficult to make advance in a subject if working hypotheses are not employed. Facts must be grouped to be usable. While I candidly admit that the ethnic variation found everywhere in New Guinea can be brought forward to support Dr. Meyer's contention, I venture to maintain that, however imperfect and even transitory my hypotheses may be, they should at least serve to advance our knowledge by the grouping of facts and by drawing attention to concrete problems.

THE GEOGRAPHICAL DISTRIBUTION OF CERTAIN CUSTOMS, ARTS, AND CRAFTS IN BRITISH NEW GUINEA.

The geographical distribution of customs and of arts and crafts is no less significant, probably more so, than that of some of the physical characters of the people. It would have been easy to multiply examples; but I have made a selection of cases that will suffice for my purpose. Many customs and objects are so widely spread that they have no analytic value; others, again, appear to be so local that they, at the present state of our knowledge, can teach us but little. I purpose, then, to bring briefly into review the distribution in British New Guinea of initiation ceremonies, masks, the bull-roarer, houses, canoes, the bow and arrow, spear, pottery, and decorative art. Although the Torres strait islands belong politically to Queensland, I have included them in this survey, as the natives are most certainly Papuans. Some of these facts have been collected together in my two papers, "The Ethnography of British New Guinea" (Science Progress, 1894, pp. 83, 227).

Initiation Ceremonies.

On attaining puberty the lads are admitted into the clan or tribe by passing through very sacred and secret ceremonies in Torres strait, Dandai, Kiwai, and probably throughout the whole of the Papuan gulf, but certainly from Maipua, near Bald head, to Toaripi in Freshwater.

* 'The Distribution of the Negritos in the Philippine Islands and Elsewhere.' Dresden : 1899.
bay. I have described the initiation ceremonies which took place in Torres strait, and Chalmers gives some interesting information about the Gulf ceremonies—these have been quoted by me in my ‘Decorative Art of British New Guinea’ (pp. 104–109); and Chalmers (Journ. Anth. Inst., xxvii., 1897, p. 326) may also be consulted.

_Masks._

Masks are worn during the initiation ceremonies from Torres strait and Daudai to Toaripi. Chalmers states that at the mouth of the Fly river a mask is worn by elderly men who have arrived at the final stage of initiation. If this takes place in Kiwai, it is, so far as I know, the only occasion on which a mask is worn in that island.

Masks are employed for various ceremonies throughout this wide area, but not beyond it to the south-east, save in the Mekeo district, where they are used in one or two places. The villages of this district are divided into two main communities, each with its own chief.
One is the usual headman, who, I believe, is the war-chief; the other is the Afu- (or tabu-) chief. It is his business to put afu on coconuts, areca nuts, etc., if he sees signs of failing crops. Certain members of the other community, than that to which the Afu-chief belongs, have the responsibility of seeing that the tabu is observed, and some fourteen or fifteen of these men, who are called “Fulaari,” constitute a sort of constabulary. Every evening they go round the village, armed with clubs and disguised with masks, or covered up with leaves so as to be unrecognizable. At Waima all the executive of the tabu wear masks, attached to which are enormous cloaks of leaves; at Inawi and Veifaa they paint the face and cover up part of the body, but they sometimes wear masks; at Aipiana they cover over the whole body with leaves. Masks are used for a similar purpose by the Toaripi, according to Chalmers. In other words, in the Mekeo and Toaripi districts masks have a legal significance, whereas elsewhere in British New Guinea they are, so far as is known, distinctly religious or perhaps in some cases magical insignia. Parallels to this will be found in New Britain, Africa, and elsewhere. The Torres strait and Daudai masks are made of wood or turtle-shell (tortoise-shell); those of the Papuan gulf are constructed of a natural cloth, the designs being marked by cloissons of midribs of palm leaflets, and the spaces coloured black, white, and

red. Some masks, very similar to the latter, have been obtained from Kaiser Wilhelms Land, but the cloissons are, I believe, absent; other masks from the German territory are of wood.

The Bull-roarer.

That remarkable instrument, the bull-roarer, is employed in Torres strait, the estuary of the Fly, and along the Papuan gulf. It does not appear to occur in the Mekeo district, and is absent over the whole southeastern peninsula and adjacent archipelagoes; but it crops up again in German New Guinea. In Kiwai and the Papuan gulf it is employed in initiation ceremonies, as it also was in Muralug (Prince of Wales island), Torres strait. In the other islands it was not shown to the lads during their initiation, but was swung in fishing ceremonies, and I have recently discovered that it was also employed in Mabuiag, as it still is in Kiwai, to make crops grow. In Mer (Murray islands) it was associated with rain-making and used in a ceremony connected with turtle-fishing.

Houses.

The natives of Torres strait have adopted the oblong “South sea” type of house. Formerly the eastern tribe, the Murray islanders, and the natives of Erub and Uga, built small circular beehive huts; of these only one now remains in the Murray islands. The western tribe also built on the ground, but they had more or less oval or oblong huts, with a flat or curved gable roof, and with walls about 2 feet in height, or without walls at all; some were mere shanties or break-winds, except in Saibai and Dauan, where there were pile-dwellings. These houses were inhabited by single families.

In Daudai and on the Fly river long communal houses are built on piles from 100 to 500 feet in length. Many families live in these houses, and I recently discovered in Kiwai that each house is inhabited by members of one clan only, who all acknowledge the same totem: here a woman adopts the husband’s totem. The end rooms are the club apartments of the men; the women and children enter the houses by the side doors.

Macgregor says,* among the black people of the coast of the Papuan gulf, and among the lighter-coloured tribes of the interior, it is customary in many places to have large “man-houses” for the males, and smaller “woman-houses” for the women and children. The “man-houses” are sometimes several hundred feet long; those for the women are always smaller. The former are what Chalmers used to call “temples,” or dubus; this last is a Motu word, and he now terms them by their native name of eramo.

Inland the houses are generally straight-roofed, and with each end completely open. They are square or oblong.

* * British New Guinea: Country and People* (1897), p. 85.
In the whole of the remaining portion of British New Guinea we again find family houses, which are always raised from the ground on posts, except in two widely separated localities.

At Bubuni and Vale, villages on the top of steep hills behind the Mekeo district, and the similarly situated Emene on a southern spur of Boboleva (Mount Davidson) are conical ground houses with elliptical and circular bases. In some places, as on the Adualla affluent of the Alabule (Angabunga), these are oblong, having a short ridge-pole. Fathers Jullien and De Rijke* state that the crests of the mountains are long and straight, and the villages on some of the ridges consist of only a single street of such narrow width that two persons can only just pass;

the houses are built partly on the crest, partly on the slope, and the whole village is surrounded by a palisade. In the mountains inland from Oroi (Nara), and about the same latitude, "beehive houses" have been recorded.

Macgregor describes and figures small ground-houses with the gable roof coming right down to the ground at Neneba, on Mount Scratchley. These have a sleeping-platform close to the angle of the roof, to which access is had by a small ladder. These houses might be described as very small pile-dwellings, in which the roof is continued down the sides to the ground. In some there is a pent-roof over the entrance.

DISTRIBUTION OF HOUSES.

Large communal houses on piles.
Small family houses on piles.
Houses on the ground.
Conical family houses on the ground.

Scale of Miles

0 50 100 200
The other ground-houses are in the Bennet islands (Nada, Murua, Kiriwina, etc.), where the elongated roofs are saddle-shaped—that is, higher at the ends than in the middle.

In all these ground-houses, including those of Torres strait, there is no verandah; this is also strangely wanting in the pile-dwellings of the Louisiades, where the houses have a boat-shaped roof, and the entrance is by an end door or through a small trap-door in the floor; but nearly everywhere else in the possession a verandah at the front entrance is a prominent feature of the house. I have seen some Koiari houses in the central district with a verandah down the side, and not at the end.

It would be tedious to describe the various forms of houses met with on the south-east peninsula from Mekeo to South Cape; suffice it to say they are built on piles, have an oblong shape with a gable roof, and have a verandah at one end, which may be sheltered by the projecting gable, or it may have a small shed or lean-to roof of its own, which sometimes forms a hip-roof at that end.

Macgregor informs us * that on the north-east coast a small square house, lightly built, with a mansard roof and a verandah on one side, is the general form; but on the Mambare there are elliptical houses, well thatched, with small square entrances and no verandahs.

The large club houses (eramo) † of the Gulf district are represented

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* Loc. cit., p. 86.  
† Also called elamo and erabo.
by decorated houses (*marea*) in the Mekeo district; and further down
the coast beyond Port Moresby, at Lakwaharu (Tupuseleia), Kapakapa,
and in the other villages round about Rigo and in the Hood peninsula,
Bulaa (Hula), Babaka, Kalo, etc., these are replaced by open-air platforms
(*dubu*), the posts of which are usually carved.

The houses of the marine villages of Lakwaharu, Gaile, Kapakapa,
and Bulaa, do not differ in any essential point from those on the shore.
The tree-houses of the Koiari and other hill-tribes in the central
district are merely places of refuge; they are occupied only when
danger threatens.

**Canoes.**

The distribution of the various main forms of canoes in British
New Guinea has many interesting features. Everywhere the canoes
are dug-outs, but sometimes a free-board is lashed on to the hull.

The Torres strait canoes were imported from the mouth of the Fly
river, but the islanders and the Daudai coastal people furnished them
with a free-board and a double outrigger. The latter consisted of two
long thwart poles, to the ends of which a float was attached; a plat-
tform was built on the thwart poles in the centre of the canoe. Two
large oblong mat sails were erected in the bow of the canoe.

On the lower Fly the inefficient small canoes have a single long
slender outrigger at a great distance from the canoe. Their small sails
are oblong mats. Up the Fly river the narrow canoes have no out-
trigger or sails.

Between the Fly and the east of the Gulf of Papua the sail seems
to be quite unknown, and there is no outrigger. Macgregor points out
that the special peculiarity in the construction of the canoe of this
district is that it seems designed more to let the water out than to
prevent it from entering. It has neither prow nor stern, but is cut
away from above at each end in a gentle curve, so that the extremity,
if it meets the water, divides it in the horizontal instead of the usual
perpendicular direction. The extremes are about level with the water.
At Biroe, on the upper Purari, the canoes have sharp vertical, high-
edged prows; there is no outrigger. The large war-canoe (*lakia*) of
the Toaripi * consists of two canoes lashed together about 6 feet apart,
and the bridge in the centre is a platform on which the fighting men
stand, and to the railing are fastened a large number of bows and
arrows. When we were at Delena we saw a similar canoe arrive from
further up the coast.

In the rivers and estuaries of the Mekeo district the canoes have a
flat projecting stern end, and the bow is blunt and clumsy. They are
all of one piece, and are pushed along by poles. These seem to be

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somewhat similar to the canoes used by the Tugeri pirates from just beyond the Dutch boundary.

All along the seaboard of the central district as far down as Keapara (Kerepunu) the canoe is generally single with an outrigger, which is lashed by many poles to the canoe; it is sharp and high-pointed at each end. The great majority of these canoes are made at Keapara. From Aroma to Orangerie bay the sailing-canoe is double, with the sides often increased in height by boards sewn on to the hard wood. From Yule island to Orangerie bay the sail has an elongated heart-shape, sharply pointed at one end, and with a deep crescentic notch at the other.

From Orangerie bay to Tagula (Sudest), and Murua, much more handy and skilfully-made canoes are in use. They are formed of boards, which are sewn, caulked, and decorated, and built on a strong curved hard-wood keel. All are provided with a long outrigger of light wood. The sail is elliptical in form, the whole circumference being kept in shape by a light frame of saplings. The war-canoe of the east end was used from South Cape to Tauputa, and from Moratan (Fergusson island) to Wari. It is long and narrow, with an outrigger of the same length as the canoe, and only about 2 feet distant from it. The Yela (Rossel island) canoe is different from any other, and is the most skilfully made canoe of any in the possession. It has an outrigger, but no sail. It is built up from a hull, and is in form something like a Rob Roy canoe, there being a central walled-in well, while the fore-and-aft projections of the hull are hollowed out and then securely boarded and caulked. There are no sailing-canoes in Kiriwina (the Trobriands); but the Vakuta people possess the best sailing-canoes in the group. Vakuta is a small island immediately to the south of Kiriwina, and almost joining it.

No native sail has been seen at sea or on shore on the coast north of Ipote. The canoes are sharp, high-ended, and made from one tree. They are always provided with one long thin outrigger, at an unusual distance from the hull.

Most of this information has been culled from Sir William Macgregor's book 'British New Guinea,' pp. 54–59.

**Bow and Arrow.**

The bow and arrow are the main fighting weapons of the west. They were used in Torres strait, but were imported there from the mainland of New Guinea. Their use is universal from the Dutch boundary, all along the Papuan gulf, and in all the interior country behind. About Cape Blackwood, the bow, instead of being made of the male bamboo, is constructed of palm wood, and its use once extended as far as Redscar bay, but further east it entirely ceased. The bow and arrow are wanting at Babuni and Vale, and I think also among the
Uni Uni, who live on the southern spurs of Mount Boboleva (Mount Davidson) at the back of the Mekeo district. They are, however, employed a little lower down the central mountain range; but here they are by no means the formidable weapons they are in the Papuan gulf—for example, at Neneba on Mount Scratchley the bow is of palm wood, is weak, and about 3 feet long, with a string made of a strip of cane; the arrow has a reed shaft and a wooden point without barbs. The bow and arrow have not been seen on the lower Mambare, nor do they appear to occur in the main range south of the Scratchley massif.

Spear.

The spear replaces the bow and arrow in the rest of the peninsula and in the archipelagoes beyond. These weapons overlap in Redscar bay, the Kabadi country, and in the Mekeo district. The spear is usually made of palm wood; it is always in one piece, and is generally barbed on one side.

Pottery-making at Hanuabada, Port Moresby.

Pottery.

The art of making pottery is by no means universal in New Guinea, and it is limited in a suggestive manner in the possession. It is entirely unknown in Torres strait and in the whole of the Fly river basin and to the west of it. Throughout the whole of the Gulf district pottery has only been met with some way up the Vailala river. No information is given as to the method of manufacture; but, as the articles are very rude, we may assume they are simply fashioned out of a lump of clay, and that probably a stone and beater are employed.

No. IV.—October, 1900.]
DISTRIBUTION OF DECORATIVE ART.

Animals and Plants employed in ornamentation
Human Face Patterns
Geometric designs of unknown significance
Scroll patterns derived from the Frigate Bird

Scale of Miles.
No interior tribes of the south-east peninsula make pottery; but along the western coast the Motu settlements are the seat of a considerable pottery industry, and most coast natives can distinguish between the pottery of different villages, and even recognize the handiwork of individual women, for this is entirely woman’s work. The pottery is made out of a lump of clay, which is first moulded by the hands and then beaten out by means of a wooden beater and a stone held within the pot by the left hand. Pots made in Port Moresby are exported to the Papuan gulf. Pottery is made in the villages of Pinupaka, Ziria, Delena (in the Mekeo district), Manu Manu in Redscar bay, Lealea in Caution bay, Boera, Borepada, Port Moresby, and Pari—these are Motu villages, and also by the Aroma tribe chiefly at Maopa.

In the Engineer group, and especially in Wari (Teste island), the clay is laid down in a spiral, and no stone or beater is used, but the pot is smoothed with a Tellina shell.

The only other locality in the possession where pottery is made is near the German boundary. Thick, coarse pots, usually nearly covered with rude incised patterns, mainly zigzags, are made at Gona bay (Holnicote bay), but another style of decoration occurs at Waututu. There is no information as to the manner of manufacture of this pottery. In German New Guinea pottery is made from the lump, as among the Motu, at Humboldt bay, Dallmann harbour, Astrolabe bay, and elsewhere.

Decorative Art.

There are many interesting features in the distribution of decorative designs in British New Guinea; but as I have elsewhere* dealt so fully with this subject, I need not do more than point out the salient features.

On referring to the sketch-map, it will be seen that I distinguish four main districts, which may be designated as the Western, Gulf, Central, and Massim or Eastern regions. These can be further subdivided, but for the present I will briefly describe the artistic characteristics of these four regions.

Our knowledge of the Western region is confined to objects collected in Torres strait, the coast of Daudai, and the lower Fly river. Most of the decorative objects are bamboo tobacco-pipes, drums, masks, and a
few ornaments, combs, etc. These may be ornamented with "geometrical" patterns, but there is not much real variety in the designs, and there is a marked absence of double curves. Even simple curves, such as bowed lines, are not very common; some of these may be regarded as rounded chevrons rather than deliberate crescents. I have recently found that many of the simple "geometric" designs are conventionalized representa-

1. "GEOMETRIC" PATTERNS BURNT ON A BAMBOO TOBACCO-PIPE FROM THE CENTRAL DISTRICT.
2. PROW OF A CANOE CARVED WITH HEADS OF THE FRIGATE BIRD, MASSIM REGION.

tions of natural forms. Very characteristic of this district is the representation of animals and plants; the former are often cleverly drawn. I discovered the presence of totemism in Torres strait ten years ago, and suspected its occurrence on the mainland of New Guinea. I some time ago put forward the view that the delineation of animal forms was primarily due to the influence of totemism; but I could not account for the plant forms which characterized the art of the Fly river,—I now know
SHIELD AND CEREMONIAL OR MAGICAL TABLETS FROM THE PAPUAN GULF.

CARVED WOODEN BELT FROM THE PAPUAN GULF.
that this is due to the prevalence of plant-totems. Spirals occur in the Fly river, but not in Torres strait.

The decorative art of the Papuan gulf is characterized by the employment of the human face. This degenerates into all sorts of bizarre

1. FRIGATE-BIRD SCROLLS CARVED ON A CLUB, MASSIM REGION.
2. DANCING SHIELD WITH FRIGATE-BIRD DESIGNS, KIRIWINA.
3. LIME GOURD WITH BURNT DESIGN, KIRIWINA.
patterns. The human form and occasionally animals are pressed into the service. There are few geometric designs that cannot be derived from the human face. Spirals are common. Chalmers states that the Toaripi "know nothing of carving;" hence most at least of the carved objects stated to come from Toaripi probably originally come from further west.

In the Central region the patterns are "geometric," and their origin is at present unknown; some look as if they might be plant derivatives. Animals are scarcely ever introduced into the decoration of pipes, and then, I believe, only in the Mekeo district; in the same district only do spirals occur.

A very different style of ornamentation is found in the neighbourhood of South cape and Milne bay, and in all the neighbouring islands—that is, in the Eastern or Massim region. Scroll patterns are universal, the vast majority of which are derived from the frigate-bird. The crocodile also enters into many designs, as do other animal forms. Quite recently we have learnt that totemism occurs in this district, and this must be held responsible for many of the zoomorphic designs. It should be remembered that the frigate-bird is the sacred bird of the West Pacific, and is revered over a large area. The human form is frequently carved, in Murua especially. Spirals are very frequent.

The technique of the decorative art is as characteristic as the motive in each region. The pipes of the Western region have etched designs; the patterns of those of the Gulf are in low relief; the pipes of the Central region are usually decorated with burnt-in patterns; but in the Cloudy bay area, instead of the pattern being burnt straight away on the bamboo, the designs are first sketched in outline and then burnt in. The most beautiful and delicate burnt-work of all peoples is to be met with on the lime-gourds of Kiriwina. I have recently found incised patterns on pipes in the Mekeo district, which somewhat resemble those of the western region, and in the Rigo district, which are sui generis. The decoration of the shields of the Gulf, Central, and Massim regions is also very distinctive. Indeed, the provenience of any decorated object from British New Guinea can now be located by the motive and technique of the design.

Daudai; but they did not extend to Torres strait. On the other hand, south-east of Cape Possession and right as far as Murua and Yela, small family houses alone occur. Canoes with a single outrigger and palm-leaf sails have a similar distribution, except, according to Macgregor, for the absence of sails on the north-east coast or at Kiriwina. Spears, too, have practically the same distribution.

It is thus evident that a division can be made into a western and an eastern group of handicrafts, the dividing-line being somewhere about Freshwater bay. Further evidence for this western and eastern division is afforded by the fact that in the latter tattooing is very widely spread, except in the interior; whereas the marking of the body by means of scars is confined to the Western Papuans. It is only quite recently that a few individuals in the west have adopted a little tattooing owing to intercourse with the Eastern Papuans or with Polynesians. Again, so far as my experience goes, men and women never dance together in the west, but this is the usual practice in the east, at all events among the so-called "Melanesian" tribes. The style of dancing, also, is entirely different in these two divisions.

The maps of the distribution of canoes and decorative art clearly indicate that each group can be further subdivided, and we have (a) a western subdivision, in which the canoes have two outriggers and an oblong mat sail, and in which the animals and plants enter into the decorative art; and (b) a Gulf subdivision, in which the canoes have neither outrigger nor sail, and in which the patterns are almost invariably derived from the human face. The eastern group is divisible into (c) a central subdivision, in which the sails of the canoes have a concave upper margin, and the decoration consists of "geometric" patterns, recognizable animal motives being practically absent; and (d) an eastern subdivision, in which the canoes have an elliptical sail, and in which the frigate-bird so permeates the decorative art that scarcely an object can be found which has not some trace in scroll, spiral, or circle of that sacred bird.

The Fly river probably constitutes a subdivision of its own, and the central subdivision is more complicated than these maps indicate. I hope on a future occasion to discuss this problem at greater length, and with additional cultural evidence.

The thirty-one languages or dialects known to Mr. Ray may be grouped thus:

A. Non-Melanesian—
   III. Sikube. Sikube.
   IV. Mambare. Mambare, Yoda.
   V. Umeni. Umeni.
Mr. Ray has established the occurrence of two groups of languages in British New Guinea. One of these he terms "Papuan," and the other "Melanesian," as it has close connection with the languages spoken in the great chain of Melanesian islands. Including and west of Toaripi, all the languages are "Papuan," as are also those of the inland people of the peninsula. Of these the following speak "Papuan" dialects: the tribes on the Mambare, Mount Victoria, Mount Knutsford, the Vanapa and Laroki rivers, including the Koiari, Koitapu, Meroka, probably the Umeni and Ikoro, and the Mairu of Cloudy bay and Orangerie bay. So far as Mr. Ray knows, there is no connection between Toaripi, the one or two Koiari groups, and the Mairu, either in grammar or vocabulary. Mr. Holmes states that Toaripi is spoken some distance
inland. The Koiari group of languages shows two fairly distinct divisions; one of these may represent the mountaineers, the other is the true Koiari. No information is yet to hand on the grammatical construction of the mountain languages.

According to Mr. Ray, the Mekeo, Uni Uni, Waima, Roro, Pokao, Kabadi, Doura, Motu, Sinaugolo, Kalo, Bulaa, Keapara, Aroma, and the Rubi (inland to Aroma), speak "Melanesian" dialects. Mekeo is Melanesian in grammar, but altered by some intrusive element. Waima and Roro are the same language—the difference is only in pronunciation; Waima has no trace of the Gulf language. Pokao may belong to the Motu group. Doura and Motu are the same. Sinaugolo is the principal language of the remaining group. Rubi and Keakalo are almost identical with it. Keapara and Bulaa differ only in the pronunciation of some words; the structure of all these dialects is identical. The grammars of the Mekeo, Waima, Roro group are very much alike, but distinct from the Pokao, Kabadi, Motu, Sinaugolo, etc., group. Mr. Ray has kindly permitted me to make use of the foregoing unpublished material.

Mr. Ray had previously stated that the "Melanesian" dialects of Milne bay district and of the archipelago beyond are of a somewhat different character from the former group. In fact, he goes so far as to say "the language of Suau (South cape) appears very similar to those of San Cristoval, in the Solomon islands, which lies almost due east of South cape. The Motu and Kerepunu (Keapara) agree more with the languages of the Efate district, in the Central New Hebrides." *

It is not possible at present to fit in all these facts with our existing knowledge of the head-form of the natives of British New Guinea.

The dolichocephals may certainly be regarded as an autochthonous people; physical anthropology, ethnography, and linguistics are fairly well in accord on this point.

The eastern insular, or Massim, brachycephals present little difficulty; they may safely be regarded as an immigrant people that came from the Melanesian archipelago and saddled themselves on a pre-existing dolichocephalic population.

I confess to experiencing a great difficulty in deciding about the brachycephals of the central district. Provisionally, I would suggest that we have here to deal with a dual element: (1) An inland group which is gradually forcing its way to the coast; there is at present no reason to believe that this is not an indigenous group. (2) The Motu stock, which apparently is an immigrant people.

There is also the problem of the origin of the western brachycephals. These I regard as a branch of the autochthonous brachycephals, whose presence has now been proved by me in the central district.

Future research may perhaps determine whether the brachycephals have all along existed side by side with the dolichocephals in New Guinea, or whether they have immigrated into New Guinea at various times. If the latter prove to be the case, then we have in British New Guinea at least three distinct migrations, the oldest being that of the western and central brachycephals, the Motu and the Massim brachycephals representing later but entirely separate waves.

After the reading of the paper, the following discussion took place:—

Mr. SELIGMANN: I am sure we must all have been very much delighted with the paper, but I don't think any one, with the exception of Mr. Ray, was quite as delighted as I was. We were with Prof. Haddon on this expedition. He said something about the extreme sweetness of the native. Well, he was something of a demigod to them, certainly rather more than a father. At Murray island they said, "He close up alongside God. He savvy too much."

There are one or two points I might mention this evening. In the maps of New Guinea one or two things came out very markedly; for instance, the Mekeo district, where there are large fertile plains of recent alluvial soil, is the place where the best yams grow. That district is the chief, if not the only, one on the south-eastern coast of New Guinea where we have a large amount of leprosy; it is endemic. The interest of that is that recently a book has been published, a prize essay on leprosy, by Dr. Ashburton Thompson of Sydney, in which he treats the history of leprosy carefully, and shows that it is almost certain that leprosy, in Australia, was introduced by Asiatics, perhaps Chinese. There is no record of it before they came. Well, in this fertile valley in New Guinea we have it, not only in the coast villages—possibly there it has some connection with the mangrove swamps—but right up inland. I have seen cases in villages 18 to 20 miles up the river, where it is absolutely certain there is no trace of Asiatic contamination. Then, again, the system of charms and magic varies immensely. In Port Moresby, and extending down the coast as far as the Rigo district, stones play a large part in the system of charms. You find a black stone which has a more or less superficial resemblance to a yam in shape. This, the native says, is a charm for yams. It is used as follows: You pour a little water over it, and then let the water fall on the seed-yams; that will always give you a good crop. If you find a stone with a slight constriction in the middle, like an egg-glass with a broad waist, that form of yam-stone has only to be kept in the house, then there will be plenty of yams. I have known the stopper of a Worcester-sauce bottle left on the side of a hill, where the rain-water could sweep over it before coming down on the fields to wet the roots of the bananas and yams. In the Mekeo district there is no trace of that. The people are agricultural, but they have absolutely nothing corresponding to the yam-stone. The same thing is found in regard to the fishing magic; it is totally different in the different districts, and I think the same may be said as regards their medicine charms and sorcery charms. In New Guinea there is an extraordinary percentage of albinos, and there is nothing more odd than to see a frizzly headed native of a pinkish white colour; his eyes, however, are not pink like those of European albinos or white rats, but are of a grey colour.

Mr. Ray: At this late hour I do not propose to make many remarks. I had the pleasure of seeing in the flesh what you have seen in the shadow. My own special province was linguistics, and the languages generally bear out the evidence Prof. Haddon has got together to illustrate the distribution of culture. In the western part of New Guinea, and in the interior districts, the type of language