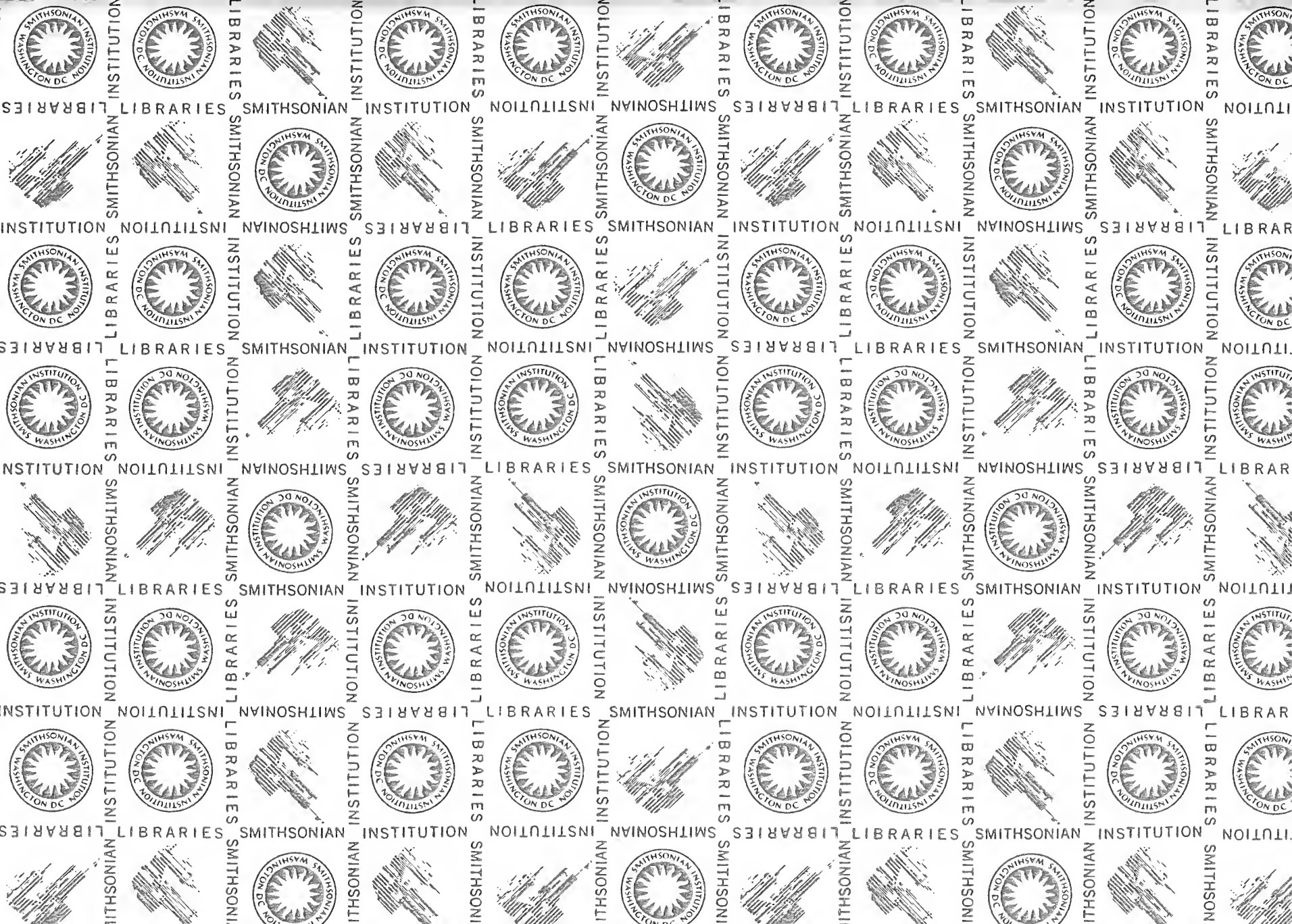
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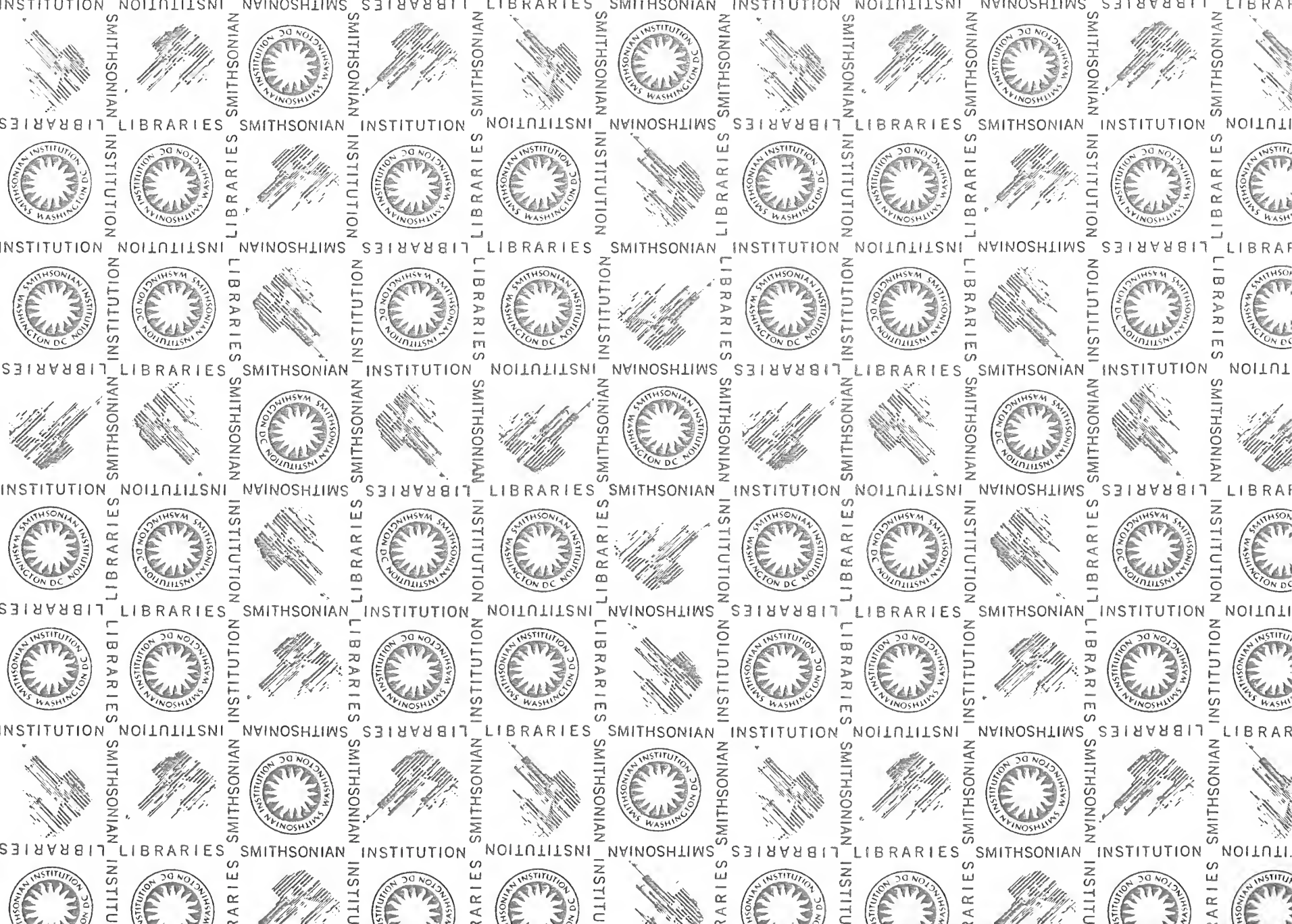
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FASCICULI MALAYENSES

ANTHROPOLOGICAL AND ZOOLOGICAL RESULTS OF AN EXPEDITION
TO PERAK AND THE SIAMESE MALAY STATES, 1901-1902

UNDERTAKEN BY

NELSON ANNANDALE AND HERBERT C. ROBINSON

UNDER THE AUSPICES OF THE UNIVERSITY OF EDINBURGH AND
UNIVERSITY COLLEGE, LIVERPOOL

ANTHROPOLOGY

PART I

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PREFATORY NOTE

THE Expedition, of which the results will be embodied in *Fasciculi Malayenses*, originated in the fact that one of us (N. A.) had accompanied the 'Skeat' expedition, as a volunteer, during the first six months of its tour through the Eastern Siamese Malay States. It seemed that many problems, both anthropological and zoological, might, with advantage, be further studied in this district, and it was suggested by Sir WILLIAM TURNER that a series of measurements of the people would be valuable, while Professor E. B. POULTON considered that much light might be thrown on the subjects which he has made his life-work, by more detailed investigation of the insect fauna. The expedition was, in the first instance, rendered feasible by a grant of one hundred pounds, made by the University of Edinburgh from the Earl of Moray Fund. A grant of equal amount was also made, later in the year, by the Royal Society, from the Government Fund at their disposal. The specific purpose for which it was voted having been found impossible, this grant was afterwards transferred to our general work, largely through the kind offices of Professor HERDMAN, to whom we are indebted for introducing us to one another. We must also acknowledge the generosity of Mr. ALFRED HOLT, through whose directions Messrs. W. MANSFIELD & Co. acted as our agents in Singapore and Penang, and brought our very bulky collections home to Europe gratis. Our thanks are due to the British and Siamese officials with whom we came in contact; more especially to His Excellency the High Commissioner of the Ligor Circle and to the British Resident of Perak. Professors HERDMAN, POULTON, and Sir WILLIAM TURNER have extended the hospitality of their laboratories to us, and have aided us in ways too numerous for separate mention. Finally, we must express our acknowledgments to the gentlemen who have undertaken the systematic description of our collections, and to the generous assistance without which this report could not have been produced.

NELSON ANNANDALE
HERBERT C. ROBINSON

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A Map and Itinerary, which it has been found impossible to include in the present fasciculus, will be published in a succeeding part

CONTRIBUTIONS TO THE ETHNOGRAPHY OF THE MALAY PENINSULA

By NELSON ANNANDALE and HERBERT C. ROBINSON

The first four parts of this paper will be purely descriptive, dealing with (1) *Semang and Sakai tribes;* (2) *the Coast Folk of Trang;* (3) *the Malays of Perak; and* (4) *the Malays and Siamese of Patani and Senggora. We intend to describe each tribe that we have ourselves investigated as fully as our experience permits, but not to discuss our results or compare them with information derived from other sources until we come to the fifth part of our paper. This will consist of a summary, with discussions as to the relationships of the different racial elements in the Malay Peninsula.*

PART I. SEMANG AND SAKAI TRIBES

As we believe that it is possible to distinguish two distinct types among the jungle-folk of the Malay Peninsula, we have thought it best to retain the names, Sakai and Semang, for them, seeing that these terms have acquired a certain currency. This has been done purely for the sake of convenience and to avoid confusion, for both terms are really bad: 'Sakai,'[1] among the majority of those tribes to whom it has been applied, is a term of abuse, the origin of which is uncertain, while 'Sémang,'[2] is a Malay corruption of 'Semán,' a name given to one particular tribe by themselves.

1. Crawfurd states, without reference to any wild tribe, that *sakai* means 'follower,' 'retainer,' 'dependent,' or 'associate' (*Malay Grammar and Dictionary*, vol. ii, p. 157, London, 1852); other authorities say, variously, that it means 'dog,' 'friend,' etc. (*Zeitschr. für Ethn.* 1891, p. 830, Berlin). In many parts of the Peninsula where jungle tribes occur, Sakai is a general term applied indiscriminately by the Malays to all of them. In Patani, where *Panghan* takes its place, it is hardly known, except among those Malays who have visited Perak; and this is probably true in parts of Pahang, Kelantan, and Kedah also. In South Perak and at Kuala Kangsar, the residence of the Sultan of Perak, the Malays say that all those jungle-folk who live on the right bank of the Perak River are Sakais, and all those on the left, Semangs—a view of the case which is approximately correct; but in Upper Perak the Semangs are said to be those Sakais who have no master, viz., the Pô-Klô, who are Sakais according to our classification and live on the right bank of the stream.

2. Mr. W. W. Skeat suggests (*Malay Magic*, p. 185) that the words *semang* and *siamang* (*Hylobates sp.*) may have been confused, but the latter is probably a contraction for Sri-Amang, Sri being an honorific prefix, derived from the Sanscrit, that is often added to the names of demi-gods and heroes in Malay folk-lore. Amang is a legendary hero of Upper Perak, whose children became gibbons after he himself had perished in a combat with Wa-Wa, whose offspring and followers were also turned into gibbons of another species. The bodies of the two heroes were transformed into rocks, which are still shown. The legend is to account for the belief that different species of gibbon, known in Malay as *siamang* or *amang* and *wa-wa* or *mawah*, inhabit the right and left banks, respectively, of the Perak River; but whether the belief is true has not been properly investigated. *Wa-wa* is an onomatopoeic word derived from the cry of the species with which it is associated.

Those tribes[1] which we have called Semang appear to be negritoid, and to be, on the whole, of fairly pure stock ; their complexion is dark, their hair frizzly or woolly, and they are always, so far as we can say, pure nomads—though often within a limited area—practising no form of agriculture. The Sakais, on the other hand, are as a rule fairer in complexion ; the hair of individuals may be like that of a Semang, but, if a number of persons belonging to one tribe be examined, some members of it will be found to have wavy, or even straight, hair. The majority of the Sakai tribes have reached a certain level of culture—building houses and planting grain and vegetables. Speaking generally, the Sakais are hillmen, and the Semangs live in the plains.

With regard to the geographical distribution of the Semangs it is difficult to dogmatize. Their southern boundary, in Perak, is practically the Perak River, though they certainly do cross to the opposite bank occasionally. Northwards, on this side of the Peninsula, they do not appear to have been recorded north of Kedah, though, undoubtedly, they occur in the state of Trang. Mr. A. Steffen, who has resided for some years in that state as engineer in the service of the Siamese government, and has had exceptional opportunities of observing the people of the country, told me (N. A.) that he has met members of a wild tribe, answering in all respects to my description of the Semán, at Ban Chong—a village at the base of the range of mountains that separates Trang from Patalung. On the eastern side of the Malay Peninsula, the Semangs are found at least as far south as the state of Pahang, but, probably, no further. To the north, they occur in Patalung,[2] where there is, probably, a very marked Semang element in the Siamese population ; while we were told by a well-educated Bangkok Siamese, who had travelled extensively in Lower Siam, that he had met dark, curly-haired jungle tribes in the state of Ligor, or Nakon Sitamarat.

The Sakais, on the other hand, do not extend more than twenty miles north of the Perak river, on the western side of the Peninsula. In part, at least, the wild tribes of the state of Selangor are Sakais, but those of Malacca and Johore appear to be primitive Malays. On the eastern slope of the main range, there are Sakais north of the Pahang river : but they do not appear to extend into the states of Trengganu and Kelantan, and there is no evidence whatever that they have ever existed in any part of the old kingdom of Patani.

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1. C.f. The definition of Semang and Sakai or Allas tribes given by G. W. Earl, *The Native Races of the Indian Archipelago, Papuans*, p. 151, London, 1853.

2. *Report Brit. Assoc.*, 1900, p. 394.

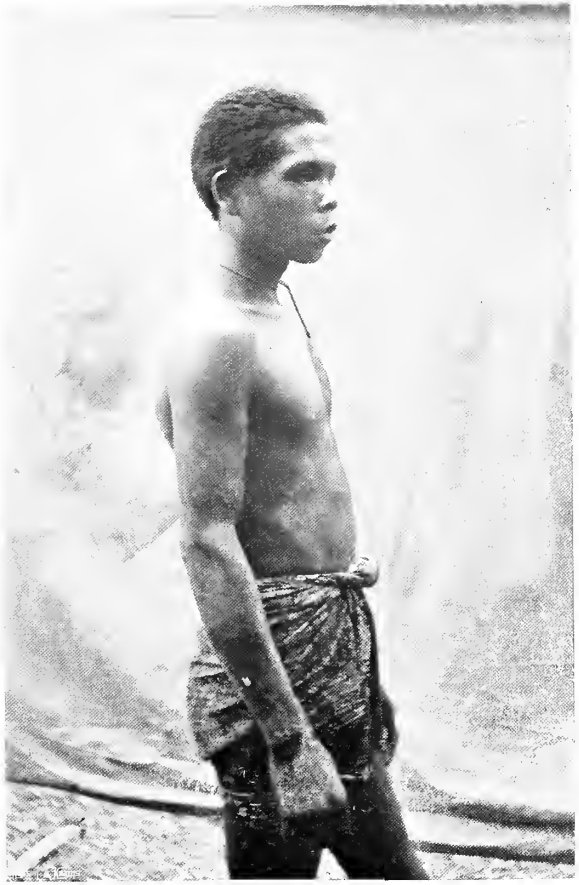


Fig. 3.

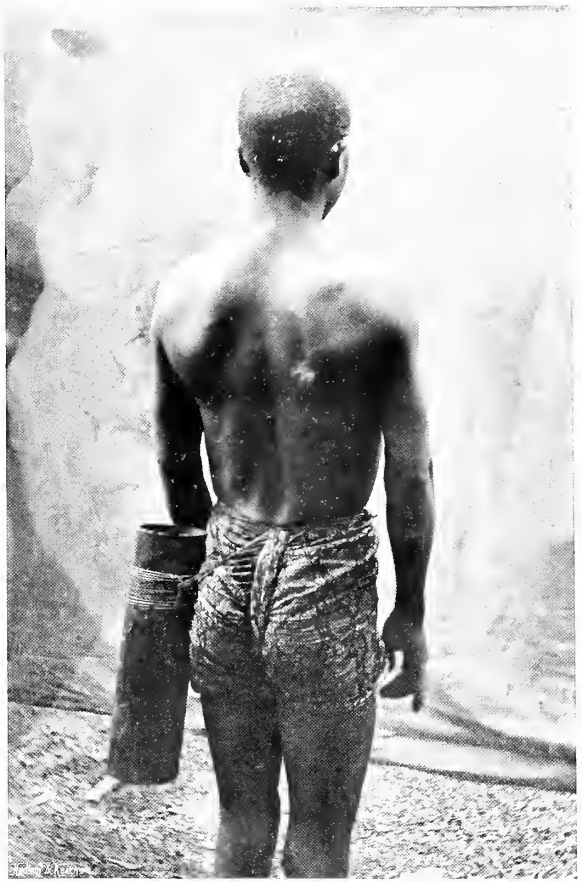


Fig. 2 (showing quiver).

Fig. 1.

SEMANG (HAMI) MEN; MABEK, JALOR.

(The Waistcloths are not of the habitual type, *C.f.* man standing, Plate II., Fig. 1.)

(*A*). Semang Tribes

Hami of Hulu Jalor (Plates I, II, fig. 1).

At Mabek, in Jalor, we met with one Semang family, consisting of four men and a woman, who called themselves either *Hami* or *Suku*, the latter term being Malay, and meaning 'tribe;' while *hami* in their own dialect signifies 'men.' They said that they represented the only wild tribe now existing in Jalor, and that it consisted of about twenty individuals of all ages and both sexes, but that there was another tribe or family living on the borders of the State of Rhaman, which called itself *Mani*—a term which also meant 'men.' These people were known to the Malays as *Sémang*, the proper Malay designation of the Mabek tribe being *Panghan*.

The aborigines of Jalor appear to have been fairly numerous within the last quarter of a century. Mikluchlo-Maclay met them on a hurried journey through that state about thirty years ago, while the Raja of Jalor and other natives and Chinamen assured us that there were numbers of them in the neighbourhood of Biserat even more recently, and that they entered the village frequently until within the last few years. It is impossible to state dogmatically that the Semangs are now extinct in Jalor, with the exception of this one small tribe, but it is probable that they are very nearly so. It should be noted, however, that a man-hunt, organized by a former Governor of Senggora, who was anxious to obtain specimens of them for exhibition in Bangkok, has so terrified the Semangs in this state, that the approach of anyone who seems to be important causes them to conceal themselves immediately; while their Malay masters, afraid of losing their services, are most reluctant to allow them to be seen: indeed, we ourselves, owing to this circumstance, had the greatest difficulty in obtaining two short interviews with them.

Three males whom we measured were 1,529, 1,511, and 1,482 mm. in height; the woman was 1,476. All of them appeared to be adult, and the woman informed us that she had had three children. The colour of the skin of both sexes was between chocolate and red,[1] and was not noticeably paler on the face than on the body. The hair of the men was sooty black, and covered the scalp in short 'peppercorn' curls; that of the woman stood out from her head to the distance of some inches in a mass of stiff ringlets, being frizzly rather than curly. Their features were negroid, but their lips were not particularly thick, and prognathism was only present to a slight extent. Their faces were broad, less flat than those of the Malays, and wedge-shaped. Their figures were slight but not ill-formed. The abdomen was but slightly

1. These names of colours are derived from the British Association's *Notes and Queries on Anthropology*, pp. 17-21. For a definition of the other descriptive terms used in this paper, see under Physical Anthropology, *postea*.

protuberant, though more so than that of most Malays and Siamese, and steatopygy was quite absent in both sexes. There was a wide separation between the hallux and the second toe. Malays claim to be able to distinguish the footprints of a Hami owing to this fact, and we thought that we could do so also. The skin was smooth, except where roughened by disease, and we could not detect any characteristic odour from it. Their person was fairly clean, except on the scalp, which was filthy.

Their eyes were very bright, and had an expression at the same time timid and wild. Their movements were abrupt but graceful, and they walked in a manner which differed greatly from that of the civilized peoples of the Peninsula, but was eminently characteristic of all the jungle folk whom we met. The pace was long, and the action was from the hip, the heel being raised high with a peculiar outward fling. In short, the gait was that of a man accustomed to step over low obstacles, as would be necessary in a pathless jungle strewn with fallen branches and tree-trunks. The Hami walked very rapidly, and were said by the Malays to cover great distances in the course of a day. When at rest they either squatted on their haunches, or sat with their legs stretched out straight in front of them upon the ground. When standing they often held their arms akimbo.

One of the men who came down to see us was suffering from ague, and his temperature, observed an hour-and-a-half after food, was 103.8° *Fahr.* in the mouth ; while that of another man of the same tribe, who appeared to be in normal health, was 99.2° *Fahr.*, taken under the same conditions ; in a third case the temperature was 99.5° *Fahr.* The temperature of the air was 92.0° *Fahr.* The five persons whom we saw were all suffering, or had lately suffered, from a skin disease resembling *Tinea versicolor*, but not to the extent we afterwards found prevalent among the jungle people of Perak. They told us that what they feared, above all things, was 'hot rain,' *i.e.*, warm, damp weather. When a slight shower fell, they rushed immediately to take shelter under a tree, and the same thing occurred when the sun shone out.

The jungle people of Jalor have a great reputation, among the Malays and other races of the district, as herbalists, especially with regard to drugs used at child-birth, and to procure abortion. Our men begged them to bring certain roots used for the former purpose, and afterwards sold them in Patani. Most of their remedies, however, appeared to be empirical : the man suffering from fever had painted a white patch under his right jaw, and a short, white bar transversely across each dorsal vertebra, as a remedy. A string worn round the neck so tightly as to mark the skin was considered a prophylactic against the effects of 'hot rain,' that is to say, fever. The peculiar belt of

Fig. 1. SEMANG (HAMI) FAMILY, MABEK, JALOR.

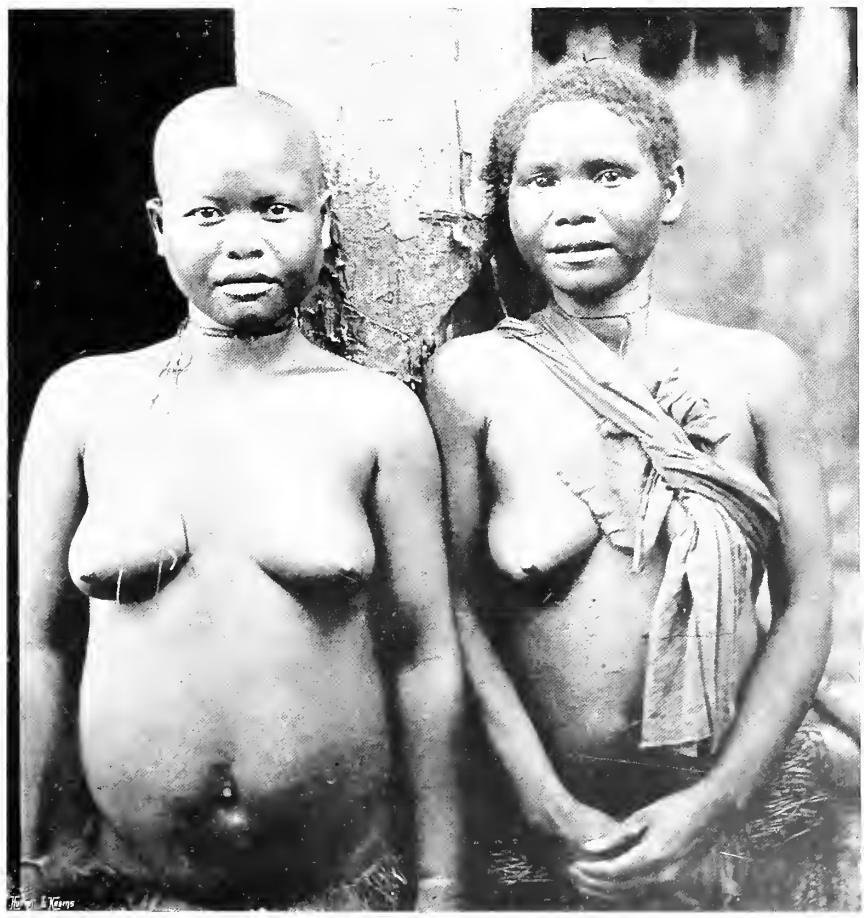


Fig. 2. SEMANG (SEMÁN) MATRONS; GRIT, UPPER PERAK.
(Left-hand figure with freshly shaved head.)

the woman described below served the same purpose against what was described as *sakit pinggang* or 'pains in the waist.'

Both the men and the woman wore as their only clothing a T-bandage of cloth obtained from Malays or Chinamen. In the case of the men this was so cut as to form a bag in front which acted as a suspender. Over the bandage the woman wore a girdle of dead leaves, and over this a peculiar belt, which appears to be characteristic of the women of all Semang tribes. The leaves and the belt were regarded as charms, not as clothing. The belt was made from the rhizomorph[1] of a fungus which is abundant locally among dead leaves in the jungle, and is regarded in those districts where it does not occur as 'strong medicine.' It is known to the Malays as *urat batu*, 'nerves' or 'tendons of the rock.' Growing in leathery filaments, with a shiny black surface, and about 2 mm. in diameter, it is cut by the Hami into pieces about a foot in length; these are doubled and fastened over a string of twisted vegetable fibre by means of a clove-hitch in such a way that they hang down in a fringe five or six inches broad. These fringes are wound round the waist as many times as their length will permit. The men wore bracelets of plaited rattan and *urat batu*. The woman's hair was ornamented by two bamboo combs, stuck into it one in front and one behind. In shape and pattern they

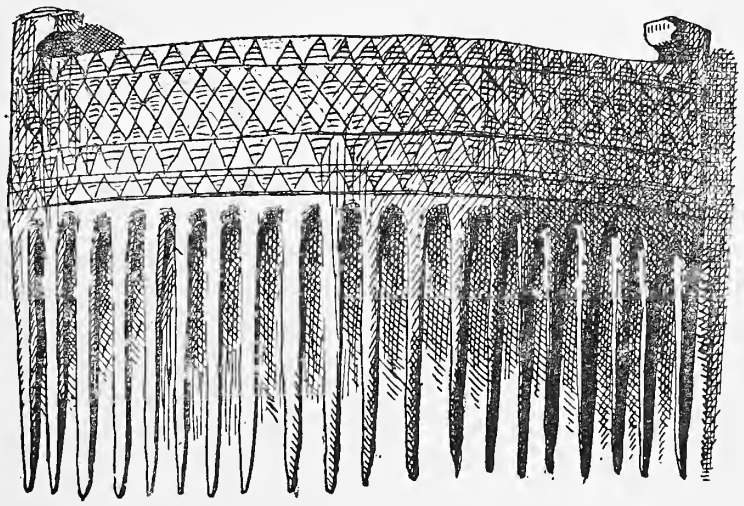


Fig. 1. Hami Woman's Bamboo Hair Comb. Mabek, Jalor.
Scale, $\frac{1}{1}$

somewhat resembled those worn by the Sakai women of South Perak, but were larger and had a projection at each end on the top (Fig. 1). She made no

1. The fungus is *Polyporus*, sp. We are indebted to Professor Harvey Gibson for this identification.

objection to part with these combs in exchange for a little rice. The lobes of her ears were pierced and distorted, and she told us that unmarried girls wore earrings, which were discarded on marriage. This is also a Malay custom.

When questioned about the number of children usually born to a Hami woman, she volunteered the information that the children of her tribe were always born at the same season of the year, that season, according to some Malays who were present, which corresponds with the first month of the Arabic calendar, as reckoned in the Peninsula, that is to say about March. This would be just after the conclusion of the stormy season. The statement was confirmed by a Malay woman, who remarked that the Panghans bred like beasts ; but Malay evidence is practically worthless regarding these people. We were unable to obtain information concerning the number of children usually born, owing to our Hami informant's inability to count ; but she said that a child was born regularly every year to women of the proper age.

For weapons the men carried stout cudgels, one of which was made of a sapling covered with particularly stout spines set at right angles to the stem. They were not shaped, but merely cut from the tree. The chief of the tribe brought us a blowgun as a present. It was made, like all other blowguns we saw in the Peninsula, of an outer and an inner tube. The former was composed of two lengths of bamboo neatly spliced together, the junction being protected with a plaited rattan band ; while the inner tube was fashioned in a similar way, except that a piece of the flower-spathe of a palm was gummed over the splice. The total length was about seven feet. The ornamentation of the sheath was elaborate, and consisted of a series of bands of incised geometrical patterns, extending over the whole of the section nearest the mouthpiece. The design was composed of dots and transverse and slanting hatchings, mostly arranged in lozenges, the longer diameter of which was in the direction of the length. In a few cases the pattern had been emphasized by the use of a hot iron. The mouthpiece was annular, composed of rather soft wood, and was fixed to the tube by resin. The distal end of the blowgun had been closely bound with vegetable fibre and coated with resin, to prevent splitting ; the action of fire was evident upon this. The quiver was a short length of one of the larger bamboos. It was devoid of cover and had not been decorated in any way ; but was bound with plaited rattan, and had attached to it by means of a string the ulna of a monkey, said to be that of a white gibbon. This was used to twist into the girdle of the owner (Plate I, fig. 2), and was also regarded as a charm against the effects of 'hot rain.' The darts were split from the stems of a grass or sedge, being about ten inches long, with cones of a light, spongy cane at the

base. They fitted into a series of cane tubes, one dart in each tube, which were tied together by a string twisted round each, a short distance from one end. The series was coiled in an upright position in the quiver. The Hami denied that they made or used bows and arrows.

One of the party possessed a piece of flint and the tip of a broken knife, by means of which fire was produced. They denied that they could make fire in any other way. The flint and steel had, of course, been obtained from a Malay. The woman carried on her back a basket similar to those used by the wild tribes of Perak and Selangor.

The Hami appear to construct huts, or rather shelters, of two distinct types, one of which is essentially the same as that used by all races of the Peninsula when travelling in the jungle. It consists of a small platform, usually not more than four feet long and eighteen inches broad, and formed of sticks raised at one end about nine inches from the ground, on which they rest at the other. They are supported on another stick running at right angles beneath them, and resting at either end on a V-shaped stake. Behind this a few more sticks are planted so as to lean over the platform, forming a frame for a screen of roughly interlaced leaves. In one shelter that we saw the leaves were those of a large gingerwort. This kind of shelter is used by unmarried youths and when on the march. In the jungle near Mabek we came upon what was said to be the home of a married couple. It consisted of a rude beehive hut built of palm leaves supported on rough sticks, and was about six feet in diameter and four feet high in the centre. Inside there was a platform resembling that of the other type. The entrance, which appeared to have been a mere hole in one side, had been blocked up with leaves. Possibly this was a grave.

We did not succeed in meeting living individuals of the Semangs on the borders of Rhaman, but we obtained some information regarding them in this district. The ruins of a camp were seen, consisting of fifteen shelters of the ruder type made by the Hami. They were arranged in a circle round a tree growing in the deep jungle on the top of a small hill, and were rather larger than the one described; several of them had smaller and lower structures beside them, probably for the use of children.

Beneath the tree there was a grave, which had consisted of a shallow hole of roughly circular shape. Apparently the earth had not been filled in over the body, but a covering of palm leaves had been supported on posts above it. The bones had been almost entirely devoured by termites, but the hair, which was several inches in length, was well preserved. A cavity, where the skull had rested, was filled with the pupal cases of flies. Another grave, that of a small child, was investigated, a few miles from the village of Tanjong

Luar. It was in secondary jungle, where the tribe were said to have been encamped at the time of the death, and was also a shallow pit. It had been covered over with sticks, above which were a few inches of earth. Some beast had evidently abstracted the remains from under the sticks. In two instances we found that dead bodies had been exposed in caves, where one of them had been eaten, with the exception of the calvarium, by porcupines. The other was in so perfect a condition, the skin having dried over the bones, that our Malays suggested that it had been preserved by magical art ; but there is no reason to believe that any process of embalming had been used.

A Siamese medicine-man (*môr*), who procured us this body, had told us previously that when a Semang died his friends tied the body by the neck to a sapling, which was bent down into an arc and then suddenly released, whereupon they said, 'his soul has gone above' (*semangat dia sudah naik ka-atas*). This statement would hardly be worth recording—for it must be noted that it was not even made in the medicine-man's own language—but for the fact that a long cord was attached to the string tied round the neck of the body when found.

Both at Mabek and at Ban Kassôt, the Siamese part of the village of Tanjong Luar, there was a man who claimed to have a hereditary lordship over the Semangs of his district. In one case he was a Malay and in the other a Siamese. The latter was called by his Malay neighbours *Gambala Sakai* (herdsman of Sakais), the jungle folk being regarded not as human beings, but as intermediate between beasts and spirits. It seemed certain that both these men had the power of summoning their Semang slaves at will, but they were both most unwilling to do so for our benefit, as they probably suspected that we wished to steal them. The Hami were employed to collect jungle produce for their master, to clear jungle, and to get in the harvest. On one occasion we all but surprised the Mabek tribe working in a jungle clearing. It did not appear, however, that they practised any form of agriculture on their own account. We saw numerous places in the jungle where they had recently been digging for roots, probably with a pointed stick, and in one spot we came across some wild fruits that had just been hidden in a hole in the ground, as was evident from the tracks in their vicinity.

The Hami do not appear to be exogamous, for the father-in-law of the chief (*rit-beh*) lived in the same camp as he did. The chief had bought his wife from her parents for two lengths of cloth.

The Malay and Siamese legends regarding the Panghan throw no light upon their true origin. The Raja of Patani told us that the jungle tribes were the offspring of an incestuous union between a brother and a sister, who were cast out of the community. It is interesting to compare this story with

that[1] current among themselves regarding the origin of the Kubus. A Siamese in Jalor, on the other hand, stated that in the days of old, Sri Hanuman, 'who was a monkey,' invaded the country and burnt the villages. The people fled into the jungle, but their skins were darkened and their hair frizzled by the heat ; while their pigs became jungle-pigs, and their cattle tapirs and other wild beasts. The tale is obviously an echo of the Hindu epic, *Ramyana*, incidents from which abound in the shadow-plays both of Malays and Siamese.

The Semán of Upper Perak and Rhaman (Plates II, fig. 2, III, IV, V, fig. 2).

At the village of Grit, in Upper Perak, and at Krunei, near the Perak-Rhaman border, I[2] met over fifty individuals belonging to a Semang tribe that called itself Semán, while at Kampong Jarum, in the Jarum district of Rhaman, I saw others who were said to come of the same tribe, and even to be near relatives. The Malays of Upper Perak call these Semán *Sakai Jeram*, or 'Sakais of the Rapids,' on account of their skill as raftsmen. (None of the jungle folk met in Upper Perak objected to be called Sakais ; indeed they often used the term when talking of themselves in Malay).

The government census for 1901 gives the number of 'aborigines' in Upper Perak, including the New Territory ceded or restored by Siam in 1899, as 2,246; of these 1,277 were males and 966 females. Of the males 303 were under fifteen years of age, and of the females 208. Though there is a slight mistake in arithmetic in the census of this district, there is no reason to consider it less than approximately correct ; for it is not difficult here to call together the Sakais and Semangs through their Malay masters and Chinese friends, and most, if not all, of the enumerators were Malays. Some Semang families may have been absent across the border when the census was taken, as there is at this point no natural boundary between the Siamese and the Federated Malay States ; but, on the other hand, families who generally lived in Siamese territory may have been present. It must be noted that the term 'aborigines' includes both Semang and Sakai tribes. The total 'aboriginal' population of Perak in 1901 was 7,982, but this, owing to a mistake, noted later, in one of the districts, includes a certain number of natives of India. That of all nationalities in Upper Perak and the New Territory at the same date was only 6,758, almost exactly three times the number of the Semangs and Sakais of the district. The settled population is here almost entirely Malay, with a considerable admixture of Semang or Sakai blood in some villages. Jungle men who 'enter Islam' are no longer looked upon as inferior beings,

1. Henry O. Forbes, *A Naturalist's Wanderings in the Eastern Archipelago*, p. 243, London, 1885.

2. When the first person singular is used in our joint papers, the statements are those of N. Annandale alone. H. C. Robinson was unable to visit Upper Perak, Patalung, or Trang.

and not infrequently marry Malay women; while the taking of Semang or Sakai concubines by Malay men is, or was until lately, even more common.

In spite of this fact, it is improbable on historical grounds that there is any more than casual admixture of Malay blood in the Semán, as it would not be worth the while of Malays fleeing from justice or enmity to join a tribe largely under Malay control. If a Malay wishes to take a Semang concubine, he prefers to make an arrangement by which he can bring her to live in his village, as, however good a jungle-man he may be, he always dislikes the discomfort of living in the jungle. There is reason to believe that the Semán are less scrupulous about making arrangements of the kind than the Sakais. On the other hand, it cannot be doubted that there is a small admixture of Sakai blood in the Semán, as they told me that occasionally, though rarely, their young men took wives from the *Sakai Bukit* (Hill Sakais), with whom they barter *urat batu* and other products of the plains for bamboos, out of which they make their blowguns. The *Sakai Bukit* or Pô-Klô, however, are very nearly related to the Semang stock.

The mean height of twenty adult male Semán was 1,528 mm., almost exactly that of the Sakais of Batang Padang; the height of two women was 1,427 and 1,453. The figures of the men were slight, but not emaciated; the women appeared better nourished. In the men the breasts were rather prominent, but this was not the case in so marked a degree as among the Sakai men, who were often stouter; the breasts of the women were firm and shapely, not pendulous or flaccid. The tendency to protuberance of the abdomen was only slight. Hair was often absent from the bodies of the men, except on the pubes, where it was fairly abundant, but in some cases the outer surface of the thighs was covered with fine curly hairs, each of which curled independently of the others. The naturally scanty beard and moustache were removed with tweezers. The body hair was of the same shade of black as that of the head. The reddish tinge characteristic of Sakai hair did not seem to me to be so strongly marked among the Semán. The character of the hair was more constant among the members of this tribe than among those of any other jungle tribe that we saw. Without a single exception, it was decidedly frizzly or almost woolly, though in the majority of instances the way in which it had been treated somewhat disguised its true character. The individual hairs were rather fine, but apparently coarser than in the case of the Hami. The nose was invariably negroid in outline, with broad alae; but the absence of bridge was seldom so conspicuous as in certain individuals among the Sakais of South Perak. The lips were thick, never everted; and prognathism, though generally present, was never excessive. The epicanthus was absent

in all but a very few cases, in which it was vestigial. The face was broad, mesoprosopic, and pointed towards the chin. The features were infantile. The colour of the skin of the body was never darker than chocolate, usually between chocolate and dark olive. That of the face was rather darker, partly owing to exposure, and partly to dirt. With a few exceptions, the eyes were reddish brown. The soles and palms were nearly white. The space between the hallux and the second digit was different in different individuals.

The hair of the head, even in young children, had invariably been shaved, but in the great majority of individuals a lock upon the top of the head had been allowed to grow to what was said to be its full length—not more than five or six inches. In some this was absent, and then the hair covered the scalp in close 'peppercorn' curls, which developed into frizzly ringlets when permitted to grow. I have no doubt that they might have been combed out to form an aureole, or 'mop,' though not one of the large dimensions occasionally seen among the Mai Darát. In a half-breed Semán boy, who had been brought up as a Malay, a lock had been left in the same place, as is generally done in the case of Malay boys who have not yet been circumcised; but the character of the hair was quite different, for it was much coarser and less stiff, and hung down his back in a long, wavy coil to the length of about a foot-and-a-half.

The great majority of the men suffered from a skin disease similar to that noted in the case of the Hami; the women appeared to be far less liable to it. Like the Hami, also, the Semán are very sensitive to wet and to the direct rays of the sun, and extremely afraid of 'hot rain,' which they regard as the cause of ague, to which they say that they are liable. Several of the men complained of 'worms in the teeth,' *i.e.*, dental caries; and for this reason one had even made a mortar in which to grind up all his food. In a camp near Grit I saw one man who was imbecile and epileptic. His body and limbs were frightfully scarred by burns caused by his falling into the fire.

The clothing of the Semán men resembles that of the Hami, except that it is often made of bark-cloth, derived from a species of *Artocarpus*, and that the strip of which it is composed is of the same width throughout its length. The women usually wear a short petticoat of cotton or bark-cloth when in the neighbourhood of Malay villages, but dress like the men when in the jungle. They wear girdles made of the rhizomorph of the same fungus as that used by the Hami women; but, though the effect is the same, they make them in rather a different way, using no string foundation, but plaiting the rhizomorph itself into long bands about four mm. wide, from which the loose ends hang down and form a fringe about six inches deep. The bands are

very short in the case of little girls, who wear them as soon as they can run about, but in the case of older women they often encircle the waist several times. They are regarded both as a protection against the effects of 'hot rain' and against 'pains in the waist.' Bracelets of plaited rattan are worn on the forearm by both sexes. Twisted strings of fibre or of the fungus rhizomorph, with the loose ends hanging down the chest, are tied very commonly round the neck, being regarded also as charms against disease. Flowers are less commonly used for decoration of the person than among the Sakais, but I saw several women, boys, and young men, with garlands of *Ixora*, and with bunches of the same blossom and others thrust behind the ears. This custom, as well as that of carrying cigarettes and other small objects behind the ear, causes that organ to be considerably distorted, and to be so bent forward that it is very difficult to obtain an accurate measurement of its length. The deformation is commoner in the right ear than in the left. The use of ornamental hair-combs is rare, probably owing to the fact that the head is shaved and the top-knot left of very small dimensions; but in the case of one woman, who had not lately been able to procure a razor, a comb, very like the type that is commoner among the Sakais of South Perak, was inserted near the back of the head. Its patterns were identical with those fashioned by the jungle folk of that locality, except that a variety of the 'Argus Pheasant' pattern (*post.* pp. 15, 17, fig. 4) appeared among them.

As a rule the lobes of the ear are not pierced, and no other form of mutilation is practised, except the piercing of the septum of the nose—a practice that is universal among the men. Possibly this operation is performed on boys who have reached the age of puberty, for I did not observe in the case of children that there was any aperture in the septum. When the men are in the jungle or on the river, the rolled-up leaf of a gingerwort, a porcupine's quill, or a piece of wire obtained from a Chinaman or Malay, is thrust through the hole. I could obtain no information regarding tattooing or scarification of the skin, and do not believe that it is practised in this tribe. One young woman whom I saw had daubed white clay upon her forehead in an arc consisting of five circular blotches, on the lower part of each cheek in a slanting vertical line, and between her breasts[1] (Plate IV, fig. 1). Both she and her companions asserted that this had been done 'to make her beautiful,' but possibly there was some other significance also.

Until lately the only weapons of the Semán were blowguns, for they deny that they use bows[2] and arrows, except in exceptional cases when they have

1. This mark has unfortunately been erased in the process of reproduction.

2. Mr. L. Wray, of the Perak State Museum, assures me that the Semán of Upper Perak made bows and arrows within recent years (c.f. *postea*, under 'Miscellanea').

Fig. 1. SEMANG (SEMÁN) MAN; GRIT, UPPER PERAK.
(Full Figure: Plate V., Fig. 2, on left.)

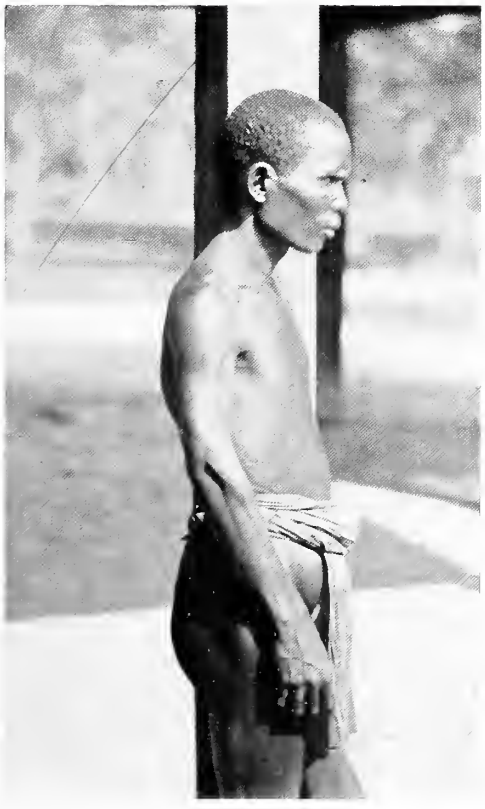


Fig. 2. SEMANG (SEMÁN) MAN; GRIT, UPPER PERAK.

Fig. 3. SEMANG (SEMÁN) BOYS; GRIT, UPPER PERAK.

procured them from the hill Sakais ; but recently old 'Tower' muskets have been coming into their hands. Their blowguns differ from that given us by the Hami chief, in that they are made of the bamboo, *Bambusa Wrayi*, which has extraordinarily long nodes, often reaching the length of six or even seven feet between the partitions. This obviates the necessity for splicing two pieces together or breaking through the septum dividing two nodes. The colour of the rind of this bamboo, which is of a warm brown shade, is also admired by the Semán, who do not like to spoil it by incised ornamentation. Occasional circles are scratched round it, probably in order to indicate the position of bands of plaited rattan that the owner intends to add at his leisure to prevent splitting ; but the outer tube is not otherwise marked, though the inner tube, which is generally formed of a piece of lighter colour, has simple geometrical patterns, resembling those used more or less by all tribes of the Peninsula, scratched upon it. Very often a short length of it projects between the mouthpiece and the commencement of the outer tube, and this is nearly always decorated in this way. The mouthpiece is composed either of wood or of some resinous compound. In shape it is generally a little less distinctly annular than in the case of the Hami specimen, being often bowl-shaped and sometimes almost conical. The bamboo out of which the Semán make their blowguns is obtained by barter with the hill Sakais, as the species is a mountain one of very limited distribution. Very probably the majority of these weapons are even made by the hill Sakais, and only obtained in a finished condition by the Semán.

The darts are made in the same fashion as those of the Hami, by splitting stems of some hard grass or sedge and fastening to one end a conical piece of the light spongy wood of a palm. The other extremity is sharpened and poisoned with a resinous substance of a dark brown colour. A notch is cut in the shaft of the dart just below the poison, so that the tip may break off in the wound. The poison being of two qualities, the darts provided with the more potent kind are distinguished from the others by a black mark made on the base of the cone of light wood. As the darts are packed in the quiver with the points downwards, these marks are seen as soon as the quiver is unstoppered. The practice of indicating the quality of the poison on the darts in this manner is widely spread among the jungle tribes of the peninsula.

Only two active ingredients appear to be used in making dart-poison by the Semán, and, indeed, by the other jungle folk of the Peninsula, though other substances may be added for superstitious reasons. These two ingredients are the sap of the Upas tree (*Antiaris toxicaria*), and that of a creeper belonging to, or closely related to, the genus *Strychnos*. The former is the less potent of the two, and is often used alone on darts for killing small birds and mammals ;

the strychnine does not appear to be used alone, but to be mixed with the other poison when larger game is aimed at. I was told, both by the Semán[1] themselves and by Malays, that the domestic fowl and the domestic cat are both immune to upas or *ipoh* poison, and this is certainly true in the case of the fowl. To prove it I took a supply of freshly made darts and two healthy hens, and pricked the latter in different parts of the body until, in one case, the poison from the dart was almost completely dissolved in the blood. There was no result other than would have been caused by an ordinary prick. Later in the same day I caught a frog, *Rhacophorus leucomystax*, and inserted one of the same lot of darts beneath the loose skin of its back, in such a way that only half the the poison was covered and only a very small portion of it dissolved. In two minutes, by a watch, the frog had become so lethargic that it refused to move when touched. Its breathing became rapidly shorter, its mouth opened, and the pupils of its eyes turned upwards. It was dead in less than seven minutes. About three minutes before death it leapt into the air, but landed on its back. It was quite silent throughout, though this species of frog screams loudly when attacked by a snake.

The poisons are produced by boiling down the substances extracted from the two plants, either together or separately, until they have attained a dark colour and a treacly consistency. They are then spread out with thin strips of bamboo or wood upon spatula-shaped palettes, upon which the points of the darts are rolled until a conical mass of the poison, about a quarter of an inch long, has adhered to them.

Not infrequently the Semán thrust their poison darts loosely into the cloth round the waist, and though this practice seems very dangerous, I was told that accidents arising from it were unknown. When quivers are used they are of a very characteristic type (Plate XIII, fig. 1, B). While the other tribes investigated all use a large bamboo in making the receptacles for their darts, the Semán prefer a slender species, usually not more than an inch-and-a-half in diameter. From the stem of this they cut off a piece about fifteen inches long. No cover is made, but the bamboo is stoppered with bunches of leaves or fibre, and is carried upside down when in the jungle, as wet destroys the poison on the darts. The ornamentation of these quivers is characterized by a differentiation of colour produced by cutting away the rind of the bamboo and rubbing some kind of oil into the comparatively absorbent surface thus produced. This is done either in transverse bands or in segments of a circle. Otherwise the patterns closely resemble those on the Sakai combs. The quivers of the Semán are frequently polished with oil, so that they have a shiny surface and soon

1. The reason they give is that fowls 'eat earth.'

Fig. 1. SEMANG (SEMÁN) WOMEN; GRIT, UPPER PERAK.

Fig. 2. SEMANG (SEMÁN) SHELTER, WITH KITCHEN (occupied by married couple); GRIT, UPPER PERAK (Profile of man: Plate III., Fig. 2).

gain a brownish tinge, which becomes so dark in time that it almost conceals the ornamentation. In the Semán quivers the darts are usually separated from one another by means of strips of palm leaf. The 'palm scurf,' used for filling up the aperture of the blowgun behind the dart whenever the latter is inserted, is carried in a fold of the waist-cloth.

Bamboos, not dissimilar to the quivers, but considerably wider and shorter, are used as receptacles for tobacco, flint and steel, nuts of the wild areca palm, and the like. Their ornamentation is often identical with that on the quivers, but in some specimens very curious representations of animals and men are scratched on the surface (Fig. 4). As may be seen from the figures, they are of a highly conventional character, only some particularly important or striking feature of many of the animals being portrayed. In the case of the 'turtles,' for instance, only the carapace is drawn, while in that of the 'Argus Pheasant' —a pattern on which I will have more to say later, in connexion with the Pô-Klô—the long tail feathers are the only feature that is at all recognizable. The pattern known as 'hills' to the Semán is called by a variety of names among the different tribes of the Peninsula, but is very generally taken to represent the young shoots of the bamboo or some other plant. The 'calthrops' that occur on one figured cylinder (Fig. 2), are apparently little, sharp-pointed pieces of iron or bamboo welded or tied together in such a way that, however they are thrown on the ground, one point always remains upright, to maim the feet of anyone who treads on it. Devices of the kind, called *sudar* in Malay, are still used by Malay and Siamese burglars, in order to prevent pursuit when they are escaping; and in the State of Jalor we saw them kept by a Chinaman to scatter round his opium shop at night. Presumedly they are also used by the Semán, seeing that these people have in their own language an equivalent for the Malay word *sudar* entirely different from it.

Fire is usually procured at the present day by means of flint and steel or Japanese lucifer matches, but the older men are still able to make fire by means of wood and rattan. The chief of the camp that had its head-quarters at Grit showed me how this was done. He took a billet of soft wood, about a foot-and-a-half long, and split it at one end so as to form a cleft of about six inches. Into this he inserted a small stick, which formed a peg separating the two halves and standing above the surface of the billet to the height of an inch or more. Beside this he placed some 'palm scurf.' He then took a stout strip of rattan, about five feet long, and passed one end of it under the billet as it lay on the ground. To each end he fastened a stick, which acted as a handle. Then he grasped one of these sticks in each hand, and, holding down the cleft billet by means of his right foot, he began to draw the rattan

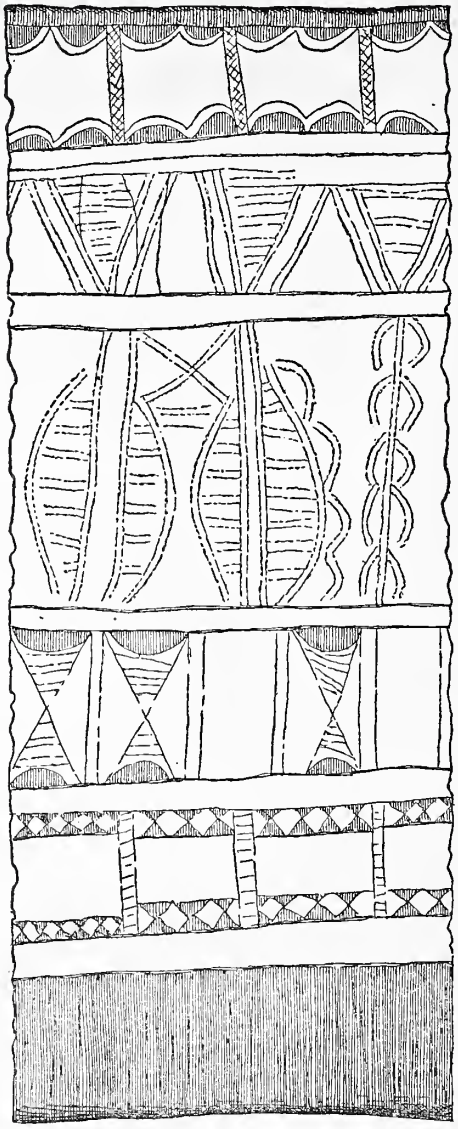


Fig. 2. Projection of Bamboo Cylinder for holding tobacco, etc. Semán—Grit, Upper Perak.

Native names of patterns :—

Top row—'Monitor lizards' (*mudán*).
2nd „ —'Hills' (*paü*).
3rd „ —'Tortoises' (*seoul*) and 'Snakes' Eggs' (*tad yu*).
4th „ —'Calthrops' (*jehlah*).
5th „ —'Growing rice' (*semá*), *i.e.*, probably, rice tied up in bundles for transplanting; and, running vertically at right angles to last, 'Teeth' (*lemoign*).

The dark shading represents staining produced by cutting away the surface of the bamboo and rubbing in oil.

Scale, about $\frac{2}{3}$

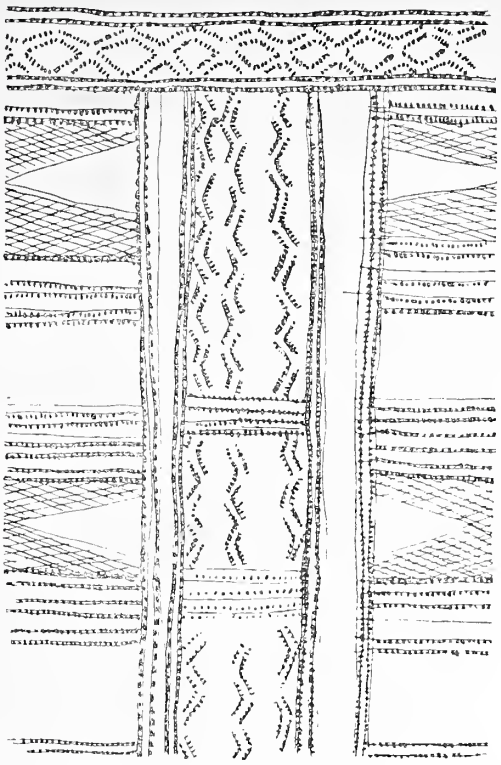


Fig 3. Incised and Pricked Ornamentation from Dart Quiver, Pô-Klô ; Temongoh, Upper Perak. A variety of the 'Argus Pheasant' pattern appears at either side. (In the original the bases of the four wedges are united). C.f. pp. 25, 26, and Plate XII, fig. 1, A, B, C, D ; Plate XIII, fig. 1, A.

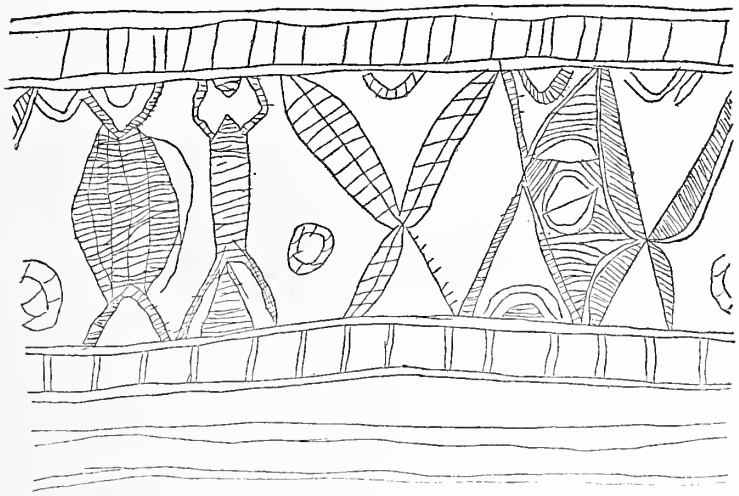


Fig. 4. Figures of Man and Animals scratched on Bamboo Cylinder by Semán. Grit, Upper Perak.

The figures, reading from left to right, represent (*a*) a 'land tortoise' (small round object) ; (*b*) a 'man' ; (*c*) a 'monkey' (*Semnopithecus*) ; (*d*) a 'land tortoise' ; (*e*) an 'Argus Pheasant' ; (*f*) two 'Argus Pheasants' and a 'river turtle' (*Trionyx*) run together.

Scale, about $\frac{2}{3}$

backwards and forwards across the inner surface of the billet. He grasped the peg which kept the cleft open between the great and second toe. The friction caused by the rattan rubbing against the soft wood soon produced a considerable amount of heat, which first blackened the wood and then caused the tinder to take fire. Lifting up the billet, the man had no difficulty in lighting a cigarette at the 'palm-scurf,' which was now smouldering in the cleft.

The Semán do not make any kind of pottery, but employ bamboos of different lengths as water-vessels and cups. They boil rice in bamboos about two feet long, supporting them in a slanting position over a fire of wood. Before it is inserted, the rice to be cooked is wrapped in large leaves, often those of a species of *Caladium*, and only a small quantity of water is poured in. Wild tubers and roots, which form a very important part of their food, are roasted on the embers, as is also done with the flesh of mammals, birds, and reptiles. Near Krunei I came across a fire at which some Semán had lately cooked and eaten a tortoise ; judging from the condition of the fragments that remained, the flesh had only been heated through, for they were still red and full of blood.

The only form of basket-work or matting seen in use among the Semán was made of strips of *Pandanus* leaf, in a manner very similar to that in which the sleeping-mats of the Malays and Siamese are constructed. The leaf is shredded by means of an implement—probably obtained from the Malays—that consisted of several little sharp points of iron or copper fastened at equal distances into a wooden handle. It appears to be used throughout the Malay Peninsula, and in parts of Borneo. Porcupines' quills are employed by the Semán, as by the Malayo-Siamese, in adjusting the plaits and forcing the different ribbons close together. Flexible creels of various sizes are thus made ; they are carried on the back by both sexes, being held in position by means of rattan strings looped over the shoulders.

The bark-cloth manufactured by the Semán is very coarse and stiff, and I did not see any of the finer quality produced by *Antiaris toxicaria*.

I have referred above to a mortar used by a Semán who suffered from toothache, and it may be well to give a short description of it, as it differed considerably from the rice-mortars commonly used by the Malays and Siamese. It consisted of a rounded block about six inches long, chopped from the stem of a small palm, hollowed out, and bound near the top with a plaited rattan band. The pestle was over two feet in length, and about an inch and a half in diameter ; it had been cut from the trunk of the same palm, and was rounded and smoothed with some care.

As Mr. Henry Balfour will describe all the musical instruments that we

Fig. 1. Sakai (Jehehr) Women and Boy; Temongoh, Upper Perak
(Showing extreme variation in character of Hair)

Fig. 2. Semang (Semán) Men; Grit, Upper Perak.
(Profile: Plate III., Fig. 1.)

To face p. 18.

collected in the Malay Peninsula together, it will not be necessary here to do more than point out that the flutes commonly manufactured and played on by the Semán are mouth-flutes. I could not gain any evidence that this tribe makes use of nose-flutes. Bamboo 'jews-harps,' very similar to those made by the Malays and Siamese, were also in use among the Semán, and I saw a regular fiddle in the course of construction in one of their camps. They told me that on the occasion of feasts and 'spirit plays' they produced a loud noise by beating on recumbent tree trunks with bamboos, the latter being struck down vertically, so as to act as resonators.

The only indigenous implements used in obtaining food, other than the weapons of the chase, consist of sticks used for digging up roots, and fashioned by roughly sharpening one end of a straight branch with a few strokes of a knife. So little are these digging-sticks regarded as objects worth preserving, that when the point get blunted, as it generally does after a few minutes' use, the stick is broken across to make a new one.

The same digging-sticks are also used in hunting the bamboo rat (*Rhizomys*), which is considered a great delicacy. In this case a smouldering fire of damp leaves is made, and the smoke is wafted into the holes at the roots of a clump of bamboos by means of palm leaves roughly stitched together with the stems of creepers to form small triangular fans. The rodents appear to be stupified by the smoke, and are easily dug out from their burrows.

The camps of the Semán resemble that described near Tanjang Luar, on the Jalor-Rhaman border, but the individual shelters are constructed with rather more care. The slanting screen is usually made of palm-thatch, formed by bending the leaflets down along one side of the mid-rib in each leaf, and then tying the mid-ribs to a framework of sticks in such a way that a wall of fairly water-tight material is formed. Other palm leaves are so arranged that they fall over the upper end of the screen and conduct rain-water beyond the edge of the bamboo platform below. To each shelter is attached a kitchen, formed of a log fire protected from the prevailing wind by a similar though smaller screen. When there are young children in the family, another structure of the same character, but provided with a bamboo platform, is often added also. In each case the thatch screen is supported in front by one or more branches slanting up to it from the ground (Plate IV, fig. 2).

Unlike the Sakais of South Perak, the Semán, as already indicated, practice navigation on rafts, on which they are skilled in shooting the rapids that obstruct the watercourses of Upper Perak. These rafts are formed of half-a-dozen or more slender bamboos of about twelve feet long, lashed together with the stems of creepers. When women and children have to be transported, a few more

bamboos of a shorter length are bound on to the middle part of the raft to form a seat. A long pole is used in punting the raft against the stream, and in steering it among the rocks with which the rapids are beset.

Some of the Semán men are good swimmers, but they do not swim in the way common among Europeans, but either paddle through the water like a dog, or else use a side stroke similar to that most commonly employed by the Malays, frequently, indeed, sometimes between each stroke, changing from one side to the other.

The only Semán grave that I had an opportunity of inspecting had been dug in the Malay manner, that is to say, a chamber had been constructed for the reception of the body in the side of a fairly deep trench. Though the body was that of a woman, a wooden grave-post of the type associated in the Malay cemeteries with a male sepulture had been fixed into the ground at the head. The corpse had been fully clothed, and lay on one side in a rather cramped position, both knees being drawn upwards towards the chin. There was no trace of objects of household use having been interred with the body, and the Semán denied that they did this, though they volunteered the information that 'rich Sakais' buried all a person's possessions with him. There was also no sign of the head having been eaten, as has been said to be done. Indeed, we failed to obtain any evidence at all with regard to cannibalism among the Semangs, though a Malay, at Mabek in Jalor, told us that the Hami did not like to be called *Semang*, because they said that the true Semangs eat men.

It has often been stated that the wild tribes of the Malay Peninsula are quite devoid of any form of religion ; but this, as has been already shown by Mr. W. W. Skeat, and others, is erroneous. Among the Semán both ancestor-worship, or rather ancestor-dread, of a very primitive kind and also the worship of elemental spirits occur ; but, unfortunately, contact with Malays, who, in spite of their own religious tendencies, treat all non-Mohammedan beliefs other than their own with ridicule, has destroyed the ingenuousness of the Semán. It is, therefore, very difficult to learn much about their religious ideas. However, if a death occurs, they desert their camp the moment that they have buried the corpse, which is interred near the shelter where the person died. They told me that they did this because they were afraid of the dead man's spirit (*hantu*). They also told me that they made offerings to the *hantu* of the jungle, and held feasts in their honour. They have dances and songs which celebrate the various fruit trees that they find in the jungle, and these are probably of a religious nature. Their method of naming their children also points to a reverence for trees and other plants. A child born under or near a bamboo, gets the name of 'Bamboo,' whatever its sex may

be ; if it is born on a heap of leaves, it is frequently called ' Leaf ; ' if in a brake of sugar-cane, ' Sugar Cane,' and so on. The rule, however, is not universal, as children are sometimes named after their birth-place, for example, one of the men measured was called Sapi, because he had been born on a hill in Rhaman called Bukit Sapi. The Semán as a rule showed great reluctance to give anything but the Malay version of their names.

Semán medicine-men enjoy great reputation among the Malays, who told me that some of them, when in a state of trance, could sit on the leaflet of a palm leaf without bending it down.

At Grit, a party of Semán got up, for my benefit, a song and dance in honour of the wild areca palm. At first they refused to perform by daylight, but finally consented to do so. They said that they were ashamed to dance by daylight. Six men squatted on the ground, two of them having bamboo stringed instruments, and the remainder beating on the ground with bamboo flutes, which, for some reason, they refused to play. Two other men put on their heads peculiar dancing crowns, which were made of alternating bands of rhizomorph (*urat batu*) and strips cut from a green *Pandanus* leaf, plaited together in such a way that a broad fringe was left that stood up above the plaited part. At first these men squatted with the rest, joining in the monotonous song, which they proceeded to intone rather than to sing. I could distinguish neither rhythm nor time. After the chant had continued for some little time, the two men with the crowns got up and commenced to dance. The chorus continued the chant, in which it now became possible to distinguish time and rhythm. There appeared to be no co-ordination of movement between the two dancers, who moved about within a very limited space, keeping time to the tune of the stringed instruments with the movements of their arms and bodies. Their bodies were swayed from side to side, and their arms waved in the air ; sometimes one or other of them knelt down on one knee, or even squatted on the ground, but the movements of the hands never ceased. At stated intervals they joined in the chant of the musicians. They did not have any definite steps in common, but one of them usually advanced with two long paces and a short one, which was abruptly terminated by drawing the toes of the right foot up to the left heel.

The Semán have been referred to as a tribe, but it must not be supposed that they have in any sense a tribal organization, for they are divided into a number of camps, each consisting of about half-a-dozen families, and these camps are quite independent of one another. It is true that the headman of the camp which has its headquarters near Krunei calls himself ' Penglima of the Sakais,' but this is purely a Malay title, bestowed on him by the

ex-Raja Muda of Rhaman in return for aid given in elephant hunting. The other Semán headmen do not recognize him as their superior. The headman of each camp appears to be appointed by the Malay whom the men of that camp recognize as their master. The camps are exogamous, the men being obliged to choose a wife from one other than their own. They buy her from her parents. The Malay master of a camp has much the same relations with that camp as the old man at Mabek, in Jalor, had with the Hami, though under British administration his position is not a legal one. As the Semán practice no form of agriculture on their own account, they are necessarily to some extent nomadic, ranging the jungle in search of wild fruits and roots and game ; but it is probable that each camp has a very definite hunting-ground, upon which the men of other camps hesitate to trespass. At the season of the rice harvest, which was that in which I visited Upper Perak, the Semán congregate in the neighbourhood of the villages of their masters, whom they assist in reaping and storing the grain. In return for their services he gives them tobacco, clothes, knives, and the like.

The range of the Semán is determined in a south-easterly direction by the course of the Perak River, which they cross, however, to trade with the hill Sakais on the other bank. They state that they are closely related to the Semangs of Rhaman, whom they regard as their own 'kind ;' but they do not appear to have heard of the Hami, or to know anything of the State of Jalor. Northwards, they claim kindred with the jungle folk of Baling, in Kedah ; sometimes, according to their own statements, crossing over into that state.

(*B*). Sakai Tribes

The first two tribes to be dealt with under this heading are so closely related to the Semang stock, that the wisdom of separating them from it may be doubted. It is hardly controversial to state that they are Semangs with a slight admixture of either Malay or Sakai blood, supposing that it is legitimate to speak of a definite Sakai *race*, which is very doubtful at the present stage of our enquiry. Still, it has seemed better to make the division, seeing that the differences, though inconspicuous, most certainly exist, and that the tribes of Upper Perak, other than the Semán, include persons among their numbers whose hair is nearly straight and whose complexion is very much paler than chocolate.

The Malay nomenclature also of these tribes is confusing, but it is necessary to explain it, for many authors have been obliged to give Malay names to the jungle tribes they describe, simply because they can learn no

others. We, ourselves, as will be seen later, encountered the same difficulty in Selangor, though we have attempted to use the native names whenever possible, believing them to be more accurate. Malay names of tribes can always be diagnosed by the word *orang* (people).

It has already been stated that the people who are called 'Orang Sémang' by the Malays of Upper Perak are not Semangs in the sense in which we have used the word, and that they are not the tribe that calls itself Semán. The Semán, according to our classification, are true Semangs. Now I was told by several Malays at Grit, where only the Semán occur, that the 'Orang Sémang' called themselves 'Jehehr,' but, at the same time, I was told that the 'Orang Sémang,' or 'Sakai Sémang,' were hill-folk, who had no Malay masters, and who were not 'crested,' *i.e.*, who did not wear a top-knot. This description does not apply to the true Jehehr, but to the Pô-Klô, who are said at Temongoh, the chief Malay village in the district where they occur, to be the 'Orang Sémang,' though they are more commonly called 'Sakai Bukit,' or Hill Sakais. It may, therefore, be concluded that in this district, at any rate, an 'Orang Sémang' is a member of a jungle tribe who has no Malay master, and that the name is an indication of social position rather than of race.

The Pô-Klô of Upper Perak (Plates VI, VIII, fig. 2).

At Temongoh, in Upper Perak, some fifteen men belonging to a tribe that called itself Pô-Klô, came down from the hills in the vicinity to see me, but, unfortunately, I had no opportunity of visiting their camps myself. While the majority of these individuals only differed from the Semán of Grit in that they were taller and stouter and did not suffer from skin disease, a few were very considerably paler in complexion, had hair which was straight, and faces of a much less infantile type. Indeed, extremes in both directions existed, for while one of the men was more prognathous, had thicker lips and more prominent superciliary ridges than any other individual whom I saw in the Malay Peninsula, another, the head-man of his camp, could not have been distinguished from a Temongoh Malay[1] except by his dress, and the dirty condition of his body. (It must be noted that at this time several of the women of the village of Temongoh were pure-blooded Kelantan Semangs, or Sakais closely related to Semangs, who had been induced to 'enter Islam,' and that the Malay type was rather different there from what it was at Grit).

The Pô-Klô dressed like the Semán, except that several of them had procured cast-off clothing from a party of Chinese traders, with whom they had recently made friends. I did not see any of the women, but the men

1. Compare left-hand with central figure (Plate VI, fig. 2).

told me that the *urat batu* rhizomorph was not used among them to make girdles, though it was obtained from the Semán to make necklaces, bracelets, and head-dresses. Several of the men wore long strings of hard, black and grey seeds round their necks, and had on their heads garlands of flowers and sweet-scented grass. They had all shaved their hair and did not leave a topknot. The septum of the nose was pierced. None of them were tattooed or scarified.

It is the Pô-Klô who now[1] make the bows and arrows usually attributed to Semangs, who occasionally, but very rarely, buy these weapons from them. The bows, judging from specimens apparently from this district, in the State Museum at Taiping, are stout, though of no great size, the strings of twisted vegetable substance, and the arrows provided with steel heads. The Pô-Klô are very jealous of their bows, and refused to bring them for me to see, but they were most positive, as also were the Malays of the village, that they were able to make the arrow-heads, beating them out with a stone, when hot, from scrap-iron they procured from Malay or Chinese pedlars. They brought me the teeth of bears and the frontlets of the Malay serow (*Nemorhaedus swettenhami*), which they said they had procured by shooting the animals with poisoned arrows. From what was told me by them and the Temongoh Malays, who, it must be remembered, have a strain of Semang blood in their own veins, it seems probable that a large proportion of the horns of this antelope that are sold in different parts of the Malay Peninsula, especially in the state of Legeh, as charms and medicine, are originally procured by Sakais living in the mountains, though the beast is so wary that only one specimen has ever been shot by a European, and only two skins, which were obtained by ourselves, ever brought to Europe.

In describing the blowguns of the Semán I have described those of the Pô-Klô also, as the majority of them are probably made by the latter tribe.

The Pô-Klô quivers[2], however, differ very much from the uncovered bamboos used by the jungle men round Grit, being by far the most elaborate we saw in the Malay Peninsula. Like that procured from the Hami, they are made of a coarser species of bamboo, but, unlike them, they have tight-fitting conical covers, plaited out of the creeping rhizome of a fern known to the Malays as *Paku Ribu-ribu*, probably a species of *Lygodium*. Fibres of slightly different shades are often chosen in making these covers, and are so arranged as to form contrasting zones upon them, the plaiting being so close that they are quite watertight. The outer surface of the bamboo is invariably decorated with an incised pattern recognized among all the people of this district as representing an Argus Pheasant. As will be seen from the figures,

1. See Note on Semán weapons, *antea*, pp. 12-14.
2. Plate XII, fig. 1, A, B, C, D ; Plate XIII, fig. 1, A.

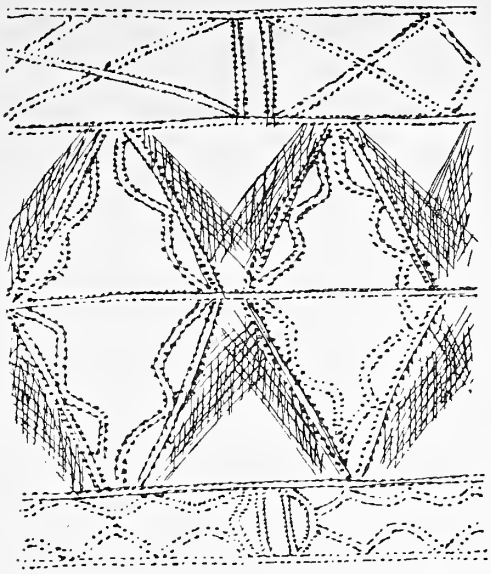


Fig. 5. Incised and Pricked Ornamentation from Bamboo Dart Quiver. Pô-Klô ; Temongoh, Upper Perak. In the centre a more elaborate variety of the 'Argus Pheasant' pattern (c.f. Figs. 3, 6, ; pp. 17, 25, 26). Scale, about $\frac{2}{3}$

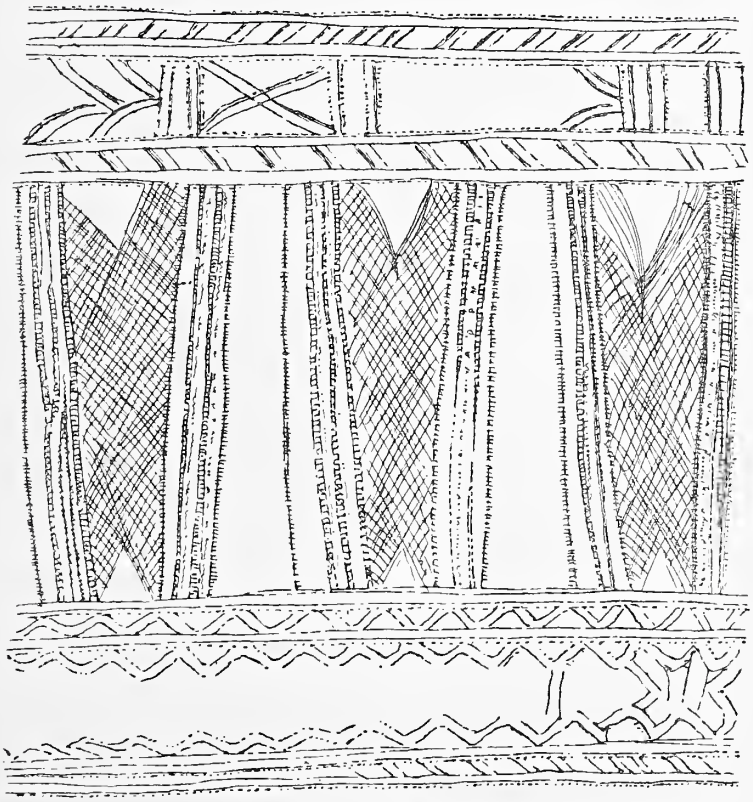


Fig. 6. Incised Ornamentation from Bamboo Dart Quiver. Pô-Klô ; Temongoh, Upper Perak. In the centre a variety of the 'Argus Pheasant' pattern (c.f. Figs. 3, 5 ; pp. 17, 25, 26).

this pattern consists essentially of a couple of wedges uniting at the base. These are held to portray the two long tail feathers which are so conspicuous a feature of the species. The 'Argus Pheasant' pattern is almost a trade mark of the Pô-Klô, when seen on quivers from this district, as it appears only to be adopted by them, though specimens of the kind are often seen in use among the Semán and Jehehr, having been bought from or exchanged with the hill men. I was unable to discover a single instance in which such a quiver had actually been made in the plains. The Pô-Klô are the artists and artificers of the jungles of Upper Perak. They also carried tobacco pouches made of shredded *Pandanus* leaf or grass, and provided with flaps to cover the orifice. The plaiting was very neat, though the ribbons were coarser, or rather wider, than in some specimens I have seen in other parts of the Malay Peninsula, and the pouches were decorated with squares and oblongs of turmeric daubed upon them, in a way not seen in any other tribe.

Unlike the tribes hitherto described, the Pô-Klô build regular houses, which I have seen from a distance through a field-glass while travelling on the Perak River and its tributary, the Temongoh. As far as could be judged, they resemble the houses of the Mai Darát, to be subsequently described. I never saw more than three in any one clearing, though the latter were often of considerable extent. Millet (*skuey*), tapioca, and bananas are cultivated in these clearings, though the Pô-Klô themselves told me that they had no agricultural implements but pointed sticks. The Malays make great fun of them, because they say that rice makes them sick and therefore refuse to eat it.

The Pô-Klô also told me that they had a breed of dogs different from the ordinary Malay pariahs, but they would not bring them down into the village; from their description these dogs appear to be the same as those we had seen among the Sakais of South Perak, but very possibly may be of purer breed.

The names of individuals of this tribe seem to be given in the same way as is the case among the Semán, but they were willing to give the native rendering of them, probably because they knew less Malay. Fathers often assume the name of one of their children with the prefex *pa* (father). The head-man of a camp takes the title *pali-mon*.

The Pô-Klô owe allegiance to no Malay master, and, indeed, appear to have had very little communication with the Malays until quite recently. While I was at Temongoh the Malay headman of the village was away on the Rhaman border, registering the plantations of the hill Sakais, and making a record of the durian trees, over which they claimed ownership, in the jungle. This question of the durian trees, which have probably been propagated by accident or naturally, but over each of which ownership is claimed by some

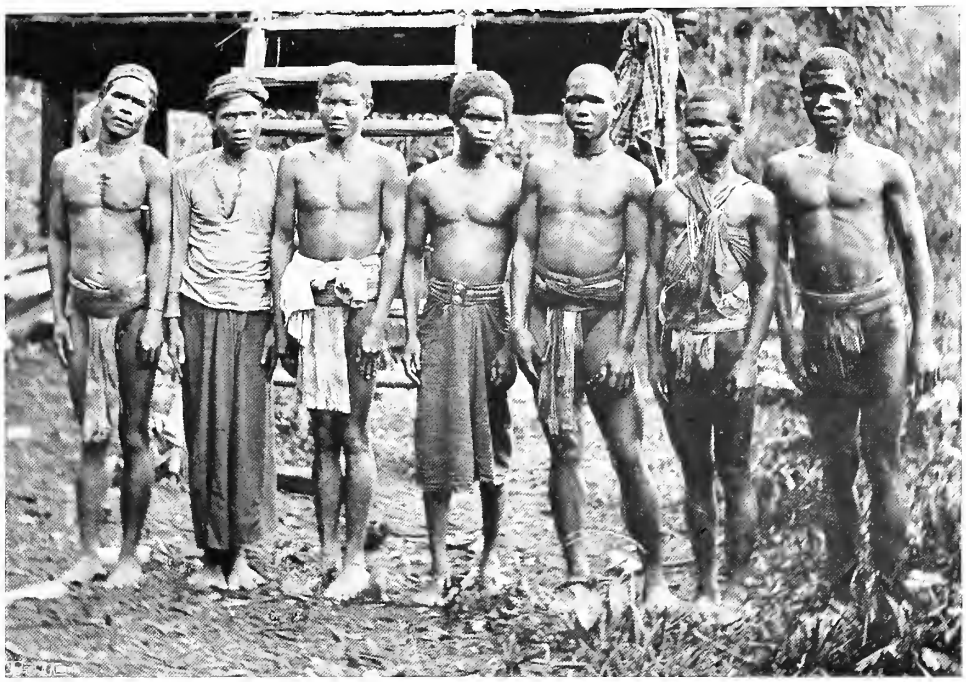
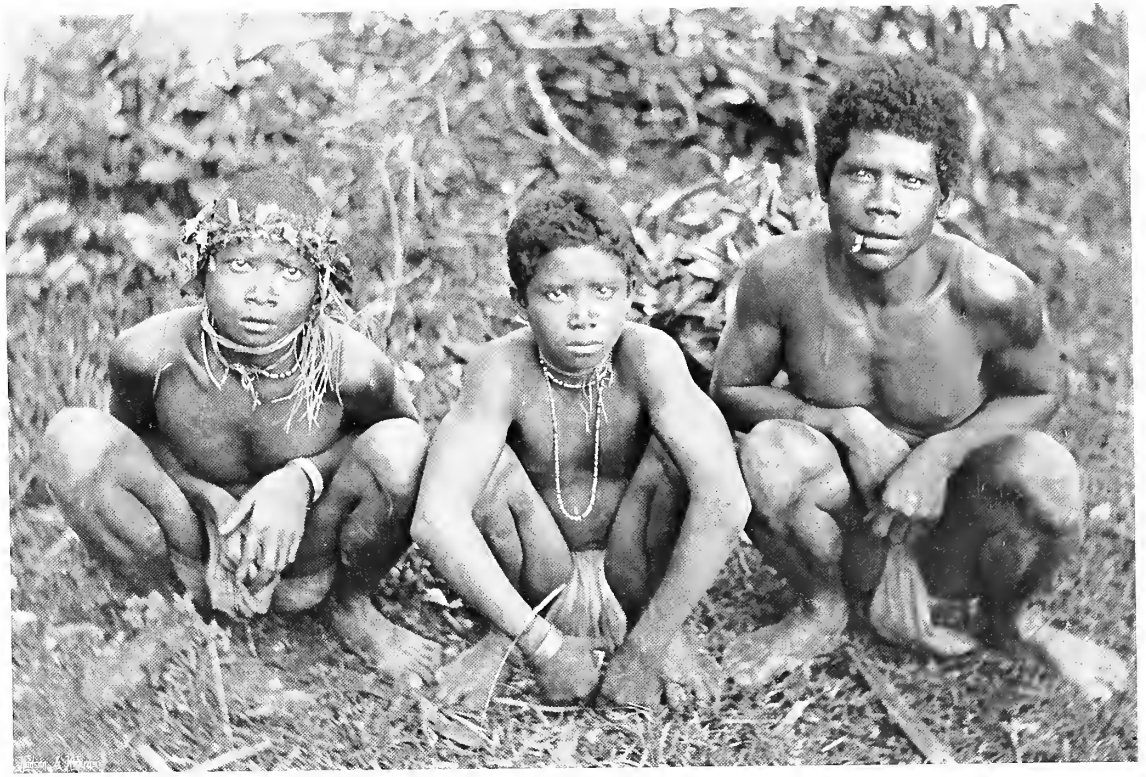


Fig 1. Sakai (Pô-Klô) Men; Temongoh, Upper Perak

Fig. 2. Three of same Men seated (2nd, 4th, and 3rd from left in Fig. 1)
(Profile: Plate VIII., Fig. 2.)



Sakai (Jehehr) Men in Attitude of Rest;
Temongoh, Upper Perak.

particular 'aboriginal' community, is one which the Perak Government investigates with the utmost care. A party of Chinese traders had settled at Temongoh shortly before my visit, and had entered into friendly relations with the Pô-Klô, to whom they made presents of cloth, glass beads, tobacco, and the like. It was through their influence that the hill people were induced to come down to see me. It is very probable, however, that Malay outcasts have, from time to time, joined the tribe and become members of it.

The Jehehr of Upper Perak (Plates V, fig. 1, VII, VIII, fig. 1).

At Temongoh, also, I met some thirty individuals, men, women, and children, of a tribe whose native name is Jehehr; while the Malays call them *Sakai Tanjong*, on account of their habit of camping on capes jutting out into the river. On the Perak river between Kuala Temongoh and Kuala Kendrong I saw a few more of these 'Cape Sakais,' as well as several camps deserted by them.

In physical type the Jehehr only differ from the Pô-Klô in being rather emaciated, and in suffering from skin diseases of various kinds. The physical variation[1] they exhibit is just as remarkable. The clothing of the men is identical with that of the Pô-Klô, and the women do not wear the *urat batu* girdle. I noticed that several of the children wore a twisted string round the head and the lower part of the forehead, while the majority of the men wore fillets rather higher on the brow. These fillets consisted, in some cases, of filaments of *urat batu* tied behind the head, in others, of narrow bands of *urat batu* and vegetable fibre plaited in alternate bars, the fibre being dyed of a bright yellow. In some cases the place of these fillets was taken by garlands of sweet-scented grass tied with teazed-out bark cloth. The nasal septum was pierced in the case of the men, and the young shoot of some zingiberaceous plant, that was used as a nose-skewer in the jungle, was thrust behind one ear on approaching the village. A few of the women had necklaces made of glass beads strung alternately with the incisor teeth of monkeys, as they told me, of the *Lotong* (*Semnopithecus obscurus*). As a rule the Jehehr shave their hair in the Semán manner, leaving the top-knot.

This tribe procures its blowguns and quivers from the Pô-Klô, and most of its household implements and utensils from the Malays. Its members seem to be even more poorly provided with objects of their own manufacture than the Semán.

The shelters constructed by the Jehehr differ in no respect from those of the Semán, but are sometimes arranged in a row so as practically to form a

1. See Plate V, fig. 1.

communal abode, being placed in close juxtaposition to one another. This form of camp, however, is due to the exigencies of its site. I have seen two camps constructed by the same people within a few weeks, and while one of them was of the type just noted, the other was arranged round a tree. The reason for the difference was that the first was built on a narrow shelf upon a bank, while the other was at the top.

The Jehehr are more careless in disposing of the bodies of their dead than any other Sakai tribe whom we encountered. The Malays at Temongoh complain that they are often compelled to bury corpses left lying near the village ; sometimes the body is cast into the river, and if it is buried it is only covered with a very thin layer of soil.

As a rule the Jehehr do not practice agriculture, and do not possess dogs of the Sakai breed, though they may obtain pariah puppies from the Malays; but I was told at Temongoh that occasionally they lived in the same manner as the Pô-Klô. They occupy the same position in respect to the Malays as the Semán do. When the strip of territory in which both Grit and Temongoh lie was handed over by Siam to the Perak government, in 1899, the head man of the latter village was forced to set free his Malay slaves, being paid very handsome compensation for the loss of their services, but his Jehehr dependants were not considered to be slaves, unless they were actually living as servants in his house. At least two Sakais, who occupied this position, and who had become Mahommedans, ran back to the woods on being legally released from bondage, and 'cast away Islam.'

It is interesting to note that the Jehehr are not absolutely confined to one bank of the river, for I saw them crossing from a camp on the east bank to one on the west. They rarely go far from the river, however, and appear not to extend across the new frontier into the Siamese States.

Mai Darát of Batang Padang (South Perak) and the Perak-Pahang border.

(Plates VIII, fig. 3, IX, X)

In the Batang Padang district of South Perak, and at Telôm on the Perak-Pahang border, we met with several hundred individuals of the Sakais of that neighbourhood, both those who lived in the vicinity of towns and villages, and those who inhabited the high mountains, far from any community of the settled population. We could discover no distinction between them, except that the hill folk showed a tendency to a slightly more yellow skin, especially on the face—a difference probably due to climatic rather than racial causes. There is no reason to believe that any of the Sakai camps of this district have as yet had their blood mingled with that of Malays or other races to any appreciable

Fig. 1. Sakai (Jehehr) Men and Boys; Temongoh, Upper Perak.

Fig. 2. Sakai (Pô-Klô) Headman; Temongoh, Upper Perak.
(Full face Plate VI., Fig. 2, on left.)

Fig. 3. Sakai Youth and Girl, with Leaf Girdles;
Batang Padang, South Perak.
(*Photo from G. B. Cerruti, Esq.*)

extent, at any rate as far as the adult population is concerned and in modern times ; for it is only within the last fifteen years that Batang Padang has been sufficiently opened up to admit Malay, Chinese, and Indian settlers. It does not appear that the upper valley of the Batang Padang River was ever within the sphere of purely Malay colonization, and towns such as Tapah and Bidor practically owe their existence to recent enterprise under British protection.

The census report of 1901 gives the population of Batang Padang as—

Malays of all nationalities - -	7,387
Chinese - - - - -	9,461
Tamils - - - - -	2,693
Other natives of India - - -	203
Aborigines - - - - -	2,808

Of the 'aborigines,' 1,526 were males, of whom 502 were under fifteen years of age ; 1,282 were females, of whom 393 were under fifteen years of age. These figures show a slight increase in the number of 'aborigines' enumerated in 1891, probably due to more careful and systematic organization of the census ; it is very improbable that all the Sakai camps were visited even in 1901, as it is known that the taking of the census caused great alarm among them, and that many families made preparations to cross the border into the neighbouring State of Pahang, where no enumeration of the aborigines was attempted. The area covered by virgin jungle at high elevations in this part of the Peninsula[1] is so great, and the country so difficult, that it is quite possible that aboriginal tribes may exist that have never even seen a Malay, much less a European. Moreover, the number of young children and women was almost certainly underestimated, even in those families visited by the enumerators. The total aboriginal population of Perak in 1901 is given as 7,982 ; but the census has evidently been taken with less care in some districts than in Batang Padang ; while in one, for some reason, an unspecified number of Tamils, Cinghalese, and other 'natives of India' is included in the 'aboriginal' total. The only other district where the number approaches that in Batang Padang, is Upper Perak, where Sakais and Semangs (*antea*, p. 9) are both included. Leaving Kinta out of consideration, as it is in this district that the Indians have been included, Kuala Kangsar comes third with 1,021 aborigines of both sexes and all ages.

Judging from the numbers of Sakais and Semangs we have ourselves seen in Perak, we should regard 20,000 as a conservative estimate of their numbers in that State, and we do not think that contact with civilization, which, moreover (especially as regards the Sakais) is extremely recent, shows any tendency, at

1. Cf. L. Wray, *post*, under 'Miscellanea.'

present, to lessen their actual numbers. Wholesale destruction of the jungle must do so, if it ever takes place on the main range of the Peninsula ; but, as far as can be seen, this is an unlikely contingency. Intercourse with Chinese and other races, however, will undoubtedly tend to destroy the purity of their blood, and it is probable that the wild tribes will be gradually absorbed into the mixed racial type that is now being evolved in the Federated Malay States.

The Sakais of Batang Padang call themselves, as a race, Mai Darát, which means ' Men of the Country.' They consider the name *Sakai* insulting, and Malays only use it in their absence, calling them *Orang Dárat* in conversation —a name which is the exact equivalent of their own term. It must be noted, however, that in some parts of the Malay Peninsula, for instance, in Patani, *orang dárat* means ' countrymen ' as opposed to men of the towns and larger villages.

The Mai Darát are far more variable in type than the Semangs, but hardly more so than the Sakai tribes of Upper Perak. Speaking generally, they are fairer than either, for a considerable proportion of them have yellower skins than the Malays of their district, while some approach a Hylam Chinaman in complexion. A point in which they notably differ from the Semangs is that their faces are, as a rule, paler than their bodies, even than those parts which are more or less protected. In some individuals this peculiarity is very marked. The skin of infants is paler in comparison with that of adults than in the case of Malays. Their features are more delicate, and at the same time less infantile, than those of the Semangs, and many of the young men and women are good-looking, even from a European standpoint. In the case of the thirty-seven persons examined, the epicanthus was absent in fifteen individuals, very slightly developed in eight, rather more so in four ; in two it covered rather less than a half of the caruncle, in seven between a half and two-thirds, and in one more than two-thirds. The colour of the eyes was generally black, but in a few cases reddish-brown. The noses were, with a few exceptions, negroid in outline, with broad alae ; but two types could be distinguished, one almost devoid of a definite bridge and the other in which it was well defined. As a general rule the lips were thinner than those of the Semang, being certainly no thicker than those of the Malayo-Siamese. The faces were broad, rather more arched than those of the Malays of the district, and pointed towards the chin. Prognathism was often absent, never excessive, but frequently present.

In most cases all hair had been artificially removed from the face by means of forceps, but it would evidently have been scanty in practically all cases. There was but little hair on any part of the body, except the pubes,

though one man had a considerable growth on the lower part of the legs. The hair of the head was always black, but frequently had a marked brownish tinge, which was probably due in part, though perhaps not entirely, to lack of care and exposure to the weather. (Undoubtedly black hair loses its pigment, if neglected or exposed to sun and damp ; an instance of this came under our observation in the case of a Siamese belonging to the state of Nawng-chik, who had made a vow not to cut or tend his hair. On the scalp his hair was perfectly black, but it became paler the further it was from the roots, until on a level with the back of his knee it was a pale brown, but little darker than tow. The same thing may be observed among the little Orang Laut and Malay boys, who dive for coins in Singapore harbour, though the sea-water in this case may be an additional factor). In character the hair of the Mai Darát varies from straight to woolly, extremes in either direction being very rare ; but the intermediate varieties are so numerous that it is impossible to express them adequately by any system of nomenclature. The investigation is further complicated by the fact that, under Malay influence, the people are beginning to cut their hair short, or even to shave their heads. In the case of men, in whom there is no reason to suspect the presence of alien blood, the hair, when it has not been cut, either hangs down on the shoulders or else stands out round the face in an aureole[1] quite comparable to the 'mop' of a Papuan. This aureole is largely an artificial product, produced by careful and frequent combing ; but it cannot be produced unless the hair is of a stiff and frizzly nature. There are many Mai Darát who could not produce it, and whose straight or wavy locks cannot be forced to stand out from the head. In the case of women, an attempt is often made to make the hair appear straighter than it naturally is, probably in order that they may seem like Malays ; it is plastered down with oil and dragged back from the roots, so that it may be made up into a bunch behind. We believe that considerable confusion has been caused owing to anthropologists not realizing that the hair of two Sakais of equally pure blood is not necessarily of the same character. The hair of the Mai Darát women may reach a considerable length, and in neither sex does it appear to be naturally shorter than that of a Chinaman or Malay. We noticed that both curly and wavy hair were extremely rare among very young children, though they were common among boys and girls of about ten years old. It is very improbable that this is due to intercourse with straight-haired races, for the Mai Darát are extremely jealous of the virtue of their women, and we have seen instances in point where the paternity was undoubted. It is, therefore, almost certain that a change takes place in the

1. None of our figures give any idea of the extent to which this 'mop' is sometimes developed.

character of the hair between infancy and puberty. We are not yet in a position to speak of the microscopic structure of the hair, but one of us hopes to do so in a succeeding paper.

The mean height of thirty-four men was found to be 1524 mm. In figure the Mai Darát resemble the Semangs, except that the upper part of the body often appears disproportionate to the lower limbs. Otherwise they may be described as lithe and well-made, though in a fair number of instances observed the abdomen was somewhat protuberant. The breasts of the men, especially those who are well nourished, are often developed to an extent quite unusual among the Malays and Malayo-Siamese of the Peninsula; those of the younger women are well formed and conical, rarely flaccid or pendulous. The fingers are long and tapering, but the carpals and metacarpals comparatively short. Though the feet are used for prehension to a considerable extent, and the hallux is to a certain degree opposible, there is not always a very marked separation between it and the second digit, as there was in those Hami whom we saw. The toes of two infants examined were all of approximately the same length, so that the front line of the foot was almost square. The legs are straight and slight, but have not the emaciated appearance of the legs of a Tamil: the calf is always well developed.

All that has been said with regard to the movements and attitudes of the Semangs applies equally well to the Sakais. In conversation they make use of gestures to a considerable but not excessive degree: the movements of their hands are dignified and expressive. Their gait is that of the other jungle tribes. We noticed that their toes were pointed in front of them when they were walking, and that in their tracks each footprint was almost straight in front of the preceding one. Their feet were not spur-heeled.

The greater number of the men we met were suffering from *kurap*, a kind of skin disease which causes the skin to desquamate all over the body and limbs. The women appeared less liable to it than the men. Like the Semangs, they greatly fear 'hot rain,' believing it to be the cause of ague, to which they seem to be very liable. They also avoid the direct rays of the sun, and dislike being wetted by rain; but they must be exposed to considerable changes of temperature at high altitudes. They, too, have a reputation as herbalists, but probably are only a little less ignorant of the true properties of vegetable drugs than the Malays, though undoubtedly they collect simples of many kinds. Their chief panacea is magic, but, unlike the Malays, they make medicinal use of the hot springs not uncommon in South Perak.

For clothing the men wear a T-bandage which exactly resembles that of the Semán, except that the straight cloth or bark cloth of which it consists is

even narrower. Not infrequently it is so exiguous that it does not properly conceal the genital organs ; Mr. Leonard Wray, of the Perak State Museum, showed us photographs of men belonging to the Batang Padang district in which it was evident, as he pointed out, that slits had been cut in the bandage so that the testicles projected on each side. The Mai Darát men consider that the requirements of decency are satisfied by the concealment of the penis ; but children commence to wear some clothing among them earlier than among the Malays of the less cultivated districts of the Peninsula. The women, as a rule, dress in the Malay *sarong*, which covers their persons from the waist to the ankles, and wear, in addition, a cloth disposed diagonally across the breasts. This also serves as a convenient receptacle for objects of various kinds. Up in the mountains, however, we saw some women who wore nothing but a narrow wrapper of bark cloth round the waist. Mai Darát men, who are in the habit of visiting Chinese villages, are noted for the richness of their costumes, which often include silk trousers and jackets ; but these refinements are only for town wear, and are discarded in the jungle. Not infrequently the women wear girdles of teazed-out bark and leaves, with great bunches of the same materials standing out from the hips (c.f. Plate IX, fig. 3). Young married women wear beneath their *sarong* or petticoat a belt formed of a number of strands of twisted vegetable fibre—probably derived from a palm—of a glossy black colour. These are discarded when the child-bearing age is past. It is curious that the substance out of which the belts are made bears a superficial resemblance to that used by the Semangs, though its origin is quite different.

Both sexes often wear on the forehead a fillet of bark cloth, which is tied behind the head. The substance used for this purpose is made from the bark of the young Upas tree (*Antiaris toxicaria*), and is cut into strips some three inches broad and two feet long. As a rule, the fillets (Plate XII, fig. B) are decorated with rough geometrical patterns and patches painted in red or yellow, the cloth itself being of a pale cream colour. The coloured lines form a ground-work for designs stamped on them in black, and consisting of dots arranged in rosettes or thinner lines. It is probable that these dots are produced by means of a stamp, for the surface has obviously been compressed where they occur, and a careful examination of our specimens leads us to believe that certain series of them are reproduced in facsimile over and over again in the same design. Other fillets are made of short lengths of grass and vegetable fibre of different natural colours strung together in bands. Garlands of sweet-scented grass, shredded banana leaves, flowers, and other vegetable substances are sometimes seen on the heads of men and women. The women of the country round Bidor wear strands of cotton thread, dyed by themselves with what is probably a species of

wild indigo, across their foreheads, fastening them behind with streamers of teazed-out bark. Scarlet *Hibiscus* flowers are often stuck into the hair of young women, either just over one or both ears, or in a semi-circle across the top of the head.

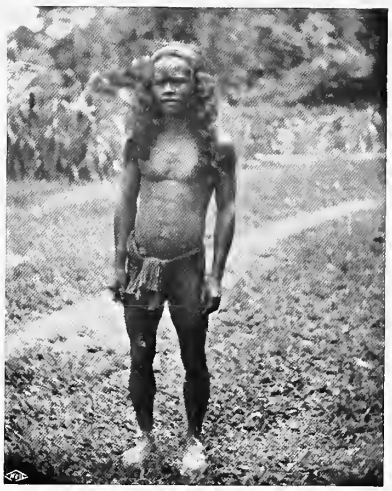
The women, and probably also the less sophisticated men, wear combs and hairpins, made either of bamboo or wood. The hairpins, which are fastened in an oblique direction in the hair at one side, are flat, dagger-shaped skewers, often of a beautiful species of bamboo, the surface of which is naturally figured with rich brown. The combs are of two very distinct types, only one of which was found in use among the Semangs. It is always of bamboo, with a variable number of teeth and a high decorated back-bone, and is worn upright much in the fashion of the tortoise-shell combs of the Cinghalese. Both the hairpins and the combs of this type are generally ornamented with incised patterns, each of which has been stated to have a mystical meaning. Geometrical designs are most common upon them, but realistic plant forms sometimes occur, (Figs. 10, 12*d*) and, occasionally, what may possibly be highly conventionalized ornithomorphic figures (Fig. 12*a*). The rude beast forms so common on bamboo objects made by the Semán appear to be unknown to the Mai Darát, and we did not see the 'Argus Pheasant' design of the Pô-Klô either in South Perak or at Telôm, unless the design in Fig. 12*e* can be regarded as a variant of it. The other form of comb consists of three or more cylindrical splinters of wood, tapering to a point, and very neatly bound together at the other end with dark fibre, which is plaited with great care. The two outer teeth are prolonged above the point of junction into horn-shaped projections extremely graceful in design (Fig. 8).

Both sexes pierce the septum of the nose and introduce into the hole thus made either metal skewers, porcupines' quills, or other slender cylindrical objects. These are removed, however, in the vicinity of settled communities, for fear of ridicule.

Earrings are sometimes, but by no means invariably, worn both by married women and by unmarried girls, but very often only the lobe of the right ear is pierced. The earrings are made either of metal or of bamboo. In the former case they are obtained from Chinamen or Malays, and consist of disks of brass or silver, often as large as half-a-crown. The bamboo specimens are hollow cylinders decorated in the same manner as the combs ; a specimen before us measures 44 mm. in length and 27 mm. in diameter. It was worn thrust through the lobe, and a bunch of sweet-scented grass was passed through the aperture.

The younger women decorate their arms with spiral coils of stout brass wire,

SAKAI (MAI DARÁT) MAN, with Blowgun and Quiver;
BATANG PADANG DISTRICT, S. PERAK.
(Photo from G. B. Cerruti, Esq.)



SAKAI (MAI DARÁT) MAN, with Long Hair;
BATANG PADANG DISTRICT, S. PERAK.
(Photo from G. B. Cerruti, Esq.)

SAKAI (MAI DARÁT) FAMILY;
BATANG PADANG DISTRICT, S. PERAK.
(Photo from G. B. Cerruti, Esq.)

SAKAI (MAI DARÁT) MEN AND WOMAN,
under temporary shelter of Banana leaves;
BATANG PADANG DISTRICT, S. PERAK.
(Photo from G. B. Cerruti, Esq.)

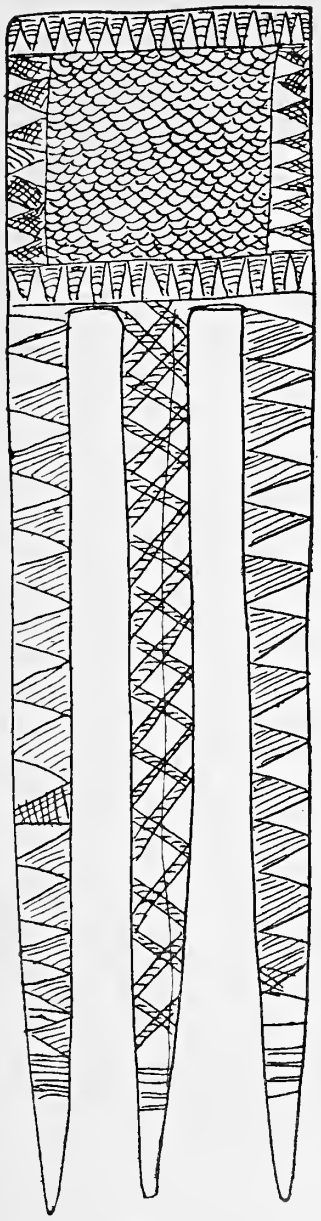


Fig. 7. Bamboo Hair Comb.
Mai Darát ; Batang Padang, South Perak.
Scale, about $\frac{1}{1}$

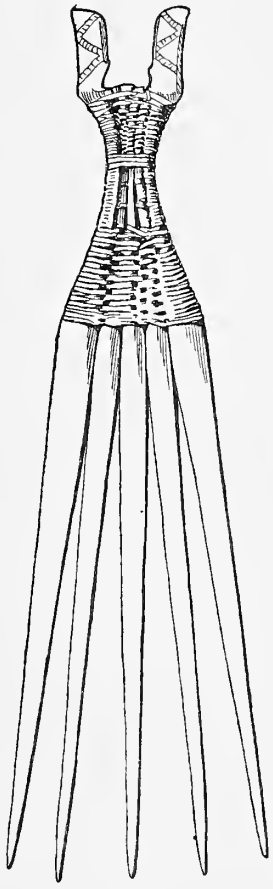


Fig. 8. Woman's Comb, inserted in hair at back of head.
Mai Darát ; Batang Padang, South Perak.
Scale, about $\frac{2}{3}$

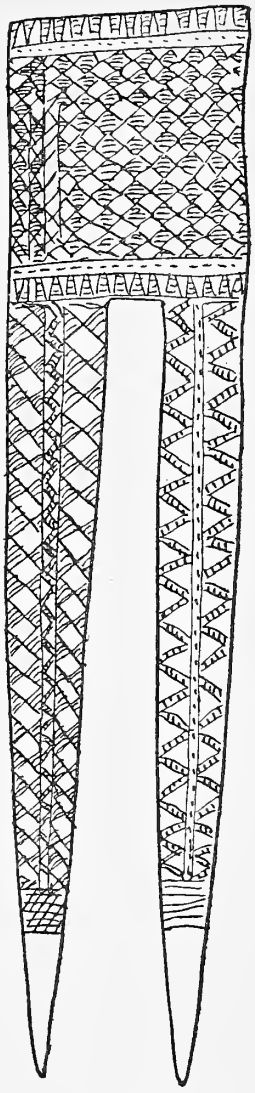


Fig. 9. Bamboo Hair Comb.
Mai Darát ; Batang Padang, South Perak.
Scale, about $\frac{1}{1}$

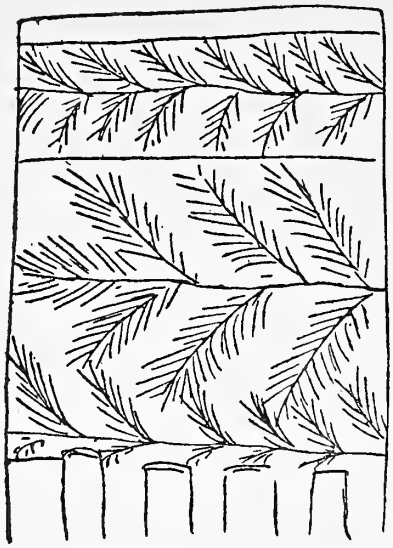


Fig. 10. Naturalistic Plant Design (*Selaginella*) on Bamboo Hair Comb. Mai Darát; Batang Padang, South Perak.
Scale, about $\frac{2}{3}$

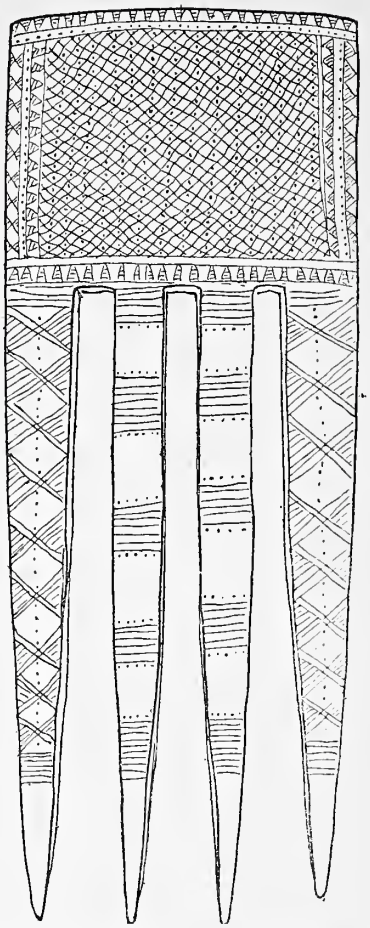
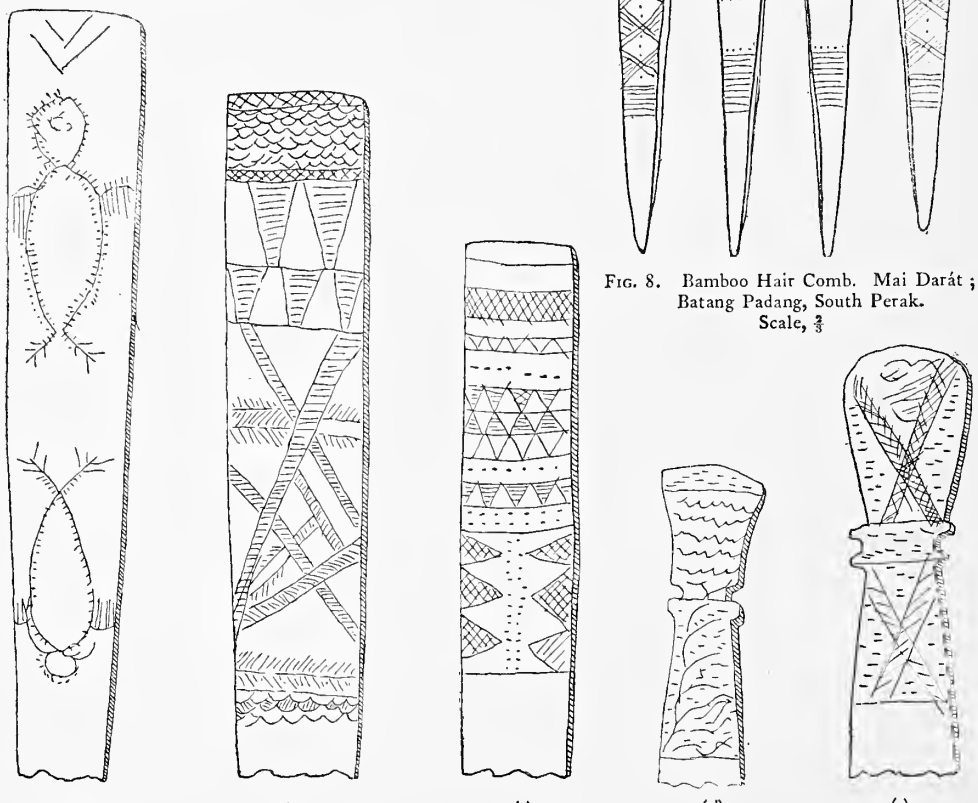


Fig. 8. Bamboo Hair Comb. Mai Darát; Batang Padang, South Perak.
Scale, $\frac{2}{3}$



(*a*) (*b*) (*c*) (*d*) (*e*)

Fig. 12. Incised Ornamentation on Bamboo Hairpins. Mai Darát; Batang Padang, South Perak.
Scale, about $\frac{2}{3}$

which frequently press so closely into the skin that they must cause great discomfort. Necklaces of glass beads are in use among both sexes, being generally composed of brilliant colours, such as red, blue, and green, alternating with single white beads. We did not see among the Mai Darát either the seed necklaces or the monkey-tooth necklaces and bracelets worn by the Jehehr and Pô-Klô. At Telôm we procured a specimen of a different character, which was worn by a man, who considered it 'strong medicine.' It consisted of a number of canine teeth belonging to different animals, strung together with several Dutch silver coins of the eighteenth century, a modern Straits Settlements cent, a Chinese 'cash,' a large amber bead, and a marine shell. The items were so disposed that the coins hung in front and the teeth on either side.

On festal occasions, such as marriages and magical performances, both sexes are said to paint their faces and bodies, but we only saw this done in the case of women. The patterns consist of broad black lines disposed on the cheeks, foreheads, noses, chins, and bodies, very much in the same way as the groundwork patterns of the bark-cloth fillets. Upon these, dotted designs in red, yellow, and white are impressed by means of a comb-shaped stamp of tortoise shell, which is dipped in the various pigments and then applied to the skin. When in the jungle the men paint a black line down the bridge of the nose, using a burnt stick if no other pigment is available. This they too believe to constitute a prophylactic against injury by thorns. Not infrequently the line is prolonged up across the forehead, running through a lozenge-shaped outline between the brows, and sometimes a more elaborate pattern is drawn, like an inverted M with double outlines, just above the eyes. Very possibly the more elaborate designs may also have their special meaning. The transverse lines on the cheeks, commonly seen in Upper Perak, were not noticed in Batang Padang. We saw no instance either of tattooing or ornamental scarification. On a journey the younger persons of both sexes carry roughly triangular pieces of the flower-spathe of a palm with which to fan themselves.

The weapons of the Mai Darát are spears and blowguns (Plate XI). The former consist of strips of bamboo sharpened at both ends, about two-and-a-half feet long and three to four inches wide at the broadest part. These appear to be sometimes used without a haft, but as a rule they are bound to a stick between six and seven feet long by means of lashings of rattan. The spears are either used as such or fixed in spring traps, in which the cut stem of a sapling is bent in an arc, being released by the breaking or violent twitching of a string stretched across a game track and then launching the spear. It is unnecessary to describe these traps at greater length, as comparison of our diagram with one given by Ling Roth[1] from a type used by some of the Malay and Dyak tribes of Sarawak,

1. *The Natives of Sarawak and British North Borneo*, Vol. II, p. 440. London, 1896

shows them to be identical. It may be noted that the force with which the spear is launched is very considerable, and we have seen it driven through both sides of a strongly made wicker basket. The traps are set, in most cases, for deer or pig, but they are also used to protect the camps from undesirable visitors. When we were at Telôm, the Sakais, having lately committed a murder among themselves, concluded that we were government officials sent to spy upon them, and, therefore, warned us not to come to their principal camp, because they had set traps round it. That this was quite true one of us learnt by practical demonstration, for the spear whizzed between his legs. As a rule the presence of a trap across the path is indicated by a bunch of leaves suspended on cross sticks a little distance from it on either side.

The blowguns made in this part of Perak are essentially the same as the one procured from the Hami, for *Bambusa Wrayi* is apparently unknown to the Mai Darát. The necessary length of bamboo is obtained, however, in two ways, both of which may be used on the same blowgun. The one is that of splicing, the other that of removing the septum which divides two nodes of the same stem. The latter operation is performed by striking the septum with the midrib of a species of palm that is both slender enough to enter the bamboo and strong enough to sustain the necessary force. This instrument (Plate XI) is not sharpened to a point, but cut off almost square. After the septum has been removed, a bunch of coarse fibre, apparently also derived from a palm, is introduced at the end of a long stick (Plate XI) and rotated inside the cylinder, until the inner surface is of a uniform polish and the bore of the same diameter throughout its length. The outer tube is frequently ornamented in much the same way as that of the Hami specimen, but the incised patterns are less extensive and the use of dotted designs less frequent. The mouthpieces are of wood, and are never conical. Though several accurate descriptions of the manner in which the blowgun is used by the Sakais have been already published elsewhere, it may be as well to add a few words on what we observed ourselves. The dart is first introduced at the breech, that is to say at the end marked by the mouthpiece. The aperture then loosely plugged with the 'palm-scurf' to which we have referred, it being a light and silky fibrous mass derived from the trunk of a palm, and always carried by the Sakais for use both as wadding and as tinder. The blowgun is kept loaded in this manner, and when a bird or beast presents itself, is immediately raised to the lips in such a way that the tube is directed upwards to a point above the object aimed at, with an inclination varying with the distance. The dart is then projected with a sharp expiration. The aim is usually

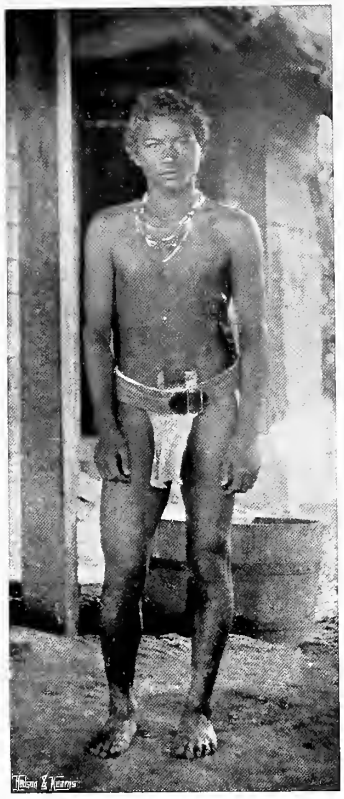


Fig. 1. MAI DARÁT YOUTH—BIDOR, BATANG PADANG, SOUTH PERAK.

Fig. 2. MAI DARÁT WOMEN, with Painted Faces—BIDOR, BATANG PADANG, SOUTH PERAK.

Fig. 3. Same Women as in *Fig.* 2. Woman on left wears Head-dress of dark blue cord; woman on right, painted bark-cloth fillet.

To face p. 38.

very correct up to about twenty-five yards, beyond which it is uncertain, though the range may be much greater.

The quivers of this tribe are never ornamented like those of the Pô-Klô, but are finished very neatly and have covers made of extremely flexible and fine basketwork, the material of which consists of narrow ribbons split from the stems or roots of rattans and ferns. These covers are shaped like cowls, and often extend for some inches above the top of the quiver. They are used as receptacles for the 'palm-scurf,' and are sometimes provided with a network of rattan, which prevents it falling down among the darts. The material of which the quivers themselves are made is a large bamboo, probably a species of *Macrocalamus*, which is believed only to grow on high ground. The outer surface in well-seasoned specimens is of a rich dark-brown colour, which the Sakais do not destroy by incised ornamentation. Each quiver has some resin daubed on its base, and this is probably used to produce the fine polish exhibited by many of the specimens. The dark colour is further intensified by the smoke of the fire, over which the quivers are suspended in the Sakai houses. Plaited rattan is often bound round the quiver, and serves as a point of attachment for the string by means of which it is fastened to the hunter's belt. This string is tied to the bone of an animal, generally either a squirrel or a monkey, or to a piece of wood, which is twisted into the waist-cloth, a type of fastening which differentiates quivers made in the Malay Peninsula from those of Bornean tribes.

The poisons used in South Perak appear to be made from the same ingredients and in the same manner as in other parts of the Peninsula. The darts and poison palettes are indistinguisable from those of the Semán, and the quality of the poison is indicated upon the cones of the darts in the same way as in Upper Perak. The upas tree, as well as its chief product, is called *ipoh* by the Mai Darát, and the strychnos, *bruyal*, but *ipoh* is also a general term, used both among the wild and the civilized tribes, for all dart poisons manufactured by the former.

The Sakais are naturally averse to wasting their darts, and it is difficult to persuade them to do so in mere display. They prefer to capture birds alive, by means of snares or birdlime. The former are used for the larger kinds of ground birds, such as the Jungle Fowl (*Gallus gallus*)[1] and the Argus and Peacock Pheasants (*Argusianus argus* and *Polyplectron bicalcaratum*). Smaller, tree-haunting species are more commonly caught by means of twigs smeared with birdlime and disposed among the branches of trees in fruit. The birdlime is procured from a variety of trees and creepers, and the

1. The Jungle Fowl is probably, and the Pheasants are possibly, immune to *ipoh*.

twigs, when not in use, are stored in bamboo receptacles resembling the quivers of the Semán, except that they are far less ornamental, rarely having more than a few simple lines engraved upon them.

Bows and arrows are not used in this district, and we did not see the prickly cudgels observed among the Hami and the Selangor Sakais. Pellet-bows, though common in the northern half of the Peninsula, appear never to be made by the jungle tribes.

In a Sakai house at Telôm we saw fish-traps of several patterns, which differed in no respect, as far as we could judge from a superficial examination, from those in common use among the Malays of the less civilized parts of the Peninsula. On one occasion a whole camp of Mai Darát was surprised fishing on a pebbly bank in the middle of a rapid stream. They had dammed one branch of the river and were scooping out the fish from the pool thus formed in a baling-basket very much like that used by all races of the Peninsula for catching the small fry of the flooded rice-swamps. Unlike the Semán of Upper Perak, the Sakais of this district appear to be unacquainted with the use of hook and line ; but this ignorance may be due to the fact that they do not practice navigation of any kind, either in the Batang Padang district or near the headwaters of the Telôm, though they are said to be expert raftsmen on the Jelei and Tenôm, of which the Telôm is a tributary. One fish-trap, collected near Bidor, is worthy of a brief description, as it differed somewhat from any other seen. It consisted of a funnel-shaped basket, about four inches in diameter, with a fringe of springy twigs forming the apex of the funnel. A fish would be forced by the current of the stream among these twigs and would not be able to move either forwards or backwards.

A Sakai camp is usually well supplied with household implements and utensils, but by far the greater number of these are obtained directly or indirectly from the Malays. Water is carried and stored, as among all the more primitive inhabitants of the Peninsula, in bamboos, which may measure as much as eight feet in length. The septa dividing the nodes are roughly perforated, and (at any rate in the larger specimens) a spout is formed by cutting the bamboo diagonally to its axis. Sometimes these large water-vessels are decorated with painted and incised patterns, but this is probably a sign that they have been used for ceremonial purposes. A pair were obtained near Bidor which had been used in the ceremony of purifying a woman after child-birth—a custom not improbably derived from the Malays. They were ornamented with longitudinal straight lines, zig-zags, and spots of white and pink paint, which corresponded roughly with incised lines, and were confined

in vertical bars by the removal of strips of the outer surface of the bamboo. In the fresh specimen this method of decoration was most effective, as the green of the outer surface contrasted finely with the duller tissue revealed by its removal and with the paint.

Resin torches are commonly in use among the Mai Darát, who habitually procure fire by the aid of flint and steel, or even lucifer matches. There are still young men, however, who can make it by older methods, which differ from those of Upper Perak in being more degenerate, while the skill of individuals whom we saw employing them was very small. It should be noted that they only did so to give us a demonstration, and at our request : the men of the camp near Telôm declined the trouble. The easiest way to make fire known to Batang Padang Sakais is by sawing a piece of soft wood with a sword-shaped strip of bamboo. The wood was held down on the ground by one man, while two others worked the bamboo backwards and forwards, grasping it with both hands at either end. The second method was essentially that already described with reference to the Semán, but the wood was not split and no peg was inserted, the tinder being held near the groove formed by the rattan string. The ends of the rattan were held by a man sitting on the ground, and the same man shoved against the billet of wood with his right foot, thus keeping it pressed hard against the rattan, which he drew backwards and forwards round it. This method was considered to be the most efficient, if suitable materials could be obtained ; but very strong rattan was necessary, as well as peculiarly soft wood. The third method was that of the fire-drill, a pointed stick of hard wood being rotated in a depression bored in a block of soft wood, by means of a rattan band passing round it and worked by two men. The first method was a very clumsy form of that described with reference to the Sakais of Upper Perak, but it was the only one by which those men among the Mai Darát, who undertook to demonstrate the production of fire from wood, were able actually to obtain fire in our presence.

As we have already inferred, at least two qualities of bark-cloth are made by the Mai Darát, one being produced by the Upas tree and the other, which is much coarser, from a species of *Artocarpus*, and possibly from other trees also. The inner bark is removed from these trees in large strips, which may measure as much as eighteen inches across and several feet in length. These are soaked in water for a shorter or longer period, according to the colour required and the character of the bark ; but as a rule, the soaking does not last longer than an hour or two. They are then beaten until the requisite consistency is acquired with mallets used only for this purpose. The mallets (Fig. 13) measure about ten inches in length and two in breadth, about one-

third of their length consisting of handle. Their inner surface is deeply scored by lines running both longitudinally and transversely, so as to divide it into a number of small squares.

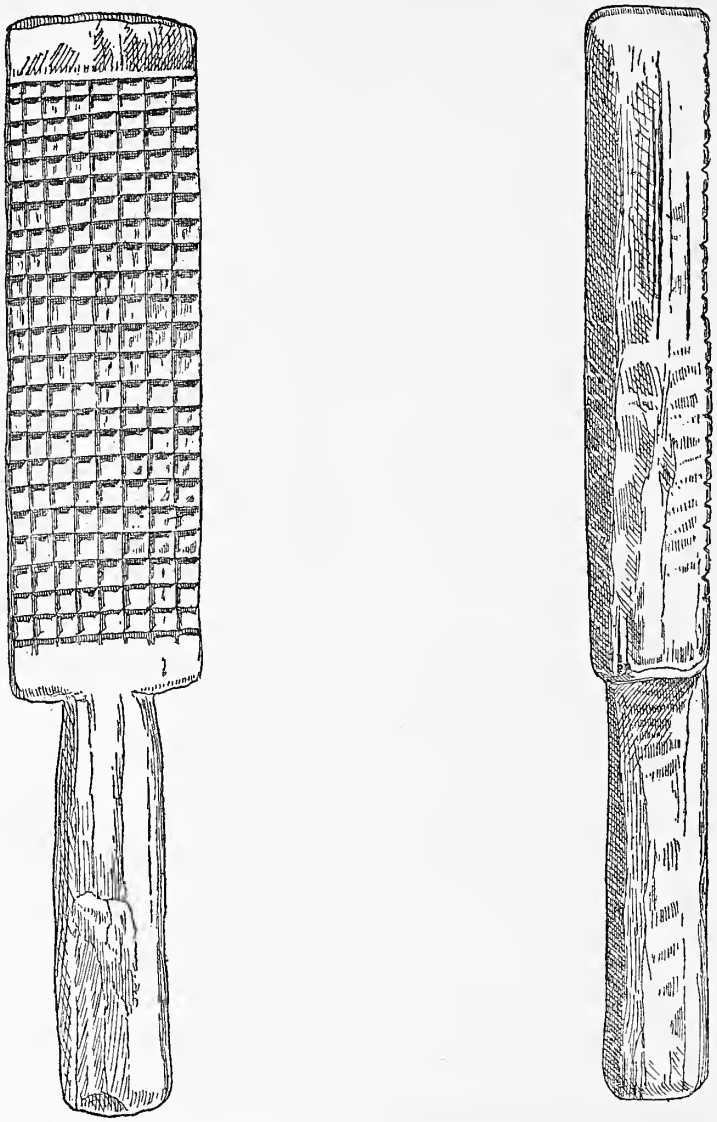


Fig. 13. Front and side views of wooden mallet used in the manufacture of bark cloth. Mai Darát ; Batang Padang, South Perak. Scale, about ½.

Basketwork is practised with some degree of skill among the Mai Darát. The creels carried on the back resemble those of the Semán, but are generally fixed and secured by means of bands of bark-cloth instead of loops of rattan. Not infrequently also they are enclosed in an openwork casing of split rattan. Circular baskets are made from shredded *Pandanus* leaf to hold rice and other

grain, being ornamented round the edge with a thickened rim. We saw also in use among the hill people at Telôm very neat little tobacco pouches made in a similar manner, but of a finer material ; they were extremely flexible, and could be tightly closed by turning over the upper part. As many of them were decorated with needlework very similar to that seen on the pouches made by Malays, it is probable that the pattern at least was a Malay one. The fishing-traps alluded to were mostly constructed of rattan or fine twigs lashed together. *Pandanus*-leaf sleeping mats, which are extensively used in the plains, probably have a Malay origin ; and the same may be said of hen-coops, manufactured by splitting a bamboo into a number of strips at one end, and, while leaving these strips connected at the base, where the stem is still whole, interlacing them with twigs or rattan in circles, so as to form an inverted funnel.

Though the Sakais of the district under discussion have long practised agriculture on a fairly extensive scale, as is proved by the state of the jungle on the hillsides of the upper Batang Padang valley, it does not appear that they owned any agricultural implement more efficient than the digging-sticks of the Semangs until the recent growth of European influence brought them into close contact with Malays and Chinamen. They still make extensive clearings on the hills by burning down the jungle, leaving the stumps of the trees standing, and allowing the ashes to remain as manure. In these clearings they cultivate a kind of tapioca, which has run wild in the vicinity of most of their camps, a species of millet, which does not appear to be grown by the Malays of the same district, and also, of late years, Indian corn, which, however, has only become common among them quite recently. In the plains they cultivate rice of the varieties known as hill *padi*, which can be grown without irrigation ; but they have probably learnt to do this from the settled population, as the climate of the high elevations at which they prefer to live when in their wild state is unsuitable for any kind of rice growing. They do not, so far as we saw, cultivate bananas or any other fruit, though they own durian trees, probably propagated by accident, and their ownership is recognized legally. Near Gedong we procured from a Sakai camp a rice-cutter, ingeniously made from part of an old kerosene tin. It consisted of an oblong piece of the metal strengthened along one border by doubling the tin, and with a short piece of stick thrust through it at right angles to act as a handle. This implement was obviously a rough adaptation of the Malay form, which is made of wood with an iron cutting edge, and is held between the first and second fingers when in use, the third finger being employed to bring the stalks against the cutting edge. The clearings may have an area of as much as one hundred acres, and are protected from the depredations of jungle pig and other animals by roughly

interlacing branches of trees with the shrubs naturally growing round the edge. Gaps are often left in which traps are set. As may be well imagined, this system of agriculture is very destructive of the jungle, seeing that rarely more than two crops are ever raised in one clearing, which may be suddenly deserted at any moment owing to a death in the camp.

The Sakais of this district own a breed of dogs, which is probably identical with that owned by the Pô-Klô, and quite distinct from that of the pariahs common in Malay villages. The points of difference are that the muzzle is shorter in the Sakai breed, the ears more erect, the legs shorter, the tail more bushy, the body more thick set, and the colour an almost uniform tawny rufous, very similar to that of the Malay hunting dog (*Cyon sumatrensis*). The Mai Darát treat their dogs with great kindness, and when on a journey carry them; this office usually falling to the lot of the younger women. The dogs aid them greatly in hunting, and are very suspicious of strangers. They are said to be often infected with rabies. The only other domestic animal usually owned by the Sakais is the common fowl, which they have probably acquired recently, for their breed is the same as that seen in Malay villages. At the present time, the Sakais of the Batang Padang district, and even those of the mountains on the Perak-Pahang border, own large numbers of fowls, which they breed to sell to Chinese pedlars, or even bring down into the towns themselves, carrying them on their backs in open work crates made of rattan. Though they will sell their poultry alive, they refuse either to kill or to eat it themselves, looking upon all animals reared in their camp as members of their community, as they themselves told us. They deny, however, that they have the same regard for the pets of other people.

Kittens are occasionally procured from the Malays, and we have seen a little boy dressing one up like a doll. The wild pig (*Sus cristatus*) is not infrequently tamed, though it does not appear to be bred in captivity. A specimen sold to us at Telôm by a party of Sakais followed its owners like a dog, and came up to them when they called out '*jut-jera-jut*,' a cry that appeared to have no definite meaning. The young of the monkey, *Macacus nemestrinus*, is also captured and made into a pet, being almost an object of barter between camps lying many miles distant from one another. We have known a case in which a specimen, which its owners refused to sell us, was taken all the way from the plains of the Batang Padang valley up into the central range, where monkeys hardly exist, having possibly been exterminated by the relatively large Sakai population.

The houses of the Mai Darát closely resemble those built by the Malays in their own hill clearings, but there is no reason to believe that the Sakais

have recently adopted the pattern from their more civilized neighbours, for those camps which we saw in the mountains differed in no material respect from those built in the close vicinity of settled districts. So far as we saw, the houses were always raised on posts, sometimes to the height of ten or eleven feet, where wild beasts are feared, and sometimes not more than as many inches. The walls are constructed of bamboos, split along one side and then opened out, the flat strips thus obtained being interlaced to form a rude kind of basketwork. Often these walls are only necessary at the two ends of the house, as the eaves of the roof, which is made of palm-thatch, reach to the floor on either side. The floor itself is made of narrow strips of bamboo or sticks, laid parallel to one another, and secured with lashings of rattan or of the stems of creepers. There is no division into rooms inside, though that part of the floor furthest from the entrance is often raised to form a sleeping place. The fire is close to the door, being lighted on a square of sand or earth enclosed by four bamboos. There is no chimney. The door consists of a slab of the same material as that of the walls, and is secured by a stick which can be thrust through corresponding holes in the two door-posts. We never saw more than four houses in one clearing, but clearings in cultivation were sometimes observed at a distance from the camp, and in such cases there was a small house in them, which appeared to be only used on occasion. When on the march the Mai Darát construct shelters like those of the Semangs, but apparently without a sleeping platform.

The grave of a Mai Darát is elaborate, a chamber having been constructed, in several interments investigated, above the level at which the corpse was buried, but below the surface. The roof of this chamber was made either of palm-thatch or of earth beaten hard, apparently over a wooden framework, which had decayed; in it were deposited all the goods owned by the deceased, including clothes, household implements, knives, ornaments, and even coins. The graves that we actually saw happened to be those of women, except in one case, where a Malay model had been followed. In the purely native interments an iron cooking-pot and some porcelain vessels—both, of course, derived from Chinamen or Malays—were placed on the surface of the mound raised over the sepulchral chamber, and a small tree had been planted at the head and foot. We were shown a photograph of a male interment, in the case of which a small shelter had been constructed over the grave and a blowgun left upon it. This photograph was in the possession of Mr. G. B. Cerruti, at that time Superintendent of Sakais in Southern Perak. The body was fully clothed in all the cases that we investigated ourselves, and in some a few copper coins had been placed in the belt. It should be

noted that the graves described were all in the plains, and we do not pretend to say that they were identical with those of the Sakais of the neighbouring mountains, though the men whom we questioned at Telôm told us that they buried all a person's goods with him. The actual depth of the grave varies considerably, and we were told that people of importance are buried deeper than those of less account, as, when a chief or one of his family dies, all the camp and all his relatives assemble to dig the grave. In cases of murder or other violent death it is probable, from what we heard, that the body is allowed to lie where it falls.

The very fact that goods are buried with a dead man or placed upon his grave shows that the Mai Darát believe in some form of existence after death, and they told us that these goods were for the use of the deceased. Whenever a death occurs in a clearing, that clearing is deserted, even though the crops are still growing, as soon as the corpse has been buried, though the grave, as the Sakais at Telôm told us, may be in the jungle. Several of those we saw ourselves in the plains were in the close vicinity of the ruins of Sakai houses, if they had not been dug directly under them. After the clearing has been deserted, the grave is visited at intervals by the relatives, who may place offerings of food upon it; at Telôm we were told by the Sakais that they always provided the dead man with five days' food, but that they never passed near a grave if they could help it, because they feared the ghost.

Besides the ghosts of dead men they also stand in awe of certain other spirits, whose proper home is the jungle, and whom they call *nyani*. When a person is sick, the head-man of the camp, who is also its medicine-man, summons these spirits by incantations; the other members of the community striking a fallen tree-trunk with bamboos, held vertically. The spirits are then induced to leave the sick person and take up their abode in a 'baby' (*anak*), hung up outside the house. The 'baby' consists of a bunch of grass or shredded banana leaves suspended in a bell-shaped structure composed of similar materials and decorated with the inflorescence of a palm. In a specimen (Plate XIII, figs. 3, 4) we obtained near Bidor two small sticks ornamented with shavings, and comparable to the peeled wands used in Bornean, Japanese, and Australian ceremonies, were fixed near the top. They were about six inches long, and the shavings, which were in three series, were short. In this camp the bell-shaped structure was called *Balei* or *Sambong Nyani*; both *balei* and *sambong* being common Malay words, though *Nyani* is not. The shaved sticks were called *Chin-norâh*. This *Balei* differed very much from any *Balei Hantu*, or 'Audience hall of the Spirits,' that we saw among the Malays.

There is no more a true tribal organization among the Mai Darát than

there is among the Semangs ; the former being also broken up into small camps, which do not, however, owe allegiance to any Malay master. In two cases head-men told us that they had been appointed by a European.

A man may not marry a girl belonging to his own camp, but, in some cases, it is probable that he becomes, temporarily at least, a member of his wife's camp. Monogamy appears to be the almost universal rule, though a head-man may have two or even three wives, and the Sakais told us that they saw no objections, other than economic, to polygamy. The women are kindly treated, and we noticed that on a journey they usually walked first, and that their burdens were at any rate no heavier than those of the men. Children are carried either in baskets on their mother's back, or slung across the hip in Malay fashion. The families are small. Fathers are often called after their children, as Pa Gedong (*i.e.*, Gedong's father). Married men take the title *Ba* (uncle).

The Sakais have the reputation of being both timid and inoffensive, but we found many of the wilder folk at Telôm almost truculent in their demeanour. The Malays admit that the cunning and dishonesty the Mai Darát now display is due to contact with themselves. Like most primitive people Sakais are very improvident and also very hospitable. They are jealous of the honour of their women, as already noted, and instances have occurred of Malays having been wounded, if not killed, on this account.

The Government of the Federated Malay States recognizes the 'aborigines' as lords of the soil, in so far that it does not force them to take out licences for collecting jungle produce or mining tin, but the same duty is levied on both vegetable and mineral produce when it is bought from the Sakais or Semangs as when it is collected by men of any other race. In South Perak the Perak Government recently appointed a 'Superintendent of Sakais,' whose duties, however, were largely subservient to those of the Forestry Department, of which he ranked as an official. The first superintendent appointed was an Italian gentleman, of the name of Cerruti, who had gained considerable influence over the Sakais of the district in a private capacity, and had also had much experience of primitive races in the Malay Archipelago. Through the kindness of Mr. J. P. Rodger, C.M.G., the British Resident of Perak, Mr. Cerruti was instructed to accompany us during the greater part of our stay in South Perak, and we are indebted to him not only for many valuable specimens, but also for the pains he took in connexion with our journey to Telôm. We have already hinted that the relations between the Malays and the Sakais are often strained, and, indeed, until recently slave-raids among the wild tribes were considered quite legitimate by the Mahommedan population of Perak. It is possible that the practice is, even now, not

altogether extinct, as an Achinese settled at Bidor offered to steal us a live Sakai, if we would give him fifty dollars. Chinamen, on the other hand, recognize that it is more profitable to be on good terms with the Sakais, and, therefore, treat them with some appearance of generosity, obtaining in return good bargains in the way of poultry, jungle produce, and tin. In short, it may be said that the Malay is the only person with whom he is likely to come in contact that the Sakai is really afraid of under British protection.

It is quite impossible to define the geographical limits of the tribe we have called Mai Darát with any accuracy. On the western side they occupy the upper parts of the valleys of the Batang Padang, Sungkei, Slim, and, perhaps, the Bernam Rivers, while they certainly extend eastwards, over the range, to the Telôm valley, down which they spread in all probability to a lower level than on the western side, as the country is very little occupied by settled races. It is probable, indeed almost certain, that each of the numerous divisions into which the tribe is broken up has its own hunting-grounds; but how far these divisions are identical with the various camps we cannot say. It seems likely that the Mai Darát are the same tribe as that described by previous writers as Sennoi or Sinnoi, and that *sennoi* is a word equivalent to *hami*, meaning 'men.' It is much to be regretted that the authorities on the wild tribes of the Malay Peninsula have, in many cases, been most negligent in stating the exact localities with which they deal, and this appears to be one of the principal causes of the extreme confusion in which questions connected with these tribes are now involved.

The Orang Bukit of Selangor.

About six miles out of Kuala Lumpor, the capital of the Federated Malay States and of Selangor, we paid two visits to a Sakai community of some six households, at a place called Labuansara. The people told us that they called themselves Orang Bukit, but this is only a Malay name, meaning 'hill men.'

In physical character they bore a general resemblance to the Mai Darát but several individuals showed a greater approximation to the Malay type than any Sakai whom we saw in Perak. Indeed, a few of the men and women could only be distinguished from Malays by the brightness of their eyes, and by the gait so characteristic of all the jungle tribes. The hair of the men was cut so short that it was difficult to diagnose its true character; that of the women was always slightly wavy, but never sufficiently removed from straight to be called curly. It was so plastered with oil that it was probably made to appear even straighter than it naturally was, and in one case we found that it was largely supplemented with the combings from a Chinaman's pigtail, which, of course,

were lank and absolutely straight. We have noted the hair of both sexes as straight in several instances, but in no case was it actually lank. The colour of the skin of the body varied between red and yellow, the most prevalent shade being a reddish olive, practically indistinguishable from the complexion of the Malays of the neighbourhood. When we discovered that the woman's hair was not altogether natural, a dusky tinge spread over her face. The mean stature of nine adult males was 1,560 mm.; it would have been considerably lower but for the inclusion of one man who was exceptionally tall, even for a Malay, and who had other non-Sakai characters. The mean stature of four women was 1,397 mm. The noses and faces were a little narrower than those of the Perak Sakais, but the shape of the face was much the same. The eyes were invariably black, and the epicanthus was absent, or very slightly developed, in all but two cases, in which it did not cover more than half the caruncle.

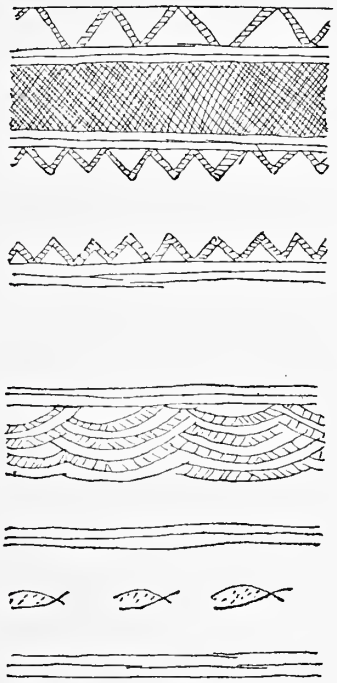


Fig. 14. Detail of Ornamentation on Blowgun. Orang Bukit; Selangor. Scale, ½.
The design in the bottom row represents scorpions (?) or cockroaches, and that on the top a snake.

The Orang Bukit were well provided with blowguns, which resembled those of South Perak in structure, but differed from them in ornamentation and in the shape of the mouthpieces, which were decidedly conical, instead of being annular or bowl-shaped. The patterns incised on the surface of the bamboo included geometrical designs (Fig. 14), but were characterized by the presence of forms representing snakes and arthropods, whether scorpions or cockroaches

we could not ascertain with certainty. The quivers that accompanied the blow-guns were smaller than the majority of those obtained in Perak, and had covers which were either carved out of wood or plaited with rattan, of a conical or pyramidical form. The darts differed from those collected elsewhere in having the cones at their bases made of pith. We also saw in the houses thorny wood cudgels closely resembling those of the Hami, and were told they were used for killing rats.

We found the Sakais of Selangor well acquainted with the use of *tuba*, a poisonous creeper, the roots and stems of which are used in many parts of the Peninsula to stupify fish. A man showed us some of the roots in this camp, remarking '*ipoh* for monkeys, *tuba* for fish.'

Though the Orang Bukit affect the Malay costume for the most part, they are able to make bark-cloth, as they demonstrated to us. The mallets they used in so doing differed from the specimens procured in Perak, in that the lines cut on the flat surface only ran transversely, and did not extend far from the edges, being rather of the nature of notches made at each side.

The Sakai houses in this part of Selangor are better supplied with utensils and implements, which appear to be of true Sakai origin, than those of any jungle tribe visited in Perak, notwithstanding the fact that the Orang Bukit are, in many respects, more intimate with the Malays than the Mai Darát. Many of their water vessels, for instance, though of bamboo, have flat wooden covers attached to them in a manner never seen among the Malays, and baskets are made in quite a variety of forms. Some of the creels, to be carried on the back, resembled those in use throughout the jungle of Perak, but others were rendered more elaborate by having wooden bottoms attached to them, and by being strengthened with wooden or rattan rims and ribs. Creels of this type are quite unfamiliar to us among the Malays. Very characteristic of the Orang Bukit also were certain stiff, pouch-shaped baskets of rattan for the reception of drugs. They were suspended by thrusting the bone of a monkey, attached to them by a string, into the basket-work of bamboo that formed the walls of the houses.

The clearing in which the camp under discussion was built was quite equal to any made by the Malays of the country, and contained both banana trees, pineapple plants, and tapioca ; while the Sakais told us they had large fields of hill *padi* a short distance away. Their dogs, of which they owned a considerable number, were the ordinary Malay pariahs. We were surprised to see an Argus Pheasant consorting with their poultry quite domesticated ; several monkeys and a young jungle pig were also noticed in the process of taming.

The houses differed from any that we had previously seen, and were in some respects of a higher type than those of the Malays in the wilder parts of the Peninsula. The interesting feature in them was that in several instances a part of the one room of which each consisted was divided into several cubicles by walls that did not reach up to the roof, and that only extended outwards to the centre of the floor. The kitchen consisted of a fireplace extending under the eaves, just inside the door, and surrounded with a number of hanging shelves for the reception of cooking utensils, large spoons of cocoanut shell, turmeric graters, made from the rough midrib of a palm leaf, and the like.

On being requested to make us specimens of such toys and ornaments as they commonly used, several of the men set to work to construct the trappings necessary for a 'spirit-play' (*main hantu*). These consisted of a number of ornaments plaited from strips of palm leaf, and representing birds, fruit, snakes, and other objects, the most interesting of which were little square canopies, with ribbons twisted into rings at the extremities, depending from their corners. All these were to be hung up in the house when the medicine-man called down spirits, who would be deceived by the birds and fruit into believing that they were in a pleasure garden, while they would rest under the canopies, which appeared to be the same thing as the *balei nyani* described above, only in a simpler form, and without the 'baby.' Models of birds, fishes, and fruit of exactly the same character are used in Malay ceremonies of a magical or religious nature, as will be afterwards described.

The Orang Bukit round Kuala Lumpur regard themselves as subject to the Penghulu or Malay headman of that town. It is not unknown in this state, even at the present day, for Malays to take to the woods and become members of a Sakai tribe.

This brings to a conclusion the purely descriptive part of our account of the customs and modes of life of the Semang and Sakai tribes that we visited ourselves ; we give a more detailed description of their physical characters in a subsequent paper. We have made no attempt to enter on the question of linguistics, considering it better to hand over such vocabularies as we were able to make to an investigator already working on the subject, and in possession of far more extensive material than we could gather in the time at our disposal.

EXPLANATION OF PLATES XI, XII, XIII

PLATE XI

1, 2, 3, 8, 9. Blowguns.
1. Orang Bukit ; Labuansara, Selangor (p. 49).
2, 3. Mai Darát ; Batang Padang, South Perak (p. 38).
8. Semán ; Grit, Upper Perak (p. 13).
9. Hami ; Mabek Jalor (p. 6).
7. Mid Rib of Palm Leaf, used in manufacture of Blowguns. Mai Darát ; Telom, South Perak (p. 38).
5. Instrument for polishing bore of Blowgun. Same locality (p. 38).
4, 6. Front and back views of Bamboo Spears. Same locality (p. 37).

PLATE XII

Fig. A. Dart Quivers. Sakai.

1, 2, 3, 4. Pô-Klô ; Upper Perak (pp. 24, 26).
5, 7. Mai Darát ; Batang Padang, South Perak (p. 39).
6. Orang Bukit ; Selangor (p. 50).

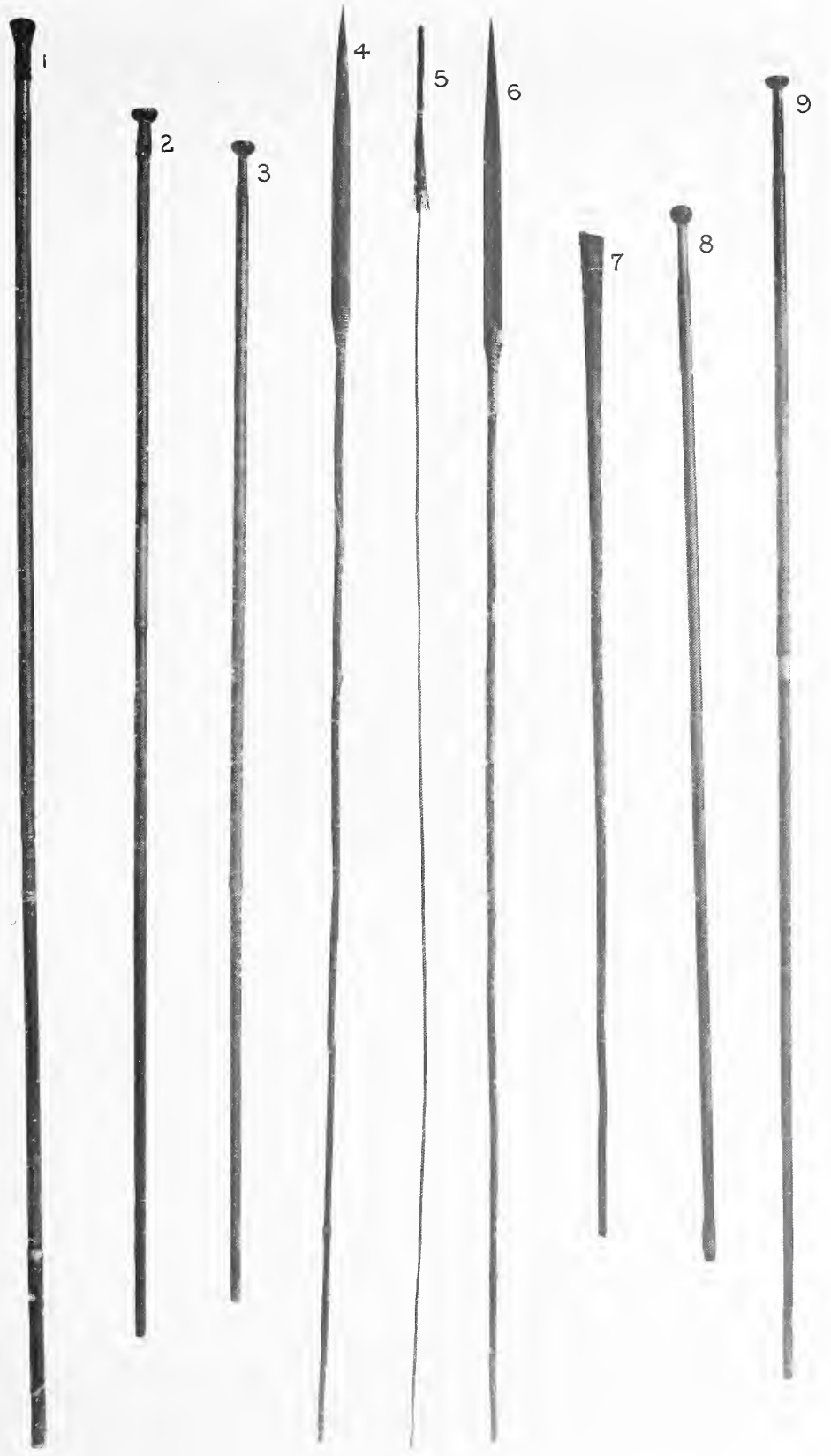
Fig. B. Bark Cloth Fillets. Mai Darát ; Batang Padang, South Perak (p. 33).

PLATE XIII

Fig. 1. A. Dart Quivers. Pô-Klô ; Upper Perak (pp. 24, 26)
B. „ Semán ; Upper Perak (p. 14)

Fig. 2. Rattan Creel. Mai Darát ; Telom, South Perak (pp. 42, 43).

Figs. 3, 4. 'Audience Hall of the Spirits.' Mai Darát ; Paku, Batang Padang, South Perak (p. 46). (One of the shaved sticks inserted at the top has been lost).



SAKAI AND SEMANG BLOW-GUNS AND SPEARS

Fig A. Sakai Dart Quivers.—Perak and Selangor.
(For explanation, see p. 52)

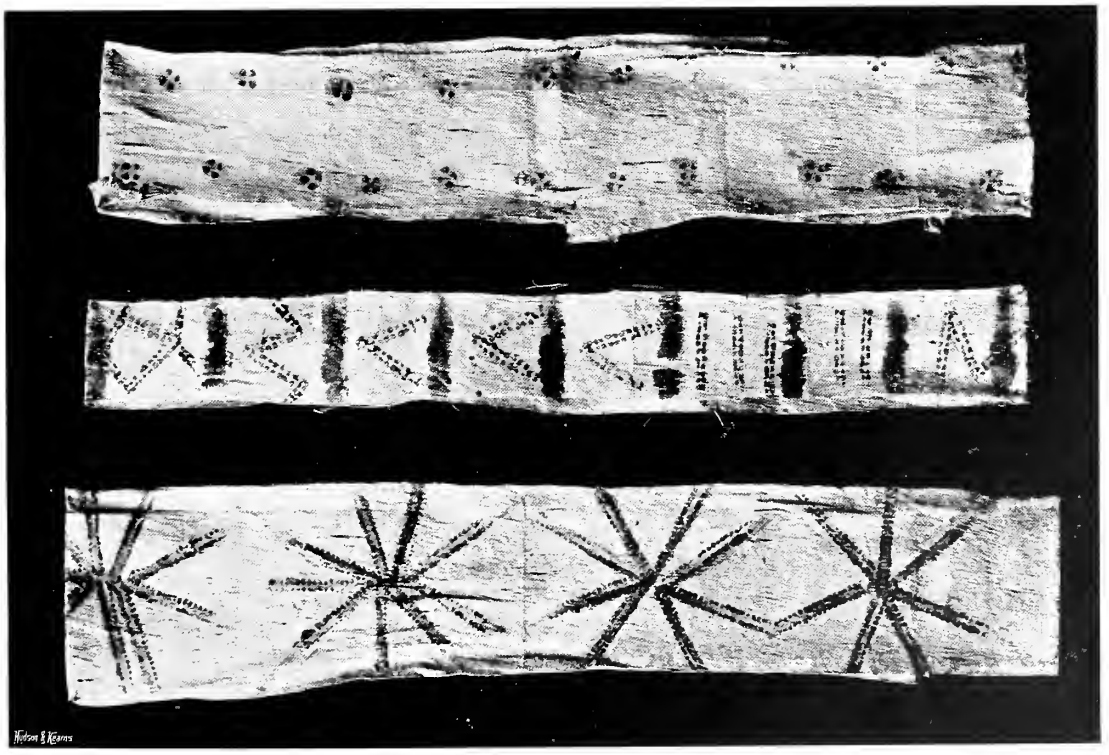


Fig. B. Sakai (Mai Darat) Bark Cloth Fillets—Batang Padang District, South Perak
(For explanation, see p. 33.)

Fig. 3.

Fig. 4.

B

A

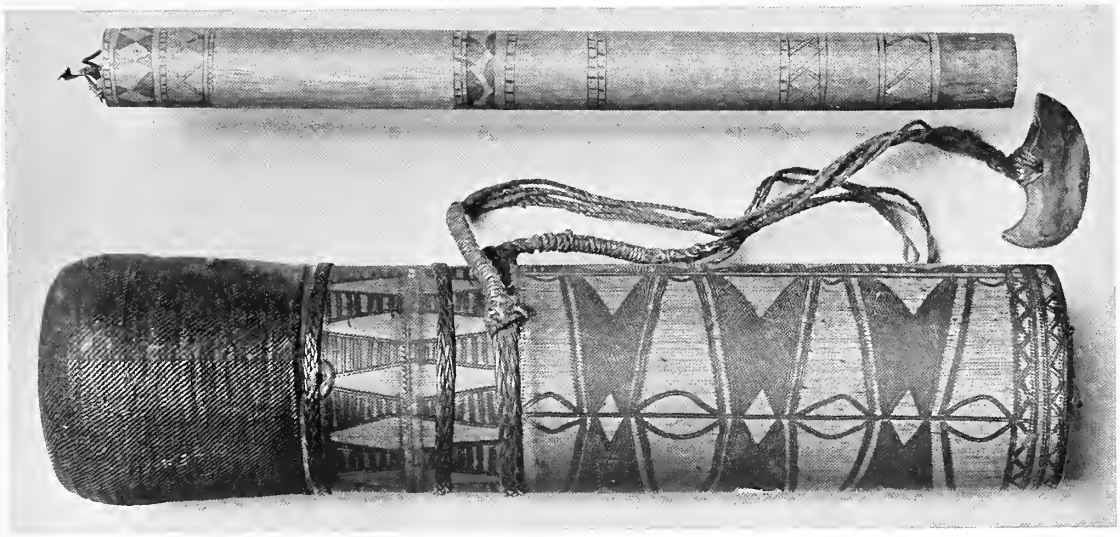
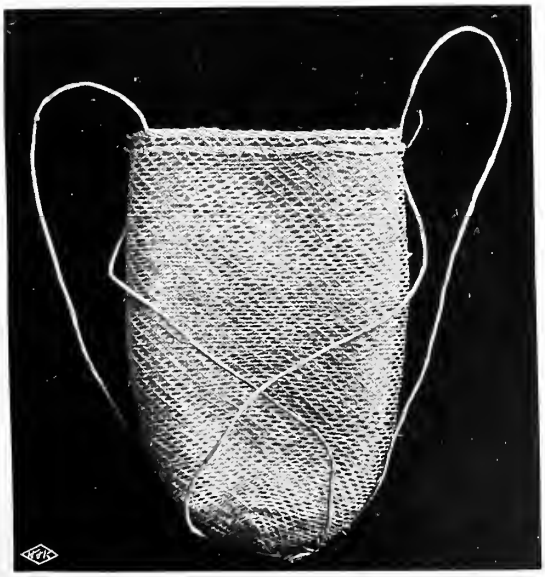


Fig. 1.



PART II. THE COAST PEOPLE OF TRANG

N. A.

THE coast of the Siamese State of Trang and the small islands lying off it are occupied by two tribes, which appear to belong to distinct races; but the Siamese themselves, on the West as on the East coast of the Peninsula, are not a coast people. In dealing with these two tribes a difficulty in nomenclature at once arises, for they both call themselves *Orang Laut*, or Sea Folk, being distinguished by the epithets, *Islam* ('Mahommedan') and *Kappir* ('Kaffir' or 'Infidel'). Now, the name *Orang Laut* has already been applied by various authors to two distinct tribes, one of which may be identical with, or nearly related to, the Infidel Sea Folk of Trang; though the other, at most, has no more than a remote connexion with the Mahommedan Sea Folk of the same state. Leaving the Trang people out of the question for the moment, we find that at one time the coasts of the south of Malay Peninsula were infested by hordes of purely nomadic *Orang Laut*, who were most probably of Malay stock. Their boats—for they made no dwellings on land—were particularly numerous off the State of Johore and the Island of Singapore, and they were often called *Orang Selatar*.[1] Colonies of this tribe, now settled in houses and probably much mixed with other races, still exist, notably on Pulau Brani, opposite the docks at Singapore. Here we have ourselves visited them. They are a comparatively tall people, of dark complexion, and usually with straight hair, which, in the case of the boys, who dive for coppers for the amusement of passengers on board the steamers, is sometimes bleached almost to tow colour, though its natural tint is a rusty black. The *Orang Laut* belonging to the other tribe hitherto described are Sakais, and live on the coast of Selangor, not, however, being seafarers, but merely living near the sea. A family of this tribe came up to the State Museum at Kuala Lumpor while we were there. So far as we could judge, by merely looking at them, they were racially identical with the Orang Bukit of the same state.

To return to the coast people of Trang, I have thought it best to retain the name Orang Laut Kappir for the non-Mahommedan tribe, having pointed out that all Orang Laut do not belong to the same race, and to call the self-styled 'Orang Laut Islam' Samsams. They themselves agree that the dialect

1. Or, by Portugese writers, Celletes; both forms are derived from the Malay *Selat*, a 'strait.'

they speak is the *bahasa Samsam* or 'Samsam language,' and I found in several instances that the people of one village called those of a neighbouring village 'Orang Samsam,' though the latter considered the title an insult; the fact being that Samsam means 'half-bred Siamese,' and that no Malay or Siamese is willing to admit that his ancestry is mixed. The justness of its application, however, to these Mahommedan Sea Folk of Trang is indubitable; there is no physical difference, so far as I can judge, between them and the 'Malay' or 'Samsam' population of the north of Perak and the adjacent parts of the Siamese Malay States, and though it seems probable that a wedge of a purer Malay, or Arabo-Malay, element may have established itself in the district surrounding Alor Stah, the capital of Kedah, yet the people, both to the south and to the north of the region so occupied, are known to be very largely of mixed origin.

Curiously enough, the word does not appear to be known in those states on the East Coast the majority of whose population consists of a mixture of Malays and Siamese; but in Perak and Kedah it has the sense indicated, both in Malay and in European circles. In the former it is compared to *Serani* ('Nazarene,' *i.e.*, Eurasian), which means of 'mixed European and Oriental ancestry.'

(*A*). Samsams (Plate XIV)

In May last I spent a week in the villages of this race on the coast and islands of Trang. Much of my time was occupied in attempts, often frustrated by bad weather and contrary winds, to reach the islands occupied by the Orang Laut Kappir.

The Samsams are considerably taller than any race we have yet described; the mean height of fifteen adult males being above 1,600 mm. Though rather slightly built, they are fairly muscular, and they show no indication of a disproportionate development of the upper part of the body. Their complexions are clear, varying in tint from dark olive to pale yellow, but generally having a yellowish tinge. In ten out of fifteen instances the eyes were reddish-brown, the remaining five individuals having them black. The hair was in all individuals seen, who numbered at least two hundred, black, without a reddish tinge, straight, coarse, and lank. It was rarely even moderately abundant either on face or body. The epicanthus was sufficiently developed in one case to cover a half of the caruncle; in five it was vestigial, while in nine it was absent. The face was short and broad, rather flat, and pointed towards the chin. The nose was, in most cases, straight, but with negroid alae; prognathism was usually absent, never more than slight.

The gait of the Samsams is not that of jungle folk, offering no peculiarity. Their movements are inclined to be deliberate and stately ; but the children are noisy and quarrelsome.

The majority of the men wear loose trousers, generally of a dark blue material ; but a coloured waist-cloth is often worn in addition. The upper part of the body is frequently left uncovered, but a thin, tight-fitting vest of European manufacture is worn, for the sake of comfort, when it can be procured. The use of turban handkerchiefs is not universal, but wreaths and other head-dresses of flowers rarely take their place. The women wear the Malay *sarong*, reaching from the waist to the ankles. As a rule, they cover the breasts with a cloth, but the long jackets worn in Perak are not common.

The most characteristic weapon of the Samsams of Trang is the pellet bow (Plate XIV, fig. 2), which has reached a higher development among them than in any other tribe we saw in the Malay Peninsula. The bows are formed of strips of bamboo or palm-wood, about one or one-and-a-half inches wide and four feet in length. A thumb-guard formed of palm-wood is lashed to the inner surface of the bow by means of split rattan, taking the form of a crescent or of a highly conventionalized bird, in the specimens collected either a 'woodpecker' (*burong pelatok*) or 'turtle dove' (*tekukur*). The different birds are distinguished from one another by the shape and positions of their heads, and their tails are the only part really effective as a guard : in one specimen only the tail is represented. The bow-string consists of a piece of rattan, which is split in the centre for several inches, so as to admit of a shallow pocket, plaited out of strips of the same material, being inserted between the two strands. In this, the pellet, a small ball of sun-dried clay, is placed before being shot out. The string is fastened to the bow at each end by means of a loop of twisted vegetable substance, which fits into a notch in the bamboo or palm-wood. The pellet bows are usually hung up in the houses just above the fire, so that they become smoked and black. They are said to be really formidable weapons, though they have the appearance of being little more than toys.

The Samsams do very little iron-work, but obtain the blades of their jungle-knives, daggers, and *kris* from Patani and the other states on the East Coast of the Peninsula. They outrage all Malay convention in the way which they fit the blades to the handles and provide them with sheaths, so that it is often possible to find among them a dagger with a blade of one recognized type, a handle of another, and a sheath of a third. The tail-stings of rays, which are reputed to be very poisonous, are also used as dagger blades (Plate XIV, fig. 1, on right), though I have not seen them so employed in other parts of the Peninsula. Occasionally even *kris* handles are fitted with these

natural blades, which are sharply pointed, serrated along the edges, and very brittle, so that they cause dangerous wounds. Apparently they are not used among the Samsams for spear heads.

The Samsams of Trang are expert fishermen, their methods and implements differing considerably from those of the Malays of Patani. I shall only attempt to describe a few that particularly struck me. Much of the fishing is done by line, with iron or brass hooks, and an ingenious piece of apparatus is used for measuring out the pieces of cord to be used as snoods for hooks of different kinds, and for tightening the knots by which the lines are fastened together. It consists of a flat board about six feet long and a foot wide, in which two or more upright stakes are fastened, the distance between them being a gauge of the length of the snoods. Some little way in front of them a solid wooden cylinder is supported between two upright pieces of wood, inserted near the sides of the board. The cylinder can be rotated by means of a stick passed diagonally through it, and the distance between its centre and the stakes also acts as a gauge of length. When two pieces of line have been tied together, one end of the double piece is hitched over the stick running through the cylinder, while the other is twisted successively round the stakes ; the cylinder is then made to rotate until the line is drawn taut, so that the knot is tightened. My Patani 'boy,' who accompanied me to Trang, told me that he had seen a similar piece of apparatus in use among Chinamen at Patani ; but there are no Chinese fishermen in that state. Another object used in fishing on the coast of Trang, that I had not seen employed elsewhere, was a small rectangular screen made of *Pandanus* leaf, with a plain wooden handle. This was carried in the right hand, along with a resin torch, while shrimping along the shore at night ; the net being worked with the left hand. Its object was said to be to conceal the shrimper from the shrimps and small fish ; but more probably it acted as a reflector for the light of the torch, and prevented the smoke from getting into the shrimper's eyes.

Fish spears with single prongs, three-pronged tridents, and harpoons with heads that are detachable from the bamboo shafts, to which they are fastened by long strings, are all in common use, the harpoons being chiefly employed for hunting the Dugong, which, however, is not very common. Though this animal is called a fish, being known by its Malay name, *Ikan Duyong*, yet it is regarded as an animal by the Samsams, in so far that they, like the Malays of Patani, will not eat its flesh unless its throat be cut in the orthodox fashion. Its bones are much valued as charms against fever, often being made into bracelets ; while the tears that it is said to shed when captured, are believed to be a most potent love-charm.

Oysters, among other species a pearl-bearing form,[1] are an important item, fresh or dried, in the food of the Trang Samsams. They are collected from the sand at low tide, chiefly by women and children, and are opened by means of a wedge-shaped piece of iron that is driven through a wooden handle and secured in position by bending back its base. The animals are immediately scooped from the shells, boiled in water with a little salt, and, if not consumed at once, spread out in the sun on *Pandanus*-leaf mats or bamboo winnowing trays. The shells form large heaps behind the houses, being not worth the trouble of removing. Occasionally they are burnt to form lime, which is consumed with betel; but this is not often done, as there is plenty of limestone in the district. The pearls are only sought for incidentally, and are small and badly coloured.

The Holothurians, known as *trepang*, are also obtained in considerable numbers on some of the islands, being speared with pointed sticks as they lie on the sand in shallow water. This method is adopted, though it would be just as easy to pick them up like the oysters, in order to make them eviscerate themselves. They are buried in the ground for a night, the outer skin is then rubbed off, and they are dried slowly over wood fires. The *trepang* are not eaten by the Samsams themselves, but are sold to Chinese traders, who occupy themselves in collecting mangrove bark along the coast.

Bivalve molluscs of several species, Brachiopods, or lantern shells, and Sipunculid[2] worms, are obtained in considerable numbers by the women and children, who dig them out, partly with their hands and partly with pointed sticks, from the sand at low tide. The molluscs and Brachiopods are eaten fresh, but the worms are cleaned and hung up on racks to dry; when prepared they have much the appearance of fine isinglass, they are generally made into soup.

Edible birds' nests are gathered in the caves on several of the islands off the coast of Trang, but the majority of the Samsams are not allowed to remain on these islands during the nesting season. The Siamese Government claims the right to farm out the nesting caves; but in popular estimation it appertains to the Sultan of Kedah, and some of the farmers pay dues to Malays who claim to be His Highness's agents, without the knowledge of the Siamese authorities, who rarely trouble to visit the remoter islands. It is remarkable that on the Trang coast the nest farmers are sometimes Siamese, not invariably Chinamen as on the islands of the East Coast and the Inland Sea (Taleh Sap). The actual collectors are mostly, if not entirely, Samsams.

1. Apparently *Margaritifera vulgaris*, not, strictly speaking, an oyster. Professor Herdman has kindly examined a shell.

2. Probably *Phymosoma japonicum*. This species is eaten by the Selungs (Anderson, *The Selungs of the Mergui Archipelago*, p. 22. London, 1890).

Before describing the houses of the Trang Samsams, it is necessary to explain why they call themselves 'Sea Folk'—a name which is not applicable to all Samsams, many of whom, in Perak and Kedah, live in the interior. A few Samsam villages in Trang, such as Ban Pra Muang, at the mouth of the Trang River, are built practically on the coast; but the majority lie some little distance up small rivers, which reach the sea through a tangled system of winding creeks and mangrove swamps. These villages are surrounded with irrigated rice-fields, fruit trees, and groves of palms. The inhabitants spend a part of each year engaged in agriculture, but the younger people of both sexes migrate annually to the coast and islands, leaving the village in charge of the old folk. Here they stay for some months, fishing and gathering oysters and *trepang*. The houses in their villages are much like those of Malays and Siamese in other parts of the Peninsula; they are raised on posts to the height of from six to ten feet, their walls are of rough bamboo basketwork or slabs of bark, and their roofs of palm-leaf thatch. As a rule, they are divided internally into (1) a narrow passage, into which the door opens, and which contains the kitchen fireplace—a wooden box filled with sand and provided with a number of stones or earthenware substitutes on which to rest the cooking-pots; and (2) a couple of chambers, the floor of which is raised a few inches above that of the passage. The inner of the two chambers is often completely walled in, and has a door giving on the kitchen; but the outer one is not divided from the passage except by the raising of the floor. The villages may reach a considerable size, consisting of forty or fifty houses. The dwellings used during the annual migration to the coast are far less elaborate; they are not raised from the ground more than a couple of feet, their walls and roofs, when they can be distinguished from one another, are both formed of palm-leaf thatch, and there are no interior partitions. In some cases there is no room for a fireplace inside, and there are no doors; no food can be cooked while it is raining, and the houses give very little protection from rough weather.

The boats used by the Samsams of Trang are of no great size, the majority of them being either simple dug-out canoes or hollowed tree trunks, the sides of which have been slightly raised by a superstructure consisting of a number of the slender stems of a small palm fastened together, and to the trunk, by means of flat strips of bamboo, on which they are transfixed, being further secured by lashings of split rattan. The superstructures are fairly watertight, so closely are they fastened together, but they do not last for more than one season.

Their pottery and brasswork, and the greater part of their cloth, are obtained by the Trang Samsams from Penang, and they display no decorative

talent of their own. They manufacture spoons by lashing limpet shells to wooden handles with great neatness, and sometimes carve out wooden rice-stirrers (Plate XIV, fig. 1) in the shape of paddles. Fire is almost always produced by lucifer matches or flint and steel procured from Penang, but occasionally a horn fire-syringe is still seen in use. Musical instruments are generally obtained from Kedah, the Malays of which have a reputation throughout the north-west of the Peninsula as musicians, actors, workers of shadow-plays, and the like.

The most artistic indigenous productions are tobacco and betel pouches, made of delicate strips of bleached *Pandanus* leaf or grass plaited into bags, with a comparatively small oval aperture at the top. These have no cover; they are extremely flexible, large enough to contain quite half-a-pound of tobacco, and finished with the utmost neatness. As a rule, there are several in a set, one fitting inside another, the outermost being the finest. The strips out of which they are made are shredded with an instrument resembling that used by the Semán and other tribes, but having the metal points set closer together than is usually the case among the Malays or jungle folk.

The children make use of sharp pieces of mussel shell, not fitted into a handle, in cutting out the leaf figures with which they are fond of playing. A top, or rather teetotum, obtained from them differed from any specimen seen elsewhere in the Peninsula; but it will be described in a subsequent paper on the toys in our ethnographical collections.

The Samsams themselves assured me that they always buried their dead in the Mahommedan fashion, but I saw no graveyards in the vicinity of their villages, and Mr. A. Steffen tells me that they commonly practice 'tree-burial,' and that he has himself seen corpses suspended between trees in the neighbourhood of their houses. Mahommedanism sits very lightly upon the Samsams, and I have it on good authority that it is not uncommon for a youth, who has been circumcised and so 'entered Islam,' to become a Buddhist ascetic if any misfortune befalls himself or his family, without renouncing his former religion. This change is not so peculiar as it seems when one understands that the Samsams, like the Malays and many of the Siamese of the eastern Siamese-Malay States, believe Buddha Gautama and Moses to have been the same person. Thus they regard the status of the Siamese as identical with that of the Jews, whose dispensation—that of the *Nabi Mûsa* or Prophet Moses—was superseded by the dispensation of the *Nabi Isa* or Prophet Jesus, to give way in its turn to the *Agama Islam* or Mahommedan religion. Infidels who have a 'writing' (*surat*), that is to say, the Christians, Siamese, or Hebrews, and even the Chinese, are looked upon as being in a

very much superior position to infidels, like the Orang Laut Kappir and the Semangs, who have no scriptures. Though Trang was once the seat of a Malay sultanate, it is very doubtful how long the present inhabitants of the coast have been Mahommedans. I was told on Pulau Telibun, which lies just off the mouth of the Trang River, that the 'Malays' of that island only entered Islam forty years ago, and when I questioned them, they said that it was quite true, adding that until that date they were 'infidels like the Siamese' (*orang kappir sarupa Orang Siam*). This does not necessarily mean, however, that they were Buddhists, for possibly they were pure pagans, like the Orang Laut Kappir.

Like all the races of the Malay Peninsula, the Samsams place implicit faith in charms and amulets of many kinds, especially—in which respect they resemble the Burmese and Siamese rather than the Malays—in little plates of copper or lead engraved with magic squares and other mystical figures, and rolled up round pieces of string which are worn as necklaces ; and in cloths on which similar but more elaborate figures are painted, together with written charms. These cloths are worn as turbans when danger threatens, being regarded, as also the metal plates, of sufficient potency to render their wearers invulnerable. Many of them claim to have been made in the State of Patalung, whose medicine-men, for geographical reasons into which I cannot enter at present, are reputed the most powerful in the Malay Peninsula. Other magical usages will be noted in a subsequent paper on religion and magic.

The *bahasa Samsam* or *Susam*, commonly spoken by the Trang Samsams, is a dialect of Siamese, liberally interlarded with Malay words and phrases. Siamese is, of course, a toned language, but no attempt is made to intone these Malay additions, so that they strike the ear at once and appear, perhaps, to be a more important element in the Samsam dialect than is really the case. When the Trang people[1] speak Malay, as they often do, their dialect is that of Penang or Kedah, quite different from the dialect spoken by the Orang Laut Kappir.

In the State of Trang the Samsams are confined to the coast and to the banks of the rivers described above. They claim to occupy the coast as far north as Victoria Point, in Tenasserim, but this is possibly an exaggeration of their range. Their southern limit in Perak is practically identical with that of the Semangs, for, though the Siamese have made many raids further south in the Peninsula, they do not appear to have left traces of their presence in the racial characters of the people.

1. Like the Siamese, they cannot pronounce a true j or dj, so that they say *raya* instead of *raja*, *kiyang* (*Cervulus*) instead of *kijang*.

The interior of Trang is chiefly occupied by Siamese, though certain districts are given over to Chinese pepper-planters ; but the Siamese of this state differ considerably from those of the opposite side of the Peninsula. In Trang their hair is almost invariably straight, whereas in the adjacent State of Patalung it is rarely quite straight, and not infrequently curly ; their skin has a distinct yellowish tinge, while that of the Patalung Siamese is just as distinctly reddish ; and I am inclined to believe, though it is impossible to dogmatize on this point without closer examination than I was able to make, that the eyes of the Trang Siamese are more Mongoloid in shape than those of the people of Patalung.

The 'Caucasian' features of the faces of figures stamped on ancient clay tablets,[1] recently found in caves, points to there having at one time been an Indian element in the population of Trang ; but it is possible, though not probable, that these tablets, or the stamps with which they were made, were brought from India.[2] It can hardly be doubted that the religious caste among the Siamese, who are called Brahmin or *Pram*, and who claim descent from Indian immigrants, once existed in Trang, as they still do in Patalung, and individuals of this caste must still occasionally cross from the latter into the former state, indeed, one accompanied me for the greater part of my journey from Lampan to Kantang ; but it is probable that the Indian blood in the *Pram* has been quite eliminated by constant intermarriage with Siamese, carried on for centuries, even supposing that their ancestral claims be just. Kantang, the modern capital of Trang, which, however, was only founded about ten years ago, has a considerable floating population of Klings and Burmese. On casual inspection I found it only possible to distinguish the latter from the Samsams by the fact that they tattooed their thighs.

(*B*). Orang Laut Kappir. [Plates XIV, fig. 1 (*partim*) ; XV, fig. 1]

While I was awaiting an opportunity on Pulau Telubin to visit Pulau Mentia (Kok Muk), a boat belonging to the Orang Laut Kappir of that island happened to put in to avoid a squall. It had been hired by a Chinaman, who was on board, to bring rice from the State of Perlis ; but he was induced to turn back and to allow the Orang Laut to take me to their camp on Pulau Mentia instead. I was only able to stay one night on the island, but obtained a certain amount of information from the two Orang Laut, who formed the crew of the boat, during our journey thither, and visited a disused cemetery of the 'Sea Folk' on the way.

1. A. Steffen and N. Annandale, *Man*, Dec., 1902.

2. And it is not improbable that the makers may have merely followed a traditional model. H. C. R.

As I only saw five individuals, four men and a woman, of the Orang Laut Kappir, and as these individuals differed considerably in appearance, I am not able to give a general description of the outward characters of the race. Of the five persons examined, an old man and his wife could only be distinguished from the crowd of Samsams which surrounded them by the brightness of their eyes ; two young men, sons of this couple, had much the same appearance as that of many Mai Darát youths, except that their hair was absolutely straight and lank, and their gait not that of jungle-folk ; while the fifth individual, a man of about thirty-five, had an extraordinarily massive face and jaw. It has been our rule in the present paper to abstain from discussing cranial features other than those which can be distinguished by a superficial examination ; but it may be noted that this man had, actually but not relatively, the longest head of any individual whom we measured in the Malay Peninsula. The brightness of the eyes was a feature which all five persons had in common, and the straightness of their hair was another. [The way in which the hair is brushed up from the forehead gives rather an erroneous impression in the figure (Plate XV, fig. 1)]. The four men measured 1,624, 1,612, 1,562, and 1,523 mm. in stature. Probably the Orang Laut Kappir could be differentiated generally from the Samsams by having wider noses, a well-developed epicanthus in a larger proportion of individuals, and a slighter figure, to note only superficial differences ; but it seems likely that intermarriages have often taken place, if the inhabitants of certain Mahommedan camps or villages, such as that on Pulau Telibun, are not the direct descendants of Orang Laut Kappir, who have been induced to 'enter Islam,' and have become merged in the race which converted them.

The two families encamped on Pulau Mentia had no weapons, and had never so much as heard of blowguns. Their clothing, houses, and household implements and utensils, of which they possessed but a very scanty store, were identical with those of the Samsam camp on the same island, being most probably copied from them ; but the two houses were larger and rather better constructed—though not more than six feet high—than the majority in this camp, from which they were separated by several hundred yards.

The boat in which I travelled resembled those of the Samsam canoes which have a superstructure of slender palm-stems, but was more elaborate. It was about fifteen feet long and rather narrow for its length, as was rendered necessary by the fact that it consisted essentially of a hollowed tree trunk. The superstructure of palm-stems, which was about two feet high, was tied by bands of split rattan to false ribs, that projected upwards above its level from the bottom of the boat. The bands were rendered tighter by being twisted by a

stick thrust beneath them. They passed through holes drilled in the false ribs, and, with the exception of the slips of bamboo on which the palm-stems were transfixed, were the only form of connexion used in the construction of the craft, nails and pegs being absent from it. In the hinder portion of the boat there was a platform of split bamboo that raised passengers or goods well above the surface of the bilge water, and a kitchen fireplace, of the kind used throughout the Peninsula, formed part of the movable furniture. The steersman sat in the stern, on a framework raised above the platform and adorned with patterns carved on the back of a plank behind his seat. The patterns were emphasized by the use of black and white paint ; they were of a simple floral character, and centred in a circular piece of common looking-glass let into the wood. The mast was not quite straight ; it supported a single lug-sail of calico, rather large for the size of the boat, and bore on its top a wooden ornament resembling a pomegranate. The oars were about eight feet long, rather slender, and tapered suddenly to a point, in which respect they differed from those of the Samsam. They were lashed to rattan cords running between the tops of the false ribs and the side of the boat. When the sail was not in use, the mast was taken down, and, being rested at one end on the steersman's seat and at the other on a forked stick, acted as the ridge-pole of a kind of cabin formed of *kajang*—rough mats of *Pandanus* leaf stitched together in strips.

I was able to visit two Orang Laut cemeteries, both in the cliffs near the mouth of the Chau Mai River. One of them was situated in a magnificent limestone cave about a mile-and-a-half up the stream, and had probably been disused for many years, the cave having been exploited by Chinese pepper-planters, who collected bats' dung to use as manure. A Samsam man told me that formerly it was sacred (*kramat*) in the eyes of Mahommedans and infidels alike, and that the former, whenever they had occasion to pass its entrance, were accustomed to call out : '*Tabek*, *Datoh* !' ('Pardon, Lord !'), but that it was no longer sacred since the Chinamen had come. In the darker part of this cave I found a number of coffins—rudely hollowed logs, with rough planks as covers. In one or two cases the covers were lozenge-shaped and were turned up at the ends, but, as a rule, they were flat and approximately rectangular. The bones had completely decayed, only fragments remaining, but there had evidently been cloth and wooden objects at one time in the coffins. The Samsams of Ban Pra Muang told me that in former days they used to obtain gold ornaments, knives, and other articles of value from the bodies placed in this cave. The only things of interest that remained were some curious imitation swords or daggers of palm-wood and bamboo

(Plate XIV, fig. 1), one of which I found in a coffin, while the rest had already been appropriated by Chinamen, who had set them up, together with pieces of stalactite naturally having a more or less close resemblance to human figures, on ledges of the rock, and had burnt joss-sticks before them. The Orang Laut youths who accompanied me told me that these daggers were always placed with dead men, in order to enable them to fight the *pi*,[1] or spirits; and that women were given rice-stirrers instead.

The other cemetery of the Orang Laut Kappir was on the sea-shore, under an overhanging cliff about a hundred yards above tide-mark. Though the coffins had here decayed as completely as the bones in the cave, and though I was told by Samsams that this cemetery had not been used for ten years, the condition of some of the skulls leads me to believe that bodies had been placed there more recently. Several conical mounds in the sand made it seem probable that interments had taken place, but I was unable to investigate them, and the bones from coffins left on the surface were scattered about, together with a large number of vessels of pottery and Chinese porcelain that had evidently held offerings of food.

An old Orang Laut Kappir man on Pulau Mentia told me that his people now buried their dead, placing with them a bottle of water and a cocoanut, and inserting a dollar in the mouth ; but that formerly corpses were always deposited in the cliffs of Chau Mai, even if they had to be brought for a considerable distance. Their chief cemetery was now on Pulau Lontar, some little distance to the north of Pulau Mentia. The placing of a silver coin in the mouth of a corpse is, Mr. STEFFEN tells me, also a Siamese custom in Trang ; but in the case of the Buddhists it is always abstracted, with the tacit approval of the relatives, by the man who superintends the cremation.

I was also informed by the Orang Laut of Pulau Mentia, whose statements were confirmed by the Samsams encamped near them, that their people never have more than one wife, whom they cannot divorce except for wrong-doing—a contingency which appears to be practically unknown. Two youths on this island had been engaged for two years to girls living on Pulau Lontar, and hoped to marry them shortly. They told me that the bride did not appear at the marriage ceremony of their people, which consisted in her father eating betel with the bridegroom, and that the reason why they could not cast off their wives was that ' her parents give the woman into the charge of her husband ' (*ma pa perempuhan kasi chelaki juga dia*).

With regard to their religion, the Orang Laut told me that they feared the spirits of dead men, and made offerings to 'persons' (*orang*[2]) in the sea and

1. The word is Siamese, being the equivalent of the Malay *hantu*.

2. The word is, of course, pure Malay; its common equivalent in the dialect of the Orang Laut Kappir being *semíah*, though they do call themselves *Orang* Laut.

Fig. 1.

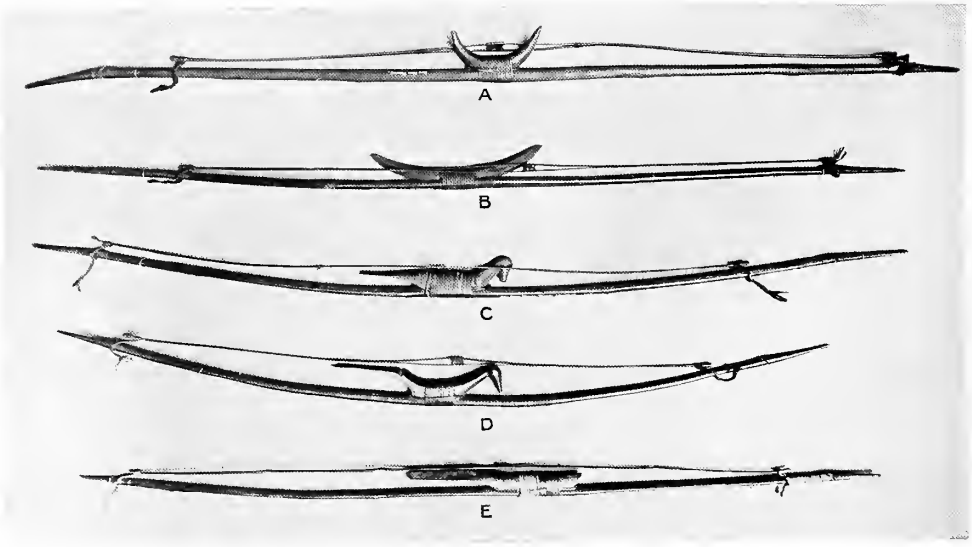


Fig. 2.

To face p. 65.

in the heavens. They said that there were three such persons in the heavens, two males and a maiden, and two in the sea—a husband and wife ; but when asked to give the names of their deities, they would only reply 'Allah-ta-Allah.' They also stated that twenty days after a person had died the relations gave a feast, first placing three platefuls of food upon the grave, and then eating what remained.

The Orang Laut Kappir speak a dialect of Malay differing from that of the neighbouring peoples, and showing more resemblance in its pronunciation to the dialect of Patani. It includes, however, certain words that are quite unknown either in Patani or in Perak, and that do not sound like Malay.

The original home of this race is said by themselves to have been the large island of Langkawi, lying off the coast of Kedah. They told me that their people originally possessed the whole of this island, but that when the Malays first conquered it, those of the inhabitants who refused to 'enter Islam' became wanderers on the face of the sea, having no fixed habitation on land, but encamping occasionally on the islands off Trang and the more northerly states. It is improbable that the Malays themselves were Mahommedans when they first occupied Pulau Langkawi ; but it seems to be certain that the Orang Laut Kappir of Trang practically lived in their boats until within the last decade. A few years ago a number of them settled, more or less permanently, on Pulau Mentia, which the majority have more recently deserted in favour of Pulau Lontar, on which they are said to have rice-fields and palm trees of their own. Formerly they must have had a point of union in the cemeteries at Chau Mai, and at present they appear to be organized into definite clans, each under a chief, whom they call *Sínin*. They claim to be the same people as the 'Orang Besíng,' who, they say, occupy the small islands off the extreme south of Tenasserim, speaking a language of their own which is not Malay. These 'Orang Besíng' are said by the Samsams to be jungle folk as well as seamen, gathering rattans, beeswax, and the like in the woods of these islands ; but I have not been able to discover whether they are regarded locally as identical with the Selungs of the Mergui Archipelago.

EXPLANATION OF PLATE XIV

FIG. 1

A, B, C. Bamboo and Wooden Daggers, placed in the coffins of Orang Laut Kappir men, to enable them to fight the *pi* (spirits). Koh Chau Mai ; Coast of Trang. Scale, rather more than $\frac{1}{3}$.

D. Paddle-shaped Rice Stirrer. Samsam ; Pulau Mentia (Kok Muk), off the Coast of Trang. The blade is proportionately broader than in the real paddle. Scale, $\frac{2}{7}$.

E. Samsam Dagger and Sheath. Ban Pra Muang ; Coast of Trang. The blade is the bony sting from the tail of a ray or skate : the sheath and handle are made of light, spongy wood, bound with brass. Scale, c. $\frac{2}{7}$.

FIG. 2

Samsam Pellet Bows. Ban Pra Muang ; Coast of Trang. Thumb guard of C represents a turtle dove and D a woodpecker. Figures reproduced from photographs of specimens now in the University Museum, Oxford.

To face p. 67.

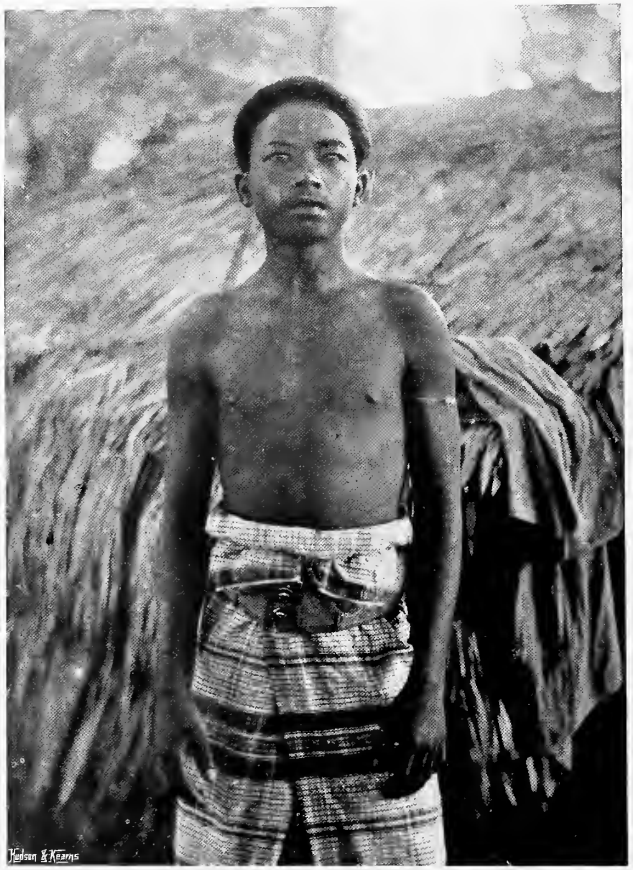


Fig. 1. Orang Laut Kappir standing beside hut. P. Mentia (Kok Muk), off the Coast of Trang.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Perak Malays—Kuala Kangsar, Central Perak.

PART III. THE MALAYS OF PERAK

(Plate XV, figs. 2-5)

DURING our stay in South Perak, by far the greater part of the time that we were able to devote to Anthropology was spent in studying the Mai Darát. Contact with occidental civilization for a period of nearly twenty years, has rendered the South Perak Malay shy of ridicule and reluctant to discuss himself, or his manners and customs, with white men with whom he is unacquainted. In this direction, therefore, our work was limited to recording the outward characteristics of the race, and obtaining a series of physical observations and of statistics, that might prove useful for purposes of comparison with the other races with whom we came in contact.

In Central Perak, ANNANDALE spent a few days in Kuala Kangsar, the residence of the Sultan, where the most typical of the Perak Malays are probably to be found, and was successful in obtaining a series of photographs, while in Upper Perak he also measured some twenty adult males. By a deplorable accident definite notes regarding this series are lost ; but they showed that in general characters the Malays of Upper Perak assimilate to the East Coast type, to be hereafter described, rather than to the Kuala Kangsar and Batang Padang people, differing, however, in certain respects from both.

In crossing the Peninsula from Senggora on the East Coast, to Alor Stah, the capital of Kedah on the West, we were much struck by the change of type that was to be noticed among the inhabitants as we approached the latter town. Speaking generally, the Malay or Siamese of the Patani States or Senggora is a stoutly built individual, with thick-set limbs and a broad, almost 'moon-shaped,' face. In this part of Kedah, on the other hand, and in South and Central Perak, the prevalent type is slighter in physique, with more delicately formed limbs and clearer-cut features ; the face is usually not so flat and is more oval in contour. Individuals of either type, however, are quite common in the particular habitat of the other, and, at least so far as our experience goes, it is almost impossible to judge with certainty the native state of any individual Peninsular Malay, though with practice a fair measure of accuracy may be attained.

According to the Census Report of 1901, the total population of Perak in that year was 329,665, against 214,254 in 1891; in 1901, 'Malays,' as distinguished from other races of the Archipelago and from 'aborigines,' numbered 131,037, against 96,116 ten years previously, and this substantial increase has been the subject of much congratulation in official documents as evidence that the indigenous Malay is holding his own in face of the economic competition arising from the increasing numbers of Chinese immigrants attracted by the prosperity of the mining industry, and, in a less degree, from the presence of Indian agricultural labourers.

But in 1891 the Chinese of Perak were less in numbers than the Malays by about two per cent.; while now they exceed them by no less than sixteen per cent. Moreover, the methods of determining nationality seem, as far as the 'Malays' are concerned, open to grave objection. No account is taken of the fact that in Perak, and to an even greater extent in Selangor, there is a very considerable floating population, attracted from Kelantan and the Patani States, and, perhaps, also from Trengganu, who leave their own homes in the hope of earning a competence, which to them is a fortune, in the richer British States, but who, as soon as they have amassed a few dollars, return to their own state. There are, it is believed, greater numbers of these temporary residents now than was the case ten or fifteen years ago, owing to the abolition of local warfare on both sides of the frontier; while in the districts of Selama and Upper Perak practically the whole population is of Kelantan, Rhaman, or South Kedah ancestry.

It may also be reasonably doubted if many of the people enrolled as Peninsular Malays are really so, and we can instance one case in point from our own experience. The total number of Achinese recorded in 1901 for the whole of Perak is only 88; but in the two villages of Bidor and Sungkei in the Batang Padang district, where there is no reason to believe that members of this race are more numerous than in any other mining district, out of perhaps fifty people who presented themselves for measurement we had to reject at least six as being actually Achin born, while several others, though claiming that they were 'sons of Perak,' admitted that both parents were foreigners. It will thus be seen that the Malay total has been swelled in recent years in two ways—(1) by actual, though temporary, immigration, and (2) by the natural increase of those aliens who have been attracted to the state from other parts of the Peninsula and Archipelago.

Now that the Siamese are establishing a stable and enlightened form of government in that portion of the Peninsula under their sway, there is little doubt that immigration into the British States from the Eastern side will

largely cease, while a return current is well within the bounds of possibility, the general expenses of living being very much smaller on the Siamese side of the frontier, where there is no considerabe mining population to send up the price of provisions, and where the authorities are holding out inducements to settlers in the form of partial exemption from taxation.[1]

To the south of Perak there seems to have been no settled Malay population in the State of Selangor until within the last five centuries, very possibly even until a much later period. Here the Sakai tribes have mixed, to a great extent, with hordes of Bugis men from the island of Celebes, while the country has been largely colonized by recent immigrants from Sumatra—Achinese, Korinchis, and other tribes—who are near akin to the civilized tribes of the Peninsula, but can generally be distinguished at a glance from either the 'typical' Perak Malay or the 'Indo-Chinese' Malay or Samsam of the northern districts.

Stress, however, must be laid upon the facts (1) that the process of immigration into the Peninsula of races subject to Malay culture has probably been going on for at least a thousand years, and (2) that, though this process has been tremendously accelerated in most directions by European influence, the same influence has checked it in others ; for example, in the case of the Bugis men. It would be just as ridiculous to say that England became definitely and finally Norman, in blood and sentiment, on October 14, 1066 A.D., as to say that the Malay Peninsula became, in the same sense, Malay at any particular date.[2] The Peninsular Malay of to-day is almost as much a product of the confusion of races as the modern Englishman, and reversions to any one of his ancestors may be supposed to occur at intervals among his children ; nor does the fact that many of the races from which he is descended were near akin make it any the easier to unravel the history of his ancestry. Moreover, the Malays of the Peninsula have never been welded into one nation, and the native of Kuala Kangsar still looks on the Patani men as foreigners and barbarians, while he reverences the 'son of Menagkabau,' from central Sumatra, as the purest representative of his blood. It is this which would make a definite and immediate ethnographic survey of the Peninsula so important before the confusion becomes doubly confounded.

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1. In the Patani States a foreigner is allowed to clear land and keep it in cultivation without paying for it, unless, or until, he marries a native wife ; while natives, or foreigners married to native women, pay a fixed proportion of the produce to the government.

2. Though by some the Malay Peninsula has been considered the original home of the 'Malay' race as distinguished from the Dyaks, Battaks, and other 'Indonesians.' Kohlbrugge, *L'Anthropologie*, Vol. IX, p. 1, Paris, 1898.

(*A*). South Perak Malays

Leaving out of consideration one individual whose stature was only 1,232 mm. (though he appeared to be normally proportioned in every way), the mean height of thirty-six adult males, measured in Batang Patang, was found to be 1,594 mm.; the tallest man was 1,763 mm., and the shortest 1,488 mm., but the former, in his exceptionally long and narrow face and almost leptorhine nose, showed strong evidence of either European or Arab ancestry, though we were unable to discover anything in his family history that would warrant the supposition.

The colour of the skin of the Malays in this district, inspected in parts of the body not exposed to the air, was surprisingly uniform, ranging from dark olive through red to olive, the great majority of cases being recorded as between the two former tints. In one instance, that of a man from Sungkei, the colour was between chocolate and dark olive, similar to the general colour of the Semangs; but no Malay whom we examined in Perak approached the fairer Sakais from the mountains in complexion.

We have recorded the hair as 'straight' in all but two cases; but it was usually cut so short that a slight amount of waviness would have escaped notice. One case is registered as 'slightly wavy' and another as 'curly,' and it is a significant fact that the latter man has the darkest complexion of any individual in the series, the two characters together affording a very strong presumption of 'aboriginal' descent. On the face, hair is almost entirely absent until about thirty-five years of age, and is scanty at all ages; but it must be remembered that artificial depilation is largely practised: body hair is also extremely scanty. In colour, the hair is invariably of a lustrous black, without the sooty or reddish tinge often noted in the Semangs and Sakais, and occasionally in the Malayo-Siamese of the Eastern States. As we have pointed out before, it is doubtful how much of this greater intensity of colour is due to care and the use of hair oil.

The eyes were usually black, but in ten cases had a reddish-brown colour. The epicanthus was absent in eleven cases, vestigial in seventeen; in six it covered about half the caruncle, and in three was rather more extensive; but in no case was the caruncle entirely obscured. The noses, while of much the same character as those of the Samsams and Malayo-Siamese, were less coarse in type, and a fairly definite bridge was generally present; the alae were less widely spread, and the nostril less patent; in no case did the breadth exceed the length. The hands and feet seemed to us to be more finely moulded than those of the other civilized races of the Peninsula, and the feet, possibly owing

to the more general use of shoes, appeared to be less flattened, with a somewhat higher instep; but these racial differences, if they exist in reality, are but slight.

A slight amount of prognathism was usually present, but the lips on the whole were not as thick as among the East Coast Malayo-Siamese. The general character of the face was more or less platyprosopic, and there was often a marked asymmetry between the ears, due to the habit of carrying small objects behind one or the other.

Our information on the general customs and mode of life of the South Perak Malay is, for the reasons we have indicated, so scanty that we propose to incorporate it in our fuller paper on the Malayo-Siamese.

(*B*). Upper Perak Malays

The inhabitants of Northern Perak seem to be identical with the 'Malays,' or perhaps, to speak more accurately, with the Samsams of the adjacent parts of Rhaman and Kedah, from one or other of which states the greater number of them claim to derive their ancestry. They do not differ at all conspicuously from the Samsams of Trang, being, in all probability, very closely related to them. Their noses are inclined to be straighter, and their faces are distinctly flatter and broader than those of their southern compatriots, and their skin has a tendency to be yellower and clearer, while their stature is slightly greater. Annandale noticed a considerable number of Malays in Upper Perak and in the Jarum district of Rhaman, whose eyes were reddish-brown, of a paler shade than that common among the Semán. The hair of those Malays who live in Upper Perak on the north-east of the Perak River is almost invariably straight and lank and has no reddish tinge, but, as already noted, the inhabitants of Temongoh, a village on the other side of the stream, are so largely the immediate offspring of 'aborigines' converted to Islam that they differ in type from their neighbours, having, in a large proportion of individuals, hair that is not straight. The lank-haired 'Indo-Chinese' type of Malay is predominant in a region that stretches from about half-way between Kuala Kangsar and Grit, in Upper Perak, right across the main range of the Peninsula in a north-easterly direction, to Jarum, in Rhaman. Once Annandale reached the Patani River on his journey across the Peninsula at this level, he found that wavy or curly hair, dark complexions, and other evidences of Semang blood, were characteristic of a large proportion of the rather scanty settled population, but that a comparatively small number of individuals, who often belonged to families the other members of which exhibited the characters just noted, had lank hair, while their complexion was so yellow that they appeared quite pale

in comparison with their own relatives. The existence of two types, side by side in the same community, was, in fact, extremely marked, more so, perhaps, than in any other part of the Peninsula we visited, and certainly more so than on the lower reaches of the same river.

The culture of the Malays of North Perak is identical, in all respects, with that of the Malayo-Siamese of the Patani States ; information regarding some very remarkable beliefs and religious ceremonies investigated among them will be found in a later paper.

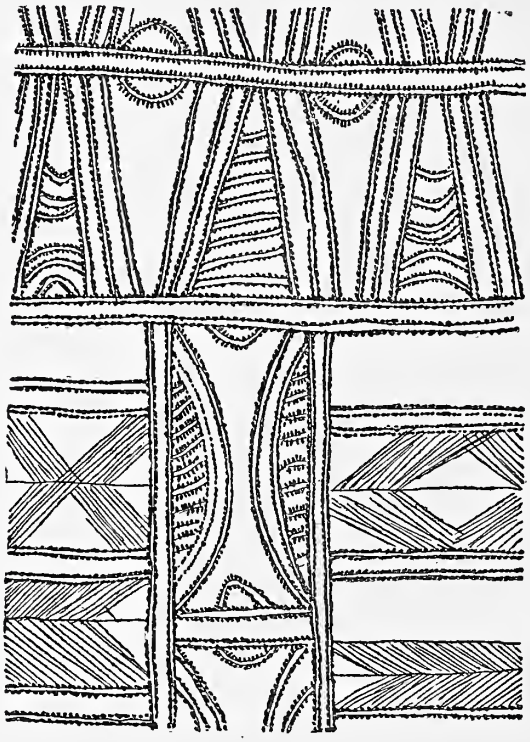

Fig. 15. Incised and Pricked Ornamentation from Bamboo Dart Quiver. Pô-Klô ; Temongoh, Upper Perak. Patterns—'Hills' (top row) ; 'Argus Pheasant' (on either side) ; 'River Turtles' (in centre) ; (cf. Figs. 3, 5, 6 ; pp. 17, 25, 26).

PRIMITIVE BELIEFS AND CUSTOMS OF THE PATANI FISHERMEN

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THE fishermen who ply their calling in Patani Bay live in a number of small villages near the mouths of the Patani, Jambu, and Nawngchik rivers. Without exception they are Malays, that is to say, Mahommedans, for the Siamese are not here a coast people. Though women sell the fish in the market, and do most of the work in connexion with the drying and salting the surplus, they do not, as a rule, accompany the men to sea. There is one old woman of the village of Jujul who does so ; but she is considered quite exceptional. Most of the fishing is done by means of nets, which are let out in a circle, either from the shore, or, more commonly, from a boat. The boats, into the construction of which I do not propose to enter, are of two classes, differing from one another in size and in the distance they go from shore. Even the larger kind does not go more than a few hours' journey, while the smaller is confined to water not much more than five feet deep. Both classes are owned by companies, the partners in which may be women or men who do not engage in fishing themselves, though all are entitled to a certain proportion of the profits. The net, which is taxed according to its length by the Siamese Government, may belong to a different association from that which owns the boat. The larger kind of boat carries a crew of some fifteen men, one of whom is its *bômor ikan*, or 'fish-doctor.' His duty consists in reciting the charms and making the sacrifices necessary to procure good luck and to keep away malicious spirits, and also in leaping into the water when the fishing-ground is reached and swimming about until he hears the fish. He must then raise his body in the water and wave his arms to call his companions to bring the boat and let out the net. It should be noted that several kinds of fish common in Patani Bay can utter a grunt like that of the gurnards of our own coasts. The smaller kind of boat does not need more than three men to work it and the net. It is with the men who are generally associated with this class of work that the present paper chiefly deals, as the author has had more opportunity of observing and questioning them than those who may be called deep-sea fishermen.

Fish Cults

Not the least interesting feature of the beliefs of the Patani fisher-folk is that certain families (*kaum*), forming only a small proportion of their numbers, are named after certain fishes, which they refrain from killing or eating. Each family of the kind has a particular fish that its members reverence. It is difficult to give a satisfactory account of these fish cults, because the whole system is now in a moribund state, though the Patani Malays have been probably as little subjected to direct European influence in recent times as any Malays still living. The following information was gathered by questioning a considerable number of fishermen, some of whom belonged to fish families and some of whom did not, after the existence of the cults had been discovered accidently. They were quite willing to tell what they knew, but seemed, in many cases, even though proud of belonging to one of the families, to be really ignorant of details. Old men stated that they themselves were less strict in observing the prohibitions regarding their family cults than their fathers had been, while their sons were even more lax than they ; young men said that the prohibitions were instituted so many generations back that they were becoming less binding, or dogmatically asserted that these prohibitions had been laid on a definite number of generations, the last of which was that of their fathers. The members of a family, however, still call the particular fish of their reverence, *Datoh*, *i.e.*, 'Grandfather' or 'Lord'—a title often given by Malays to real or legendary personages or beings for whom respect is felt. They also refrain from eating their *Datoh*, but how strictly the prohibition against killing is observed depends on individual conscientiousness ; thus, one man will go through the catch after every haul of the net, and will throw back into the sea any specimens accidentally included, while another, belonging to the same family, will content himself with refraining from discriminate killing, not troubling to prevent his *Datoh* from dying with the other fish, and having no scruple about selling its body to persons who do not practice its cult.

When a member of a fish family is sick or unfortunate, or even when one of his friends, who is not a member of the family, is sick or unfortunate, he makes a sacrifice to his *Datoh*, and begs him that the trouble may cease forthwith. The sacrifice consists of rice cooked with turmeric—a compound very commonly used in ceremonies of a religious or magical nature in all parts of the Malay Peninsula and also in the Archipelago—of parched rice, and of wax tapers. So far as I could discover, no formula or dedication is now used, the prayer accompanying the sacrifice being made in the offerer's own words. The offering is laid on the sea-shore.

Women, as a matter of practical experience, are not subject to the prohibitions of the fish cult, because, as several fishermen explained to me, they do not go to sea. It was hard to discover exactly in what way the cults are hereditary, as differences of opinion existed on this point among the fishermen questioned themselves. Some said that the prohibitions were only hereditary on the mother's side of the family, while others thought that a son should inherit his father's *Datoh*, and a daughter her mother's, so far as women were liable. It was pretty generally agreed, however, that when a man who did not belong to a fish family married a woman who did, he was liable to the prohibitions of her family, seeing that he became a member of it; and that in the case of a couple belonging to different fish families, the husband should practice the cult of both. In this connexion it may be stated that it is customary for a bridegroom to spend the first fortnight of married life in the house of the bride's parents. At the end of fifteen days his own parents come and conduct the couple back to his old home, where they live together until he can afford to have a house of his own. It is the duty of grandfathers, both maternal and paternal, to instruct their grandchildren regarding their *Datoh*. The families are, strictly speaking, neither exogamous or endogamous, but a prejudice exists among their members, as is often the case among Malays, against allowing girls to marry out of the family.

Only two fish families now survive in Patani, those of the *Ikan Lélayang*[1] (*i.e.*, *Ikan Layang-layang*, or 'Swallow Fish') and the *Ikan Lemuk*,[2] or 'Fat Fish,' but others are said to have existed formerly, notably that of the *Ikan Paus*, or 'Whale.' Both families tell the same story of the origin of their cult, but there is a slight variation due to individual narrators. Once upon a time the ancestor of the family, who was a Bugis raja, was shipwrecked, and all his companions were drowned. He clung to a mast, until he saw what he thought was a log, upon which he leapt and was carried ashore. The supposed log was the *Ikan Lélayang*, or the *Ikan Lemuk*. Having thus been saved by the fish, the ancestor called together his children and grandchildren, and made them swear never to eat the flesh of his saviour, telling them that sickness would fall upon them if they did. Another version of the legend has it that it was the fish itself which spoke and made the ancestor swear on behalf of his descendants.

I do not believe that these fish cults are confined to Patani, but think it probable that they are spread, or have been spread until lately, all round the coast[3] of the Malay Peninsula, if not in the Archipelago. Those that still exist

1. *Trichyurus* spp.

2. *Lactarius delicatulus*.

3. Cf. the story, from Leyden's *Malay Annals*, of the Indian prince and the *Ikan Alu-alu*, discussed by A. O. Blagden in a 'Note on the word *Kramat*,' appended to *Malay Magic*.

are said to have had a local origin ; all the members of the *Kaum Ikan Lélayang*, for example, claim descent from the people of a small village on the Patani coast that has now disappeared, while another fish family,[1] now extinct in Patani, is said to have come from Kelantan. My first knowledge of the existence of the fish cults was derived from a Malacca man, who was in our service at Patani, and who stated, in answer to a question whether the flesh of the hammer-headed shark was good to eat, that he himself was prevented from eating it by a curse (*sumpah*). On being further interrogated he said that his grandfather had warned him, as a boy, against eating hammer-headed shark, the reason given being that a Bugis ancestor of the family had been saved from drowning by that fish. It will be seen that the legend is identical with that subsequently told me, quite independently, by Patani fishermen. It is curious that these families call their ancestor a Bugis man, though, the Bugis men having been at one time the great traders of all the Malay region, this need mean no more, perhaps, than that he was a foreign merchant. With regard to the now extinct whale family, it is also worthy of notice that the Patani fishermen say that the *Ikan Paus* is an enormous fish, with teeth of white ivory, out of which *kris*-handles can be made : it is, therefore, a toothed whale. Moreover, they say that they have never seen an *Ikan Paus*, and that it does not occur off the coast, though probably it was found there formerly. Whales of all kinds are rare in the waters of the Malay Peninsula, though they are occasionally stranded at Singapore ; but toothed whales are, or were, common round Celebes and the Sulu Islands. The evidence, such as it is, points to the system of the fish cults having come from further east.

Crocodile Cult

While questioning people regarding the fish cults at Patani, I heard that there was also a family whose members might not kill, or even be present at the capture of, a crocodile, and was so fortunate as to meet a very old woman belonging to this family who had a clearer idea of her family obligations than any other observer of an animal cult whom I came across. She told me that her family was called *Kaum Lomak*, and that it was a branch of ' 'Toh Sri Lam's Family,' and she gave me the following legend to account for the latter name and the origin of the family. At a village on the Patani River, formerly called Parek, but now known as Petiaw (Petioh), there once lived a maiden whose name was Betimor. Here father's name was Jusuf, the descendant of Maw Mi. She had three sisters, who were named Bedjitam, Berbunga, and Meh Sening. Her two brothers were called Maw Mi and

1. *Kaum Ikan Kákachang* (*i.e.*, kachang-kachang). It still exists in certain villages of the State of Jhering. Its members call the fish *Sudara*, 'brother' or 'cousin,' not *Datoh*.

Pandak. Betimor went down to the river to bathe and was lost in the water: the bubbles rose up where she disappeared, and her jungle knife was left on the bank. Three days after she appeared in a dream to her father and told him that she had become a crocodile and must now be called 'Toh Sri Lam. So her father made 'turmeric rice' (*nasi kunyit*), parched rice (*beritis*), and 'red rice' (*nasi merah*), and took them with a white fowl and some wax tapers to the bank of the river where his daughter had been drowned. There she appeared to him, turned to a crocodile as far up as her waist. Afterwards she became altogether a crocodile, and, leaving her own village, went to a place called Ampat Palam, where her footprints were formerly shown. So far the old woman: the following additions to the legend were told me by a boatman on the Patani River, who was not himself a member of the crocodile family. In her old age, 'Toh Sri Lam went to war in the State of Ligor. (Another Patani man told me that she went to fight with the Datoh of Kedah). She came out of the water in the likeness of an old woman and asked some people in a passing boat to take her with them. When they reached Ligor, she begged them to put her ashore and to watch what would happen. Then she dived into the water and swam away, gradually turning into a large crocodile before their eyes. She still remains in the Ligor River, where she causes a great whirlpool by continually turning round and round and lashing about with her tail. The boatman said that he had gone up this River himself in the train of some great Siamese official, and had seen the footprints of 'Toh Sri Lam on the bank. When the procession of boats approached the pool in which she lives, they lit torches and lamps and made as much noise as possible, firing off guns and beating drums, in order to drive her away and to prevent the boats being overwhelmed in the whirlpool.

The old woman claimed descent from Maw Mi, one of 'Toh Sri Lam's brothers, and said that other branches of the family had another brother or sister as an ancestor or ancestress. All collateral descendants of 'Toh Sri Lam call her *Datoh*, and regard her as their guardian. Formerly they made sacrifices to the crocodiles of the Patani River, but the custom has now died out. They believe that 'Toh Sri Lam had direct crocodilian descendants, which are distinguished from other crocodiles by being 'white,' that is, of a pale colour. 'White' crocodiles are *kramat*, or sacred; they are held in reverence by other people as well as those who belong to the crocodile family, and, like all animals that are *kramat*, are believed to refrain from doing injury to human beings except under special circumstances. It is only descendants of 'Toh Sri Lam who are prohibited from killing or capturing ordinary crocodiles; but if a person who belongs to her family is present when any crocodile is killed or captured, he will have a bad attack of fever.

All descendants of the brothers or sisters of Betimor can invoke the aid of 'Toh Sri Lam in sickness or other misfortune, or they may even do so on behalf of other people for hire. A shrine still exists at the place where Betimor became a crocodile, and any one may dedicate offerings and make petitions to 'Toh Sri Lam there; members of the crocodile family being privileged to do so either at the shrine or at home, wherever they may happen to live. My informant, though herself one of the privileged family, had visited the shrine at Petioh no less than three times. On one occasion, a raft loaded with merchandize belonging to herself and her husband had stuck on a snag in the river, and it was found impossible to get it free until the pair 'went to their ancestor' and offered three fathoms of white cloth to cover the shrine. As a rule, however, the old woman sacrificed to her *Datoh* in her own house, offering three wax tapers and some parched rice. She told me that she made use of no special formula in making her request, but said, 'Datoh Sri Lam, your granddaughter begs to be freed from sickness and brings you food.' If the petition happened to take any other form in her mind, she made use of it. After the offering had been dedicated at home, it was taken and laid on the bank of the river. If my informant was ill or unfortunate she would make a vow to dedicate an offering once a month or oftener for a stated time.

It is dangerous for anyone to promise an offering to 'Toh Sri Lam if he does not really intend to make it, for persons who do not fulfil their vows to her become very sick and are irresistibly attracted to the river, into which they rush and in which they remain until the incensed *Datoh* is appeased with an enormous offering of food and wax tapers.

The family of 'Toh Sri Lam reckons descent in both the paternal and the maternal line; thus, the grandchildren of my informant, whether they were the children of sons or of daughters, were both liable to the prohibitions, and are able to perform the private sacrifice. Her husband, who was not a member of the family by birth, had become, as it were, affiliated to it by marriage; he was in the family, but not of it. He was not allowed to take part in the capture or killing of crocodiles, but could not make the private sacrifice, not being an actual descendant of Betimor's parents.

The cult of the crocodile as an ancestor or ancestress does not appear to have been originally confined in the Malay Peninsula to Patani, where it is now all but extinct. I believe that at least one important native official in the State of Perak claims to be descended from a crocodile, and what is evidently no more than another version of the Patani legend of 'Toh Sri Lam, is related by Mr. W. W. Skeat,[1] who had heard it from a Labu Malay in Selangor.

1. *Malay Magic*, pp. 285, 286, London, 1900.

In it, 'Toh Sarilang is a little boy who is turned into a crocodile in the same manner as 'Toh Sri Lam, and who tells his mother how to cure the crocodiles when they become ferocious. Mr. SKEAT, however, makes no mention of any ancestral cult connected with 'Toh Sarilang. In other parts of the Peninsula the crocodile is regarded as a being of extraordinary discrimination,[1] and many curious beliefs are held regarding it. (For example, it is believed, both in Patani and in Kedah, that if a mosquito curtain is washed in the river all the crocodiles will become ferocious and attack human beings). At Lampam, in the State of Patalung (Muang Talun), the brother of a local Siamese raja has set up in the market-place a crocodile shrine[2] in which fishermen, about to set out to their work, make petitions before the skulls of crocodiles arranged upon a shelf.

OTHER BELIEFS REGARDING ANIMALS

Both among the Patani fishermen and in other parts of the Siamese Malay States there are many persons who refuse to eat the flesh of certain animals, alleging that they cannot endure the smell of that particular kind of meat. It is true that Malays are very keen of scent and make far more use of the sense of smell in examining edible and other objects than Europeans do, but it is quite possible that these prejudices may have another meaning, not to be revealed to strangers. One of our men, himself a member of the *Ikan Lélayang* family, told me that another family, to which he was related, had two sacred (*kramat*) tigers attached to it. If one of its members was going on a journey, he could summon the two tigers to protect him by the way, and if he performed the semi-magical, semi-dramatic ceremony known as the 'Princess Play' (*Main Putri*), the tigers would come and listen with their fore-paws on the ladder steps.

These isolated facts, taken in connexion with the now moribund system of fish cults, tend to show that there formerly existed in the Malay Peninsula a system comparable to, but probably more highly developed and complicated than, that practised by the Sea Dyaks of Sarawak, and lately described by Messrs. CHARLES HOSE and W. MCDOUGALL.[3] According to these authors, certain individuals among the Sea Dyaks have a guardian spirit (*Nyarong*), which becomes materialized in some animal, plant, or inanimate object. Naturally such persons refrain from injuring their materialized protector, and the cult may even become hereditary owing to a father pressing his children, or a chief his followers, to observe it. The fish cults at Patani, however, have become definitely hereditary, and communistic rather than individual.

1. Skeat, *l.c.* pp. 290, etc.
2. *Scott. Geograph. Mag.*, 1900, p. 521.
3. *Journ. Anthrop. Inst.*, Vol. XXXI, 1901, pp. 199 *et post.*

The cult of 'Toh Sri Lam, on the other hand, appears to approach nearer to that of Silau, as recorded by the same authors, among the Kelamantans of the interior of Sarawak. Silau was a man who was turned into a crocodile, his feet first becoming the reptile's tail, and who afterwards had a kindly regard for his relatives. The Kelamantans make images of the crocodile, however, which the Patani people, being Mahommedans, do not do. Though I have described the crocodile family together with the fish families for the sake of convenience, its members are not necessarily fishermen or even coast people. The metamorphosis of Betimor, like that of the Bornean Silau, is believed to have taken place up the river. Possibly the names Sri Lam and Silau may even have a common origin, as Sri Lam and Sarilang certainly have, the Patani form having become assimilated to Siamese. There is a large Malay population in Ligor though Siamese is probably the only language spoken at all commonly in that state, as is the case in Patalung—the next state further south.

The 'Souls' of Boats

The Patani fishermen believe that every boat or ship has an individual essence or 'soul,' which they call *mayor prahu*. They regard this essence as keeping the boat from dissolution, being generally invisible, but able at will to render itself visible (*kasi nampa*). This it very rarely does, though it commonly demonstrates its presence by uttering a sound like '*chereck! chereck! chereck!*' It is considered very lucky for fishermen to hear this sound in their boat, as it proves that the *mayor* is strong. When the *mayor* actually reveals itself in bodily form, even greater good fortune is presaged. In the case of a small boat, such as a dug-out canoe, the proper form of the 'soul' is a fire-fly, in that of a larger boat, a snake, while a ship has a human 'soul,' that may be either male or female according to the qualities of the ship, the sex of which cannot be diagnosed by mere inspection. Luck or ill fortune in fishing is regarded as depending, to a great extent, upon the strength or weakness of the boat's *mayor*. When the *mayor* is weak it must be strengthened by offerings. If a long spell of ill fortune at sea occurs to the owners of a boat, the *bomor* is sent for, and the boat 'soul' is summoned by him, while 'sweetened rice[1]' (*nasi manis*) is mixed with salt water and laid as an offering on the head of each rib of the boat. After this, a feast (*keduri*) is held, at which some fowls, a goat, or a sheep, are eaten, portions of the meat being probably offered at the same time to the *mayor* and other spirits. Offerings to the boat 'soul'

1. A sweetmeat made of slightly fermented *pulut* (*Oryza glutinosa*) cooked with palm-sugar and cocoanut.

are always made on a Friday, because that day, besides being the Mahommedan sabbath, is also looked upon as the one on which spirits of all kinds have the greatest power and are most active. Some fishermen make it a practice to lay 'turmeric rice' on the prow of their boat every Friday as an offering to the *mayor*, and to leave it there during the week.

I was anxious to know in what way the boat 'soul' was supposed to originate, and questioned a number of fishermen on this point. Most of them replied that they did not know, but one said that just as the steamer did not exist as a steamer until all the wood and iron and engines in its construction had entered into it, so the *mayor prahu* did not exist until all the planks in the boat had been fitted together. My informants agreed in denying that the 'soul' was called into the boat by any ceremonial method, their phrase being 'it becomes of itself' (*dia jadi sendîri*).

Sea Spirits

Misfortune at sea is attributed, in many cases, to those spirits which are called on land *Hantu Laut*, or 'Sea Spirits,' but which, as is explained below, have a different name at sea. They are believed to be very numerous, and to be all evil and malicious, feeding on dead men. Like other *hantu*, many different kinds of which exist on land and in the water, the Sea Spirits have the power of changing their form and of rendering themselves either visible or invisible. They may take the appearance of giants walking on the waves, of phantom ships that disappear when approached, or of lights like those of enormous fireflies that dance over the sea or settle on the masts of boats. The last is their most common manifestation, as seems to be also the case on other parts of the coast[1] of the Malay Peninsula. It is believed that a *Hantu Laut* sometimes sits on a mast in this form and pours down dirty water into the boat until it is filled and sinks, the spirit's object being that it may feast on the crew when they are drowned. Opinions differ, however, as to whether it actually devours their flesh, some fishermen asserting that it only drinks up their *semangat*[2] or 'directive souls.' Some *bomor ikan*, however, know a charm by which the dirty water poured down by a Sea Spirit can be transformed into fish of a highly esteemed species known as *Ikan Duri* or 'Thorn Fish.'

There are, of course, innumerable methods of terrorizing and keeping away the *Hantu Laut*, and a knowledge of some of these methods forms part of the stock-in-trade of every *bômor ikan*, while other and more simple modes of safety are known to every fisherman. For example, the Sea Spirits at

1. *Malay Magic*, p, 279.

2. *Man*, February, 1903, p. 27 ; and *postea*, *s.v. semangat*.

Patani, like the mineral spirits[1] of the interior, have a horror of limes, and when a new boat is launched, or an old one painted or repaired, a 'sea doctor' is summoned to protect it against the *Hantu Laut* by hanging up from its prow strings of this fruit, together with the inflorescence of a cocoanut or areca palm and strips of red and white cloth. He does this with elaborate ceremonial, regarding the details of which I am ignorant. A curiously interesting method of putting a spirit to flight, be it of land or water, is well known to the Patani fishermen, and can be practised by anyone: it is that of causing the spirit to be 'shocked' (*jadi malu*) by lifting up the clothing and unduly exposing the person.

Beach Spirits

Besides actual Sea Spirits, the Patani fisherman also fears the *Hantu Pantei*, or 'Beach Spirits,' regarding them as the cause of convulsions or epilepsy, which is commonly called 'pig-madness' (*gila babi*), because it causes those who suffer from it to grovel on the ground like a pig. A fisherman in our service at Patani had become 'pig-mad' after an unfortunate love affair, and his affliction was believed to be due to his wandering in a distracted condition by the edge of the sea, thus permitting a beach spirit to enter him. His back was horribly scored where his father had beaten him to drive out the devil by which he had been possessed.

Persons who can cause Storms

Certain persons are believed in Patani and the neighbouring States to have the power of raising a storm or stilling the wind by a wish, the power being innate rather than acquired, and often associated with some physical deformity. Thus, a late Siamese raja of Nawngchik, who was known to his Malay subjects as Raja Pipi Itam (Prince Black-cheek), on account of a black mark that covered one side of his face, was regarded as having this power in an eminent degree. He had also the reputation of being able to cause a man to die a violent death (*mati di-bunoh*, literally, 'to die of being killed') within three days by merely cursing him. It was easy to understand that a raja would have had an influence of the kind under the old regime, but our men, some of whom had known Prince Black-cheek in the flesh, denied that he gave any orders or directions that those whom he cursed were to die—it just happened. A *haji* or pilgrim to Mecca, still living in the State of Kelantan, is reputed to have powers similar to those of Raja Pipi Itam, and also suffers from a like deformity. As he is a *haji*, and therefore a good Mahommedan,

1. *Malay Magic*, pp. 254, 255, 265.

he only uses his command of the elements to secure good weather for friends at sea, and only curses sheep and goats that stray in his garden.

Prohibitions

Like several other classes among the Malays whose work leads them into places regarded as the special haunts of spirits, the Patani fishermen consider themselves bound by certain rules and prohibitions, to transgress which would bring sickness or misfortune upon them. Their word for such restrictions is *pantang*[1]—a term also used by the other classes referred to, and translated by Skeat and other authorities on Malay folk-lore, 'taboo.' I have thought it better, however, in spite of this precedent, to make use of no such technical term as 'taboo,' which has a very definite and restricted meaning in ethnography, slightly different, perhaps, from that attached to *pantang* in the Malay Peninsula; and I have therefore adopted the word 'prohibition,' as being less liable to misconstruction.

If a death occurs in a fishing village, no boat from that village must go to sea on the day following, and no one must set out on a land journey; the reason being that the boat or the traveller would have no luck, and would probably meet with some disaster. No fisherman must whistle when starting for the day's work or at sea, for fear that he should call the *wrong* wind; although, curiously enough, whistling is believed to bring a *favourable* breeze at Trang, on the opposite side of the Peninsula. When travelling between the mouth of the Trang River and the islands off the coast I have heard the method resorted to, much to the surprise of a Patani man who accompanied me, and who remarked that boatmen in his country would never have dared to summon the wind in this way, but would have muttered instead the following charm :—

'*Chium! Chium! Daun Glam.*
Pangil angin! Pangil angin!'

(Kiss! Kiss! O leaves of the *Glam* tree. Call the wind! Call the wind!). The *Glam* tree is one whose leaves are made to rustle by the slightest breeze, like those of the aspen; but they are here regarded as causing the wind by their rustling. The whistling of the Trang boatmen was a very accurate imitation of the breeze rushing through the cordage of a boat, and whistling of any more elaborate kind appears to be unknown among the Malays of the Peninsula as an amusement or mode of musical expression. It is very interesting to find a simple little piece of sympathetic magic of the kind regarded in two such different aspects in different parts of the same country, though believed to be efficacious in both.

1. Locally pronounced much as a Frenchman would pronounce *paintain*.

The most elaborate prohibitions, however, are those placed on conversation. To begin with, topics regarded as unlucky must be avoided. For example, when collecting sea snakes from the boats in Patani Roads, I chanced on one occasion to ask whether these snakes were deadly. No direct answer was given, but one of the fishermen, laying a hand on either cheek, reclined his head on one shoulder, saying, 'If a man is bitten, it will be in this way with him.' For some reason, it is considered most unlucky to talk, even indirectly, of a Buddhist monk, though there is no prohibition against speaking in direct language of a Mahommedan *imam* or *kali*. If any other conversational prohibition is infringed, it is sufficient for the transgressor to throw a little of the dirty water that collects in the bottom of the boat over his back, with the words, '*Lepas geros!*' (May the ill luck be dismissed!); but if a man mentions a monk, his companions will fall on him and beat him. No beast or reptile may be named at sea, and sea spirits must not be mentioned as such; while peculiar terms are used instead of several common verbs and substantives. Sea spirits, monks (if it is absolutely necessary to mention them), beasts, and reptiles, are all called *chehweh*; but fish and birds—the vulture being an exception—are spoken of in ordinary Malay, unless the name of a mammal forms part of their popular appellation. The domestic fowl and the domestic duck are also exceptions to this rule, but they are hardly regarded as birds by the Malays, who consider the pigeon (*burong merpati*) as the only domestic bird worthy of the name. The following vocabulary, though probably far from complete, is sufficiently full to illustrate the character of this 'roundabout' (*balik*) or 'prohibition' language:—

English	Malay	Patani Sea Language
Buffalo	*Krebau* (*kerbau*)	*Chehweh mu-áh*
Corpse, or dead man	*Orang mati*	*Chinerang bátáng* (trunk of the *Chinerang*?)
Crocodile	*Buaya*	*Chehweh gigi jaram* (separated, lit. 'rare,' teeth)
Duck (domestic)	*Itek*	*Tôpang*
Dog	*Anjing*	*Chehweh king*
Elephant	*Gajah*	*Chehweh utu* (elephantiasis)
Foot (human)	*Kaki*	*Chehweh kura* (tortoise)
Fowl (domestic)	*Ayam*	*Bîbaw*
Gecko (house)	*Chîchak*	*Chehweh chak*
Go fast, to make to	*Kasi dras*	*Mara-mara*
Horse	*Kuda*	*Chehweh dras* (fast)
Monkey (*Macacus cynomolgus*, or *Semnopithecus obscurus*)	*Krä*, or *lôtong*	*Chehweh ekor panjang* (long tail)
Monkey (*Macacus nemestrinus*)	*Brok*	*Chehweh kriah*
Monitor Lizard (*Varanus*)	*Biawak* or *behwak*	*Chehweh pedan*

English	Malay	Patani Sea Language
Monk (Buddhist)	*Tohchah* or *psami*	*Chehweh kuning* (yellow)
Ox	*Lembu*	*Chehweh bong*
'Ox Fish'	*Ikan lembu*	*Ikan bong*
'Oxherd Bird' (*Acridotheres fuscus* [1])	*Burong gambala lembu*	*Burong gambala bong*
Pig	*Babi*	*Chehweh tôgong*
Rat	*Tikus*	*Chehweh chi*
Sea Spirit	*Hantu Laut*	*Chehweh*
Sheep or Goat	*Kambing*	*Chehweh beh*
Snake	*Ular*	*Chehweh akar* (root)
Snake (sea)	*Ular laut*	*Chehweh lehreh* or *glehreh* ('weaver's sword')
Steer, to	*Jermudi*	*Jeragam*
Tiger	*Harimau* or *rimau*	*Chehweh jalu* (striped)
Turn, to	*Paling*	*Mandang*
Vulture	*Burong ana 'reng*	*Chehweh kangah* or *Chehweh kapala bubu* (bald head)

After those words in the list that are literally 'roundabout,' that is to say, that are nothing more than short descriptions in ordinary Malay, I have put the literal translation in brackets, but I have not thought it necessary to repeat *chehweh*, which I am unable to explain, in each instance. Several of the names of beasts, as those of the tiger and the snake, explain themselves; *utu* is the Patani pronunciation of *untut* (elephantiasis or leprosy), and the explanation of *chehweh utu* given me by a fisherman was that the elephant's forehead bulged out as though it was suffering from this disease; I do not know why the human foot is called 'tortoise'; the sea snake referred to as 'weaver's sword *chehweh*,' because its flattened tail resembles the wooden implement of that name used in weaving; the monk is called 'yellow' because of the colour of his robes. As will be readily seen, several of the names are conventional renderings of the sound made by the beast they represent, for example, *beh*, *mu-ah*, *chi*; while *chak* is merely an abbreviation of the word in ordinary use, which is itself onomatopaedic, the final *k* being very faintly indicated in the pronunciation of the Malay Peninsula. Other names, again, such as *bong*, *king*, *tôpang*, and the like, are possibly derived from some other language: they may be Siamese, though I have not been able to find any parallels for them either in Bishop Pallegoix's[2] Siamese dictionary or in Crawfurd's vocabularies,[3] for the Senggora dialect spoken in the neighbourhood of Patani differs considerably from standard Siamese.

1. I am indebted to Mr. H. C. Robinson for the identification.

2. *Dictionarium Linguae Tai sive Siamensis*, Paris, 1854.

3. *Journal of an Embassy to the Courts of Siam and Cochin China*, vol. ii, London, 1830.

It is not considered obligatory for the boatmen of the flat-bottomed salt-barges that pole their way along the shore to use the *pantang* language, and it is more necessary that the fishermen should use it at night than by day, for if they 'speak straight' in the dark while at sea, the *Hantu Laut* will appear. The only explanation that I could get from the Patani men regarding the origin of this peculiar dialect, was that men of old had found by experience that if ordinary Malay was spoken at sea the sea spirits were angry, and the boats either had no luck or met with some disaster.

On shore the fishermen are never tired of laughing at the difficulties experienced by landsmen in remembering to use the correct words at sea. They say that they talk of '*chehweh nasi*' instead of '*nasi*' (cooked rice), which is ridiculous; while they mention beasts by their proper names. The following story was told me by a Patani man, who evidently considered it very amusing:—'There was once a stupid countryman (*orang ddrat yang bôdok*), who went to sea and heard the sons of the boat speaking the roundabout language. They had told him that the boat was made of the wood of a certain tree, and he thought that this kind of wood must be able to understand the roundabout language, which was used in order that it might do so. It chanced that there was a tree of this particular species standing beside his house, and as they came back to the shore, he saw that this tree was falling. So he called out, "*Manding! Manding, kayu!*" ("Turn! Turn, O tree!"). But the tree went on falling, and crushed his house. Then he called out in great distress, "The tree will not hear me! The tree will not hear me!" He had believed that by saying *manding*, instead of *paling*, he would be able to make the tree understand what he said.'

The word *chehweh*, or *chêweh*, is also used by the fishermen on the coast of Pahang, where, however, it is applied to birds[1] as well as to beasts, but it does not appear to occur in the sea language of the Langat district in Selangor.[2] My Patani 'boy,' who had himself been a fisherman in his native state, expressed surprise that the fishermen of the Trang coast had, so far as he could learn, no 'roundabout' language. It is probable that the Patani one may be used off Kedah, however, for many fishermen cross the Peninsula annually, as the fishing season on the West Coast coincides with the stormy season at Patani. The limited space at my disposal prevents me from entering into a comparison between the Patani prohibition language and those used by camphor collectors, miners, and others in different parts of the Peninsula, but I may note that all of these dialects appear to be formed

1. Hugh Clifford, *In Court and Kampong*, p. 147, London.
2. *Malay Magic*, p. 315.

on the same principle, partly by adopting unusual words (some of which may belong to an aboriginal language), and partly by substituting descriptive or imitative terms for those in common use ; *chué*,[1] the substitute for *kayu* (wood) in the camphor language, may possibly be no more than a different way of transliterating the sound I have rendered *chehweh*.

Omens and Lucky Birds

All those animals which must not be named at sea are considered at Patani to be unlucky omens when met as the fishermen are starting ; and a Buddhist monk is more unlucky than any of them. The monitor lizard is also especially unlucky, and it is a very bad omen to hear the cry of a house gecko. In order to vitiate a bad omen, the person or persons to whom it occurs must spit in the direction opposite to that of its approach, and the *mayor prahu* must be strengthened by an offering, laid on the sides of the boat, of *nasi manis* and salt water. Birds, on the other hand, are considered lucky to meet, except the vulture and domestic poultry, the most lucky being the ground dove or *Ketiti* (*Geopelia striata*) ; but the Patani people recognize several varieties of this bird that are apparently unknown to ornithologists, though some are lucky and others are not. They are as follows :—

1. *Ketiti Kuning* (Yellow *Ketiti*).[2] This variety is by far the most lucky, and also the rarest. Its dead body should be wrapped up in cloth and suspended over the rice-bin ; if the whole village is burned down, the rice-bin so protected will escape. A true specimen of the Yellow *Ketiti* has its beak, eyes, legs, and feathers of a clear yellow. It should have as many scales as possible, up to thirty, on each of its feet, and its liver should be very small.

2. *Ketiti Itam* (Black *Ketiti*). A little less lucky than the former variety. It is entirely black, and its feet should have twenty scales.

3. *Ketiti Puteh* (White *Ketiti*). Unlucky, because other birds have an enmity against it, and hawks attack it most readily. It has fifteen scales on each foot, and its head and shoulders are white.

4. *Ketiti Api* (Fire *Ketiti*). By far the most unlucky variety, for if it is kept alive in a house the house will certainly be burnt down. Its feathers are red or ruddy brown, and it has twenty-five scales on each foot.

Ketiti are snared in great numbers on the shore near Patani, and are

1. J. R. Logan, *Journ. Ind. Archip.*, vol. i. For other details, H. Lake and J. H. Kelsall, *Journ. Straits Branch Roy. Asiat. Soc.*, No. 26, pp. 39, 40. For much information concerning Malay *pantang*, see *Malay Magic*, pp. 156, 191, etc.

2. None of my informants had seen a specimen of this variety ; but the story of a poor man who caught one and subsequently became king of the country was well known to them. Mr. Robinson tells me that the black, white, and reddish varieties may occur as individual aberrations, and that melanism is not uncommon in allied genera, and appears in some cases to be produced by captivity.

often kept alive as pets, their cooing being much admired. It is not necessary for a specimen to be either yellow or black for it to get the reputation of being a lucky individual, and such specimens as have acquired fame through the good fortune that has accompanied them are often sold for large sums of money. The only way to know whether an ordinary *Ketiti* is really lucky or not is to keep it and see whether good fortune comes with it.

Sea Snakes

The sea snakes (*Hydrophidae*), to which several references have already been made in the course of this paper, are among the most serious dangers in the life of a fisherman at Patani, for they are all very deadly, and when dashed about in the surf during the stormy season, also very vicious. It is true that few boats go to sea at this time, but several men are said to die annually owing to bites received while shrimping along the beach near the mouth of the Patani River. The following story was told me by my Patani 'boy,' to account for their venom :—

'Once the python (*Ular Sawa*) was the most poisonous, as well as the strongest of snakes. The python had a fish-pond, from which a man took the fish. The python bit the man, who went home and died. Next day the python saw the crow sitting on a tree outside the man's door. "Why do you sit here?" said the python. "I await the feast," said the crow. The python's heart grew sick, for he thought the man had recovered, and he went to the sea and vomited out his poison. Now, in the sea there was a snake called *Ular Berang*, who swallowed the python's poison; but a little remained, which the other sea snakes ate. Luckily the *Ular Berang* is very rare, and no one ever meets him, for his venom is so strong that if he bites the rudder of a boat, all the boatmen will die unless they leap into the water immediately.'

The superstitions and ancient customs described in this paper are not persistent, for what has happened on our own coasts is also happening—more slowly, perhaps, but none the less surely—upon those of the remotest parts of Malaya. The belief that clergymen are unlucky may no longer prevent British fishing-boats from putting to sea, yet it still lives in a furtive but tenacious way. Even to-day women baiting the fishing lines in villages within twenty miles of Edinburgh talk jestingly of the 'long-eared un' and the 'long-tailed un,' instead of the hare and the rat. At Patani the 'long-tailed un' is the monkey, and the rat is the beast that says '*chi-chi*.'

RELIGION AND MAGIC AMONG THE MALAYS OF THE PATANI STATES

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INTRODUCTION

Organized Religions that have influenced Malay Belief

ALTHOUGH the Malays of the Peninsula to which they have given a name have professed the Mahommedan religion[1] for several centuries, it has remained in their case but a transparent veneer, covering a mass of Hindu and more primitive beliefs; it has set up in their midst an ideal of religion and morality which few of them have any desire to realize. A Malay, living in Patani, once remarked to me, 'We Malays will not hold Islam too fast, lest we be forced to cease from amusing ourselves with women, from cock-fighting, drinking arrack, and opium'; and he might have reviewed the religion itself of himself and his neighbours with equal cynicism. *Agama Islam*, the Mahommedan religion—in itself a term compounded of Arabic and Sanscrit—means very little more in the Patani States than circumcision, practised on both sexes—though often delayed until the nineteenth or twenty-first year in the case of males—abhorrence of pig, and to a less extent, abstinence from alcohol[2]; the old beliefs and the old Pagan customs are openly rife to-day, especially in villages where Siamese and foreign influences are felt the least, though all orthodox Mahommedans theoretically regard the customs as disreputable, if not vicious, and no *haji* and no *lebai* (a man who, without making the pilgrimage to Mecca, has become learned in the law and

1. Crawfurd, following a native annalist, gives 1276 A.D. as the date of the accession of Sultan Mahommed Shah, of Malacca, the first Islamite prince, as far as records go, in the Malay Peninsula. (*History of the Indian Archipelago*, vol. ii, pp. 374, 482, Edinburgh, 1820; see also Leyden's *Malay Annals*, pp. 91-93, London, 1821). Other authorities put this date a century later. (G. Dennys, *Descriptive Dictionary of British Malaya*, p. 202, London, 1894). At any rate, when the Portuguese besieged the city of Malacca in 1511, the Pagan 'natives' still formed an important element in the population, apparently quite distinct from Pagan 'foreigners,' and the conversion of the peasants must have been gradual.

2. The Patani Malays are fond of sweetmeats prepared from fermented rice, with a strong alcoholic flavour; but the Raja of Patani, when we showed him our collection of skins, refused to touch them until we assured him that they had not been prepared with 'strong water' (*i.e.*, spirits).

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the scriptures) will perform the ceremonies that other professing Mahommedans perform almost daily with great profit and even credit to themselves, commencing their incantations by reciting the Mahommedan profession of faith in Arabic, and then calling upon half-a-dozen Hindu demi-gods, and as many native spirits, in Malay. I was told in Patani that the most famous medicine-man in the country had started, some years before our visit, on the pilgrimage to Mecca. He had been so revered in Patani that, whenever he came to town—he lived in a small village some miles up the river—the Raja and the nobles went out to meet him on the water; but when he came to Mecca, a mysterious influence prevented him entering the holy city. Returning pilgrims brought back news that he was still encamped without the walls, praying that his witchcraft might be taken from him, though he had never practised 'evil' magic, which is quite a different thing from the work of the ordinary medicine-men.

These instances illustrate the position taken up towards Mahommedanism[1] by the people of the Patani States generally; but it would be unfair not to note that there are certain villages whose inhabitants are so strict that they cast out from among them any person who does not conform to the *Agama Islam* in all respects. Such communities centre in some venerated *haji*, who has gathered round him a school of *pakai*, or pious youths, who have entered his service in return for his tuition, performing the most menial offices for him, and renouncing gay clothing in favour of white.

It is probable that about half the inhabitants of the State of Nawngchik profess Buddhism, belonging nominally to the orthodox Siamese sect, and calling themselves, irrespective of their ancestry, 'Siamese' (*Kong Tai*); but south of the Patani River, Buddhism hardly exists as a flourishing growth. In all those districts in which it has sufficiently numerous or rich enough votaries, monasteries have been founded in the vicinity of the larger villages wherein the Siamese boys are taught reading, writing, and manners by the ascetics—it is hardly accurate to call them either priests or monks—to whose service their parents dedicate them as children, and whom many of them join for a period before marriage, donning the yellow robe as part of their education. Nevertheless, it is very doubtful whether even the most learned ascetics have any true idea of the philosophy of Gautama, and Buddhism, as in so many places,

1. The official religious organization of these states is very simple. Those villages which have a mosque—and their number is not great—have also an *îmam*, and each state has a single *kali* or '*kathi*' (*kadi*), who is recognized by the Siamese authorities as judge in civil cases concerning marriage between Mahommedans, or inheritance when the defendant is a Mahommedan. (*Regulation for the Administration of the Division of the Seven Provinces for the Year* 120 (1901), § 32, p. 14, Bangkok). It is said that when an *îmam* transgresses the law, he is liable by custom to twice the punishment of another, while the *kali* should only be brought to justice by a popular uprising. Instances are reported in which a *kali* who has misbehaved has been ducked in the mosque tank by an indignant mob. The *kali* is appointed by the raja, and appoints the *îmam*.

is a matter of 'making merit,' not by piety or virtue, but by giving to the ascetics and the temples. Mahommedans[1] and Buddhists live at peace with one another, though the former do not hesitate to express a contempt, that is largely theoretical, for those whom they regard as the followers of Moses[2]; conversions from the one religion to the other, in both directions, occur not infrequently; indeed, so far as one who is not acquainted with the Siamese language can judge, there is very little practical difference between the popular religion of the two peoples. It is, however, almost impossible to gain accurate information in matters of this kind through an interpreter, especially when the interpreter belongs to a rival religion to that of the informant, and though many Mahommedans can speak Siamese, very few Buddhists can speak Malay.

It has been remarked by all who have studied Malay mythology that it is full of personages and incidents[3] derived from Hindu cults; but it is not altogether clear how the Indian influence was brought to bear upon the Malays. There is much to be said for the view that it came about largely through intercourse with Buddhists, if it is not actually a relic of a former Buddhistic creed.[4] We know that Indian traders visited Malacca before the Portuguese invasion, and the majority, at any rate, of these traders must have belonged to Hindu sects; but it is improbable that they penetrated into the interior of the country, and no adequate proof[5] of an actual Hindu domination of the Peninsula has been adduced, though it is possible enough that the Malays may have brought many Hindu ideas with them from their former home. Material evidence is not wanting that Buddhism once flourished more widely in the Peninsula than is the case at present. Ancient, apparently Buddhistic, inscriptions have been found[6] in Province Wellesley and perhaps in Singapore, while, on the eastern side of the main range, Buddhistic votive offerings are common in caves at least as far south as central Pahang. Yet Buddhism is no longer extant in the Federated Malay States and the Straits Settlements, though there is a Buddhist monastery in Penang. It is probable

1. The Malays of Sai Kau, in Nawngchik, during their annual purification ceremony, call in the aid of Buddhist ascetics as well as of a Mahommedan *îmam*, and a *bômor*, or medicine-man. The ascetics, however, are only invited to conduct their prayers and chants at night, while a theatrical performance of one kind or another is in progress.

2. They believe Moses and Gautama to have been the same person (*antea* p. 59).

3. Many of these personages and incidents are kept constantly before the eyes and in the ears of the people by the *wayang kulit* or shadow play. Cf. H. H. Juynholl, *Bijdr. Taal-, Land- en Volkenkunde Nederlandsch- Indie*, 1902, pp. 541-545.

4. Newbold, *Political and Statistical Account of the British Settlements in the Straits of Malacca*, vol. ii, p. 193, London, 1839.

5. Cf. Maxwell, *Manual of the Malay Language*, pp. 27-29, London, 1899.

6. *Miscellaneous Papers relating to Indo-China*, vol. i, papers 20 and 21, by Lieut.-Colonel James Low and J. W. Laidlay, respectively.

that this religion has reached the Peninsula from two sources, direct from Ceylon and Southern India, and through Siam, whose king regarded the Sultan of Malacca as a rebellious vassal[1] at the time of the Portuguese conquest (1511 A.D.)[2] The votive offerings[3] found in caves in the State of Trang on the west coast differ from those found in Jalor and Pahang, on the other side of the main range, in that they must have been the work of Indian artists, being Hindu in almost all respects but that of the inscriptions upon them, while those from Jalor and Pahang are purely Buddhistic and Indo-Chinese ; but it is practically certain that these east coast offerings are of very much later date than the ones from Trang. Chinese immigrants, with their multiform creed and their power of absorbing all religions sufficiently superstitious, appear to have had little influence[4] on the beliefs of the Peninsula.

Primitive Religion of the Malays

There can be little doubt that the primitive religion of the Malays resembled that[5] of the wild tribes at present inhabiting the Peninsula, in consisting of a dread of dead men's ghosts and other malicious spirits, which might be forced to do good, or cheated out of doing harm. It would be impossible at the present date to separate the details of this primitive belief from the foreign excrescences that have grown upon it, that is, without a very lengthy and exhaustive study, not only of orthodox Mahommedanism, Buddhism, and Hinduism, but also of the popular superstitions of Arabia, Persia, India, Siam, Sumatra, and the further isles of the Malay Archipelago, for all of these regions have had an influence on Malay thought. I do not propose to undertake any such task in the present paper, but merely to set forth what I believe to be the main outlines of the popular religion of the Malays of the Patani States. Before proceeding to do this, I may mention that my notes were derived from conversations with peasants, few of whom were either professional medicine-men or learned Mahommedans. I avoided the former class for several reasons : they are generally more cunning than

1. Crawfurd, *loc. cit.*, p. 404.

2. For evidence of an earlier Siamese domination in the Peninsula, cf. Groeneveldt, 'Notes on the Malay Archipelago and Malacca, compiled from Chinese sources,' translated in *Miscellaneous Papers relating to Indo-China.*

3. A. Steffen and N. Annandale, *Man*, Dec., 1902, Plate M.

4. Ninachetuan, who was put at the head of the Pagan natives of Malacca by Albuquerque, being deprived of his office unjustly, 'publicly sacrificed himself on a funeral pile—a solemn ceremony, comformable, it seems, to the religion he professed.' (Crawfurd, *loc. cit.*, p. 403). This is a purely Chinese custom, still occasionally put into practice by immigrants in the Peninsula who cannot force their debtors to pay what they owe them. A great fire is said to have occurred a few years ago in the town of Trengganu, owing to a Chinaman setting fire to himself for this reason, having first spilt several tins of kerosine in his house.

5. W. W. Skeat, *Journ. Anthrop. Inst.*, 1902, pp. 136-138. I do not understand Mr. Skeat's objection, in the published discussion that followed the reading of his paper, to a suggestion that certain less primitive Semang beliefs may have been derived from intercourse with Malays.

other men, and therefore more ready to invent information; each of them has his own theories, derived from the imperfectly understood charms and incantations that have been handed down to him, either orally or in very bad writing; indeed, the expression 'every medicine-man has his own school' (*lain bômor*, *lain skola*) is almost proverbial in Patani. I believe that the medicine-men pay more attention to foreign deities and spirits than to those of native origin, for foreigners are often regarded by primitive people as having more powerful magic than that of natives, and in the Patani States we ourselves were even asked to raise the dead; finally, to deal with the charms and incantations from which the medicine-men derive their theories, in an intelligent manner, it is necessary to have not only a very thorough knowledge of Malay, both 'good' Malay and the 'barbarous' *patois* of Patani, but also some acquaintance with Arabic and Siamese. The ordinary peasant of the Patani States regards ghosts, souls, and other spirits as such very ordinary things that he has no hesitation in speaking freely of them; and he has not, as yet, experienced the white man's ridicule.

PART I

Souls and Ghosts

A soul is, I take it, for the purposes of comparative religion, a spirit permeating an organized body, in which it is innate, which it vivifies, regulates, or prevents from dissolution. If a soul persists after the destruction or total disorganization of its body, and if it remains on earth as a definite unit, it becomes a ghost. Taking these definitions, we find that the Malays of the Patani States believe in at least four different kinds of souls,[1] and numerous kinds of ghosts, as well as several of spirits whose exact position with regard to the organized body is not clearly defined; the souls, which are not necessarily peculiar to human beings, or even to bodies considered animate by ourselves, are as follows:—

The Nyâwa, or Life-breath. The word is Sanscrit, and the idea it expresses is probably quite foreign to primitive Malay religion. It is the breath of life,[2] almost, but not quite, a physical thing, for it is, in the opinion of a large number of Patani Malays, that part of a man which goes to heaven (*surga*) or hell (*jehannam*), as the case may be, after death. According to a *bîdan* (midwife) in large practice round Kampong Jalor, both among Malays and Siamese, the *nyâwa* enters the human foetus at the end of the sixth month

1. It must be clearly understood that I am dealing at present with the beliefs of the Patani peasants, not with the more complicated theories derived by the medicine-men from their incantations.

2. Abbé Favre, *Dictionaire Malais-Francais*, vol. i, p. 620, s.v. *nawa*, Vienna, 1875.

of pregnancy, at which date the child first 'becomes a person' (*jadi orang*), having previously been 'part of its mother's blood' (*saparoh darah hibu*). Before this date, especially before the third month, the husband[1] of a pregnant woman must be careful not to maim any animal, or even to cut down a creeper, lest he injure the unborn infant, which has not as yet assumed a personality. Hare-lip is believed in Jalor to be caused by the father having slit a fish's mouth to get a hook out, while his child was in this early stage of existence. After the sixth month of pregnancy less precaution is necessary, and I have heard the question discussed by natives as to whether the mother was also liable to the prohibition ; but in the case of a woman, who does not habitually kill animals or cut down creepers, it is not a point of more than academic interest. *Ambil nyâwa* (to take the life-breath) is a common euphemism in Malay for *bunoh* (to kill). It is used in a deprecatory sense, implying an idea that taking life is in itself a crime, for all breathing things have naturally a *nyawa*. I have heard a Malay remark, on returning from shooting birds, 'What a number of *nyâwa* I have taken to-day,' not in a boastful tone, but quite as though he felt repentant of a sin.

Rôh ('that which goes out of a man when he sleeps'). The word is Arabic.[2] It is pretty generally agreed by the Patani Malays, who describe the *rôh* as 'that which goes out of a man when he sleeps,' that it is peculiar to men (*orang*), distinguishing them from beasts (*binâtang*). It has in some ways a more distinct personality, if the phrase be permissible, than the *nyâwa*, as is proved by the belief that if a person's face be painted while he sleeps, his *rôh* will not recognize him, and he will sleep on until his face is washed. I was told in Patani that boys whose companion falls asleep near the mosque—why near the mosque I do not know—will sometimes paint his face with clay. When the time of his sleep is fulfilled the *rôh* comes back, but when it sees the painted face it says, 'Surely this is not my body!'—I am translating my informant's exact words—and the child does not awake. I was also told of a man who was awakened one night by thirst, and, having no water in the house, made his way to his neighbour's water-jar and drank deeply from it. Then he went back home, leaving his *rôh* in the water, for the *rôh* is apt to leave one who is taking a long drink. Afterwards the neighbour happened to put a cover on the jar, and the man fell down as if dead, for his *rôh* was shut up in the jar. So his family prepared for the funeral, and his body was already in the shroud ; but as he lay waiting burial, the neighbour

1. Formerly similar ideas were prevalent in the more civilized west coast States (Skeat, *Malay Magic*, pp. 348-350, London, 1900).

2. Wilkinson, *Malay-English Dictionary*, part i, p. 347, London, 1901.

happened to take off the cover of the jar, and the *rôh* escaped and returned to its owner, who revived immediately. Malays are always unwilling to awake a sleeping person, lest his *rôh* should not have time to come back to him, and it is natural that this disinclination should be most marked in the case of rajas and other important people. I have cause to believe, though I cannot state it as an ascertained fact, that the reason why they are so particular to hold up a hand in front of the face when yawning or sneezing is that they are afraid of the *rôh* escaping, though they may very possibly also fear the entrance of a wandering spirit, and though the action has become, among them as among ourselves, part of the courtesy of daily life. I have not been able to discover any instances of either the *nyâwa* or the *rôh* becoming visible or assuming a corporeal form of any kind.

Semangat. Though the word *semangat* may be of Sanscrit origin, yet the idea it conveys would seem to be more primitive among the Malays than that of the *rôh* or the *nyâwa*, judging from the extensive cultus that has grown up around it. It is true that many individuals, even in the Patani States, confuse these three kinds of soul, and that two *îmam* of the district agreed in assuring me that the *rôh*, the *nyâwa*, and the *semangat* were all one, or, at any rate, all went to heaven or hell together after a man's death—always and only to the former in the case of Mahommedans, after they had successfully crossed the traditional narrow bridge over the flaming gulf of hell; though politeness may invent another heaven for the benefit of white men. But among the more ignorant peasants these three—*rôh*, *nyâwa*, and *semangat*—are considered quite distinct, the third in the series being the one with regard to which their ideas are the least indefinite. *Ambil semangat* does not, and cannot mean, 'to kill,' it means to 'steal away the senses,' to 'bewitch.' That this is the case, not only in the Patani States, but also in other parts of the Peninsula, is clearly shown in a charm headed '*ambil semangat*,' quoted in the original by Mr. Skeat, to whom we owe the compilation of practically all that is known of the religion of the Malays of the Federated Malay States and the Straits Settlements. In this charm, to translate it quite literally, the person whose *semangat* is to be taken from him is bidden to become 'mad by daylight, mad by night, mad seven times a day, mad seven times by night.' In the Patani States it is commonly said that a man whose *semangat* has been stolen 'does not remember, his speech is uncertain, he does not recognize his father or his mother'; the same phrase being used concerning a person who is *berhantu*, or possessed by evil spirits. In fact, all witchcraft and all devilment

1. Cf. Burmese beliefs regarding the 'butterfly' (*leikpyâ*) that goes out of a man when he sleeps. Nisbet, *Burmah under British Rule and Before*, vol. ii, pp. 175-6, London, 1901.

2. Cf. Skeat (*loc. cit.*, p. 336), who describes how the Malays of Langat cheat the Evil One by daubing a newly born child and its mother with clay. A Semang cure for fever (*antea*, p. 4) is perhaps analogous.

act on the body through the *semangat*, and it is only when the *semangat* is 'sick' (*sakit*) that evil spirits can enter a man. The *semangat* is made 'sick' by bodily illness, by care or worry, and, above all, by fear, so that spirit and body interact in such a way that it is often impossible to say which is affected first. Herein, according to Malay ideas, lies the superiority of the European over the Oriental—the white man is not affected by spirits, his soul is strong, for, in the words of an intelligent Malay with whom I had many conversations on such matters in the New Territory of Upper Perak, 'no spirit can affect us unless we give it entrance.' To put the matter into every-day language, and at the same time to put it in a way that no Malay peasant would understand, the Oriental is more hysterical than the European. It would almost seem as if the extraction of a man's *semangat* was believed to give room of necessity to some other spirit, which immediately occupied its place; for the Malays of Patani recognize two main divisions of madness, 'burning madness' (*gîla bakar*[1]), which is sent by the Lord Allah, is rather a holy state, is quite incurable, and may be diagnosed by the redness of the sufferer's eyes; and 'spirit madness' (*gîla hantu*), which is caused by the entrance of a wandering spirit (*hantu*), and can be easily remedied by the use of the proper exorcisms. *Gîla hantu* is of many kinds, as *gîla babi* or 'pig madness' (*antea*, p. 82), and *gîla bodoh*, 'fool madness' or idiocy. It must be noticed in this connexion that the Malays conceive the world to be full of *hantu* or wandering spirits, seeking for a body, into which they cannot enter unless something grants them the power, this something being sickness, or comparative weakness of the body's own individual soul.

Mr. Skeat, discussing the incantation from which a passage is retranslated above, points out that though it has the appearance of a love charm, it is probably nothing of the kind. In this I agree with him, though it may be doubted whether, as he suggests, it might under any circumstances be used as a love charm. On the beach at Cape Patani, in the State of Jhering, I kicked up from the sand a crumpled piece of the coarse grey paper that the Malays call *kretas arab*. It had certain rough drawings upon it, the meaning of which I did not understand, so I took it to our men who were seated under a tree some yards away. When I showed it them they looked startled, and one of them, a Malay, remarked that some Siamese had done it, and that it was a great sin. After a little pressing they explained that the paper was a charm to steal a person's soul, and that it had probably been buried in the sand by a man whom some woman had repulsed, and who wished to revenge

1. Or perhaps *gîla baka*, 'original' or 'natural madness,' on the analogy of *dôsa baka*, 'original sin' (Favre, *loc. cit.*, vol. ii, p. 151). The addition of a final 'r' is not uncommon in the dialect of Patani.

himself on her. If she had trodden on it she would have become mad, and would probably have died. It was impossible that any of them could have buried the charm, as we were merely spending the day on Cape Patani, but they seemed quite concerned about it, and very indignant against the perpetrator. At first sight this also would have appeared to be a love charm, but our Malay and Siamese followers denied that it could possibly be one. The sketch upon it represents a man in royal Siamese attire, with the name of an Arabic prophet (*Nabi*) written on his brow. Lines join his head and his heart, or more precisely his liver, to those of a female figure, representing the woman to be bewitched, and from this it may seem, as there is other evidence to show, that the head and the liver, the seat of the mind and the emotions, are regarded as the special abode of the *semangat*, though I believe that this soul is often conceived of as permeating the whole body, in some indeterminate way, even those parts which are physiologically dead. Perhaps we may see in this idea some explanation of the world-spread superstition that he who has possessed himself of a man's hair, the parings of his finger nails, or even of some object that has been in intimate contact with his body, is enabled, by means of this acquisition, to work magic against him. I hope to reproduce the charm from Cape Patani in facsimile, and describe it more in detail in another part of the present paper.

According to the Jalor *bîdan* already mentioned, the *semangat* enters a child at the moment the umbilical cord is severed, and it is interesting to note that iron is never used in performing the operation, for which a special knife of bamboo is made, and that black cotton must be employed in ligaturing the cord. Iron frightens spirits, as will be shown later, and though I am not aware of the symbolical meaning of black cotton, it is probably of a similar nature. The result of infringing either of these rules would be that the baby would be 'affected by fever' or delirium (*kena demam*), caused, it is reasonable to conclude, by the absence of the *semangat*, which would be scared away at the moment it was about to enter the infant. It would seem to follow that the *semangat* is already in existence, only waiting the appointed moment to enter its appointed body; but I have been able to obtain no evidence on this point, though it has been one on which I have questioned many Malays. Their invariable answer, about the *semangat* as about other souls, was that it 'became of itself' (*jadi sendîri*), whence and how it 'became' did not appear to be a question they had ever asked themselves, and when further pressed for an answer, they would fall back upon Islam, saying that 'we are all like frogs under half-cocoanut shells,' 'no one can tell the wonders of Tuan Allah,' or using some such phrase.

Several of those whom I questioned concerning the *semangat* stated that it dies with the body, while others appeared to have no definite idea of it apart from the body, and a few said that it retained the form of the body as a *hantu* or wandering spirit after dissolution. A type of paper kite often flown by the boys of Patani and other parts of the Malay Peninsula is known as the *wâ semangat* in the former locality, and is said to represent a 'man without feet' (*orang kurong kaki*). At the present day no religious significance attaches to it, and it is a plaything pure and simple, but it is interesting to notice that the 'man' has no head, but a pointed prolongation of the body in its stead, for this is the form assigned to the ghosts of warriors slain in battle by the natives of Mount Peninjauh, in Borneo.[1]

So far I have dealt with the human *semangat*. It will be unnecessary to describe the beliefs that centre in the *semangat* of animals at any length; for it will be sufficient to say that every animal, as every human being, has an individual soul of this name which guides and co-ordinates its actions. To entrap his quarry the hunter must deceive its *semangat*, and so render it stupid enough to enter his toils or trap, or come within reach of his gun. As among the Malays of the more civilized States of the Peninsula, this is done by incantations, in which the conjurer boasts of his own might and terrorizes or cajoles the *semangat* of the beast or bird he would entrap.

The *semangat* of trees and plants is of an even less definite character than that of beasts and men. Though large jungle trees are sometimes said to have an individual soul of the kind, the *semangat padi*, or 'rice-soul,' is common to a whole field of rice plants, unless two kinds of rice be growing together as ordinary rice (*Oryza sativa*) and *padi pulut* (*Oryza glutinosa*), in which case each species has its own *semangat*. Mr. Skeat has described the cultus of the 'rice-soul' with such care that it will be unnecessary to do more than to refer to his work,[2] as the beliefs surrounding the *semangat padi* in the Federated Malay States only differ in details, such as the time for which the sheaf that represents the soul should be preserved, from those current among the Patani Malays. What is commonly called the *semangat padi*, however (that is, the bunch of rice in which the 'soul' is preserved from one harvest to the next), must not be confused with the 'soul' itself, though it is believed that if this bunch were destroyed, all the grain with which it is stored would be ruined. I am sure that the Patani Malays, at any rate, have no such confusion in their minds, and that '*semangat padi*' is generally used as an abbreviation for '*tempat semangat padi*,' the 'abode of the rice-soul.' As

1. Cf. Ling Roth, *The Natives of Sarawak and British North Borneo*, vol. i, p. 217, London, 1896.
2. *Malay Magic*, pp. 225-226, etc.

very little camphor, gutta, or other jungle produce is collected in the Patani States, other vegetable souls do not often concern the natives.

Passing from vegetable to mineral souls, the latter play but a small part in the popular religion of the Patani Malays, except in certain districts where tin mines are worked by Chinese or Siamese owners. It is believed, however, that each mine has a *semangat*, the *bômor* or 'doctor' of which—one is tempted to call him the 'priest'—is often a Malay. Mine-owners, as we experienced on at least two occasions, do not like strangers to come near their mines, unless the *semangat* or, as it is also called, the *hantu*, has been duly warned; otherwise it might be scared away. In the mine, too, no one must wear shoes, carry an umbrella, or have iron about his person. We were invited to visit a tin mine on the Jalor-Rhaman border by the *Luang Chin*, or head of the Chinese community at Patani, to whom it belonged; but he begged us not to take from the neighbourhood of the mine any animal or bird, and especially not to kill any snake. This had been made a condition of our coming by his *bômor*, who feared, apparently, that the tin spirit might have temporarily taken up its abode in an animal's body, a snake's being the one that there was most probability of its choosing. The result of injuring or insulting the *semangat* would be that the tin ore would disappear.

The *bômor* of this mine was a Rhaman Malay, who had succeeded his father, and was assisted in his ministrations by several apprentice magicians. Once every seven years he presided over a great sacrifice to the tin spirit, living for a month in a little hut at the top of the hill from the side of which the ore was extracted. Whenever the mineral seemed more scanty than usual he sacrificed a white buffalo, a most acceptable offering to all spirits, in order to strengthen the *semangat* of the ore.

As I have noted elsewhere,[1] the *hîbu mas* and the *hîbu perak* ('the mother of gold' and 'the mother of silver') are believed to lie in two earthenware pots, guarded by a monstrous ape, on Gunung Tahan, a great mountain on the borders of Kelantan and Pahang; and I have little doubt that *hîbu* here is but another name for *semangat*, though it has often a more material sense in mineralogy, viz.: 'mother-lode.' At a place called Berusong, in that part of Upper Perak which was separated from Rhaman in 1899, profitable gold mines formerly existed, as it is hoped they may exist again. It is said that a Malay actually captured the *hîbu mas* in this neighbourhood, and that it had

1. *Proc. Roy. Phys. Soc. Edinburgh*, 1900-1901, p. 451.

2. The word *hîbu* means 'parent,' more often 'mother,' in either a literal or a metaphorical sense (*e.g.*, the porcupine is the *hîbu* of its quills and the stag of its horns). Hence it comes to mean living cause or centre. The spider is the *hîbu* of its web; and the young birds, by a stretch of meaning, the *hîbu* of the nest, of which they are the living centre. Hence, again, the meaning is further extended to include 'parasite'; *Hîbu burông* are bird-lice, and tape-worms are called the *hîbu* of the animal they infest.

the form of a kijang or muntjac (*Cervulus muntjac*) which, though alive, was of solid gold. He took it with him in a boat across the river Temongoh, but began during the passage to speculate as to what he would do with his new found wealth. At last he remarked, 'I will go to Mecca and become a *haji* so that all men may reverence me.' As he said these words the *hîbu mas* dived into the water and disappeared. The fact that, in some districts, the name of Allah may not be mentioned in a mine, as well as the present story, would seem to show that mineral spirits are more decidedly pagan than many others, and are unwilling to recognize the existence of the new spiritual regime.

Just as the Patani fishermen believe that their boats have souls, so their compatriots on shore believe that every house has a *semangat*, which they regard as the exact equivalent of the *mayor prahu* (*antea*, pp. 80, 81). The *semangat rumah*, or 'house soul,' comes automatically into existence as the various parts of the walls and the roof are fitted together, and preserves the house as an organic whole from dissolution. All those peculiar nocturnal sounds that one hears, even in a European house, often without being able to assign them a cause, are believed in Patani, where the houses are far more noisy at night, to be expressions of the soul of the building. Besides buildings, wooden chests, in which rich Malays sometimes store their finery and treasures, are said to have individual *semangat*, and it is believed that if the soul of such a chest escape, that chest is a 'dead thing' (*barang mati*)—which it was not before—and luck deserts its owner, who will become 'utterly poor.' On one occasion, a man from whom I was desirous of buying some wickerwork shields, now very rare, alleged as a reason for not selling them the danger of the escape of a chest's *semangat* if the lid were opened on a Friday, on which day I happened to enquire about them. Friday, as has been previously noted, is not only the Mahommedan Sabbath, but also the day of the week on which all spirits have additional power.

Badi, or 'Mischief.' The name *badi*[1] also is said by some to be of Hindu extraction, but the idea it conveys to a Malay peasant is probably primitive, though its meaning has undergone a certain evolution in the more civilized districts[2] of the Peninsula, for, while in Patani, Jalor, or Nawngchik, *badi* are definite spirits, reckoned like other spirits and like animals by the 'tail' (*ekor*), in the Federated Malay States they appear to be little more than evil influences, devoid of personality. The *badi*, unlike the souls previously described, with none of which it is ever confused, is essentially a bad spirit, and the word is often translated 'mischief'; it is the evil thing in beast or man that

1. Maxwell, *loc. cit.*, p. 34, s.v. *badei*.
2. Wilkinson, *loc. cit.*, p. 78.

remains by the body after death, devouring the *semangat*, or as it is sometimes said, the 'liver' (*hati*),[1] of those who approach. If the body be removed, the *badi* goes with it. Indeed, it is difficult to say exactly how far this soul is believed to exist before death, and to what extent the manner of death causes it to develop. It is certainly regarded as being present in the blood, and as originating from it; but its existence in a living member of any civilized tribe is vague. Its active presence in the personality of a Semang is said in Jalor to be proved by the fact that no one can approach the shelters of this race without being afraid. When a civilized person is murdered or dies in any way considered unnatural, as it is sometimes expressed, if he 'dies of being killed' (*mati di bunoh*), his *badi* is of practical moment, for it is then that it becomes a definite malicious ghost. Old Jalor and Patani Malays told me that formerly the corpse of a murdered man was often cast forth to be eaten of vultures and dogs, but now it is more usually buried hastily in the jungle, while in Kuala Bukar there is a part of the cemetery, that furthest from the town, reserved for those who have 'died badly.' If a person is affected by the *badi* of a murdered man the effect is the same as if he was affected by any other spirit, and the *badi* is often called *hantu orang*; it is generally invisible, but resembles the person from whom it is derived.

When we talk (*antea*, p. 8) of the jungle folk of Jalor as being considered by their Malay neighbours as intermediate between beasts and spirits we do not speak at random; not only did their Malay master at Mabek constantly refer to them as 'beasts of the jungle, spirits' (*binâtang hutan, hantu*), but he told us they were not subject to spirits, being akin to them. We were congratulated in a very marked manner by the Raja of Jalor on obtaining a Semang skeleton, and were told in his village that if a man obtained a jungle-man's bones and rubbed their ashes on his forehead no jungle spirit would molest him, and the jungle-men would consider him one of themselves. The Jalor Malays also believe that there is something peculiar in the position of the sutures of the skull of a Semang, and apparently attach some mystical meaning to the supposed fact, for which we are unable to find any foundation in our specimens.

No domesticated animal possesses a *badi*, even though its wild congener may do so, and not all wild beasts and birds are thus endowed. Among mammals, the deer and the serow (*Nemorhoedus*), the chevrotain[2] or mouse

1. The expression is metaphorical, for it is not believed that if the body of a possessed person were opened the material liver would be absent.

2. In Jalor, the chevrotain is said once to have been a very lazy man. While he slept, instead of working, his mother-in-law applied a bees' nest to his rump, and he ran away into the woods. This explains the presence of certain anal glands in the male.

deer (*Tragulus*), the wild pig, the hunting dog[1] (*Cyon*), and all monkeys[2] except gibbons, which are reckoned as squirrels (*tupai*), possess an evil spirit of the kind. Of these, that of the deer is the strongest, excepting that of the hunting-dog, a very rare animal ; that of the male of a variety of chevrotain known as 'wind chevrotain' (*pelandok angin*) is strong ; that of the wild pig small and feeble ; and that of monkeys very small indeed. Among birds, only the vulture,[3] the stork, the jungle fowl (*Gallus gallus*), and the quail, have a *badi*. Of these, the *badi* of the vulture is so strong that no man may strike the bird ; that of the stork is also powerful ; that of the jungle fowl even stronger than that of the deer ; and that of the quail, according to some, even stronger than that of the jungle fowl. Of reptiles, the following have a *badi*—'white' crocodiles, which are *kramat* (*antea*, p. 77), monitor lizards (*Varanus*), and those snakes which have a white ring round the neck and a pale mark on the back of the neck, and can wink their eyes, the species that can do so being said to be the cobra or hamadryad (*ular selor*) and the 'axe-snakes'[4] (*ular kapak*). The *badi* of a snake is very powerful, and few men know how to cast it out ; that of the 'white' crocodile is also strong, but that of the monitor is so weak that ten 'tail' would not affect a man unless his body was very 'soft.' The Patani Malays deny that any arthropod has a *badi* ; but Malacca men have told me that that of the grasshopper is the strongest of all.

If a man is affected by the *badi* of a beast or bird he becomes 'mad,' and either imitates the action of that particular animal or is subject to some abnormal growth resembling one natural to it. Thus, he who is affected by the *badi* of a jungle fowl goes about crowing and flapping his arms against his sides, while feathers may also grow upon his arms, The deer's *badi* causes its victim to rush at people with his head held down as if he had horns, which may, in extreme cases, sprout out from his forehead ; or his feet may become cleft like those of a deer. If any of the animals in the above list is killed without the *badi* being cast out, all those present at its death will be affected in varying degree, according as their bodies are 'soft' or the reverse, or their *semangat* weak or strong. The casting out of this evil spirit is, therefore, an

1. The Patani Malays consider it most unlucky to meet this animal, if it barks ; if it remains silent, it is lucky. (Cf. Skeat, *loc. cit.*, p. 183).

2. The Jalor Malays say that monkeys were once men, but that the 'prophet Noh' cursed them for their immorality, and a great flood came, and they took refuge in trees—a curious version of the legends of Noah and the Cities of the Plain combined.

3. The Malays of Patani believe that the flies tell the crow about carrion, and the crow tells the vulture ; but the Siamese of the same district say that the vulture has gained uuiversal vision by finding a lost letter of the alphabet.

4. Cf. Annandale, *Proc. Roy. Phys. Soc. Edinburgh*, 1900-1901, pp. 457, 458 ; Laidlaw, *P. Z. S. London*, 190(2), p. 581.

important part of the magic in which every master-huntsman must be versed, but the method of casting it out from a mammal is different from that necessary in the case of a bird, or, again, of a reptile ; and for this reason it is unusual to find men who make a profession of hunting both jungle fowl and deer, the two commonest objects of the chase—not that it would be impossible for anyone to do so, but it would necessitate him learning two different kinds of magic, an intellectual task that is not often undertaken. The *badi* of monkeys may be neglected, for twenty 'tail' would not affect a strong man ; and that of a wild pig may be driven forth by burning the body with fire, but to get rid of that of a deer necessitates the use of incantations, in which the spirit, after it has been duly terrorized, is bidden to go forth to the place of its origin, namely, the Great Mango Tree, *Paum Tau Seh Pau Janing*, that grows at the 'Navel of the Sea' (*Pusat Laut*), whence the currents of the ocean arise : for all life is believed by the Patani Malays to have come out of the waters. The dead animal, or the animal about to be slain, is usually stroked from the tail to the head with a branch of a tree while the incantation is being recited, but very old medicine-men, whose soul is strong, can draw out the *badi* by placing one of their big toes, a frequent point of entry for spirits, into the animal's nostril. If the *badi* is thus extracted, the meat tastes better, but only a brave man may undertake this method, for he draws the *badi* into his own body. If the *badi* is not extracted from a deer, the flesh stinks and creeps, and the hair stands on end. If an animal is to be kept alive in captivity, its *badi* must not be cast out when it is captured, or it will pine and die.

The elephant, the rhinoceros, and the tapir have no *badi*, but their *kuang* is said to be its exact equivalent. The word is probably Siamese, and may have been applied first to the elephant, and then transferred also to the animals most closely allied, for many of the words in the so-called 'elephant language' are of Siamese origin,[1] and in the States of Jalor and Legeh the Raja's 'elephant doctor,' who is the head of all the elephant mahouts in his state, is officially called 'Toh 'Ku Chang, *chang* being the Siamese for elephant. No mahout dares to approach his elephant while it is sleeping, lest he should be affected by its *kuang*, but calls out to awake it before he comes near. A peculiar form of skin disease, which causes the body to become white in patches, and which is believed in Singapore[2] to be caused by eating a certain fish, is said in the Patani States to be due to the *kuang* of a tapir, near the dead body of which the sufferer must have unwittingly passed. Probably the superstition originated in the streaked and spotted skin of the young tapir.

1. Dennys, *loc. cit.*, pp. 115, 116.
2. *Report of the Raffles Museum and Library*, Singapore, 1901.

Like the elephant and its allies, the tiger, the leopard, and the smaller jungle cats, all of which are regarded as tigers by the Malays, do not, technically, possess a *badi*, but have in its place a *pegrung* or *begroh*. The word is probably onomatopoeic, but may be Semang; the thing was described to me in Jalor as being 'that which makes a man shut his eyes when a tiger growls.' The same informant remarked, however, as did others, that it was more dangerous when the tiger is silent, and it appears to be that part of the brute which makes it advisable for those who suspect his being near to speak well of the 'grandfather of the woods' (*datoh hutan*), as the tiger should be named in the jungle, or only to mention him in a whisper.[1] The *pegrung*—this is the usual form—is naturally more feeble in the case of a leopard or wild cat than in that of the *datoh hutan*.

The *badi* of animals are sometimes called *hamba Hantu Raya*, slaves of the Great Spirits, who in Jalor are spirits of the jungle, and in Patani of the town. Certain large trees are said in Jalor to have a *badi*, but the peculiarity is rather individual than specific, and what is meant is that the peculiar tree so endowed is haunted by a spirit, which may take the form of a snake. Termite mounds are also occasionally said to have a *badi*, but the belief is not universal and may be Siamese, as this race are said to have a reverence for 'white ants'; we experienced difficulty, on one occasion, in persuading a Jalor Malay to aid us in collecting termites, and he asserted that he was afraid of the *badi besut* or 'termite-mound *badi*.'[2]

The consideration of ghosts and of spirits unconnected, or connected in a less definite manner, with material bodies, must be postponed for the present.

1. Newbold, *loc. cit.*, vol. ii, p. 193; McNair, *Perak and the Malays*, p. 221, London, 1886. I have experienced the reluctance of a Malay to speak aloud of the tiger, when one was supposed to be near, in Legeh, and have noticed that on the Kelantan River the boatmen, when asked about crocodiles, replied, 'Our crocodiles are good crocodiles, they do not eat men.'

2. For Kelantan Malay superstitions regarding the queen termite see Annandale, *loc. cit.*

CONTRIBUTIONS TO THE PHYSICAL ANTHROPOLOGY OF THE MALAY PENINSULA

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SECTION I

Observations on the Living Person

As, unfortunately, there appears to be no system of nomenclature which is universally accepted by anthropographists, notwithstanding the 'Frankfurt Agreement,' it will be necessary for us to explain in some detail what we mean by certain terms that we have adopted in the succeeding tables, and it will be well, at the same time, to state the methods by which the results therein embodied were obtained.

Instruments. With the exception of the length and breadth of the head and the 'height' and breadth of the nose, which were obtained by means of instruments manufactured by Mathieu, of Paris, all measurements were taken with Dr. Garson's 'Traveller's Anthropometer,' as supplied by Messrs. Aston & Mander. We are bound to say that, for field work in a tropical climate, this instrument was not found altogether satisfactory. The joints of the measuring staff gave much trouble by swelling and warping, and the brazed parts not infrequently developed weaknesses particularly inconvenient in an uncivilized country. It seemed to us that strength had been unduly sacrificed to lightness, and the system by which the calliper arms were only supported by metal pins running on grooves cut in their substance, caused endless and quite unnecessary annoyance. For tape measurements, a Chesterman's steel tape, graduated on one side in millimetres and on the other in inches, was employed. For use in humid climates we cannot too strongly urge the the necessity of nickel or silver plating on the tape, as rust both obscures the graduation and renders the metal extremely brittle. Even with plating we found that tapes were usually short-lived, and that it was necessary to have several duplicates in stock. The methods adopted in

measuring the living person are those of *Anthropological Notes and Queries*, except when otherwise stated.

Age. With regard to the ages noted in the tables, it must be understood that they are only approximate. Especially among the lower races, it is often impossible to estimate the age of a person, and even among the more civilized tribes we found that few individuals had anything more than a general idea of their own age, as they not infrequently dated their birth from some local event such as 'the year of the great wind.' Occasionally, among the Malays and Siamese, the Siamese cycle was in general use; but the system is too complicated for ready reckoning. In young adults, in whom the third molar was fully erupted on one side or on both, we were accustomed to record the age as '± twenty-five.'

Colour of Skin. This was judged by placing the edge of the plate given in *Anthropological Notes and Queries* against the skin of the inner surface of the upper arm. As the tints given in this plate are very limited in number and in some cases of very doubtful utility, we have been obliged in a great number of instances to record the colour as intermediate between two of them, not always those in a linear series. The nomenclature attached to these tints is quite conventional, but we have been obliged to adopt it for want of a better one. The colour of the eyes is also that of this scale.

Amount of Hair. It should be noted that depilation, both of the face and body, but especially of the former, is practised to a greater or less degree in all the races whom we investigated, and that in many it was impossible to see the pubes.

Character of Hair. The usual classification of this feature appears to us both vague and unsatisfactory, especially when it is applied to a race whose hair is of different character in different individuals. We will, therefore, attempt to explain what we mean by the terms 'wavy,' 'curly,' 'woolly,' and 'frizzly.' By 'wavy' hair we mean that which is not straight but which has a tendency, more or less marked in different individuals, to grow in arcs of a circle of a radius which varies but is never relatively small, these arcs never approaching to a semi-circle. 'Wavy' and 'curly' hair may grow to a considerable length. By 'curly' hair we mean that in which the circles formed are nearly complete, and are almost invariably of smaller radius than is the case in the arcs of 'wavy hair.' 'Woolly' hair is always short and fine, grows in short, distinctly separated coils of small diameter, not exceeding ten millimetres, and is of a springy nature. 'Frizzly' hair is more difficult to define, as it appears to be produced in large measure by artificial treatment applied to hair which only differs from 'woolly' hair in that it is longer, and perhaps

stiffer. When 'frizzly' hair is cut short it can hardly be distinguished from 'woolly.' At present we are only dealing with the macroscopic characters, but we hope to investigate the minute structure in a subsequent number.

Profile of Nose. By a 'negroid' nose we mean one that is short, has a low bridge which may be only faintly indicated, with wide-spreading alae, and with the tip slightly turned down. The development of the bridge may vary considerably. The 'Chinese' approximates to the 'negroid,' but differs from it in that the tip is turned slightly *upwards*, and that the line of the nostrils is more oblique. The 'australoid' type is also very near the 'negroid,' but has the alae even more wide, and possesses a decidedly hooked tip. Where the septum has been artificially distorted, it is difficult to distinguish between a 'negroid' and an 'australoid' nose. No comment is necessary with regard to the other descriptive terms. They have been taken from the *Anthropological Notes and Queries.*

Measurements. In the majority of cases we thought it best to take the head-measurements in triplicate, and to make use of the mean, thus eliminating, as far as possible, accidental errors not inherent to the methods employed. While we were working together we made it our practice to measure our subjects alternately in groups of three, thus avoiding, to some extent, the personal error, which might have been introduced if many individuals had been measured consecutively by either of us. The measurements were recorded by the observer not engaged in measuring at the time. As a rule we had the aid of a native, who gained, as time went on, some knowledge of the positions necessary for the subject operated on. When one of us was working alone, he was obliged to record all measurements as well as to take them, and this often rendered it impossible to procure a complete set of measurements for each subject.

Length of Head. Taken from the glabella to the most prominent point of the occiput.

Nasion to Mouth. The difference between the projection from the vertex to the nasion, and that to the centre of the mouth when the lips are closed.

Mouth to Chin. The difference between the projection last mentioned and the vertical projection of the entire head.

Bigonial Breadth. We think it well to note that this measurement depends to a very large extent indeed upon the development of the jaw muscles rather than that of the skeletal parts, and that we have measured it across these muscles and not at the actual angle of the jaw, as the relative development of the former is an important factor in the contour of the face.

Nasion to Chin. This is a direct measurement, not a projection.

Height of Nose. In deference to the opinion of Sir WILLIAM TURNER, to whose suggestion it is due that the measurements were taken, we have adopted the term 'height of nose' for that measurement which is frequently called the 'length.' It is taken from the nasion to the point where the septum of the nose joins the upper lip.

Body Segments. These measurements, with the exception of the 'malleolar height,' are indirect, being deduced from the total height, height to chin, height to sternal notch, and the sitting and kneeling heights. By 'malleolar height,' we understand the height from the ground of the centre of the internal malleolus. It should be noted that in the case of the 'intercrural index,' the indirect method by which the length of the various segments of the limbs are obtained, magnifies the initial error of observation, so that the result is only qualitative.

Length of Upper Limb. This is a projection between a point slightly below the acromion and the tip of the middle finger. The length of the cubit is taken when it is flexed on the upper arm, and the length of the hand is the distance between the centre of a line joining the styloid processes and the tip of the middle finger. The length of the upper-arm and fore-arm are deduced from these measurements. This method is that recommended in the '*Anthropological Notes and Queries*,' but certainly gives results that do not represent the true relations between the different parts of the upper limb. A direct height, taken at the elbow, would be far preferable, though the points of measurement would be more difficult to obtain.

Breadth of Shoulders. This is not the breadth at the acromion, but the maximum breadth of the body when the arms are hanging vertically against the sides and the feet pressed together.

Breadth at Hips. This is really the breadth of the body, at the level of the head of the femur. In the case of savages it was taken as a rule on the bare skin; in that of clothed persons we have deducted three millimetres only, as the clothing was always thin, being drawn tight while the measurement was being taken.

Owing to the loss of part of a note-book, schedules containing the measurements of some thirty-five individuals have disappeared. About twenty of these were Malays of Upper Perak, and no record of them remains; the rest were Semangs and Sakais, and in their case the statures and some of the principal indices had been copied out into another part of the book. We have thought it best to put these statures and indices on record, though all details regarding them, except the sex and the fact that the individuals were adult, have been lost.

We have indicated, however, that it is impossible to check these indices by the use of Roman instead of Arabic figures in referring to them.

Explanation of Tables

Table I. *Descriptive Characters and Head Measurements.* In the case of those measurements that are the result of one or more observations, the figure recorded is the mean taken to the nearest millimetre.

Table II. *Body and Limb Measurements—Absolute and Relative.* This table embodies the actual measurements of the bodies and limbs of many of the subjects recorded in Table I, the serial numbers referring to one and the same individual throughout. In the second column devoted to each person, the absolute measurements are reduced to a common standard of stature = 1000. In performing the necessary calculations a 10-inch slide-rule has been employed, and the results are correct to within two parts per mille.

When there is a double measurement, as in the case of the arms and feet, the mean of the two sides of the body has been adopted, as the methods of measurements were not sufficiently rigorous to show, with any degree of accuracy, the real amount of bilateral asymmetry present.

The formulae for the indices given at the bottom of the page are as follows :—

Interbrachial Index	$\frac{\text{Fore Arm}}{\text{Upper Arm}} \times 100.$
Intercrural Index	$\frac{\text{Leg}}{\text{Thigh}} \times 100.$
Intermembral Index	$\frac{\text{Fore Arm} + \text{Upper Arm}}{\text{Leg} + \text{Thigh}} \times 100.$
Hand—Foot	$\frac{\text{Hand}}{\text{Foot}} \times 100.$
Girdle Index	$\frac{\text{Breadth of Hips}}{\text{Breadth of Shoulders}} \times 100.$
Calf Index	$\frac{\text{Minimum supramalleolar circumference}}{\text{Maximum supramalleolar circumference}} \times 100.$

Table III. *Cranial, Nasal, and Aural Indices.* The indices have been calculated by the methods used for Table II, and are accurate within the same limits. It is unnecessary to give the formulae for the indices which are in universal use, except, perhaps, that for the biorbito-nasal, which is the ratio between the distance between the external margins of the orbits measured with a tape across the bridge of the nose and the same measured with the callipers.

The other tables explain themselves.

(The immense labour of preparing the tables of measurements and indices in the present and the subsequent parts of this section is due, almost entirely, to my collaborator.—N. A.).

TABLE I

Descriptive Characters and Head Measurements (Semangs)

	Hami (Jalor)				Seman (Upper Perak)						
Serial Number	1	2	3	4	5	6	7	8	9	10	11
Original Number	1 [S]	2 [S]	3 [S]	4 [S]	9	10	11	12	13	14	15
Name	RajaJawa	Anga (1)	Labu	Kedah (2)	Sapi (3)	Daun (4)	..	..	Tebu (5)	Bulu (5)	Bunga (5)
Sex	♂	♂	♂	♀	♂	♂	♂	♂	♂	♂	♂
Locality	K. Mabek	K. Mabek	K. Mabek	K. Mabek	Grit	Grit	Grit	Grit	Grit	Grit	Grit
Age	± 25	20	± 25	? 17	± 30	± 25	Adult	Adult	± 25	± 25	± 25
Condition	Medium	Medium to thin	..	Medium to stout	Medium	Medium	..	..	Medium	Medium	Medium
Colour of Skin	Dark olive to red	Dark olive to red	Dark olive	Choc. to dk. olive	Choc. to dk. olive	Choc.	..	..	Choc. to dk. olive	Choc. to dk. olive	Choc. to dk. olive
Do. Eyes	Black to reddish-brown	Black to reddish-brown	Black to reddish-brown	Black to reddish-brown	Reddish-brown	Reddish-brown	..	..	Black	Black	Reddish-Brown
Do. Hair	Black	Black	Black	Black	Black	Black	..	..	Black	Black	Black
Character of Hair	Woolly	Woolly	Woolly	Woolly	Almost woolly	Almost woolly	..	..	Almost woolly	Almost woolly	Almost woolly
Amount of Hair— (*A*) Face	Very scanty	Very scanty	Very scanty	..	Scanty	Scanty	..	..	Absent	Absent	Medium
(*B*) Body	Very scanty	Very scanty	Very scanty	..	Scanty	Scanty	..	..	Scanty	Scanty	Medium
Shape of Face	Short and broad	Wedge-shaped	Wedge-shaped	Short and broad	Wedge-shaped	Wedge-shaped	..	..	Medium to wedge-shaped	Medium to wedge-shaped	Medium to wedge-shaped
Profile of Nose	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	..	..	Negroid	Negroid	Negroid
Prognathism	Slight	Moderate	Slight	Slight	Absent	Absent	..	..	Slight	Absent	Absent
Lips	Medium	Thick	Medium	Medium to thick	Thick	Thick	..	..	Thick	Thick	Thick
Character of Face	Meso-prosopic	Meso-prosopic	Meso-prosopic	Meso-prosopic	Meso-prosopic	Meso-prosopic	..	..	Meso-prosopic	Meso-prosopic	Meso-prosopic
Head Measurements	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.
Length	..	..	..	..	188	187	182	184	186	180	186
Breadth	..	..	..	..	140	146	146	137	150	146	143
Projections— Vertex to Chin	217	214	222	217	212	215	..	..	215	207	217
Do. Tragus	126	128	134	129	128	135	..	..	130	132	135
Do. Nasion	115	117	124	121	105	113	..	..	114	107	118
Nasion to Mouth	53	53	60	57	60	60	..	..	63	60	61
Mouth to Chin	49	44	40	39	47	42	..	..	38	40	38
FACE—Bizygomatic Breadth	..	..	..	..	138	132	..	..	135	134	125
Bigonial Breadth	112	115	113	119	134	127	..	..	130	..	..
External Biorbital	105	112	115	109	112	103	..	..	109	..	..
Do. Biocular	93	97	98	89	98	94	..	..	98	..	..
Internal Biocular	28	36	33	31	30	28	..	..	30	..	..
Biorbito-nasal Arc	..	..	..	..	136	129	..	..	143	..	..
Superciliary Arc	135	138	143	..	153	152	..	..	155	..	..
Nasion to Chin (*direct*)	..	..	..	..	103	105	..	..	104	99	101
NOSE—Height	34	40·5	39·5	38·5	46	43·5	42	39	42	37	41
Breadth	42	39·5	40·5	34·5	46	42	41	42	41	39	36·5
EAR—Length, R	55	57	54	..	..	..	..	..	..	..	..
Do. L	54	57	52	..	..	..	..	..	..	..	..
Breadth, R	31	31	28	..	..	..	..	..	..	..	..
Do. L	32	30	26	..	..	..	..	..	..	..	..

TABLE I (CONTINUED)

SEMANGS

	SEMAN—*Continued*								REMARKS
Serial Number	12	13	14	15	16	17	18	19	(1) Paler on the face than Nu. 1.
Original Number	16	17	18	19	20	23	21	22	(2) Wife of No. 1.
Name	Daun (6)	Keladi	Chabang	Puchok	Tebu	Lepan	Serai (7)	Daun (7)	(3) Born on a hill in Rhaman, called Bukit Sapi (Ox Hill), hence the name.
Sex	♂	♂	♂	♂	♂	♂	♀	♀	(4) Born on a heap of leaves (*Daun*, Malay); as in the case of other Semán he was unwilling to give his name in his own dialect.
Locality	Grit	Grit	Grit	Grit	Grit	Grit	Grit	Grit	(5) These individuals come from the eastern bank of the Perak River.
Age	± 25	± 30	± 30	± 27	± 27	± 17	± 27	± 20	(6) Approximating in appearance to the *Mai Darat* of Suuth Perak more nearly than any other member of the tribe seen. Face considerably paler than body. Hair had not been shaved for some months.
Condition	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	(7) Cf. Plate IV, fig. 1. No.19 was painted on face and body.
Colour of Skin	Choc. to dk. olive	Choc. to dk. olive	Choc. to dk. olive	Choc. to dk. olive	Choc. to dk. olive	Choc. to dk. olive	Choc. to dk. olive	Choc. to olive	
Do. Eyes	Reddish-brown	Reddish-brown	Reddish-brown	Reddish-brown	Reddish-brown	Reddish-brown	Reddish-brown	Reddish-brown	
Do. Hair	Black	Black	Black	Black	Black	Black	Black	Black	
Character of Hair	Almost woolly	Almost woolly	Almost woolly	Almost woolly	Almost woolly	Almost woolly	Almost woolly	Almost woolly	
Amount of Hair—									
(*A*) Face	Absent	Scanty	Scanty	Absent	Absent	Absent	Absent	Absent	
(*B*) Body	Scanty	Scanty	Scanty	Scanty	Scanty	Scanty	..	..	
Shape of Face	Medium to wedge-shaped	Medium to wedge-shaped	Medium to wedge-shaped	Medium to wedge-shaped	Medium to wedge-shaped	Medium to wedge-shaped	Medium to wedge-shaped	Medium to wedge-shaped	
Profile of Nose	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	
Prognathism	Moderate	Slight	Moderate	Slight	Moderate	Slight	Slight	Slight	
Lips	Thick	Thick	Thick	Thick	Thick	Thick	Thick	Thick	
Character of Face	Meso-prosopic	Meso-prosopic	Meso-prosopic	Meso-prosopic	Meso-prosopic	Meso-prosopic	Meso-prosopic	Meso-prosopic	
Head Measurements	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	
Length	180	187	186	188	180	179	180	182	
Breadth	142	140	142	144	142	140	146	140	
Projections—									
Vertex to Chin	224	209	208	215	209	..	221	200	
Do. Tragus	129	127	126	131	129	..	136	128	
Do. Nasion	116	101	107	110	109	..	121	104	
Nasion to Mouth	66	63	62	60	64	..	63	62	
Mouth to Chin	42	45	39	45	36	..	37	34	
FACE—Bizygomatic Breadth ..	135	135	134	140	143	..	136	127	
Bigonial Breadth	..	..	..	..	..	..	..	..	
External Biorbital	..	..	..	..	..	..	..	..	
Do. Biocular	..	..	..	..	..	..	..	..	
Internal Biocular	..	..	..	..	..	..	..	..	
Biorbito-nasal Arc	..	..	..	..	..	..	..	..	
Superciliary Arc	..	..	..	..	..	..	..	..	
Nasion to Chin (*direct*) ..	108	107	104	110	103	..	104	105	
NOSE—Height	45	40	36	40	46	38	39	41	
Breadth	40	40	39	43·5	39	40	40	36	
EAR—Length, R	..	..	..	..	..	..	..	..	
Do. L	..	..	..	..	..	..	..	..	
Breadth, R	..	..	..	..	..	..	..	..	
Do. L	..	..	..	..	..	..	..	..	

TABLE I (CONTINUED)

SAKAIS

	PO-KLO (UPPER PERAK)							JEHEHR (UPPER PERAK)			
Serial Number	20	21	22	23	24	25	26	27	28	29	30
Original Number	1 [P.K.]	2 [P.K.]	3 [P.K.]	4 [P.K.]	5 [P.K.]	6 [P.K.]	7 [P.K.]	1 [J.]	2 [J.]	3 [J.]	4 [J.]
Name	Loang	Pali-mon (1)	Loang (2)	Pa Goh (3)	Besûh	Jawi	Mangkau	Galah (4)	Daun	Kĕladi	Tebu
Sex	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂
Locality	Temon-goh	Temon-goh	Temon-goh	Temon-goh	Temon-goh	Temon-goh	Temon-goh	Temon-goh	Temon-goh	Temon-goh	Temon-goh
Age	± 40	± 40	± 30	± 25	± 25	± 25	± 25	± 45	± 25	± 20	± 25
Condition	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Thin	Medium	Medium	Medium
Colour of Skin	Red to olive	Dk. olive to olive	Red	Red	Choc. to dk. olive	Dk. olive to red	Dk. olive	Red	Dk. olive to red	Choc. to dk. olive	Dk. olive to olive
Do. Eyes	Reddish-brown	Reddish-brown	Black	Black	Black	Black	Black	Reddish-brown	Black	Black	Black
Do. Hair	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Character of Hair	Curly	Wavy	Woolly	Straight	Wavy	Wavy	Wavy	Curly	Woolly	Wavy	Woolly
Amount of Hair— (*A*) Face	Absent	Medium	Absent	Scanty	Absent	Absent	Absent	Fairly abundant	Absent	Absent	Scanty
(*B*) Body	Scanty	Scanty	Scanty	Scanty	Scanty	Scanty	Scanty	Scanty	Scanty	Scanty	Scanty
Shape of Face	Short and broad, wedge-shaped	Short and broad, pyramid-ical	Short and broad, wedge-shaped	Wedge-shaped	Wedge-shaped	Wedge-shaped	Wedge-shaped	Medium	Wedge-shaped	Wedge-shaped	Wedge-shaped
Profile of Nose	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid
Prognathism	Absent	Slight	Consid-erable	Slight	Absent	Moderate	Absent	Absent	Slight	Slight	Slight
Lips	Thick	Thick to everted	Thick	Thick	Thick	Thick	Thick	Medium	Thick	Thick	Thick
Character of Face	Meso. to platy-prosopic	Meso-prosopic	Meso. to platy-prosopic	Platy-prosopic	Platy-prosopic	Platy-prosopic	Platy-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic	Meso-prosopic	Meso. to platy-prosopic
Head Measurements	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.
Length	187	186	184	189	176	190	192	196	178	170	192
Breadth	146	148	144	140	150	148	145	146	142	140	144
Projections— Vertex to Chin	221	218	206	210	201	230	228	213	205	195	229
Do. Tragus	123	132	120	134	126	128	130	127	122	125	135
Do. Nasion	108	113	113	105	102	120	114	106	109	97	117
Nasion to Mouth	71	67	60	66	61	68	74	60	64	58	69
Mouth to Chin	42	38	33	39	37	42	40	47	32	40	43
FACE—Bizygomatic Breadth	137	140	136	137	132	133	140	139	139	130	145
Bigonial Breadth	..	..	..	..	..	..	..	..	..	..	..
External Biorbital	..	..	..	..	..	..	..	..	..	..	..
Do. Biocular	..	..	..	..	..	..	..	..	..	..	..
Internal Biocular	..	..	..	..	..	..	..	..	..	..	..
Biorbito-nasal Arc	..	..	..	..	..	..	..	..	..	..	..
Superciliary Arc	..	..	..	..	..	..	..	..	..	..	..
Nasion to Chin (*direct*)	106	108	100	105	101	115	101	105	101	94	106
NOSE—Height	48	44	39	42	40	45	45	45	44	39	43
Breadth	44	40	39	40	38	42	40	42	39	40	43
EAR—Length, R	..	..	..	..	..	..	..	..	..	..	..
Do. L	..	..	..	..	..	..	..	..	..	..	..
Breadth, R	..	..	..	..	..	..	..	..	..	..	..
Do. L	..	..	..	..	..	..	..	..	..	..	..

TABLE I (CONTINUED)

SAKAIS

	MAI DARAT (S. PERAK)								
Serial Number	31	32	33	34	35	36	37	38	39
Original Number	1 [S.P.S.]	2 [S.P.S.]	4 [S.P.S.]	5 [S.P.S.]	6 [S.P.S.]	7 [S.P.S.]	8 [S.P.S.]	9 [S.P.S.]	to [S.P.S.]
Name	Ching Ai (5)	Pä Lin-dang (6)	Paitum	Penwin	Bâ Daup	Penghulu Kilat (7)	Rôh Gek	Pâ Mang (8)	Hâ Ghât (9)
Sex	♂	♂	♂	♂	♂	♂	♂	♂	♂
Locality	Gedong	Gedong	Gedong	Gedong	Gedong	Gedong	Gedong	Gedong	Bidor
Age	± 22	± 25	± 40	± 25	± 22	± 45	± 23	± 25	± 25
Condition	Stout to Medium	Medium to thin	Thin	Medium	Medium	Medium to thin	Medium	Medium	Stout
Colour of Skin	Dk. olive	Dk. olive to red	Choc. to red	Dk. olive to olive	Dk. olive to red	Dk. olive to olive	Red to olive	Dk. olive to olive	Olive to yellowish white
Do. Eyes	Black	Black	Black to reddish-brown	Black	Reddish-brown	Reddish-brown	Black	Black	Black
Do. Hair	Black	Black	Black	Black	Black	Black	Black	Black	Black
Character of Hair	Slightly wavy	Curly	Wavy to curly	Slightly wavy	Wavy	Straight	Curly (frizzled)	Curly (frizzled)	Curly (frizzled)
Amount of Hair—									
(*A*) Face	Absent	Very scanty	Medium	Scanty	Very scanty	Very scanty	Very scanty	Absent	Very scanty
(*B*) Body	Very scanty	Very scanty	Scanty	Scanty	Very scanty	Scanty to medium	Very scanty	Very scanty	Very scanty
Shape of Face	Short and broad, wedge-shaped	Medium, wedge-shaped	Short and broad	Short and broad, wedge-shaped	Short and broad, wedge-shaped	Wedge-shaped	Short and broad, wedge-shaped	Short and broad, wedge-shaped	Wedge shaped
Profile of Nose	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid
Prognathism	Very slight	Very slight	Absent	Slight	Slight to moderate	Slight to moderate	Very Slight	Absent	Absent
Lips	Thick	Medium	Thin to Medium	Medium	Medium	Medium to thick	Thick	Medium to thick	Thick
Character of Face	Meso-prosopic	Meso-prosopic	Platy-prosopic	Platy-prosopic	Meso. to platy-prosopic	Platy-prosopic	Meso. to platy-prosopic	Marked by platy-prosopic	Meso. to platy-prosopic
Head Measurements									
	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.
Length	184	170	178	193	183	177	180	176	179
Breadth	144	138	140	148	142	145	140	144	146
Projections—									
Vertex to Chin	232	199	209	221	219	230	204	217	223
Do. Tragus	141	126	132	133	131	128	122	125	123
Do. Nasion	120	97	109	119	118	114	112	114	113
Nasion to Mouth	67	62	62	63	62	75	59	68	66
Mouth to Chin	45	40	38	39	39	41	33	35	44
FACE—Bizygomatic Breadth	147	131	130	142	136	135	133	139	146
Bigonial Breadth	136	126	121	123	121	125	129	133	130
External Biorbital	127	115	108	112	108	115	119	120	120
Do. Biocular	106	93	89	93	91	92	98	95	95
Internal Biocular	42	33	31	37	33	36	37	35	32
Biorbito-nasal Arc	147	125	123	128	121	134	138	135	143
Superciliary Arc	179	146	144	151	141	156	157	156	173
Nasion to Chin (*direct*)	116	105	102	108	100	118	100	108	112
NOSE—Height	41	41·8	40·8	46·5	40·0	47·8	41·1	40·5	41·7
Breadth	45·8	40·0	36·8	41·8	37·2	37·8	40·5	38·7	42·2
EAR—Length, R	60	60	60	59	54	60	60	60	61
Do. L	59	59	61	59	55	60	60	59	60
Breadth, R	33	33	30	31	30	35	30	31	32
Do. L	33	33	30	31	30	35	31	31	31

REMARKS

(1) Pali-mon is a title, meaning chief of a clan. Looked like a Malay. Plate VIII, fig. 2.

(2) The most prognathous person seen. Superciliary ridges prominent. Abdomen protuberant. Plate VI, fig. 2, in centre.

(3) Had a son called Yoh.

(4) Considerable beard and moustache. Body and limbs covered with firm, painless tumours and open sores. Very emaciated, but able to hunt and obtain food.

(5) Married for two years, one child; muscular development well marked.

(6) Married, six children; muscular development well marked.

(7) More Malayan in appearance than almost any other man of his tribe whom we met.

(8) Muscles on the breast especially noticeable.

(9) This man belonged to a tribe said to live high in the mountains of the Hulu Slim district. We observed that the complexions of the mountain men was usually very much paler than that of others.

TABLE I (CONTINUED)

SAKAIS

	MAI DARAT—*Continued*											
Serial Number	40	41	42	43	44	45	46	47	48	49	50	51
Original Number	11	12	13	14	15	16	17	18	19	20	21	22
Name	[S.P.S.] Chen Löe Loi	[S.P.S.] Töh Döh (1)	[S.P.S.] Pay Yoh (2)	[S.P.S.] Itam (3)	[S.P.S.] Sungkei (4)	[S.P.S.] BehBaleh (5)	[S.P.S.] Chong Gah (6)	[S.P.S.] Bâ Kah Koi	[S.P.S.] Pâ (7) Gedong	[S.P.S.] Pangkok (8)	[S.P.S.] Yoh Ken (9)	[S.P.S.] Penghulu Sembon
Sex	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂ (10)
Locality	Bidor	Bidor	Bidor	Bidor	Bidor	Bidor	Bidor	Telom	Telom	Sungkei	Sungkei	Jeram Kawan
Age	± 23	± 21	± 35	± 46	± 40	± 30	+ 15	27	40-50	± 30	± 20	± 25
Condition	Medium	..	Medium	Medium	Medium to thin	Medium to thin	Medium	Medium to thin	Medium	Medium	Medium	Medium
Colour of Skin	Red to olive	Red to olive	Red	Red	Red	Dk. olive toyellow-ish-white	Dk. olive to olive	Olive to yellow-ish-white	Olive to yellow-ish-white	Dk. olive to red	Dk. olive to red	Red to olive
Do. Eyes	Black	Black	Black	Black to reddish-brown	Black	Black	Black	Black	Black	Black	Black	Black
Do. Hair	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Character of Hair	Straight	Curly	Wavy	Wavy to curly, crisp	Wavy, crisp	Wavy	Curly	Straight to wavy	Slightly wavy	Wavy	Wavy to curly	Wavy
Amount of Hair— (*A*) Face	Very scanty	Very scanty	Medium	Medium	Scanty	Medium	Absent	Very scanty	Scanty	Medium	Very scanty	Scanty
(*B*) Body	Very scanty	Very scanty	Medium to abundant	Scanty	Very scanty	Very scanty	Absent	Very scanty	Very scanty	Medium	Very scanty	Scanty
Shape of Face	Wedge-shaped	Medium to wedge-shaped	Wedge-shaped	Medium	Wedge-shaped	Long and narrow, pointed at chin	Wedge-shaped	Wedge-shaped	Wedge-shaped	Short and broad	Wedge-shaped	Long and narrow
Profile of Nose	Negroid	Negroid	Straight	Negroid	Straight-sinuous	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid
Prognathism	Absent	Slight	Absent	Moderate	Very slight	Absent	Absent	Well marked	Moderate	Consid-erable	Medium	Moderate
Lips	Thick	Thick	Medium	Medium	Thin to medium	Medium to thick	Medium to thick	Thick	Thick	Medium to thick	Medium	Medium
Character of Face	Meso. to platy-prosopic	Meso-prosopic	Meso. to platy-prosopic	Platy-prosopic	Platy-prosopic	Platy-prosopic	Meso-prosopic	Meso-prosopic	Meso-prosopic	Meso-prosopic	Meso-prosopic	Meso-prosopic
Head Measurements	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.
Length	188	181	176	179	187	172	182	182	190	182	178	184
Breadth	144	140	144	140	147	130	143	145	145	143	140	143
Projections— Vertex to Chin	207	212	214	198	219	212	215	226	229	207	211	229
Do. Tragus	126	129	124	124	128	124	128	136	136	110	118	130
Do. Nasion	102	107	108	101	109	107	111	116	116	100	105	122
Nasion to Mouth	66	61	64	64	69	67	64	67	69	68	60	63
Mouth to Chin	39	44	42	33	41	38	40	43	44	39	46	44
FACE—Bizygomatic Breadth	136	129	135	132	142	125	130	129	138	134	139	135
Bigonial Breadth	126	121	115	112	123	116	127	124	129	121	129	125
External Biorbital	119	114	107	107	113	105	118	113	125	108	109	110
Do. Biocular	95	94	85	87	96	87	93	97	99	84	90	92
Internal Biocular	33	29	31	31	37	31	31	37	38	35	34	36
Biorbito-nasal Arc	141	130	115	118	124	131	133	143	141	124	126	135
Superciliary Arc	165	153	133	139	145	148	152	163	166	139	141	164
Nasion to Chin (*direct*)	104	101	107	99	110	108	108	109	118	112	104	119
NOSE—Height	45·1	42·2	42·7	48·2	47·3	47·7	43·7	41·5	44·8	Deformed	43·5	46·0
Breadth	40·0	40·0	36·3	40·2	40·0	37·3	36·8	37·3	41·3	..	37·8	39·8
EAR—Length, R	56	56	72	62	62	57	58	52	57	..	53	60
Do. L	56	56	70	63	62	58	58	52	58	..	53	60
Breadth, R	30	30	32	29	30	28	31	29	39	..	30	33
Do. L	31	31	33	29	31	29	31	29	38	..	30	34

Concealed by hair

TABLE I (CONTINUED)

SAKAIS

	MAI DARAT—*Continued*								
Serial Number	52	53	54	55	56	57	58	59	60
Original Number	23 [S.P.S.]	24 [S.P.S.]	25 [S.P.S.]	26 [S.P.S.]	27 [S.P.S.]	28 [S.P.S.]	29 [S.P.S.]	30 [S.P.S.]	31 [S.P.S.]
Name	Yóh (11) Sendók	Kouton (12)	Sintan (13)	Yoh (14) Dalam	BâDendu	Redam (15)	Bâ Bor (16)	Penghulu Mangol (17)	Si Itam (18)
Sex	♂	♂	♂	♂	♂	♂	♂	♂	♂
Locality	Jeram Kawan	Jeram Kawan	Jeram Kawan	Jeram Kawan	Jeram Kawan	Jeram Kawan	Jeram Kawan	Paku	Paku
Age	± 25	+ 50	± 30	± 25	± 30	± 40	+ 35	± 25	± 40
Condition	Medium	Medium	Medium to thin	Medium	Medium to stout	Stout	Medium	Medium	Medium
Colour of Skin	Red to olive	Dk. olive	Red	Red	Red	Dk. olive to red	Dk. olive	Dk. olive to red	Dk. olive to red
Do. Eyes	Black	Black	Black	Black	Black	Black	Black	Black	Black
Do. Hair	Black	Black	Black	Black	Black	Black	Black	Black	Black
Character of Hair	Curly (frizzled)	Curly	Curly	Straight	Wavy	Straight	Wavy	Slightly wavy	Curly
Amount of Hair— (*A*) Face	Scanty	Scanty to Medium	Scanty	Very scanty	Very scanty	Very scanty	Medium	Scanty to medium	Scanty to Medium
(*B*) Body	Scanty	Scanty to Medium	Very scanty	Very scanty	Very scanty	Very scanty	Scanty	Very scanty	Very scanty
Shape of Face	Wedge-shaped	Wedge-shaped	Medium	Fairly short and broad	Medium to wedge-shaped	Medium	Medium	Medium to wedge-shaped	Short and broad, pointed at chin
Profile of Nose	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid
Prognathism	Slight	Slight	Moderate	Slight to moderate	Very slight	Slight	Slight	Absent	Very slight
Lips	Medium	Thick	Medium to thick	Medium to thick	Medium	Medium	Thick	Medium	Medium
Character of Face	Platy-prosopic	Platy-prosopic	Meso-prosopic	Pro- to Meso-prosopic	Meso-prosopic	Meso. to Platy-prosopic	Meso. to Platy-prosopic	Meso-prosopic	Meso-prosopic
Head Measurements	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.
Length	173	184	187	184	190	183	185	191	182
Breadth	143	146	142	135	151	141	147	143	142
Projections— Vertex to Chin	212	212	224	200	215	217	223	206	212
Do. Tragus	135	134	126	126	126	126	126	132	128
Do. Nasion	116	111	110	101	106	112	109	100	110
Nasion to Mouth	59	65	70	55	66	64	80	55	58
Mouth to Chin	37	36	44	44	43	41	34	51	44
FACE—Bizygomatic Breadth	135	140	135	130	145	143	140	135	128
Bigonial Breadth	129	129	120	130	135	130	129	117	110
External Biorbital	111	119	108	106	115	112	113	110	102
Do. Biocular	92	95	87	91	92	95	93	90	83
Internal Biocular	32	34	35	37	37	32	28	34	29
Biorbito-nasal Arc	130	143	122	119	128	136	149	123	123
Superciliary Arc	156	163	148	144	152	164	171	149	143
Nasion to Chin (*direct*)	102	105	113	111	114	111	117	102	96
NOSE—Height	40·7	48·0	41·3	41·2	50·7	53·3	50·8	39	41·5
Breadth	40·8	41·8	37·2	42·3	43·3	46·0	40·8	40·8	40·0
EAR—Length, R	53	62	55	54	63	63	63	*Stature*	*Stature*
Do. L	53	62	56	55	62	66	64	1554	1462
Breadth, R	27	33	28	28	31	32	32	*Span*	*Span*
Do. L	28	33	29	33 distorted	31	34	33	1628	1480

REMARKS

(1) Married for eight years four children.

(2) This man was exceptional in having an abundant growth of hair on the lower parts of his legs; his muscular development was very pronounced, especially on the breast. Married four years; one child (♀).

(3) No children. Darker on the face than the majority. He came from the low country, between the foot hills and the sea.

(4) Five children (3 ♂, 2 ♀).

(5) Married seven years; three children (2 ♂, 1 ♀).

(6) Unmarried; probably rather older than the age given.

(7) Father of No. 18, and chief of a small clan living on the slopes of Gunung Berumban, at an elevation of from 4-7,000 feet.

(8) Married; three children (1 ♂, 2 ♀).

(9) Married two years; no children.

(10) Married three years; no children.

(11) Married; no children.

(12) Father of No. 22 and 23; four children (3 ♂, ♀). ♂, ♀ dead.

(13) Married five years; one child (♂).

(14) Married three years; no children.

(15) Married twice; two children by one wife; one by the other.

(16) Married; four children (2 ♂, 2 ♀).

(17) Married five years; two children (2 ♂).

(18) Married twice; five children (4 ♀, 1 ♂), three dead.

TABLE I (CONTINUED)

SAKAIS

	MAI DARAT—*Continued*							ORANG BUKIT (SELANGOR)				
Serial Number	61	62	63	64	65	66	67	68	69	70	71	72
Original Number	32 [S.P.S.]	33 [S.P.S.]	35 [S.P.S.]	36 [S.P.S.]	3 [S.P.S.]	34 [S.P.S.]	37 [S.P.S.]	1 [S.B.]	2 [S.B.]	3 [S.B.]	4 [S.B.]	5 [S.B.]
Name	Ba Norap (1)	Si Mugat (2)	Ran Tau (3)	Nung Kai (4)	Simut (5)	Mut Sian (6)	Si Busut (7)	Pa Siah	Kiang	Jakub	Alang	Besut (8)
Sex	♂	♂	♂	♂	♀	♀	♀	♂	♂	♂	♂	♂
Locality	Paku	Paku	Paku	Bidor	Gedong	Paku	Bidor	Labuan-sara	Labuan-sara	Labuan-sara	Labuan-sara	Labuan-sara
Age	± 40	30 +	25	20	18	+ 40 −	+ 30	± 50	± 25	± 20	± 25	± 30
Condition	Medium	Medium	Medium	Medium	Medium	Medium to thin	Medium to stout	Medium	Medium	Medium	Medium	Medium
Colour of Skin	..	Dk. olive to olive	Dk. olive to olive	Red	Dk. olive to red	Dk. olive to choc.	Olive	Red to olive	Dk. olive to olive	Red	Dk. olive to olive	Dk. olive to red
Do. Eyes	Black	Black	Black	Black to reddish-brown	Black	Black	Black	Black	Black	Black	Black	Black
Do. Hair	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Character of Hair	Wavy	Curly	Curly	Wavy	Wavy	Wavy	Wavy	Wavy	Straight	Wavy	Wavy	Wavy
Amount of Hair— (*A*) Face	Scanty	Scanty to Medium	Very scanty	Very scanty	..	..	..	Medium	Scanty	Scanty	Scanty	Medium, scanty
(*B*) Body	Very scanty	Very scanty	Very scanty	Very scanty	..	..	..	Scanty	Scanty	Scanty	Scanty	Scanty
Shape of Face	Short and Broad	Medium	Wedge-shaped	Wedge-shaped	Medium to wedge-shaped	Wedge-shaped	Short and broad	Wedge-shaped	Wedge-shaped	Short and broad, wedge-shaped	Medium	Medium
Profile of Nose	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Very Negroid	Negroid	Straight-negroid	Negroid	Negroid	Negroid
Prognathism	Absent	Slight	Moderate	Slight to Medium	Moderate	Slight	Moderate	Absent	Absent	Slight	Moderate	Absent
Lips	Medium	Thick	Thick	Thick	Thick	Thick	Thick	Thick	Medium	Medium to thick	Thick	Medium
Character of Face	Meso. to platy-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic	Meso-prosopic	Platy-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic	Platy-prosopic	Platy-prosopic	Meso. to platy-prosopic	Meso-prosopic
Head Measurements	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.
Length	178	184	170	180	174	178	184	172	188	186	182	182
Breadth	141	140	135	146	137	142	143	147	143	152	134	144
Projections— Vertex to Chin	203	226	188	217	211	217	216	222	227	233	226	221
Do. Tragus	125	126	112	131	130	124	131	127	125	130	121	133
Do. Nasion	97	117	96	106	113	117	120	122	115	121	118	114
Nasion to Mouth	59	67	54	60	59	69	52	67	70	69	72	70
Mouth to Chin	47	42	38	53	39	33	38	33	40	43	36	37
FACE—Bizygomatic Breadth	130	135	128	134	132	137	131	148	143	145	132	135
Bigonial Breadth	123	129	125	121	126	130	128	128	138	133	123	126
External Biorbital	103	113	105	105	115	115	112	108	120	117	112	111
Do. Biocular	84	93	88	86	91	95	97	94	103	102	95	89
Internal Biocular	28	31	27	26	35	32	34	38	34	38	35	36
Biorbito-nasal Arc	119	136	124	122	122	129	141	..	..	..	..	..
Superciliary Arc	136	155	139	146	148	148	156	..	..	..	..	..
Nasion to Chin (*direct*)	95	106	97	109	96	104	104	104	109	114	106	108
NOSE—Height	37·5	41·3	39·3	45·2	35·0	40·0	37·5	41·5	50	43	43	44
Breadth	36·3	40·7	40·3	41·3	38·0	36·3	43·3	43·0	38	37	39	33·5
EAR—Length, R	*Stature*	*Stature*	*Stature*	*Stature*	..	*Stature*	*Stature*	*Stature*	*Stature*	*Stature*	*Stature*	*Stature*
Do. L	1488	1589	1459	1584	..	1462	1388	1562	1570	1546	1562	1559
Breadth, R	*Span*	*Span*	*Span*	*Span*	..	*Span*	*Span*	*Span*	*Span*	*Span*	*Span*	*Span*
Do. L	1453	1628	1521	1655	..	1490	1399	1555	1550	1551	1600	1561

TABLE I (CONTINUED)

SAKAIS

	ORANG BUKIT—*Continued*								
Serial Number	73	74	75	76	77	78	79	80	81
Original Number	6 [S.B.]	7 [S.B.]	8 [S.B.]	12 [S.B.]	13 [S.B.]	11 [S.B.]	14 [S.B.]	10 [S.B.]	9 [S.B.]
Name	Ah Pai	Limau	Hussein	Ahmon	Ah Mit	Damai	Snâ Bah	Indah	Halus
Sex	♂	♂	♂	♂	♂	♀	♀	♀	♀
Locality	Labuan-sara	Labuan-sara	Labuan-sara	Labuan-sara	Labuan-sara	Labuan sara	Labuan-sara	Labuan-sara	Labuan-sara
Age	± 35	20	30	+ 25	± 20	± 16	± 24	± 17	..
Condition	Medium	Medium	..	Medium	Medium	Medium	Medium	..	..
Colour of Skin	Red to yellow-ish-white	Red to olive	Red to olive	Olive	Red	Red to olive	Olive	Olive to yellow-ish-white	Dk. olive to red
Do. Eyes	Black	Black	Black	Black	Black	Black (brown-ish tinge)	Black	Black	Black
Do. Hair	Black	Black	Black	Black	Black	Black	Black (brownish gloss)	Black	Black
Character of Hair	Slightly wavy	Slightly wavy	Very slightly wavy	Straight	Wavy	Wavy	Straight	Straight	Straight
Amount of Hair—									
(*A*) Face	Scanty	Absent	Scanty	Scanty	Scanty	Absent	Absent	Absent	Absent
(*B*) Body	Scanty	Very scanty	Scanty	Scanty	Very scanty	..	..	..	..
Shape of Face	Medium	Short and broad	Wedge-shaped	Short and broad	Short and broad	Short and broad	Short and broad wedge-shaped	Short and broad	Short and broad
Profile of Nose	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid
Prognathism	Slight	Very slight	Very slight	Very slight	Slight	Slight	Very slight	Slight	Slight
Lips	Medium	Medium	Thick	Thick	Rather thick	Medium	Thick	Medium	Medium
Character of Face	Meso. to platy-prosopic	Platy-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic	Plato-prosopic	Platy-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic
Head Measurements	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.
Length	190	182	182	179	174	164	170	174	173
Breadth	148	136	150	146	144	143	140	138	137
Projections—									
Vertex to Chin	234	213	224	242	217	221	218	220	211
Do. Tragus	130	130	136	135	134	129	133	127	119
Do. Nasion	116	119	115	125	113	126	125	122	120
Nasion to Mouth	78	64	69	72	64	56	65	58	58
Mouth to Chin	40	30	40	45	40	39	28	40	33
FACE—Bizygomatic Breadth	142	132	144	146	143	133	140	135	127
Bigonial Breadth	133	119	135	138	137	114	121	125	114
External Biorbital	117	107	111	124	120	112	115	108	105
Do. Biocular	95	83	95	103	95	97	97	90	89
Internal Biocular	30	35	33	39	36	34	40	29	33
Biorbito-nasal Arc	..	..	..	..	..	..	..	..	..
Superciliary Arc	..	..	..	..	..	..	..	..	..
Nasion to Chin (*direct*)	114	105	104	112	113	91	96	90	94
NOSE—Height	46	42	42	44	46	41·5	37·5	36	39·5
Breadth	40	38	40	42	37	35	38	35	36
EAR—Length, R	*Stature*	*Stature*	*Stature*	*Stature*	*Stature*	*Stature*	*Stature*	*Stature*	*Stature*
Do. L	..	1462	1537	1690	1593	1404	1380	1380	1422
Breadth, R	*Span*	*Span*	*Span*	*Span*	*Span*	*Span*	*Span*	*Span*	*Span*
Do. L	..	1436	1592	1650	1014	1363	1407	1401	1404

REMARKS

(1) Unmarried.

(2) Married four years; two children (♂, ♀).

(3) Married seven years; two children (♂, ♀ dead).

(4) Newly married; the name may possibly be a variant of *nungka* (Malay), the jack fruit (*Artocarpus integrifolia*).

(5) Wife of No. 21. One child. Breasts very pendent; areolus very deeply pigmented. Right breast—length, 157 mm.; circumference, 302; child suckled usually on left breast.

(6) Married twice; three children by her first husband.

(7) Widow; married twice; one child. Face painted in red, black, yellow, and white. Cf. Plate X, figs. 2, 3, left hand figure.

(8) Much higher bridge to nose than normal.

TABLE I (CONTINUED)
COAST FOLK OF TRANG

	SAMSAMS (COAST OF TRANG)										
Serial Number	82	83	84	85	86	87	88	89	90	91	92
Original Number	1 [SS.]	2 [SS.]	3 [SS.]	4 [SS.]	5 [SS.]	6 [SS.]	7 [SS.]	8 [SS.]	9 [SS.]	10 [SS.]	11 [SS.]
Name	'CheSaleh (2)	Mat Saih	Mat Mahommad	Tunku Mat (1)	Mahúin	Maggat (2)	'Che Im (2)	'Che Kim (2)	Sabu	'Che Lung (2)	Na Phi
Sex	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂
Locality	B. Pra Muang	B. Pra Muang	B. Pra Muang	B. Pra Muang	B. Pra Muang	B. Pra Muang	B. Pra Muang	B. Pra Muang	B. Pra Muang	B. Pra Muang	P. Telibun
Age	27	30	25	± 20	± 30	± 30	± 27	± 50	± 25	± 25	± 40
Condition	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Colour of Skin	Red to olive	Dark olive	Red	Olive	Red to olive	Red	Red to olive	Red to olive	Red to olive	Red to olive	Red
Do. Eyes	Reddish-brown	Black	Reddish-brown	Reddish-brown	Reddish-brown	Reddish-brown	Reddish-brown	Reddish-brown	Black	Reddish-brown	Black
Do. Hair	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Character of Hair	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight
Amount of Hair— (*A*) Face	Medium	Scanty	Scanty	Absent	Scanty	Medium	Scanty	Medium	Scanty	Absent	Scanty
(*B*) Body	Scanty	Scanty	Scanty	Scanty	Scanty	Medium	Scanty	Scanty	Scanty	Scanty	Scanty
Shape of Face	Medium	Wedge-shaped	Wedge-shaped	Medium	Long and narrow	Medium	Medium	Medium	Medium	Medium	Medium to wedge-shaped
Profile of Nose	Straight-negroid	Straight-negroid	Straight-negroid	Straight-negroid	Straight-negroid	Straight-negroid	Negroid	Straight-negroid	Straight-negroid	Straight-negroid	Negroid
Prognathism	Absent	Slight	Absent	Absent	Absent	Absent	Moderate	Absent	Absent	Slight	Absent
Lips	Medium	Medium	Medium	Medium	Thick	Thick	Thick	Thick	Medium	Thick	Thick
Character of Face	Meso. to platy-prosopic	Platy-prosopic	Meso. to platy-prosopic	Platy-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic	Platy-prosopic	Meso. to platy-prosopic	Platy-prosopic	Platy-prosopic	Meso. to platy-prosopic
Head Measurements	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.
Length	180	180	179	176	170	181	177	190	180	178	174
Breadth	151	150	145	158	152	150	150	154	148	150	154
Projections— Vertex to Chin	234	226	220	220	237	236	235	233	216	227	239
Do. Tragus	134	127	132	134	133	138	139	136	123	129	132
Do. Nasion	124	110	123	115	116	125	126	127	111	114	128
Nasion to Mouth	68	70	55	64	78	73	62	70	65	75	64
Mouth to Chin	42	46	42	41	43	38	47	36	40	38	47
FACE—Bizygomatic Breadth	135	135	129	140	131	143	140	145	137	143	146
Bigonial Breadth	..	..	..	..	..	..	..	..	..	..	..
External Biorbital	..	..	..	..	..	..	..	..	..	..	..
Do. Biocular	..	..	..	..	..	..	..	..	..	..	..
Internal Biocular	..	..	..	..	..	..	..	..	..	..	..
Biorbito-nasal Arc	..	..	..	..	..	..	..	..	..	..	..
Superciliary Arc	..	..	..	..	..	..	..	..	..	..	..
Nasion to Chin (*direct*)	110	105	97	103	121	109	107	100	104	113	107
NOSE—Height	49	47	44·5	44·5	52	49	37	45	43	45	47·5
Breadth	42	44	38·5	38	38	41·5	39	42	35	37·5	44
STATURE	1560	1627	1507	1527	1600	1647	1575	1657	1607	1670	1632

TABLE I (CONTINUED)
COAST FOLK OF TRANG

	SAMSAMS—*Continued*				ORANG LAUT KAPPIR				REMARKS
Serial Number	93	94	95	96	97	98	99	100	(1) Claimed descent from the royal family of Kedah. *Tunku* (*Tuanku*) is the title of those who are of royal blood on both sides of the family.
Original Number	12 [SS.]	13 [SS.]	14 [SS.]	15 [SS.]	1 [O.L.]	2 [O.L.]	3 [O.L.]	4 [O.L.]	
Name	Oh	Latah	'Brahin	Sonan	Nanka (3)	Lalu (4)	Waki (5)	Elok (4)	(2) *'Che* (*Inche*) is probably an hereditary title among the Malays, but it is commonly applied to all persons of any standing who have no other title; very much like the English 'Esquire.'
Sex	♂	♂	♂	♂	♂	♂	♂	♂	
Locality	P. Telibun	P. Telibun	P. Telibun	P. Telibun	P.Mentia	P.Mentia	P.Mentia	P.Mentia	
Age	± 35	± 50	± 55	± 40	± 50	± 25	± 35	± 30	
Condition	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	(3) Father of Nos. 98 & 100.
Colour of Skin	Red	Red	Red	Red to olive	Olive	Olive	Red	Red to olive	
Do. Eyes	Black	Black	Reddish-brown	Reddish-brown	Reddish-brown	Black	Reddish-brown	Black	(4) Unmarried, but both betrothed for nearly two years. Would be married shortly.
Do. Hair	Black	Black	Grizzled	Black	Grizzled	Black	Black	Black	
Character of Hair	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight	(5) Widower without children. Face and jaw extraordinarily massive. Quite unlike Nanka's family in appearance.
Amount of Hair— (*A*) Face	Scanty	Medium	Medium	Absent	Medium	Scanty	Medium	Scanty	
(*B*) Body	Scanty	Scanty	Scanty	Scanty	Medium	Scanty	Medium	Scanty	
Shape of Face	Medium to wedge-shaped	Medium to wedge-shaped	Medium to wedge-shaped	Medium to wedge-shaped	Medium	Wedge-shaped	Medium to wedge-shaped	Wedge-shaped	
Profile of Nose	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	
Prognathism	Absent	Absent	Slight	Absent	Slight	Slight	Slight	Slight	
Lips	Thick	Thick	Thick	Medium	Thick	Thick to everted	Thick to everted	Everted	
Character of Face	Meso. to platy-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic	Platy-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic	Platy-prosopic	Meso. to platy-prosopic	
Head Measurements	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	
Length	193	183	182	184	189	182	201	180	
Breadth	150	145	150	155	155	158	153	151	
Projections— Vertex to Chin	233	239	211	237	234	218	222	219	
Do. Tragus	133	136	135	134	132	140	135	133	
Do. Nasion	112	125	102	129	117	113	104	106	
Nasion to Mouth	73	70	74	61	71	65	72	66	
Mouth to Chin	48	44	35	47	46	40	46	47	
FACE—Bizygomatic Breadth	142	135	142	148	138	139	152	135	
Bigonial Breadth	..	..	..	..	..	..	..	..	
External Biorbital	..	..	..	..	..	..	..	..	
Do. Biocular	..	..	..	..	..	..	..	..	
Internal Biocular	..	..	..	..	..	..	..	..	
Biorbito-nasal Arc	..	..	..	..	..	..	..	..	
Superciliary Arc	..	..	..	..	..	..	..	..	
Nasion to Chin (*direct*)	113	114	108	108	123	105	115	110	
NOSE—Height	43	47	49	48·5	52	44	46	..	
Breadth	40	36	39	44	43	37	42	..	
STATURE	1637	1537	1597	1652	1624	1523	1612	1562	

TABLE I (CONTINUED)
PERAK MALAYS

	PERAK MALAYS										
Serial Number	101	102	103	104	105	106	107	108	109	110	111
Original Number	1 [B.]	2 [B.]	3 [B.]	4 [B.]	5 [B.]	6 [B.]	7 [B.]	8 [B.]	9 [B.]	10 [B.]	11 [B.]
Name	Buntei (1)	Panda (2)	Kulap Mat (3)	Hadji Achmat (4)	Yunus (5)	Mat Tahir (6)	Yakup (7)	Achmat (8)	Spangam (9)	Chuk (10)	Kulap (11)
Sex	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂
Locality	Gedong	Gedong	Gedong	Bidor	Bidor	Bidor	Bidor	Bidor	Bidor	Bidor	Bidor
Age	± 27	± 27	25	30	33	30	33-34	25	27	30	25-30
Condition	Medium to thin	Medium to thin	Very thin	Medium	Medium	Medium	Stout to medium	Medium	Stout to medium	Medium	Medium
Colour of Skin	Dark olive to red	Red	Red	Dark olive	Red to olive	Olive to yellowish white	Red to olive	Red	Dk. olive to red	Red	Dk. olive to olive
Do. Eyes	Black	Black	Black to reddish-brown	Black	Black	Black	Black	Reddish-brown	Black	Reddish-brown	Black
Do. Hair	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Character of Hair	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight
Amount of Hair— (*A*) Face	Medium	Very scanty	Very scanty	Very scanty	Scanty	Very scanty	Scanty	Very scanty	Very scanty	Medium to scanty	Medium
(*B*) Body	Medium	Very scanty	Very scanty	Very scanty	Scanty	Very scanty	Very scanty	Very scanty	Very scanty	Scanty	Scanty
Shape of Face	Medium	Medium to short and broad	Medium	Wedge-shaped	Long and narrow, wedge-shaped	Wedge-shaped	Medium to wedge-shaped	Medium to wedge-shaped	Short and broad, wedge-shaped	Medium	Medium
Profile of Nose	Negroid	Negroid	Negroid	Straight-negroid	Sinuous-negroid	Straight	Negroid	Negroid	Negroid	Sinuous-Chinese	Aquiline
Prognathism	Slight to moderate	Absent	Moderate to considerable	Absent	Absent	Very slight	Absent	Slight	Very slight	Slight	Moderate to considerable
Lips	Medium	Medium	Medium	Medium	Thick	Thick	Thick	Thick	Medium to thick	Thick	Thick
Character of Face	Platy-prosopic	Meso. to platy-prosopic	Platy-prosopic	Platy-prosopic	Platy-prosopic	Meso-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic	Meso-prosopic	Meso-prosopic	Meso-prosopic
Head Measurements	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.
Length	178	176	173	181	180	173	188	181	175	188	182
Breadth	147	141	142	146	148	146	146	148	146	150	146
Projections— Vertex to Chin	232	208	207	209	246	208	226	218	214	221	231
Do. Tragus	137	130	128	132	132	120	128	127	119	128	133
Do. Nasion	110	109	115	98	109	103	111	104	116	109	119
Nasion to Mouth	73	63	56	69	85	66	70	68	67	73	66
Mouth to Chin	49	36	36	42	52	39	45	46	37	39	46
FACE—Bizygomatic Breadth	137	136	130	131	141	132	133	134	138	134	136
Bigonial Breadth	127	122	117	121	129	120	119	124	124	119	126
External Biorbital	113	110	107	111	122	110	104	109	110	103	107
Do. Biocular	93	92	89	84	95	88	86	91	93	88	91
Internal Biocular	33	31	32	30	36	30	28	32	32	31	33
Biorbito-nasal Arc	120	115	112	130	150	134	121	121	121	122	127
Superciliary Arc	138	134	132	153	177	156	142	141	142	141	157
Nasion to Chin (*direct*)	124	109	97	107	139	111	113	107	106	119	114
NOSE—Height	46·5	43·3	41·3	44·5	52·5	50·2	46·8	44·8	44·3	52·2	47·0
Breadth	39·2	34·8	37·5	37·0	37·5	38·0	36·8	36·8	34·3	37·2	40·3
EAR—Length, R	57	60	59	52	65	60	58	60	57	59	67
Do. L	58	60	60	52	64	60	58	59	56	59	67
Breadth, R	34	32	30	33	35	33	26	27	30	30	31
Do. L	34	34	30	32	33	32	26	26	30	31	32

TABLE I (CONTINUED)
PERAK MALAYS

	PERAK MALAYS—*Continued*								REMARKS
Serial Number	112	113	114	115	116	117	118	119	(1) Has been married twice (one wife divorced); one child.
Original Number	12 [B.]	13 [B.]	14 [B.]	15 [B.]	16 [B.]	17 [B.]	18 [B.]	19 [B.]	
Name	Doh (12)	Kulap (13)	Itam (14)	Alang (15)	Kulap (16)	Achmat	Mat Idin (17)	Alang (18)	(2) One wife, one child.
Sex	♂	♂	♂	♂	♂	♂	♂	♂	(3) Unmarried; brother of No. 101.
Locality	Bidor	Bidor	Bidor	Bidor	Bidor	Bidor	Bidor	Bidor	(4) Married eight years; one wife, two children (♂)
Age	30	+ 45	30-35	25	± 25	22	± 30	± 40	(5) Married; no children.
Condition	Stout to Medium	Thin	Medium to thin	Medium	Medium	Thin	Medium	Medium	(6) Unmarried.
Colour of Skin	Dk. olive to red	Dk. olive	Dk. olive	Dk. olive to olive	Dk. olive to red	Olive to Red	Dk. olive to olive	Dk. olive to red	(7) Married five years; three children (2 ♂, 1 ♀).
Do. Eyes	Black	Reddish-brown	Black	Black	Reddish-brown	Black	Black	Black	(8) Married; no children.
Do. Hair	Black	Black	Black	Black	Black	Black	Black	Black	(9) Unmarried.
Character of Hair	Straight	Straight	Slightly wavy	Straight	Straight	Straight	Straight	Straight	(10) Married three years; no children.
Amount of Hair— (*A*) Face	Scanty	Medium	Scanty to medium	Absent	Very scanty	Very scanty	Very scanty	Medium	(11) Superciliary ridges very conspicuous; married five years; no children.
(*B*) Body	Scanty	Scanty	Scanty	Very scanty	Very scanty	Very scanty	Very scanty	Very scanty	(12) Suffering from varicose veins; married one year; no children.
Shape of Face	Medium to wedge-shaped	Medium to wedge-shaped	Long and narrow-medium	Wedge-shaped	Medium	Short and broad	Wedge shaped	Medium	(13) Married; one child (dead)
Profile of Nose	Straight-Aquiline	Straight-negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid	(14) Married ten years; three children.
Prognathism	Very slight	Absent	Very slight	Moderate	Absent	Absent	Absent	Very slight	(15) Unmarried.
Lips	Medium to thick	Thin	Thick	Thick	Medium	Medium to thick	Thick	Medium	(16) Unmarried.
Character of Face	Meso-prosopic	Meso-prosopic	Meso. to platy-prosopic	Meso-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic	Meso-prosopic	Meso-prosopic	(17) Married; no children.
Head Measurements									(18) Married about twenty years; one wife, four children (3 ♂, 1 ♀)
	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	
Length	189	194	184	187	180	186	180	178	
Breadth	149	156	148	147	150	154	154	146	
Projections— Vertex to Chin	226	231	239	237	222	222	239	215	
Do. Tragus	134	143	128	142	137	138	139	130	
Do. Nasion	105	117	125	130	115	114	124	112	
Nasion to Mouth	72	72	73	65	67	65	70	65	
Mouth to Chin	49	43	41	42	40	43	45	38	
FACE—Bizygomatic Breadth	142	141	136	141	140	140	141	137	
Bigonial Breadth	127	133	123	134	130	131	131	123	
External Biorbital	112	125	119	124	113	119	127	117	
Do. Biocular	95	94	96	99	91	100	93	93	
Internal Biocular	32	37	30	37	35	33	32	33	
Biorbito-nasal Arc	132	147	133	145	127	138	147	145	
Superciliary Arc	156	177	163	164	147	158	174	170	
Nasion to Chin (*direct*)	121	114	121	120	115	115	117	108	
NOSE—Height	50·3	49·7	46·8	47·8	47·3	48·2	48·8	49·0	
Breadth	39·0	39·8	37·1	37·7	41·2	40·0	40·7	40·5	
EAR—Length, R	63	70	65	58	64	73	65	58	
Do. L	66	68	65	60	62	72	66	59	
Breadth, R	34	38	32	33	35	28	34	32	
Do. L	35	34	33	34	35	30	35	33	

TABLE I (Continued)

Perak Malays

	PERAK MALAYS—*Continued*										
Serial Number	120	121	122	123	124	125	126	127	128	129	130
Original Number	20 [B.]	21 [B.]	22 [B.]	23 [B.]	24 [B.]	25 [B.]	26 [B.]	27 [B.]	28 [B.]	29 [B.]	30 [B.]
Name	Itam (1) Gundah	Brahim (2)	Itam (3) Ibrahim	Hadji Abdul Rahman (4)	Dôlah (5)	Mat Sidi (6)	Alang (6)	Daud (7)	Bakai (6)	Daud (8)	Kassim (9)
Sex	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂
Locality	Bidor	Sungkei	Sungkei	Sungkei	Sungkei	Sungkei	Sungkei	Sungkei	Sungkei	Sungkei	Sungkei
Age	+ 40	30	40	± 40	± 30	± 30	± 25	− 30	± 25	25	45
Condition	Medium to thin	Medium	Stout to medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Colour of Skin	Dk. olive to red	Red	Red to olive	Dk. olive to red	Red	Red to olive	Dk. olive to red	Dk. olive to olive	Dk. olive to red	Dk. olive to olive	Red
Do. Eyes	Black	Reddish-brown	Black	Reddish-brown	Black	Black	Reddish-brown	Black	Black	Black	Black
Do. Hair	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Character of Hair	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight
Amount of Hair— (*A*) Face	Medium-abundant	Medium	Scanty to medium	Very scanty	Very scanty	Very scanty	Very scanty	Very scanty	Very scanty	Very scanty	Medium
(*B*) Body	Very scanty	Medium	Very scanty	Very scanty	Very scanty	Very scanty	Very scanty	Very scanty	Very scanty	Very scanty	Scanty
Shape of Face	Long and narrow	Long and narrow-medium	Short and broad	Medium	Wedge-shaped	Long and narrow	Long and narrow	Short and broad	Medium	Medium	Medium
Profile of Nose	Negroid	Straight	Negroid	Negroid to Australoid	Negroid	Negroid	Negroid	Straight-negroid	Negroid	Negroid	Negroid
Prognathism	Absent	Absent	Slight to moderate	Absent	Very slight	Very slight	Very slight	Absent	Absent	Very slight	Absent
Lips	Medium	Medium	Thick	Medium	Thick	Very thick	Thick	Thick	Medium	Medium	Medium
Character of Face	Meso-prosopic	Pro. to Meso-prosopic	Meso-prosopic	Meso-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic	Platy-prosopic	Meso. to platy-prosopic	Meso. to platy-prosopic	Meso-prosopic
Head Measurements	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MM.
Length	177	176	193	170	183	194	193	183	182	176	177
Breadth	148	146	156	146	162	152	148	154	152	160	154
Projections— Vertex to Chin	231	226	215	191	241	249	233	238	233	227	221
Do. Tragus	136	136	136	122	143	146	133	144	141	136	135
Do. Nasion	128	114	103	95	125	127	117	120	117	115	114
Nasion to Mouth	62	70	70	55	72	77	74	73	73	59	61
Mouth to Chin	41	42	42	41	44	45	42	45	43	52	46
FACE—Bizygomatic Breadth ..	131	131	150	120	148	135	135	148	145	146	142
Bigonial Breadth	118	118	136	116	140	128	127	141	136	132	125
External Biorbital	116	102	118	99	131	124	122	130	127	127	114
Do. Biocular	92	85	95	76	106	98	95	100	102	102	89
Internal Biocular	32	30	36	25	38	37	34	41	38	38	34
Biorbito-nasal Arc	141	115	134	111	157	148	144	149	146	140	126
Superciliary Arc	165	133	152	129	178	174	170	173	171	162	149
Nasion to Chin (*direct*) ..	113	112	118	96	124	126	124	127	121	121	113
NOSE—Height	45·8	47·5	49·5	43·5	46·5	46·0	51·5	47·3	46·5	49·0	45·7
Breadth	40·0	36·0	42·3	33·7	37·7	37·3	37·5	37·5	36·5	37·8	40·0
EAR—Length, R	54	57	70	55	62	67	68	66	64	63	66
Do. L	55	56	70	55	63	67	67	66	65	62	67
Breadth, R	33	26	28	24	40	37	33	37	35	34	29
Do. L	34	27	28	25	38	37	34	36	36	33	30

TABLE I (CONTINUED)
PERAK MALAYS

	PERAK MALAYS—*Continued*						
Serial Number	131	132	133	134	135	136	137
Original Number	31 [B.]	32 [B.]	33 [B.]	34 [B.]	35 [B.]	36 [B.]	37 [B.]
Name	Alang Brahim (10)	Alang Ratu (11)	Mat (6)	Seydi (6)	Dris (12)	Suman (6)	Dôlah (13)
Sex	♂	♂	♂	♂	♂	♂	♂
Locality	Sungkei	Sungkei	Sungkei	Sungkei	Sungkei	Sungkei	Sungkei
Age	47	36	± 25	30	40	25	42
Condition	Medium	Medium	Medium	Medium	Medium	Medium to thin	Medium
Colour of Skin	Dk. olive to red	Red to olive	Red to olive	Choc. to dk. olive	Dk. olive to olive	Red to olive	Olive
Do. Eyes	Black	Black	Black	Black	Black	Reddish-brown	Black
Do. Hair	Black	Black	Black	Black	Black	Black	Black
Character of Hair	Straight	Straight	Straight	Curly	Straight	Straight	Straight
Amount of Hair—							
(*A*) Face	Medium	Scanty to medium	Medium	Very scanty	Medium	Scanty	Abundant
(*B*) Body	Very scanty	Very scanty	Scanty	Very scanty	Scanty	Scanty	Medium
Shape of Face	Medium to wedge-shaped	Medium to wedge-shaped	Medium	Long and narrow	Wedge-shaped	Medium	Medium
Profile of Nose	Straight-negroid	Negroid	Negroid	Negroid	Negroid	Negroid	Negroid
Prognathism	Absent	Very slight	Absent	Absent	Slight	Absent	Absent
Lips	Thick	Thick	Thick	Thick	Thick	Medium	Medium
Character of Face	Meso-prosopic	Meso-prosopic	Meso-prosopic	Meso-prosopic	Platy-prosopic	Meso. to platy-prosopic	Platy-prosopic
Head Measurements	MM.	MM.	MM.	MM.	MM.	MM.	MM.
Length	198	174	181	177	182	178	176
Breadth	151	146	151	146	148	144	153
Projections—							
Vertex to Chin	232	212	234	236	223	210	226
Do. Tragus	143	129	140	137	142	129	138
Do. Nasion	116	95	121	121	113	104	108
Nasion to Mouth	65	69	67	72	69	68	73
Mouth to Chin	51	48	46	43	41	38	45
FACE—Bizygomatic Breadth	149	139	136	140	137	135	145
Bigonial Breadth	126	123	125	128	129	126	131
External Biorbital	120	113	112	114	111	110	114
Do. Biocular	96	91	89	93	90	88	92
Internal Biocular	37	34	30	31	30	29	30
Biorbito-nasal Arc	138	127	133	133	138	135	142
Superciliary Arc	173	153	149	159	169	154	160
Nasion to Chin (*direct*)	125	116	116	120	111	107	118
NOSE—Height	47·0	45·7	48·5	49·7	49·3	47·0	52·0
Breadth	37·5	39·3	37·7	43·2	43·7	38·0	40
EAR—Length, R	67	61	61	60	55	54	65
Do. L	67	60	62	60	55	54	65
Breadth, R	32	31	30	31	31	33	33
Do. L	32	31	32	31	31	32	32

REMARKS

(1) Married about twenty years; one wife, three children (1 ♂, 2 ♀).

(2) Married seven years; one wife, two children (♂).

(3) Married fifteen years; one wife, four children (♀). Little toe on both feet reduplicated.

(4) Has had two wives and three children by one of them, of whom one is dead. Only 1232 mms. (cf. Table II) in stature.

(5) Married seven or eight years; two children (♂, ♀).

(6) Unmarried. No. 125 brother of No. 126.

(7) Married two or three years; no children.

(8) Married four years; one child (♀).

(9) Married eight years; two children (♂, ♀).

(10) Married nine years; three children (2 ♂, 1 ♀).

(11) Married three years; two children (♂).

(12) Married ten years; three children (1 ♂, 2 ♀).

(13) Married six times; no children.

TABLE II

Body and Limb Measurements (Semangs)

	HAMI (Jalor)								SEMÁN (Upper Perak)			
Serial Number	1		2		3		4		5		6	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Stature	1482	1000	1529	1000	1511	1000	1476	1000	1541	1000	1551	1000
Span	1466	989	1542	1008	1551	1026	1455	986	1515	983	1545	996
Sitting Height	799	539	814	532	807	534	..	..	777	504	817	527
Kneeling „	1089	735	1144	748	1126	745	1102	747	1159	752	1161	749
Umbilical „	861	580	898	587	886	586	849	575	907	588	902	580
Body Segments												
Head	226	153	217	142	232	153	207	140	217	141	222	143
Neck	62	42	75	49	57	38	48	33	73	47	61	39
Trunk	511	345	522	341	518	343	..	..	487	316	534	344
Thigh	290	196	330	216	319	211	..	..	382	248	344	222
Leg	323	218	311	203	321	212	..	..	301	195	316	204
Malleolar Height	70	47	74	48	64	42	..	..	81	53	74	48
Length of Lower Limb.. ..	683	461	715	468	704	466	..	..	764	496	734	474
„ Upper Limb, R ..	621	420	670	438	671	444	626	424	638	414	657	425
L ..	624		671		670		625		637		660	
„ Upper Arm, R ..	209	142	236	153	236	158	220	149	238	153	237	153
L ..	211		234		236		222		234		238	
„ Forearm, R ..	235	160	262	171	258	170	230	155	230	150	247	161
L ..	238		262		256		227		232		252	
„ Hand, R ..	177	119	172	114	177	117	176	119	170	110	171	110
L ..	175		175		178		176		170		170	
Foot, R ..	223	153	227	147	249	164	..	..	227	148	235	150
L ..	229		224		247		..		228		230	
Breadth at Shoulders	372	251	367	240	374	248	..	..	390	253	377	243
„ Hips	270	182	265	173	262	173	..	..	267	173	266	171
Girth of Chest—At Rest ..	792	534	792	518	817	541	..	..	873	567	770	496
Expanded ..	825	557	825	540	848	561	..	..	898	583	820	528
Deflated ..	772	521	765	500	794	525	..	..	832	540	750	484
Circumference of Leg—Maximum Supramalleolar R ..	295	199	265	171	275	185	..	..	227	147	..	..
L ..	294		257		285		..		225		300	193
Minimum Supramalleolar R ..	171	118	172	114	169	113	..	..	195	127	..	126
L ..	177		168		172		..		195		195	
INDICES												
Interbrachial	112·6		111·5		109·2		104·2		98·0		100·5	
Intercrural	112·2		94·0		100·6		..		79·8 (?)		91·9	
Intermembral..	72·9		77·5		77·0		..		68·5		73·9	
Hand : foot	77·9		76·9		71·6		..		74·8		73·3	
Girdle	72·6		72·2		70·9		..		68·4		70·6	
Calf	59·0		63·9		61·9		..		85·4 (?)		65·1	

TABLE II (CONTINUED)

SEMANGS

	SEMAN (UPPER PERAK)											
Serial Number	9		10		11		12		13		14	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Stature	1490	1000	1552	1000	1472	1000	1552	1000	1522	1000	1527	1000
Span	1515	1017	1538	991	1478	1004	1571	1012	1533	1006	1552	1016
Sitting Height	779	523	827	533	779	529	797	512	807	529	777	508
Kneeling „	1117	750	1159	747	1117	759	1138	744	1137	742	1107	729
Umbilical „	867	582	935	602	875	594	902	582	927	609	..	..
BODY SEGMENTS												
Head	217	146	215	138	220	149	225	144	217	143	210	138
Neck	50	34	70	45	80	54	60	39	50	33	64	35
Trunk	512	344	542	349	479	325	512	334	540	355	513	336
Thigh	338	227	332	214	338	229	361	232	330	216	330	216
Leg	297	199	321	207	280	190	320	206	312	205	347	227
Malleolar Height	76	51	72	46	75	51	74	48	73	48	73	48
Length of Lower Limb.. ..	711	477	725	467	693	470	755	487	715	469	750	488
„ Upper Limb, R ..	637	429	660	424	647	438	685	442	671	440	677	442
L ..	642		655		642		688		670		670	
„ Upper Arm, R ..	225	153	240	153	233	158	257	166	261	171	252	161
L ..	231		235		231		256		260		240	
„ Forearm, R ..	233	157	232	150	236	159	238	154	228	151	241	159
L ..	236		235		231		240		232		246	
„ Hand, R ..	179	118	188	120	178	122	190	123	182	118	184	126
L ..	175		185		180		192		178		114	
„ Foot, R ..	225	152	236	153	217	148	235	154	230	150	230	150
L ..	228		238		220		242		226		..	
Breadth at Shoulders	380	255	356	229	..	..	392	253	370	242		
„ Hips	280	188	280	180	..	..	290	187	272	179		
Girth of Chest—At Rest ..	825	554	770	496	775	526	..	..	..	..		
Expanded ..	850	570	791	510	800	543	..	..	..	..		
Deflated ..	800	536	750	483	740	503	..	..	..	..		
Circumference of Leg—Maximum Supramalleolar R ..	..	..	272	176	280	191	..	..	..	..		
L ..	330	221	275		282		..	..	..	..		
Minimum Supramalleolar R ..	..	..	185	118	167	115	..	..	..	..		
L ..	190	127	182		172		..	..	..	..		
INDICES												
Interbrachial	102·8		98·3		100·5		93·3		88·3		99·0	
Intercrural	87·9		96·6		82·8		88·6		94·5		105·1	
Intermembral	72·8		72·2		75·5		72·7		76·1		72·4	
Hand: foot	76·6		77·4		79·9		79·9		79·0		79·1	
Girdle	73·6		78·4		..		74·1		71·5		..	
Calf	57·6		66·3		60·4		..		..		..	

TABLE II (CONTINUED)

SEMANGS—SAKAIS

	SEMAN—*Continued*								PO-KLO	
Serial Number	15		16		18		19		20	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Stature	1547	1000	1539	1000	1427	1000	1453	1000	1550	1000
Span	1577	1020	1560	1014	1425	998	1536	1056	1559	1006
Sitting Height	794	512	775	504	749	524	752	519	..	..
Kneeling „	1157	748	1142	743	1062	748	1107	752	..	..
Umbilical „	..	..	..	..	..	..	..	..	..	..
BODY SEGMENTS										
Head	208	134	207	135	215	150	191	132	..	..
Neck	72	46	59	38	60	42	65	45	..	..
Trunk	514	332	509	331	474	332	496	343	..	..
Thigh	363	234	367	240	313	219	355	245	..	..
Leg	315	204	315	205	290	204	276	191	..	..
Malleolar Height	75	48	72	47	75	53	70	48	..	..
Length of Lower Limb ..	753	486	764	496	678	475	701	484	..	..
„ Upper Limb, R ..	686	444	680	441	615	430	655	450	676	435
L ..	688		677		609		652		667	
„ Upper Arm, R ..	256	167	255	166	223	154	242	167	264	170
L ..	263		255		217		242		259	
„ Forearm, R ..	253	162	245	158	218	152	229	157	222	143
L ..	247		239		216		227		222	
„ Hand, R ..	177	115	180	118	174	122	185	127	190	123
L ..	178		183		176		183		191	
„ Foot, R ..	231	152	233	153	216	152	225	154	237	154
L ..	238		236		216		222		238	

ADDITIONAL SEMAN MEASUREMENTS

Serial Number	Stature	Stature 1000	Span	Stature 1000	Inter-brachial Index	Inter-crural Index
I ..	1491	1000	1496	1003	95·6	82·9
II ..	1547	1000	1549	1001	101·4	95·6
III ..	1587	1000	1512	953	96·2	95·0
IV ..	1372	1000	1384	1009	100·0	91·7
V ..	1477	1000	1416	959	98·0	85·4
VI ..	1602	1000	1570	980	98·2	80·2
VII ..	1604	1000	1530	954	101·0	92·1

INDICES					
Interbrachial	96·4	94·9	94·4	94·3	84·4
Intercrural	86·8	84·9	92·6	77·9 (?)	..
Intermembral	74·0	72·8	72·6	74·4	..
Hand : foot	76·0	77·4	80·0	80·6	79·9
Girdle	..	..	..	..	..
Calf	..	..	..	..	..

TABLE II (CONTINUED)

SAKAIS

	PO-KLO—*Continued*									
Serial Number	21		22		23		24		25	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Stature	1568	1000	1542	1000	1565	1000	1477	1000	1574	1000
Span	1571	1002	1522	987	1572	1004	1445	977	1555	987
Sitting Height	..	..	..	..	..	..	..	..	..	..
Kneeling „	..	..	..	..	..	..	..	..	..	..
Umbilical „	..	..	..	..	..	..	..	..	..	..
BODY SEGMENTS										
Head	..	..	..	..	..	..	..	..	..	..
Neck	..	..	..	..	..	..	..	..	..	..
Trunk	..	..	..	..	..	..	..	..	..	..
Thigh	..	..	..	..	..	..	..	..	..	..
Leg	..	..	..	..	..	..	..	..	..	..
Malleolar Height	..	..	..	..	..	..	..	..	..	..
Length of Lower Limb ..	..	..	..	..	..	..	..	..	..	..
„ Upper Limb, R ..	670	426	665	430	670	426	615	418	650	414
L ..	666		663							
„ Upper Arm, R ..	260	165	255	165	240	153	225	152	219	139
L ..	256		250							
„ Forearm, R ..	238	151	241	156	250	159	224	152	246	157
L ..	238		243							
„ Hand, R ..	172	110	169	110	180	115	166	113	185	118
L ..	172		170							
„ Foot, R ..	231	149	220	143	228	145	215	146	235	150
L ..	229		223							

ADDITIONAL PO-KLO MEASUREMENTS

Serial Number	Stature	Stature 1000	Span	Stature 1000	Inter-crural Index
VIII ..	1568	1000	1635	1043	101·6
IX ..	1517	1000	1580	1042	93·0
X ..	1519	1000	1571	1034	92·5

INDICES					
Interbrachial	92·3	94·9	104·1	99·6	112·1
Intercrural	..	..	..	..	..
Intermembral	..	..	..	..	..
Hand : foot	74·9	73·9	79·0	77·3	78·8
Girdle	..	..	..	..	..
Calf	..	..	..	..	..

TABLE II (CONTINUED)

SAKAIS

	PO-KLO—*contd.*		JEHEHR							
Serial Number	26		27		28		29		30	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Stature	1572	1000	1570	1000	1560	1000	1439	1000	1590	1000
Span	1530	973	1630	1038	1638	1050	1497	1037	1600	1006
Sitting Height	..	..	..	..	..	..	..	..	..	..
Kneeling „	..	..	..	..	..	..	..	..	..	..
Umbilical „	..	..	..	..	..	..	..	..	..	..
BODY SEGMENTS										
Head	..	..	..	..	..	..	..	..	..	..
Neck	..	..	..	..	..	..	..	..	..	..
Trunk	..	..	..	..	..	..	..	..	..	..
Thigh	..	..	..	..	..	..	..	..	..	..
Leg	..	..	..	..	..	..	..	..	..	..
Malleolar Height	..	..	..	..	..	..	..	..	..	..
Length of Lower Limb.. ..	..	..	..	..	..	..	..	..	..	..
„ Upper Limb, R ..	..	..	..	..	..	..	..	..	..	..
L ..	685	436	722	460	710	455	631	440	690	434
„ Upper Arm, R ..	..	..	..	..	..	..	..	..	..	..
L ..	254	162	262	168	255	164	224	156	250	158
„ Forearm, R ..	..	..	..	..	..	..	..	..	..	..
L ..	256	163	273	174	251	161	224	156	245	154
„ Hand, R ..	..	..	..	..	..	..	..	..	..	..
L ..	175	112	124	119	204	130	183	127	195	124
„ Foot, R ..	..	..	..	..	..	..	..	..	..	..
L ..	245	156	250	160	254	163	230	160	240	152

ADDITIONAL JEHEHR MEASUREMENTS

Serial Number	Stature	Stature 1000	Span	Stature 1000	Inter-brachial Index
XI ..	1570	1000	1580	1006	89·5
XII ..	1528	1000	1584	1037	103·5
XIII ..	1570	1000	1575	1003	94·8
XIV ..	1547	1000	1595	1031	109·4
XV ..	1503	1000	1548	1030	105·9
XVI (♀)..	1323	1000	..	..	..
XVII (♀)..	1377	1000	..	..	..

INDICES					
Interbrachial	100·8	105·3	98·5	100	97·9
Intercrural	..	..	..	..	..
Intermembral	..	..	..	..	..
Hand : foot	71·5	74·8	80·4	79·6	81·4
Girdle	..	..	..	..	..
Calf	..	..	..	..	..

TABLE II (CONTINUED)

SAKAIS

	MAI DARAT (SOUTH PERAK)											
Serial Number	31		32		33		34		35		36	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Total Height	1568	1000	1445	1000	1575	1000	1552	1000	1524	1000	1539	1000
Span	1573	1003	1448	1002	1524	968	1580	1018	1577	1035	1590	1033
Sitting Height	834	532	782	541	818	519	828	533	798	524	832	541
Kneeling „	1178	751	1103	763	1150	730	1162	749	1149	754	1152	749
Umbilical „	931	594	829	574	939	596	900	580	893	586	904	587
BODY SEGMENTS												
Head	226	143	204	141	212	135	224	144	221	145	227	147
Neck	66	42	69	48	68	43	68	44	71	47	63	41
Trunk	542	346	509	352	538	342	536	345	506	332	542	352
Thigh	344	219	321	222	332	211	334	217	351	230	320	208
Leg	314	200	267	185	351	223	314	202	300	197	314	204
Malleolar Height	76	49	75	52	74	47	76	49	75	49	73	47
Length of Lower Limb	734	468	663	459	758	481	724	466	726	477	707	459
„ Upper Limb, R	666	425	602	417	673	428	700	450	677	444	667	434
L	667		604		675		696		676		669	
„ Upper Arm, R	243	155	212	146	256	163	267	170	264	173	238	157
L	243		211		257		261		264		246	
„ Forearm, R	253	161	217	150	254	162	250	161	232	152	247	158
L	252		217		255		251		232		239	
„ Hand, R	170	109	173	121	163	103	183	118	181	118	182	119
L	172		176		163		184		180		184	
„ Foot R	231	147	228	159	223	142	241	155	237	155	235	153
L	229		232		223		241		237		235	
Breadth at Shoulders	432	276	391	271	354	224	389	251	403	264	398	259
„ Hips	295	188	271	188	272	173	281	180	285	187	287	186
Girth of Chest—At Rest	865	552	826	572	753	478	783	505	794	521	815	529
Expanded	900	574	870	602	781	496	847	546	820	538	850	552
Deflated	838	534	765	529	736	467	764	492	729	478	785	510
Circumference of Leg—Maximum Supramalleolar R	333	210	343	238	280	170	325	209	296	197	335	216
L	327		345		276		323		305		331	
Minimum Supramalleolar R	204	129	201	140	174	109	188	120	194	127	190	124
L	201		205		170		182		194		192	
INDICES												
Interbrachial	103·9		102·6		99·3		94·9		88·0		100·2	
Intercrural	91·3		83·3		105·8		94·0		85·5		98·2	
Intermembral	75·3		72·8		74·9		79·3		76·2		76·5	
Hand : foot	74·4		75·9		73·1		76·1		76·1		77·9	
Girdle	68·3		69·4		73·2		72·2		70·8		72·2	
Calf	61·4		59·4		61·9		57·2		64·6		57·4	

TABLE II (Continued)

Sakais

	MAI DARAT—*Continued*											
Serial Number	37		38		39		40		41		42	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Total Height	1508	1000	1510	1000	1524	1000	1540	1060	1546	1000	1583	1000
Span	1550	1028	1557	1031	1631	1070	1639	1064	1595	1031	1562	986
Sitting Height	796	528	764	507	791	520	781	507	807	520	801	508
Kneeling „	1097	727	1121	742	1114	729	1152	749	1156	744	1195	751
Umbilical „	899	596	927	612	875	572	958	620	893	579	930	587
BODY SEGMENTS												
Head	208	138	205	136	223	146	209	136	229	148	210	132
Neck	59	39	53	35	54	35	55	36	75	48	87	55
Trunk	529	351	506	335	514	337	517	335	503	325	504	319
Thigh	301	200	357	236	323	211	371	240	349	226	394	249
Leg	341	226	311	206	338	222	309	201	312	201	311	196
Malleolar Height	70	46	78	52	72	47	79	51	78	50	77	49
Length of Lower Limb	712	472	746	494	733	481	759	493	739	478	782	494
„ Upper Limb, R ..	655	434	672	438	681	447	686	443	673	436	677	426
L ..	654		674		681		678		675		673	
„ Upper Arm, R ..	235	155	252	167	255	168	258	163	251	166	259	163
L ..	234		252		254		245		254		257	
„ Forearm, R ..	236	157	243	160	245	162	250	166	244	158	246	156
L ..	237		240		249		260		244		246	
„ Hand, R ..	184	122	177	118	181	118	178	114	178	115	172	108
L ..	183		180		178		173		177		170	
„ Foot, R ..	232	155	220	146	224	148	235	153	227	147	225	143
L ..	236		220		228		236		228		228	
Breadth at Shoulders	374	248	395	261	441	289	391	254	398	257	383	242
„ Hips	274	182	271	180	301	198	275	179	281	182	282	184
Girth of Chest—At Rest ..	788	523	820	542	920	603	860	552	820	530	780	493
Expanded ..	815	540	838	555	963	631	885	575	845	546	806	508
Deflated ..	760	504	790	523	873	573	803	521	790	511	753	477
Circumference of Leg—Maximum Supramalleolar R ..	285	192	336	224	355	..	330	215	315	205	317	198
L ..	294		328		320		332		316		315	
Minimum Supramalleolar R ..	182	120	187	124	190	124	200	129	195	127	193	120
L ..	179		189		190		195		195		189	
INDICES												
Interbrachial	100·8		95·9		97·0		101·3		96·6		95·4	
Intercrural	113·1		87·2		104·7		83·4		89·4		78·9	
Intermembral	73·4		73·8		75·9		74·6		75·2		71·6	
Hand : foot	78·3		81·1		79·4		77·9		78·0		75·4	
Girdle	73·2		68·6		68·4		70·4		70·5		73·6	
Calf	62·5		56·7		..		59·7		61·9		60·4	

TABLE II (CONTINUED)

SAKAIS

	MAI DARAT—*Continued*											
Serial Number	43		44		45		46		47		48	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Total Height	1503	1000	1477	1000	1541	1000	1497	1000	1514	1000	1507	1000
Span	1590	1057	1529	1035	1555	1009	1568	1049	1509	997	1541	1023
Sitting Height	768	511	793	539	817	529	767	512	..	..	..	..
Kneeling „	1121	748	1105	750	1145	745	1114	743	..	..	..	..
Umbilical „	881	585	845	573	895	580	921	617	..	..	..	..
BODY SEGMENTS												
Head	204	136	216	146	214	138	210	141	..	..	..	..
Neck	62	41	54	37	76	51	60	40	..	..	..	..
Trunk	502	334	523	355	527	341	497	333	..	..	..	..
Thigh	353	235	312	211	328	213	347	231	..	..	..	..
Leg	306	203	301	204	320	208	312	209	..	..	..	..
Malleolar Height	76	51	71	48	76	51	71	47	..	..	..	..
Length of Lower Limb	735	489	684	463	724	471	730	488	..	..	..	..
„ Upper Limb, R ..	690	458	657	445	652	421	666	445	..	..	..	..
L ..	687		660		649		663		..		..	
„ Upper Arm, R ..	265	176	249	171	232	149	245	162	..	..	..	..
L ..	264		253		229		242		..		..	
„ Forearm, R ..	251	167	239	162	238	155	243	164	..	..	..	..
L ..	249		238		240		246		..		..	
„ Hand, R ..	174	116	169	114	182	117	178	119	..	..	..	..
L ..	174		169		180		175		..		..	
„ Foot, R ..	227	152	227	154	230	148	231	154	..	..	..	..
L ..	228		227		229		229		..		..	
Breadth at Shoulders	379	251	392	265	382	247	370	247	..	..	..	..
„ Hips	281	187	273	186	275	178	264	176	..	..	..	..
Girth of Chest—At Rest ..	805	535	804	543	780	506	765	511	..	..	..	..
Expanded ..	825	549	828	560	800	519	800	535	..	..	..	..
Deflated ..	..	..	772	522	740	480	750	501	..	..	..	..
Circumference of Leg—Maximum Supramalleolar R ..	295	198	318	214	287	186	292	194	..	..	..	..
L ..	301		314		285		288		..		..	
Minimum Supramalleolar R ..	178	120	196	129	175	114	192	127	..	..	..	..
L ..	181		185		175		190		..		..	
INDICES												
Interbrachial	94·6		95·0		103·8		100·5		..		..	
Intercrural	86·8		96·5		97·5		89·8		..		..	
Intermembral	78·1		79·8		72·4		74·1		..		..	
Hand : foot	76·5		74·5		78·9		76·7		..		..	
Girdle	74·0		69·7		71·9		71·4		..		..	
Calf	60·4		60·2		61·2		65·9		..		..	

TABLE II (CONTINUED)

SAKAIS

MAI DARAT—*Continued*

Serial Number	49		50		51		52		53		54	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Total Height	1493	1000	1505	1000	1513	1000	1411	1000	1460	1000	1567	1000
Span	1494	1000	1549	1030	1605	1060	1420	1006	1526	1047	1577	1006
Sitting Height	805	539	811	539	799	528	732	520	813	539	834	532
Kneeling „	1125	758	1120	743	1127	746	1064	756	1130	773	1174	748
Umbilical „	877	587	885	587	943	624	842	598	875	601	930	592
BODY SEGMENTS												
Head	217	146	205	136	240	159	207	147	211	145	238	152
Neck	63	42	76	51	61	40	57	40	75	51	66	42
Trunk	525	352	530	352	498	330	468	332	527	361	530	338
Thigh	320	215	309	204	328	217	332	235	317	217	340	217
Leg	296	199	316	210	317	210	276	196	257	178	315	202
Malleolar Height	72	48	69	46	69	46	71	50	73	50	78	50
Length of Lower Limb	688	461	694	461	714	473	679	482	647	444	733	469
„ Upper Limb, R	648	435	677	447	695	459	607	430	650	448	690	438
L	652		674		692		601		652		684	
„ Upper Arm, R	244	163	258	171	275	180	227	159	236	164	267	170
L	242		257		269		221		242		264	
„ Forearm, R	229	156	243	162	236	157	215	153	232	157	249	158
L	233		243		237		215		225		245	
„ Hand, R	175	118	176	116	184	122	165	117	182	126	174	111
L	177		174		186		165		185		175	
„ Foot, R	221	149	225	150	228	150	216	154	220	151	230	147
L	223		224		225		218		221		230	
Breadth at Shoulders	399	267	403	266	400	264	372	265	395	271	383	245
„ Hips	288	193	288	192	255	169	257	182	250	172	280	179
Girth of Chest—At Rest	837	559	810	538	819	541	745	529	830	570	780	498
Expanded	883	591	841	559	875	580	780	553	859	589	813	519
Deflated	814	545	755	502	765	506	717	508	788	540	724	464
Circumference of Leg—Maximum Supramalleolar R	315	210	306	201	315	208	312	222	318	217	310	197
L	312		305		313		315		316		303	
Minimum Supramalleolar R	190	128	191	126	185	122	195	138	196	132	170	108
L	194		186		185		195		190		169	
INDICES												
Interbrachial	95·1		94·4		87·1		95·9		95·7		93·2	
Intercrural	92·5		102·2		96·7		83.2		81·3		92·6	
Intermembral	76·9		80·3		78·9		72·2		82·4		78·2	
Hand : foot	79·4		78·0		81·6		76·4		83·3		76·0	
Girdle	72·2		71·6		63·7		69·2		63·3		73·2	
Calf	61·4		61·7		58·9		62·2		60·9		55·4	

TABLE II (CONTINUED)

SAKAIS—SOUTH PERAK MALAYS

	MAI DARAT—*Continued*								SOUTH PERAK MALAYS			
Serial Number	55		56		57		58		101		102	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Stature	1581	1000	1548	1000	1506	1000	1638	1000	1544	1000	1558	1000
Span	1650	1044	1627	1051	1577	1047	1707	1042	1587	1028	1583	1017
Sitting Height	839	531	841	542	793	528	861	526	857	556	783	502
Kneeling „	1178	743	1156	746	1122	748	1231	750	1160	750	1135	729
Umbilical „	930	589	915	591	893	591	972	594	875	567	939	603
BODY SEGMENTS												
Head	205	130	220	142	213	141	209	128	227	147	208	134
Neck	83	52	81	52	65	43	91	56	54	35	72	46
Trunk	551	349	540	347	515	341	561	343	576	372	503	323
Thigh	339	215	315	204	329	218	370	225	303	196	352	226
Leg	330	209	316	204	315	208	336	205	311	201	339	218
Malleolar Height	73	46	76	49	69	46	71	43	73	47	84	54
Length of Lower Limb ..	742	470	707	456	713	474	777	473	687	445	775	497
„ Upper Limb, R ..	717	453	704	455	655	434	705	431	686	442	699	449
L ..	717		702		653		708		682		699	
Upper Arm, R ..	283	178	265	170	235	155	275	170	283	182	280	180
L ..	280		263		233		280		279		280	
„ Forearm, R ..	249	158	263	168	250	165	249	151	220	143	241	155
L ..	250		258		246		245		221		242	
„ Hand, R ..	185	118	176	116	170	114	181	111	183	118	178	114
L ..	187		181		174		183		182		177	
„ Foot, R ..	237	150	232	150	224	148	242	148	250	162	226	144
L ..	235		233		224		244		250		223	
Breadth at Shoulders	382	241	427	276	413	274	404	246	320	207	385	247
„ Hips	275	174	286	186	307	204	296	182	287	186	283	182
Girth of Chest—At Rest ..	816	513	861	558	835	554	842	513	766	496	775	497
Expanded ..	858	542	896	579	867	574	895	546	804	520	802	515
Deflated ..	754	478	805	520	791	525	815	496	743	481	762	489
Circumference of Leg—Maximum Supramalleolar R ..	292	186	342	225	314	207	316	190	322	209	294	189
L ..	297		337		312		305		324		294	
Minimum Supramalleolar R ..	181	115	193	124	185	123	178	108	205	133	175	112
L ..	184		192		185		174		205		175	
INDICES												
Interbrachial	88·6		98·8		106·1		89·3		78·6		86·4	
Intercrural	97·5		100·3		95·6		90·8		102·7		96·3	
Intermembral	79·5		83·0		74·8		74·3		81·8		75·5	
Hand : foot	78·7		76·9		76·8		74·9		73·0		79·0	
Girdle	72·0		66·9		74·4		73·4		89·7 (!)		73·5	
Calf	62·3		56·8		58·6		56·6		63·4		59·6	

TABLE II (CONTINUED)
SOUTH PERAK MALAYS

	SOUTH PERAK MALAYS—*Continued*											
Serial Number	103		104		105		106		107		108	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Stature	1505	1000	1553	1000	1763	1000	1515	1000	1575	1000	1585	1000
Span	1441	957	1624	1046	1852	1051	1581	1043	1565	993	1615	1019
Sitting Height	791	525	807	519	883	501	752	496	832	528	840	530
Kneeling „	1105	735	1158	745	1286	729	1117	737	1162	738	1186	748
Umbilical „	887	589	951	612	1122	636	934	616	889	564	955	602
BODY SEGMENTS												
Head	203	135	212	137	246	140	213	141	228	145	220	139
Neck	89	59	74	48	55	31	67	44	75	48	81	51
Trunk	500	332	521	336	582	330	472	312	529	336	539	340
Thigh	314	209	351	226	403	228	365	241	330	210	346	218
Leg	327	217	321	206	391	221	319	211	336	214	318	200
Malleolar Height	73	48	74	48	86	49	79	52	77	49	81	51
Length of Lower Limb ..	714	474	746	480	880	498	763	504	743	472	745	470
„ Upper Limb, R ..	655	433	700	450	787	445	678	447	701	444	703	444
L ..	649		698		784		677		698		704	
„ Upper Arm, R ..	255	168	256	165	296	167	248	163	259	165	263	167
L ..	252		257		292		245		260		265	
„ Forearm, R ..	226	150	250	161	287	163	250	165	264	167	262	165
L ..	225		249		289		249		260		261	
„ Hand, R ..	174	115	194	124	204	115	180	119	178	113	178	112
L ..	172		192		203		183		178		178	
„ Foot, R ..	224	149	244	158	252	144	242	160	243	153	234	147
L ..	224		245		257		242		242		232	
Breadth at Shoulders	346	230	392	252	431	244	386	255	402	256	412	260
„ Hips	255	169	276	178	329	187	272	179	282	179	275	174
Girth of Chest—At Rest ..	734	488	775	499	909	515	730	481	822	522	813	514
Expanded ..	752	500	800	515	925	524	750	495	840	534	839	529
Deflated ..	706	469	733	471	873	495	717	473	792	503	778	491
Circumference of Leg— Maximum Supramalleolar R ..	275	184	312	201	365	206	305	202	341	214	333	210
L ..	279		312		362		306		335		332	
Minimum Supramalleolar R ..	189	125	196	126	210	119	193	127	205	129	198	126
L ..	187		194		210		190		202		200	
INDICES												
Interbrachial	88·9		97·4		98·0		101·2		101·0		99·1	
Intercrural	104·1		91·5		97·1		87·5		101·8		91·9	
Intermembral	74·9		75·3		73·4		72·7		78·4		79·0	
Hand : foot	77·3		78·9		80·0		75·0		73·4		77·2	
Girdle	73·8		70·5		76·2		70·5		70·1		71·1	
Calf	67·9		62·6		57·8		62·7		60·3		59·7	

TABLE II (Continued)

South Perak Malays

	SOUTH PERAK MALAYS—*Continued*											
Serial Number	109		110		111		112		113		114	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Stature	1600	1000	1513	1000	1577	1000	1623	1000	1612	1000	1613	1000
Span	1624	1015	1606	1061	1619	1026	1733	1068	1621	1006	1615	1001
Sitting Height	828	517	778	515	842	535	863	531	847	525	841	521
Kneeling „	1194	746	1119	739	1179	746	1218	749	1180	732	1193	740
Umbilical „	965	603	951	628	950	602	994	611	960	595	973	603
BODY SEGMENTS												
Head	222	139	209	138	224	142	228	141	241	149	244	151
Neck	69	43	68	45	67	42	70	43	64	40	59	37
Trunk	537	336	501	331	551	349	565	348	542	336	538	334
Thigh	366	229	341	226	337	214	355	219	333	206	352	219
Leg	326	204	324	214	327	207	322	198	348	216	347	215
Malleolar Height	80	50	70	46	71	45	83	51	84	52	73	45
Length of Lower Limb.. ..	772	483	735	486	735	466	760	468	765	474	772	479
„ Upper Limb, R ..	698	435	695	458	712	451	766	471	703	435	694	429
L ..	696		693		711		766		703		691	
„ Upper Arm, R ..	260	162	264	174	270	173	285	177	249	156	266	163
L ..	260		262		275		288		253		260	
„ Forearm, R ..	258	160	243	161	258	162	281	172	251	156	250	156
L ..	257		245		253		277		250		252	
„ Hand, R ..	180	112	189	124	184	116	200	123	203	124	178	110
L ..	179		186		183		201		200		179	
„ Foot, R ..	230	144	230	151	246	146	264	164	..	157	245	154
L ..	231		228		244		269		253		246	
Breadth at Shoulders	413	254	392	259	396	251	445	274	391	242	408	253
„ Hips	280	175	278	184	275	175	299	184	293	182	288	178
Girth of Chest—At Rest ..	822	514	759	502	813	518	889	548	..	..	812	503
Expanded ..	840	525	787	521	860	545	944	581	840	520	840	520
Deflated ..	792	494	722	477	769	488	849	522	..	..	775	480
Circumference of Leg— Maximum Supramalleolar R ..	341	212	319	210	325	206	391	242	312	193	330	204
L ..	335		..		323		394		312		327	
Minimum Supramalleolar R ..	205	127	194	127	202	128	218	135	215	132	208	129
L ..	202		191		202		220		212		210	
INDICES												
Interbrachial	99·0		92·9		93·8		97·5		100·2		95·5	
Intercrural	89·1		95·2		97·0		90·6		104·3		98·6	
Intermembral	74·9		76·3		79·5		83·4		73·8		73·6	
Hand: foot	79·1		75·0		77·8		80·3		82·2		78·1	
Girdle	74·6		76·9		73·4		73·8		66·3		70·8	
Calf	59·4		61·1		60·4		65·1		60·2		67·9	

TABLE II

South Perak Malays

	SOUTH PERAK MALAYS—*Continued*											
Serial Number	115		116		117		118		119		120	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Stature	1554	1000	1560	1000	1601	1000	1684	1000	1571	1000	1524	1000
Span	1629	1048	1606	1030	1623	1013	1747	1037	..	..	1574	1032
Sitting Height	807	519	828	531	820	512	819	486	809	515	761	500
Kneeling „	1166	750	1153	741	1187	741	1241	737	1187	756	1137	745
Umbilical „	919	585	926	594	950	594	1054	626	952	606	910	596
BODY SEGMENTS												
Head	237	152	227	146	240	150	242	144	214	136	219	144
Neck	64	41	64	41	80	50	49	29	70	44	50	33
Trunk	506	326	537	342	500	313	528	312	525	334	492	322
Thigh	359	231	325	209	367	229	422	250	378	240	376	246
Leg	320	206	327	210	336	210	367	218	305	194	311	204
Malleolar Height	68	44	80	51	78	49	76	48	79	51	76	50
Length of Lower Limb.. ..	747	481	732	469	781	487	875	518	792	505	763	500
„ Upper Limb, R ..	705	455	702	449	698	435	766	455	..	447	671	439
L ..	709		698		695		765		703		667	
„ Upper Arm, R ..	260	168	254	162	253	157	284	169	..	165	241	157
L ..	261		252		249		285		260		238	
„ Forearm, R ..	264	170	259	165	252	158	276	164	..	161	248	162
L ..	264		256		254		275		253		247	
„ Hand, R ..	181	117	189	122	193	120	206	122	..	121	182	120
L ..	184		190		192		205		190		182	
Foot, R ..	236	143	241	154	253	159	265	157	233	150	320	145
L ..	237		240		254		265		237		223	
Breadth at Shoulders	381	245	390	250	412	257	406	242	392	250	390	256
„ Hips	271	174	291	187	317	198	298	177	289	184	258	169
Girth of Chest—At Rest ..	750	483	805	515	839	525	879	521	800	510	780	511
Expanded ..	790	508	826	530	870	543	924	549	858	546	820	538
Deflated ..	725	466	777	498	796	498	818	485	780	497	762	500
Circumference of Leg— Maximum Supramalleolar R ..	300	193	326	208	347	216	346	205	334	209	209	189
L ..	300		323		345		344		323		288	
Minimum Supramalleolar R ..	180	115	196	123	215	132	206	123	215	136	171	113
L ..	178		189		208		210		212		175	
INDICES												
Interbrachial	101·2		101·8		100·8		96·9		97·3		103·3	
Intercrural	89·1		100·6		91·6		87·0		80·7		82·8	
Intermembral	77·3		78·4		71·7		71·1		75·1		71·0	
Hand : foot	77·1		78·8		76·0		77·6		80·9		82·1	
Girdle	71·1		74·6		77·0		73·3		73·9		66·2	
Calf	59·7		59·3		61·2		60·4		65·1		60·1	

TABLE II (CONTINUED)
SOUTH PERAK MALAYS

Serial Number	SOUTH PERAK MALAYS—*Continued*											
	121		122		123*		124		125		126	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Total Height	1567	1000	1488	1000	1232	1000	1622	1000	1670	1000	1631	1000
Span	1656	1059	1509	1014	1237	1004	1671	1030	1750	1048	1738	1065
Sitting Height	815	520	836	564	657	533	841	519	859	514	808	495
Kneeling „	1160	741	1121	755	927	752	1209	745	1238	740	1207	739
Umbilical „	928	592	828	556	734	595	989	609	1041	624	1025	629
BODY SEGMENTS												
Head	224	143	218	147	190	154	242	149	245	147	230	141
Neck	79	50	79	53	38	31	61	38	76	46	57	35
Trunk	512	328	539	362	429	348	538	332	538	322	521	320
Thigh	345	220	285	192	270	219	368	228	379	227	399	244
Leg	336	214	296	199	247	200	333	206	358	214	346	212
Malleolar Height	71	45	71	48	58	47	80	49	74	44	78	48
Length of Lower Limb	752	480	652	439	575	466	781	481	811	485	823	505
„ Upper Limb, R	730	461	651	437	533	432	712	439	752	450	761	466
L	714		650		531		711		753		759	
„ Upper Arm, R	282	177	238	160	201	163	260	159	287	172	286	175
L	274		238		201		256		289		284	
„ Forearm, R	261	164	231	154	187	152	259	159	268	161	270	166
L	253		228		187		258		270		270	
„ Hand, R	187	120	182	123	145	117	193	120	197	117	205	126
L	187		184		143		197		192		205	
„ Foot, R	240	153	231	156	183	149	248	153	242	144	246	151
L	239		234		183		250		240		247	
Breadth at Shoulders	403	258	426	286	319	259	401	247	416	249	405	248
„ Hips	285	182	294	198	224	184	263	162	281	169	291	178
Girth of Chest—At Rest	751	480	885	595	615	500	825	509	864	516	820	502
Expanded	802	512	906	608	648	525	870	536	890	532	855	524
Deflated	722	462	830	558	589	478	775	477	794	475	735	451
Circumference of Leg—Maximum Supramalleolar R	290	184	340	228	220	179	352	214	287	172	338	207
L	285		339		220		345		288		337	
Minimum Supramalleolar R	192	125	220	147	141	114	206	128	188	113	215	132
L	199		218		141		209		189		217	
INDICES												
Interbrachial	92·4		96·4		93·1		100·0		93·4		94·8	
Intercrural	97·5		104·0		91·7		90·5		94·7		86·7	
Intermembral	78·5		80·5		75·1		73·8		75·6		74·6	
Hand : foot	77·1		78·6		78·7		78·4		80·8		83·2	
Girdle	70·6		69·0		70·4		65·7		67·5		71·9	
Calf	68·2		64·5		64·1		59·6		65·6		64·1	

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* Exceptional in stature, but apparently normal in proportions

TABLE II (Continued)
South Perak Malays

	SOUTH PERAK MALAYS—*Continued*											
Serial Number	127		128		129		130		131		132	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Total Height	1685	1000	1627	1000	1564	1000	1609	1000	1644	1000	1595	1000
Span	1771	1051	1581	972	1621	1041	1633	1015	1630	991	1617	1013
Sitting Height	847	503	868	534	836	534	850	528	899	546	849	533
Kneeling „	1238	735	1204	741	1167	746	1212	754	1240	755	1190	745
Umbilical „	1025	609	994	610	945	604	952	591	990	603	935	585
BODY SEGMENTS												
Head	239	142	228	140	223	143	218	136	225	137	218	137
Neck	77	46	82	50	68	43	89	55	82	50	85	53
Trunk	531	316	558	343	545	348	543	337	592	360	546	342
Thigh	391	232	336	206	331	212	362	225	341	207	341	241
Leg	379	225	350	215	321	205	320	199	328	200	329	206
Malleolar Height	68	40	73	45	76	49	77	48	76	46	76	48
Length of Lower Limb.. ..	838	497	759	466	728	465	759	472	745	459	746	467
„ Upper Limb, R ..	771	456	679	417	692	441	716	445	712	435	706	443
L ..	766		681		690		718		719		704	
„ Upper Arm, R ..	299	174	249	154	257	163	270	168	274	169	276	173
L ..	290		254		252		271		281		277	
„ Forearm, R ..	268	161	253	154	252	162	257	160	257	157	252	157
L ..	275		251		254		257		266		248	
„ Hand, R ..	204	121	177	108	183	117	189	118	181	109	178	112
L ..	201		176		184		190		178		179	
„ Foot, R ..	255	152	235	146	235	152	245	152	243	148	235	148
L ..	255		241		239		243		243		237	
Breadth at Shoulders	414	246	392	241	406	255	399	248	426	259	400	251
„ Hips	320	190	306	188	288	184	298	185	302	184	286	180
Girth of Chest—At Rest ..	864	513	793	488	840	526	788	489	801	486	805	505
Expanded ..	890	529	815	501	858	548	830	519	827	503	852	534
Deflated ..	818	485	743	457	788	504	752	467	775	471	765	479
Circumference of Leg— Maximum Supramalleolar R ..	350	208	320	196	315	201	325	204	296	180	302	189
L ..	352		318		316		330		295		303	
Minimum Supramalleolar R ..	224	132	206	126	200	127	190	118	198	120	181	113
L ..	223		203		198		189		197		178	
INDICES												
Interbrachial	92·3		100·0		99·5		95·4		93·1		90·4	
Intercrural	97·1		104·1		97·1		88·5		96·3		96·5	
Intermembral	73·6		73·4		77·9		77·4		80·2		78·6	
Hand : foot	79·4		74·3		77·4		77·8		73·9		75·6	
Girdle	77·4		78·1		71·8		74·7		71·3		71·5	
Calf	63·7		64·2		63·1		58·0		66·6		59·4	

TABLE II (CONTINUED)
SOUTH PERAK MALAYS

	SOUTH PERAK MALAYS—*Continued*									
Serial Number	133		134		135		136		137	
	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000	MM.	Stature 1000
Stature	1643	1000	1587	1000	1597	1000	1599	1000	1630	1000
Span	1720	1048	1674	1054	1671	1047	1611	1007	1689	1037
Sitting Height	842	512	802	505	837	524	806	505	841	515
Kneeling „	1208	734	1197	754	1194	749	1192	746	1222	750
Umbilical „	996	605	951	600	983	615	992	620	971	595
BODY SEGMENTS										
Head	231	141	236	149	237	148	205	128	232	142
Neck	87	53	72	45	63	40	76	48	87	53
Trunk	524	319	494	312	537	336	525	328	522	320
Thigh	366	222	395	249	357	224	386	241	381	234
Leg	366	222	313	186	331	208	331	207	329	202
Malleolar Height	69	42	77	48	72	45	76	48	79	48
Length of Lower Limb	801	487	785	466	760	476	793	495	789	484
„ Upper Limb, R ..	743	448	721	455	706	441	692	433	730	446
L ..	731		722		703		693		727	
„ Upper Arm, R ..	281	168	271	170	252	158	257	163	270	165
L ..	270		268		253		263		267	
„ Forearm, R ..	270	165	258	165	262	163	259	162	268	163
L ..	270		265		258		259		264	
„ Hand, R ..	192	116	192	120	192	120	176	107	192	114
L ..	191		189		192		171		196	
Foot, R ..	250	152	243	153	246	154	221	142	240	147
L ..	248		243		245		232		240	
Breadth at Shoulders	405	246	402	254	406	254	362	226	404	248
„ Hips	293	178	287	181	292	172	269	164	294	181
Girth of Chest—At Rest ..	813	495	816	515	808	507	715	446	819	502
Expanded ..	832	506	838	529	830	520	763	476	839	515
Deflated ..	794	483	787	496	766	480	683	427	779	478
Circumference of Leg— Maximum Supramalleolar R ..	328	200	327	206	343	214	305	189	318	194
L ..	330		328		341		300		316	
Minimum Supramalleolar R ..	195	120	210	132	210	131	178	112	195	121
L ..	198		210		210		180		200	
INDICES										
Interbrachial	98·2		97·2		97·1		99·7		99·2	
Intercrural	100·0		79·4 (!)		92·6		87·9		86·5	
Intermembral	74·6		75·0		74·5		72·4		75·4	
Hand : foot	76·8		78·4		78·1		76·6		80·8	
Girdle	72·4		71·5		71·9		74·3		72·9	
Calf	59·8		64·2		61·4		59·3		62·2	

TABLE III

Individual Cranial Indices (Semangs—Sakais)

	Serial Number	Cephalic Index	Vertical Index	Cephalic Module	Facial Index	Bigonial Index	Biorbito-nasal Index	Nasal Index	Aural Index
SEMANGS									
(i) HAMI ..	1	..	..	..	..	..	..	123·5	57·8
	2	..	..	..	..	..	..	97·5	53·5
♀	3	..	..	..	..	..	..	102·5	51·0
♀	4	..	..	..	..	..	..	89·5	..
(ii) SEMAN ..	5	74·5	68·1	152·0	74·6	97·1	112·5	100·0	..
	6	78·1	72·1	156·0	79·5	96·0	117·9	96·7	..
	7	80·3	..	..	..	..	..	97·7	..
	8	74·5	..	..	..	..	..	92·8	..
	9	80·6	70·0	155·3	77·8	96·2	108·3	97·7	..
	10	81·1	73·3	152·7	74·0	..	..	105·4	..
	11	77·0	72·6	154·7	80·8	..	..	89·2	..
	12	78·9	71·6	150·4	80·0	..	..	89·0	..
	13	74·9	68·0	151·5	79·2	..	..	100·0	..
	14	76·4	67·7	151·3	77·6	..	..	108·2	..
	15	76·6	69·6	154·2	78·5	..	..	108·8	..
	16	78·9	71·7	150·4	72·1	..	..	85·0	..
	17	78·2	..	..	..	..	..	105·2	..
♀	18	81·1	75·5	154·0	76·3	..	..	102·7	..
♀	19	77·0	70·4	150·0	82·7	..	..	87·9	..
	I	78·4	..	..	79·0	..	..	102·3	..
	II	77·4	..	..	77·3	..	..	107·6	..
	III	76·1	..	..	84·0	..	..	93·3	..
	IV	75·7	..	..	82·6	..	..	87·9	..
	V	77·9	..	..	76·8	..	..	94·7	..
	VI	80·4	..	..	82·7	..	..	81·3	..
	VII	78·4	..	..	78·5	..	..	98·7	..
SAKAIS									
(i) PO-KLO ..	20	78·1	65·9	152·0	77·5	..	..	91·6	..
	21	79·6	71·0	155·3	77·1	..	..	90·9	..
	22	78·3	65·2	149·3	73·5	..	..	100·0	..
	23	74·1	70·9	154·3	76·7	..	..	95·4	..
	24	85·2	71·6	150·7	76·5	..	..	94·9	..
	25	77·9	67·4	155·3	84·9	..	..	93·4	..
	26	75·6	67·7	155·7	72·2	..	..	88·9	..
	VIII	73·7	..	152·4	75·4	..	..	100·0	..
	IX	80·9	..	150·2	71·6	..	..	102·3	..
	X	78·0	..	151·8	80·1	..	..	100·0	..

TABLE III (Continued)

Sakais

Serial Number	Cephalic Index	Vertical Index	Cephalic Module	Facial Index	Bigonial Index	Biorbito-nasal Index	Nasal Index	Aural Index
SAKAIS—*Continued*								
(ii) SAKAI JEHEHR 27	74·5	64·9	156·3	75·6	..	..	93·4	..
28	79·6	68·5	147·3	72·7	..	..	88·6	..
29	82·4	73·5	145·0	72·4	..	..	102·5	..
30	75·4	70·4	157·0	74·1	..	..	100·0	..
XI	79·7	..	161·8	68·1	..	..	100·0	..
XII	77·2	..	153·1	83·2	..	..	92·2	..
XIII	78·4	..	149·1	74·7	..	..	95·3	..
XIV	77·6	..	151·0	78·6	..	..	91·5	..
XV	73·8	..	149·1	73·7	..	..	95·0	..
(iii) MAI DARAT 31	78·2	76·6	156·3	79·0	92·5	115·8	111·8	51·1
32	81·2	74·1	144·7	80·2	95·2	108·8	95·6	51·1
33	78·8	74·1	150·0	78·8	93·2	113·9	90·1	49·6
34	76·8	68·9	158·0	76·1	86·8	114·3	90·0	52·6
35	77·7	71·7	152·0	73·6	89·0	112·1	93·1	55·1
36	77·5	72·3	150·0	87·4	92·6	116·9	79·0	58·2
37	77·9	67·9	147·3	75·2	96·9	115·9	98·4	50·8
38	81·7	71·1	148·3	77·7	95·6	112·7	95·4	52·1
39	81·5	68·8	149·3	76·8	89·2	119·1	101·1	52·1
40	76·6	76·0	152·7	76·6	92·7	118·6	88·7	54·4
41	77·4	71·3	150·0	78·4	93·8	114·0	94·7	54·4
42	81·9	70·5	148·0	79·4	85·3	107·3	84·9	45·8
43	78·2	69·4	147·7	75·0	86·8	109·4	83·5	45·6
44	78·6	68·5	154·3	77·5	86·6	109·8	84·5	49·2
45	75·6	71·9	142·0	86·5	92·8	122·9	78·1	49·6
46	78·6	70·4	151·0	83·1	97·6	112·9	84·2	53·4
47	79·6	74·7	154·3	84·5	96·0	126·9	89·9	55·7
48	76·4	71·6	157·0	85·4	93·5	112·9	92·2	67·1
49	78·6	60·5	145·0	83·5	90·3	115·0	..	..
50	78·6	66·2	145·3	74·9	92·7	115·7	86·9	56·6
51	77·7	70·7	152·3	88·2	92·6	122·9	86·7	55·8
52	82·6	78·1	150·3	75·5	95·6	117·2	100·2	51·9
53	79·5	73·0	154·7	75·0	92·2	120·1	87·2	53·3
54	76·0	67·5	151·7	83·9	89·0	113·1	90·1	51·4
55	73·4	68·5	148·3	85·4	109·0	112·2	102·6	51·9
56	79·0	66·4	155·7	78·6	93·2	111·2	85·4	49·7
57	77·1	68·9	150·0	77·5	90·9	121·4	86·4	51·2
58	79·6	68·2	152·7	83·6	92·3	131·9	80·3	51·4
59	74·9	69·1	155·3	75·7	86·6	111·9	104·7	..
60	78·0	70·6	150·7	75·0	86·1	120·8	96·6	..
61	79·1	70·3	148·0	73·1	94·6	115·4	96·8	..

TABLE III (CONTINUED)

SAKAIS—COAST FOLK OF TRANG

	Serial Number	Cephalic Index	Vertical Index	Cephalic Module	Facial Index	Bigonial Index	Biorbito-nasal Index	Nasal Index	Aural Index
SAKAIS—*Continued*									
MAI DARAT	62	76·1	68·5	150·0	78·5	95·6	120·4	98·8	..
	63	77·2	65·9	139·0	75·9	97·8	118·1	102·5	..
	64	81·1	72·7	152·3	81·4	90·4	116·2	91·3	..
♀	65	78·8	74·6	147·0	72·6	95·5	106·1	108·6	..
♀	66	79·7	69·7	148·0	76·0	94·9	112·2	90·9	..
♀	67	77·7	71·2	152·0	79·6	97·9	125·9	86·6	..
(iv) ORANG BUKIT	68	85·5	73·8	148·7	70·3	87·1	..	103·8	..
	69	76·1	66·5	152·0	76·3	96·1	..	76·0	..
	70	81·7	72·1	156·0	78·5	91·8	..	86·1	..
	71	73·7	66·5	145·7	80·4	93·1	..	90·7	..
	72	79·4	73·1	153·0	80·2	92·3	..	75·1	..
	73	77·9	68·5	156·0	80·4	93·8	..	86·9	..
	74	74·8	71·5	149·3	79·6	90·2	..	90·4	..
	75	82·5	74·6	156·0	72·3	93·8	..	95·3	..
	76	81·5	75·4	153·3	76·6	94·5	..	95·5	..
	77	82·9	77·1	150·7	79·2	95·8	..	80·5	..
♀	78	87·1	78·6	145·3	68·4	85·8	..	84·4	..
♀	79	82·5	78·3	147·7	68·5	86·4	..	101·2	..
♀	80	79·4	72·9	146·3	66·6	92·6	..	97·2	..
♀	81	79·2	69·0	143·0	74·0	89·9	..	91·1	..
COAST FOLK OF TRANG									
(i) SAMSAMS ..	82	83·9	74·4	155·0	81·5	..	..	85·7	..
	83	83·6	70·6	152·3	78·0	..	..	93·5	..
	84	81·0	73·8	152·0	75·3	..	..	86·6	..
	85	89·8	76·2	156·0	73·7	..	..	85·5	..
	86	89·4	78·3	151·7	92·5	..	..	73·2	..
	87	83·0	76·2	156·3	76·2	..	..	84·6	..
	88	84·9	78·6	155·3	76·5	..	..	105·7	..
	89	81·1	71·7	160·0	69·0	..	..	93·5	..
	90	82·2	68·4	150·3	75·9	..	..	81·4	..
	91	84·2	72·5	152·3	79·1	..	..	83·3	..
	92	88·6	75·9	153·3	73·3	..	..	92·6	..
	93	77·7	68·9	151·7	79·6	..	..	93·0	..
	94	79·2	74·2	154·7	84·5	..	..	76·7	..
	95	82·4	74·3	155·7	76·2	..	..	79·5	..
	96	84·3	72·9	157·7	72·5	..	..	90·8	..
(ii) ORANG LAUT KAPPIR	97	82·0	69·8	158·7	89·3	..	..	82·7	..
	98	86·9	76·9	160·0	75·5	..	..	84·1	..
	99	76·2	67·2	163·0	75·6	..	..	91·5	..
	100	84·0	74·0	154·7	81·5	..	..	..	..

TABLE III (CONTINUED)

SOUTH PERAK MALAYS

	Serial Number	Cephalic Index	Vertical Index	Cephalic Module	Facial Index	Bigonial Index	Biorbito-nasal Index	Nasal Index	Aural Index
SOUTH PERAK MALAYS	101	82·5	76·9	154·0	90·5	92·7	106·1	84·4	59·2
	102	80·1	73·9	149·0	80·2	89·8	104·5	80·4	55·1
	103	82·1	74·0	147·6	74·6	90·0	104·8	90·9	50·5
	104	80·5	73·0	153·0	81·7	92·4	117·2	83·2	62·5
	105	82·2	73·3	153·3	95·5	91·5	123·1	71·5	52·7
	106	84·4	69·4	146·3	84·1	90·9	121·9	75·6	54·2
	107	77·7	68·2	154·0	85·0	89·5	116·2	78·6	44·9
	108	81·9	70·2	152·0	79·9	92·5	111·1	82·1	44·6
	109	83·5	68·1	146·7	76·9	89·9	110·0	77·5	53·1
	110	79·8	68·1	155·3	88·8	88·8	118·5	71·4	51·8
	111	80·2	73·1	153·7	83·9	92·6	118·7	85·8	47·0
	112	78·9	70·9	157·3	85·1	89·4	117·9	77·5	53·5
	113	80·4	73·7	164·3	80·9	94·5	117·7	80·0	52·2
	114	80·5	69·6	153·3	89·0	90·5	111·8	79·4	50·0
	115	78·6	75·9	158·7	85·7	95·0	116·9	78·9	56·8
	116	83·4	76·1	155·7	82·1	92·9	112·2	87·1	55·6
	117	82·9	74·3	159·3	82·1	93·6	116·0	83·0	40·1
	118	85·5	77·2	157·7	82·9	92·9	115·8	83·5	52·7
	119	82·0	73·0	151·3	78·8	89·8	124·0	82·7	55·6
	120	83·6	76·8	153·7	86·2	90·1	121·7	87·4	61·5
	121	83·0	77·3	152·7	85·5	90·1	112·7	75·8	46·9
	122	80·9	70·5	161·7	78·7	90·6	113·6	85·4	40·0
	[123	85·9	71·8	146·0	80·1	91·7	112·1	77·5	44·6]
	124	88·5	78·1	162·7	83·8	94·6	119·9	81·1	62·5
	125	78·4	75·3	164·0	93·4	94·9	119·3	81·2	50·1
	126	76·7	68·9	158·0	91·9	94·1	118·1	72·8	54·8
	127	84·1	78·7	160·3	85·8	95·3	114·8	79·4	55·3
	128	83·5	77·5	158·3	83·5	93·8	114·9	78·6	55·1
	129	90·9	77·4	157·3	82·9	90·4	110·1	77·2	53·6
	130	87·0	76·3	155·3	79·6	88·1	110·5	87·4	44·4
	131	76·3	72·3	164·0	83·9	84·6	115·0	79·8	47·7
	132	84·0	74·1	149·7	83·5	88·5	112·3	85·9	51·3
	133	83·4	77·4	157·3	85·4	92·0	118·8	77·6	50·4
	134	82·5	77·4	153·3	85·7	91·4	116·7	87·0	51·6
	135	81·3	78·0	157·3	81·1	94·1	125·5	88·8	56·4
	136	81·0	72·5	150·3	79·2	93·4	122·8	80·9	60·3
	137	86·9	78·5	155·7	81·5	90·5	124·6	77·0	50·0

TABLE IV

Cranial Measurements and Indices (Average and Extreme Range)

	SEMANGS								SAKAIS											
	HAMI				SEMAN				PO-KLO				JEHEHR				MAI DARAT			
	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least
Length	..	..	..	..	13	188	184	179	7	192	186	176	4	196	184	170	34	193	183	170
Breadth	..	..	..	..	13	150	143	137	7	150	146	140	4	146	143	140	34	151	142	130
Cephalic Index	..	..	..	..	20	81·1	77·7	74·5	10	85·2	78·1	73·7	9	82·4	77·6	73·8	34	82·6	78·3	73·4
Projections—																				
Vertex to Chin	..	3	222	218	214	10	224	213	207	7	230	216	201	4	229	210	195	34	232	213	188
Do. Tragus	..	3	134	129	126	10	135	130	126	7	134	128	123	4	135	127	122	34	141	127	110
Vertical Index	..	..	..	..	..	10	73·3	70·5	67·7	7	71·6	68·5	65·2	4	73·5	69·3	64·9	34	78·1	70·4	60·5+
Cephalic Module	..	..	..	..	..	10	156·0	152·8	150·3	10	155·7	152·7	149·3	9	161·8	152·2	145·0	34	158·0	150·4	139·0
Vertex to Nasion	..	3	124	119	115	10	114	110	101	7	120	111	102	4	117	107	97	34	122	109	96
Nasion to Mouth	..	3	60	55	53	10	66	62	60	7	74	67	60	4	69	63	58	34	80	64	54
Mouth to Chin	..	3	49	44	40	10	47	41	36	7	42	39	33	4	47	40	32	34	53	41	33
FACE—Bizygomatic Breadth	..	..	..	..	..	10	143	135	125	7	140	136	132	4	145	138	130	34	147	135	125
Bigonial Breadth	..	3	115	113	112	3	134	130	127	..	..	..	..	..	..	..	..	34	136	125	110
Bigonial Index	..	..	..	..	..	3	97·1	96·5	96·1	..	..	..	..	..	..	..	..	34	100	92·2	85·3
External Biorbital	..	3	115	111	105	3	112	108	103	..	..	..	..	..	..	..	..	34	127	112	102
Do. Biocular	..	3	98	96	93	3	98	97	94	..	..	..	..	..	..	..	..	34	106	92	83
Internal Biocular	..	3	36	32	28	3	30	29	28	..	..	..	..	..	..	..	..	34	42	33	26
Biorbito-nasal Arc	..	..	..	..	..	3	143	136	129	..	..	..	..	..	..	..	..	34	147	130	115
Biorbito-nasal Index	..	..	..	..	..	3	117·9	112·9	108·3	..	..	..	..	..	..	..	..	34	131·9	116·1	107·3
Superciliary Arc	..	3	143	139	135	3	155	153	152	..	..	..	..	..	..	..	..	34	179	151	133
Nasion to Chin (*direct*)	..	..	..	..	..	10	110	104	99	7	115	105	100	4	106	102	94	34	119	107	95
Facial Index	..	..	..	..	..	17	84·0	78·5	72·1	10	84·9	76·5	71·6	7	83·2	74·8	68·1	34	88·2	79·3	73·1
NOSE—Height	..	3	40·5	38	34	18	46	41·2	36	7	48	43·3	39	4	45	42·8	39	33	50·7	43·7	37·5
Breadth	..	3	42	41	39·5	13	46	40·7	36·5	7	44	40·4	31	4	43	41	39	33	46	40·0	36·3
Nasal Index	..	3	123·5	107·8	97·5	20	108·8	97·1	81·3	10	102·3	95·7	83·9	9	102·5	95·4	88·6	33	111·8	91·9	79·0
EAR—Length, R	..	3	57	55	54	..	..	..	..	..	..	..	..	..	..	..	..	27	72	59	52
Do. L	..	3	57	54	52	..	..	..	..	..	..	..	..	..	..	..	..	27	70	59	52
Breadth, R	..	3	31	30	28	..	..	..	..	..	..	..	..	..	..	..	..	27	35	31	27
Do. L	..	3	32	29	26	..	..	..	..	..	..	..	..	..	..	..	..	27	35	32	28
Aural Index	..	3	57·8	54·1	51·0	..	..	..	..	..	..	..	..	..	..	..	..	27	67·1	52·6	45·6

TABLE IV (Continued)

	SAKAIS—*Continued*				COAST FOLK OF TRANG								SOUTH PERAK MALAYS			
	ORANG BUKIT				SAMSAMS				ORANG LAUT KAPPIR							
	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least
Length	10	190	182	172	15	193	180	170	4	201	189	180	36	198	182	173
Breadth	10	152	144	134	15	158	151	145	4	158	154	151	36	162	149	141
Cephalic Index	10	85·5	79·6	73·7	15	89·8	83·7	77·7	4	86·9	82·3	76·2	37*	90·9	82·3	76·2
Projections— Vertex to Chin	10	242	226	213	15	239	229	211	4	234	223	218	36	249	226	207
Do. Tragus ..	10	136	130	121	15	138	133	123	4	140	135	132	36	146	135	119
Vertical Index	10	77·1	71·9	66·5	15	78·6	73·8	68·4	4	76·9	71·9	67·2	37	78·7	73·9	68·1
Cephalic Module ..	10	156·0	152·1	145·7	15	160·0	154·8	150·3	4	163·0	159·1	154·7	36	164·3	155·4	146·3
Vertex to Nasion	10	125	118	113	15	129	119	102	4	117	110	104	36	130	114	95
Nasion to Mouth	10	78	71	64	15	78	68	55	4	72	68	65	36	85	69	56
Mouth to Chin	10	45	38	30	15	48	42	35	4	47	45	40	36	52	43	36
FACE—Bizygomatic Breadth ..	10	148	141	132	15	148	133	129	4	152	141	135	36	150	139	120
Bigonial Breadth ..	10	138	131	119	..	..	..	..	..	..	..	..	36	141	127	110
Bigonial Index ..	10	96·1	92·8	87·1	..	..	..	..	..	..	..	..	37	95·3	91·6	84·6
External Biorbital ..	10	124	115	107	..	..	..	..	..	..	..	..	36	131	116	102
Do. Biocular ..	10	103	95	83	..	..	..	..	..	..	..	..	36	106	93	84
Internal Biocular ..	10	39	35	30	..	..	..	..	..	..	..	..	36	41	32	28
Biorbito-nasal Arc ..	..	..	..	..	..	..	..	..	..	..	..	..	36	157	134	112
Biorbito-nasal Index	..	..	..	..	..	..	..	..	..	..	..	..	37	125·5	115·9	104·5
Superciliary Arc	..	..	..	..	..	..	..	..	..	..	..	..	36	178	157	132
Nasion to Chin (*direct*) ..	10	114	109	104	15	121	108	97	4	123	113	105	36	139	116	97
Facial Index	10	80·4	77·4	70·3	15	92·5	77·6	69·0	4	89·3	80·5	75·6	37	98·5	83·8	74·6
NOSE—Height	10	50	44·2	41·5	15	52	46.0	37	3	52	47	44	36	52·5	47·7	41·3
Breadth	10	43	38·9	33·5	15	44	39·9	36	3	43	41	37	36	43·7	35·8	33·7
Nasal Index	10	103·8	88·0	76	15	105·7	87·0	73·2	3	91·5	86·1	82·7	37	90·9	81·2	71·4
EAR—Length, R	..	..	..	..	..	..	..	..	..	..	..	..	36	73	62	52
Do. L	..	..	..	..	..	..	..	..	..	..	..	..	36	72	62	52
Breadth, R	..	..	..	..	..	..	..	..	..	..	..	..	36	40	32	26
Do. L	..	..	..	..	..	..	..	..	..	..	..	..	36	38	32	26
Aural Index	..	..	..	..	..	..	..	..	..	..	..	..	37	62·5	52·1	40

* Throughout this series the *indices* of the very diminutive individual, No. 123, have been included, but not the absolute measurements.

TABLE VA

Body and Limb Measurements (Averages and Extreme Range)

	SEMANGS								SAKAIS			
	HAMI				SEMAN				PO-KLO			
	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least
Stature	3	1529	1507	1482	17	1607	1528	1372	10	1574	1545	1477
Span	3	1551	1520	1466	17	1577	1520	1384	10	1635	1554	1445
Sitting Height	3	799	807	814	10	827	791	755	..	..	..	..
Kneeling „	3	1144	1126	1089	10	1161	1139	1107	..	..	..	..
Umbilical „	3	898	882	861	10	935	902	867	..	..	..	..
Body Segments												
Head	3	232	225	217	10	225	216	207	..	..	..	..
Neck	3	75	65	57	10	80	63	50	..	..	..	..
Trunk	3	522	517	511	10	542	514	479	..	..	..	..
Thigh	3	330	313	290	10	382	348	330	..	..	..	..
Leg	3	323	318	311	10	347	312	280	..	..	..	..
Malleolar Height	3	74	69	64	10	81	74	72	..	..	..	..
Length of Lower Limb	3	715	701	683	10	764	736	693	..	..	..	..
„ Upper Limb	3	671	654	622	10	687	663	638	7	685	660	615
„ Upper Arm	3	236	227	210	10	260	245	228	7	261	244	219
„ Forearm	3	262	252	236	10	250	239	230	7	256	240	222
„ Hand	3	177	176	174	10	191	180	170	7	190	177	166
„ Foot	3	228	226	225	10	238	231	219	7	245	230	215
Breadth at Shoulders	3	374	371	367	6	390	378	356	..	..	..	..
„ Hips	3	270	266	262	6	290	276	266	..	..	..	..
Girth of Chest—At Rest ..	3	817	800	792	5	873	803	770	..	..	..	..
Expanded ..	3	848	833	825	5	898	833	791	..	..	..	..
Deflated ..	3	794	777	765	5	832	774	740	..	..	..	..
Circumference of Leg— Maximum Supramalleolar ..	3	294	280	266	5	330	282	226	..	..	..	..
Minimum Supramalleolar ..	3	174	172	170	5	195	187	169	..	..	..	..

TABLE Vb

Averages and Extreme Range of Body and Limb Measurements—Relative to Stature—and of Indices

	SEMANGS								SAKAIS			
	HAMI				SEMAN				PO-KLO			
	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least
Span	..	..	..	..	10	1020	1006	983	7	1006	991	973
Span	3	1026	1008	989	17	1020	995	954	10	1043	1005	973
Sitting Height	3	539	535	532	10	533	518	504	..	..		..
Kneeling „	3	748	743	735	10	759	746	729	..	..		..
Umbllical „	3	587	584	580	7	609	591	580	..	..		..
BODY SEGMENTS												
Head	3	153	149	142	10	149	141	134	..	..		..
Neck	3	49	43	38	10	54	41	33	..	..		..
Trunk	3	345	346	341	10	355	337	316	..	..		..
Thigh	3	216	208	196	10	248	228	214	..	..		..
Leg	3	218	211	203	10	227	204	190	..	..		..
Malleolar Height	3	48	46	42	10	53	49	46	..	..		..
Length of Lower Limb	3	468	465	461	10	496	481	467	..	..		..
„ Upper Limb	3	444	434	420	10	444	434	414	7	436	426	414
„ Upper Arm	3	158	151	142	10	171	160	153	7	170	158	139 (!?)
„ Forearm	3	171	167	160	10	162	156	150	7	163	154	143
„ Hand	3	119	117	114	10	123	117	110	7	123	114	110
„ Foot	3	164	155	147	10	154	151	148	7	156	149	143
Breadth at Shoulders	3	251	246	240	6	255	246	229	..	..	..	..
„ Hips	3	182	176	173	6	188	180	171	..	..	..	..
Girth of Chest—At Rest	3	541	531	518	5	567	528	496	..	..	..	..
Expanded	3	561	553	540	5	583	547	510	..	..	..	..
Deflated	3	525	515	500	5	540	509	483	..	..	..	..
Circumference of Leg—Maximum Supramalleolar	3	199	185	171	5	221	186	147	..	..	..	..
Minimum Supramalleolar	3	118	115	113	5	127	123	115	..	..	..	..
INDICES												
Interbrachial	3	112·6	111·1	109·2	17	102·8	97·8	88·3	7	112·1	98·3	84·4
Intercrural	3	112·2	102·3	94·0	17	105·1	89·5	79·8	3	101·6	95·7	92·5
Intermembral	3	77·5	75·8	72·9	10	76·1	73·1	68·5	..	..	..	..
Hand : foot	3	77·9	75·5	71·6	10	79·9	77·7	73·3	7	79·9	76·5	71·5
Girdle	3	72·6	71·9	70·9	6	78·4	72·8	68·4	..	..	..	..
Calf	3	63·9	61·3	59·0	5	85·4	67·0	57·6	..	..	..	..

Both in this case and in the case of the Semán, the average span on the first line is that of men whose arms also are measured.

TABLE Va

Body and Limb Measurements (Averages and Extreme Range)

	SAKAIS—*Continued*								SOUTH PERAK MALAYS			
	JEHEHR				MAI DARAT							
	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least
Stature	9	1590	1542	1439	34	1638	1524	1411	36	1763	1594	1488
Span	9	1638	1583	1497	34	1707	1565	1420	35	1852	1639	1441
Sitting Height	..	..	..	..	26	861	804	732	36	899	825	752
Kneeling „	..	..	..	..	26	1231	1140	1064	36	1286	1185	1105
Umbilical „	..	..	..	..	26	972	904	829	36	1122	961	828
BODY SEGMENTS												
Head	..	..	..	..	26	240	216	204	36	246	227	203
Neck	..	..	..	..	26	91	68	53	36	89	71	49
Trunk	..	..	..	..	26	561	521	468	36	592	531	492
Thigh	..	..	..	..	26	394	336	301	36	422	356	285
Leg	..	..	..	..	26	351	311	257	36	391	333	296
Malleolar Height	..	..	..	..	26	79	74	69	36	86	76	68
Length of Lower Limb.. ..	..	..	..	..	36	782	721	647	36	880	764	652
„ Upper Limb	4	722	688	631	26	717	672	602	36	785	710	650
„ Upper Arm	4	262	248	224	26	282	252	212	36	295	266	238
„ Forearm	4	273	248	224	26	262	242	215	36	288	256	220
„ Hand	4	204	192	183	26	186	177	163	36	206	189	173
„ Foot	4	254	243	230	26	243	229	217	36	267	241	222
Breadth at Shoulders	..	..	..	..	26	441	394	354	36	445	399	320
„ Hips	..	..	..	..	26	307	279	250	36	329	288	255
Girth of Chest—At Rest ..	..	..	..	..	26	920	814	745	35	909	808	715
Expanded ..	..	..	..	..	26	963	848	780	36	944	839	750
Deflated ..	..	..	..	..	25	873	775	717	35	873	771	683
Circumference of Leg—Maximum Supramalleolar..	..	..	..	..	26	344	312	278	36	36	323	277
Minimum Supramalleolar ..	..	..	..	..	26	203	188	170	63	36	200	173
	ORANG BUKIT				SAMSAMS				ORANG LAUT KAPPIR			
Stature	9	1690	1565	1462	15	1670	1602	1507	4	1624	1580	1523
Span	9	1650	1568	1436	..	..	..	..	..	..	..	..
Span : Stature	9	103·6	100·2	97·6	..	..	..	..	..	..	..	..

TABLE Vb

Averages and Extreme Range of Body and Limb Measurements—Relative to Stature—and of Indices

	SAKAIS—*Continued*								SOUTH PERAK MALAYS			
	JEHEHR				MAI DARAT							
	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least	No. of observations	Greatest	Mean	Least
Stature	..	..	..	..	..	..	..	..	..	..	..	..
Span	9	1050	1026	1003	34	1070	1027	968	35	1068	1028	957
Sitting Height	..	..	..	..	26	559	527	507	36	564	520	486
Kneeling „	..	..	..	..	26	773	747	727	36	756	743	729
Umbilical „	..	..	..	..	26	620	595	572	36	636	602	556
BODY SEGMENTS												
Head	..	..	..	..	26	159	141	128	36	152	142	128
Neck	..	..	..	..	26	56	44	36	36	59	45	31
Trunk	..	..	..	..	26	361	341	319	36	362	332	312
Thigh	..	..	..	..	26	249	220	204	36	250	225	192
Leg	..	..	..	..	26	226	204	178	36	225	208	186
Malleolar Height	..	..	..	..	26	52	48	43	36	54	48	40
Length of Lower Limb	..	..	..	..	26	494	473	444	36	518	480	439
„ Upper Limb	..	4	460	447	434	26	459	439	417	36	471	445	417
„ Upper Arm	..	4	168	161	158	26	180	165	146	36	182	167	154
„ Forearm	..	4	174	161	154	26	168	159	150	36	172	161	143
„ Hand	..	4	130	125	119	26	126	116	103	36	126	117	107
„ Foot	..	4	163	159	152	26	159	150	142	36	162	151	142
Breadth at Shoulders	..	..	..	..	..	26	289	258	224	36	286	250	207
„ Hips	..	..	..	..	..	26	204	183	169	36	198	180	162
Girth of Chest—At Rest	..	..	..	..	..	26	603	533	478	35	595	507	446
Expanded	..	..	..	..	..	26	631	554	496	36	608	526	476
Deflated	..	..	..	..	..	25	573	508	464	35	558	470	427
Circumference of Leg—Maximum Supramalleolar	..	..	..	..	..	25	238	205	186	36	242	202	172
Minimum Supramalleolar	..	..	..	..	..	26	140	123	108	36	147	125	112
INDICES												
Interbrachial	..	9	109·4	100·5	89·5	26	106·1	96·7	87·1	36	103·3	96·4	78·6
Intercrural	..	..	..	..	..	26	113·1	93·0	78·9	36	104·3	93·8	79·4
Intermembral	..	..	..	..	..	26	83·0	76·3	71·6	36	83·4	75·9	71·1
Hand: foot	..	4	81·4	79·0	74·8	26	83·3	77·4	73·1	36	83·2	80·1	73·0
Girdle	..	..	..	..	..	26	74·4	70·7	63·7	36	89·7	74·7	65·7
Calf	..	..	..	..	..	25	65·9	60·2	55·4	36	68·2	62·2	57·8

SECTION II

Observations on the Skeleton

The work of describing the skeletons in our collection has been carried out at the University of Edinburgh, in the laboratory of Professor Sir William Turner, to whom we are indebted not only for the loan of instruments and the use of a room, but also for much kindly advice and assistance. The measurements, terminology, and methods that we have adopted are those employed by him in his *Challenger Reports* and subsequent papers, especially his *Contributions to the Craniology of the People of the Empire of India*.[1] Except in the case of the specimens from Trang we have both taken the measurements, and so have checked the figures recorded. Our treatment is the one followed in our other papers, that of dismissing comparisons and discussions until the final part.

Part I. Semang and Sakai Tribes

(*A*) Semangs

Semân; Grit, Upper Perak, (Plate XVI, figs. 1, 2, 3).

The skeleton representing this tribe was procured by one of us (N. A.) from the jungle in the vicinity of Grit (*antea*, p. 20). When discovered the body was in a very perfect state of preservation, a fungus having grown over the corpse and permeated even the internal organs so as practically to have made a cast of them. The person was said to have died a year previously.

Skulls. The condition of the sutures and the alveolar border of the jaws indicates an aged person; the skull is remarkably small and light, and all the bony ridges are feebly developed. It is that of a female, as is proved by external evidence.

Norma verticalis. The outline is a broad ovoid, and the curve from the frontal to the parietal region is regular, there being no marked lateral protuberance of the central part of the latter. The **cephalic index (79·8)** is practically sub-brachycephalic; but the downward slope of the post-parietal

1. *Trans. Roy. Soc., Edinburgh*, vol. XXXIX, part 3, no. xxviii, 1899; and vol. XL, part 1, no. vi, 1901.

region is not nearly so abrupt as in typical brachycephalic skulls. The side walls of the cranium are slightly convex and the roof is flat, the sagittal ridge being feeble. There is a slight depression in the post-parietal region, embracing the sagittal suture in its main axis, and possibly of artificial origin, though it is a common feature in the skulls of all the wild tribes represented in our collection, and also in those of the Andamanese in the collection of the Edinburgh University Museum. The frontal longitudinal arc is considerably longer than the parietal.

Norma lateralis. Prognathism is slight. The nasal bones are relatively flat, and the nasion is comparatively little depressed. The glabella and supra-orbital ridges are not prominent, and the forehead, though low, is fairly vertical. The roof of the skull is feebly arched. The occipital squama is inclined to be convex outwards, but does not form a definite boss, and the cerebellar part of the occiput, which is relatively of considerable extent, is convex downwards. The mastoids are fairly stout, but the zygomata are slender.

Norma facialis. The face is broad and flat, the approximate **maxillo-facial index** being **46**; but atrophy of the alveoli makes it difficult to obtain the measurements with exactitude. The external nares are very broad, the **nasal index (59·1)** being strongly platyrhine. The floor of the nasal cavity is not separated from the upper jaw by a ridge, but there is no transverse depression in its place. The orbits are mesoseme, their **index** being **86·8.**

Norma occipitalis. The outline is somewhat rounded. The ridges and depressions seen in this view are not conspicuously developed, but the conceptacula cerebelli are protuberant.

Sutures. The sutures, which have commenced to be obliterated at several points, are fairly complex, though the denticulations are short. There is a small Wormian bone in each lambdoid suture.

Jaws and Teeth. The lower jaw has atrophied considerably, owing to the absorption of the alveoli of the molars and premolars; the same has occurred in the upper jaw. The palate is very long and narrow (dolichuranic), its **index** being **96·2.** The third molar on the left side of the upper jaw has evidently persisted longer than the other teeth of the same part of the mouth, and was probably present at death; there are indications that the corresponding tooth was never developed on the right side of the jaw. The teeth themselves have all disappeared.

The skull exhibits marked microcephaly, its cubic capacity, determined with shot by Sir WILLIAM TURNER's method,[1] being 1,150 c.c. It is phaenozygous,

1. *Reports H.M.S. Challenger*, part XXIX, 1884.

and rests behind on the posterior border of the foramen magnum. The basibregmatic height is less than the breadth, and the **vertical index** is **76·8.**

Mani; borders of Jalor and Rhaman (Plate XVI, figs. 4, 5, 6).

It is not certain that the Mani tribe is absolutely identical with the one we have described under the name Hami; but its headquarters do not lie more than twenty-five miles distant, as the track leads, from the headquarters of the Hami. It is represented in our collection by a calvaria, from the Rhaman side of the border, and by a fairly complete skeleton from a cave on the Jalor side. The calvaria we found ourselves; it was lying on the ground in a depression at the base of a limestone cliff, distant about two miles from Ban Kassôt (*antea*, p. 8). The Siamese *Nai-ban*, or headman, of this village told us that it was the skull of a Semang man in middle life, who had fallen from a tree while collecting honey and had subsequently died of 'fever,' his relatives having taken him to the base of the cliff for shelter.

The skeleton was obtained by the *môr*, or medicine-man, of the same village, and was proved to be that of a Semang, not only by the position in which it was found, but also by the character of the hair—a considerable quantity of which remained. The extraordinary state of preservation of the body has already been noted; it did not appear to be due to any fungoid growth, and was the more remarkable, seeing that the caves of Jalor are generally very damp.

Skulls. The more perfect of the two skulls, No. 3, is that of a person in the prime of life, and is certainly female; while the calvaria, No. 2, exhibits rather ill-defined male characteristics, and appears, judging from the condition of the sutures, to represent a somewhat older individual.

Norma verticalis. Both skulls are nearly oval in outline, but No. 2 has the central part of the parietal region very prominent on either side. No. 3 is mesaticephalic, and No. 2 just dolichocephalic, their respective **indices** being **76·5** and **75·0.** The slope of the post-parietal region in both is gradual, and the side walls of the cranium are almost vertical. In No. 2 there is a well-defined sagittal ridge and the vault of the cranium is roof-shaped, but that of No. 3 is fairly well rounded. In the latter skull there is a long narrow depression, embracing the posterior portion of the sagittal suture, but there is no depression or marked flattening of the kind in this part of the male calvaria. In both specimens the parietal longitudinal arc is relatively short.

Norma lateralis. In No. 3 prognathism is present but not excessive; the nasal bones are relatively flat, and the nasion is little depressed. The forehead

is low and receding in both specimens, but the glabella and supraorbital ridges are not prominent in either. In both the occipital squama is inclined to be flat, but in No. 2 the external occipital protuberance is produced into a hook-shaped process some 5 mm. in length. In No. 3 the cerebellar part of the occiput is relatively large and markedly convex downwards ; the mastoids and zygomata are feeble.

Norma facialis. The face in No. 3 is wide, the **maxillo-facial index** being **51.2,** and the **complete facial index, 85·1 ;** it is rather more arched than in No. 1. The external nares are very broad, the **nasal index, 58·7,** being strongly platyrhine ; the ridge separating the floor of the nasal cavity from the upper jaw is feebly developed. The orbits are microseme, their **index** being **80.**

In the *norma occipitalis* the characters are very similar to those of No. 1, except for the individual peculiarity in the external occipital protuberance of No. 2.

Sutures. Sutures are very complicated in both specimens ; but the denticulations are short, and there are no accessory ossicles except an epipteric bone on the right side of No. 3.

Jaws and Teeth. The lower jaw of No. 3 is stout, having the muscular impressions well marked ; the elevation of the ascending ramus is low and the sigmoid notch is shallow. The chin is prominent. The palate is narrow, its **index** being **101·8.** The teeth are in excellent condition, and none have been lost during life. Their crowns are of considerable size, and have been worn almost flat ; their sides are stained black, probably through betel chewing. The third molar has been well developed on both sides of both jaws.

Both skulls would have been microcephalic, the cubic capacity of No. 3 being only 1,030 c.c. No. 3 is phaenozygous and rests behind on both borders of the foramen magnum, which is unusually small. The height is considerably greater than the breadth, and the **vertical index** is **82·1.**

Panghan ; Hulu Pahang.

We have included in our table certain measurements from an imperfect skull preserved in the Raffles Museum at Singapore, but have had no opportunity of comparing it with other specimens or checking the measurements. It is labelled as being the skull of a 'Pangan' chief, named Saga, from Hulu Pahang. The **cephalic index (73·6)** is dolichocephalic ; the height is slightly greater than the breadth, the **vertical index** being **75·8 ;** the **nasal index (57·7)** is platyrhine, and the orbits are highly megaseme, the **index** being **95·2.**

Summary of Cranial Characters of Semang specimens.

The skulls before us range from the highest division of mesaticephaly to dolichocephaly, but the sum of their characters is surprisingly constant. They have many primitive features in common, but, without a lengthy discussion, which must be deferred for the present, it is difficult to say whether they approach the Negrito type, as exemplified by the Andamanese, or the Dravidian, as exemplified by the Veddahs, more closely ; undoubtedly they present resemblances to, and differences from, both.

Appendicular Skeleton.

The appendicular skeleton of the Semangs is represented by the pelves and long bones of Nos. 1 and 3, only the left fibula of the Mani specimen being absent. We will describe the two specimens together ; both, it will be remembered, are female.

Upper Limb. The bones of the upper limb are short and slender, having the muscular impressions feebly marked, but are otherwise well proportioned. The longitudinal curve of the clavicles is normal. The scapulae are very slight ; their axillary border is concave in the long diameter ; the suprascapular notch is very shallow in No. 1, while in No. 3 it is moderately deep ; the indices will be found in the table.

The humeri offer no particular feature of interest beyond the general characters already noted ; they have no intercondylar foramen, and the flattening of the lower part of the shaft is relatively slight. The **radio-humeral index,** taking the mean of the two sides, is **78·7** for the Semán specimen, and **81·8** for the Mani, the difference being due, almost entirely, to the greater length of the radius in the latter.

Lower Limb. The linea aspera of the femur is prominent, the pilastral indices and the measurements, which are taken opposite the nutrient foramen of the shaft, being :—

	No. 1 (Semán)	No. 3 (Mani)
Pilastral Index ...	**106·2** ...	**109·5**
Transverse Diameter	R. 20·7 mm. ; L. 21 mm.	R. 21 mm. ; L. 21 mm.
Anterior-Posterior Diameter	R. 22·2 mm. ; L. 22 mm.	R. 23 mm. ; L. 23 mm.

TABLE VI

Semangs and Sakais (Cranial Measurements and Indices)

	SEMANGS				SAKAIS						
	SEMAN	MANI		PANG-HAN	JEHEHR				MAI DARAT		
Collection Number	1	2	3	Singa-poreMus.	4	5	6	7	8	9	10
Age	Aged	Adult	Adult	Adult	Aged	Adult	Adult	Aged	Adult	Aged	Adult
Sex	♀	♂	♀	♂	♀	♂	♂	♀	♂	Metopic ♀	♀
Cubic Capacity	1150	..	1030	..	1275	1300	1365	1335	1350	1275	..
Glabello-occipital Length	168	172	162	178	173	176	191	178	186	172	170
Basi-bregmatic Height	129	..	133	135	133	137	136	133	139	126	126
Minimum Frontal Diameter	93	94	89	88	94	92	97	99	94	97	86
Stephanic Diameter	111	97	100	..	110	100	105	110	103	109	97
Asterionic „	100	98	96	..	104	101	105	110	106	105	94
Greatest Parieto-squamous Breadth	134	129	124	131	134	137	136	139	129	136	124
Horizontal Circumference	478	..	455	490	496	502	533	501	508	485	466
Frontal Longitudinal Arc	127	119	116	..	118	123	125	119	131	117	122
Parietal „ „	118	111	116	..	230	137	139	128	129	121	117
Occipital „ „	100	..	102	..		100	115	107	113	107	113
Total „ „	345	..	334	..	348	360	379	354	373	345	352
Vertical Transverse „	284	..	274	..	293	302	298	285	297	292	276
Basal Transverse Diameter	118	..	113	..	117	119	126	120	117	116	104
Vertical Transverse Circumference	402	..	387	..	410	421	424	405	414	408	380
Length of Foramen Magnum	34	..	28	..	33	34	38	36	40	34	36
Basi-nasal Length	94	..	99	104	98	100	107	96	103	97	..
Basi-alveolar Length	92	..	98	..	..	98	108	97	102	94 ap.	..
Total Longitudinal Circumference	473	..	461	..	479	494	524	486	518	476	..
Bizygomatic Breadth	124	..	121	107 (?)	128	134	136	..	127	129	..
Bimalar „	115	..	111	..	106	103	112	102	103	103	..
Nasio-mental Length	..	..	103	..	..	..	..	..	114	..	..
Nasio-alveolar Length	57	..	62	..	60	66	66	64	66	57	..
Nasal Height	44	..	46	45	47	51	47	46	52	44	..
Nasal Width	26	..	27	26	25	26	27	24	26	30	..
Orbital Width	38	..	40	42	39	39	38	38	38	37	..
Orbital Height	33	..	32	40	34	32	33	33	32	30	..
Palato-maxillary Length	53	..	56	..	..	58	..	..	..	48	..
Palato-maxillary Breadth	51	..	57	..	..	56	..	..	..	57	..
LOWER JAW: Symphysial Height	..	..	28	..	..	..	..	..	32	..	..
LOWER JAW: Coronoid „	54	..	51	..	..	..	..	50	60	50	50
LOWER JAW: Condyloid „	54	..	56	..	..	..	..	55	68	62	..
LOWER JAW: Gonio-symphysial Length	84	..	80	..	..	..	..	79	89	79	76
LOWER JAW: Bigonial Width	91	..	91	..	..	..	..	92	95	97	82
LOWER JAW: Breadth of Ascending Ramus	33	..	34	..	..	..	..	33	35	25	32
INDICES											
Vertical Index	76·8	..	82·1	75·8	76·9	78·0	71·2	74·8	74·8	73·3	74·0
Cephalic „	79·8	75·0	76·5	73·6	77·5	77·8	71·2	78·0	69·4	79·1	72·9
Gnathic „	98·0 ap.	..	99·0 ap.	..	..	98·0 ap.	100·9 ap.	100· ap.	99·0 ap.	97·0 ap.	..
Nasio-mental complete Facial Index	..	..	85·1	..	..	..	..	..	89·8	..	..
Maxillo Facial Index	46·0	..	51·2	..	46·9	49·2	48·5	..	48·1	41·0	..
Nasal Index	59·1	..	58·7	57·7	53·2	51·0	57·5	52·2	50·0	68·1	..
Orbital „	86·8	..	80·0	95·2	87·1	82·0	87·0	87·0	84·2	81·1	..
Palato-maxillary Index	96·2	..	101·8	..	..	96·5	..	..	..	122·9	..
Bigonial Index	73·4	..	75·1	..	..	..	..	..	74·7	75·2	..

Platymery occurs in both specimens, the indices and measurements, which are taken on the upper third of the shaft, being :—

	No. 1	No. 3
Platymeric Index ...	**95·9** ...	**97·8**
Transverse Diameter	R. 21·5 mm. ; L. 21·5 mm.	R. 24 mm. ; L. 23 mm.
Anterior-Posterior Diameter	R. 20·5 mm. ; L. 20·7 mm.	R. 23 mm. ; L. 23 mm.

The extensor area of the neck is barely present in No. 1, and but slightly developed in No. 3. The inter-trochanteric line is not prominent, and there is no third trochanter ; the gluteal ridge is feeble. The popliteal region is slightly concave in its main axis.

The shafts of the tibiae are platycnemic, but this feature is not so marked as in some other specimens in our collection ; the indices and measurements, which are taken on the central part of the shaft, are :—

	No. 1	No. 3
Platycnemic Index ...	**69·6** ...	**73·0**
Transverse Diameter	R. 16 mm. ; L. 16 mm.	R. 18 mm. ; L. 17 mm.
Anterior-Posterior Diameter	R. 23 mm. ; L. 23 mm.	R. 24 mm. ; L. 24 mm.

The head of the tibia is slightly retroverted in No. 3, markedly so in No. 1 ; in both specimens the external condylar surface of the head is convex, and the internal condylar surface, concave. In the inferior extremity of this bone, both extra astragalar and extra fibular facets are well developed.

The **tibio-femoral index** of No. 1 is **80·8**, and of No. 3, **83·8** ; the **humero-femoral index** of No. 1 is **69·5**, and of No. 3, **68·6**. The **inter-membral index** of No. 1 is **67·9**, and of No. 3, **67·3**.

The limb-bones of these two skeletons indicate well-proportioned but very short and slender persons, probably below 1,400 mm. (4 feet 7 inches) in stature ; they exhibit many characters usually associated with the lower races of mankind, but hardly peculiar to one stock or another.

TABLE VII

Semangs and Sakais (Measurements of Limb Bones and Indices)

	SEMANGS				SAKAIS					
	1 SEMAN		3 MANI		4 JEHEHR		7 JEHEHR		9 MAI DARAT	
	R.	L.	R.	L.	R.	L.	R.	L.	R.	L.
FEMUR—										
Maximum Length	391	387	392	392	386	392	374	373	382	384
Oblique Length	388	384	388	388	382	387	373	372	378	382
TIBIA—										
Maximum Length	320	320	333	334	..	..	313	..	300	300
Condylo-Astragaloid Length ..	312	312	325	326	..	..	305	..	295	295
FIBULA	316	316	330	..	..	..	309	..	302 ap.	..
HUMERUS	271	267	270	267	269	265	..	265	272	266
RADIUS—										
To Tip of Styloid	212	212	219	220	..	..	211	..	199	196
To Base of Styloid	207	208	215	215	..	..	208	..	195	191
ULNA—										
To Tip of Styloid	231	228	236	233	..	..	..	..	211	212
To Articular Surface	227	222	235	232	..	..	..	..	211	212
CLAVICLE	121	123	124	124	..	..	..	123	..	110 ap.
SCAPULA—										
Height..	89	87	86	86	..	..	..	85	84 ap.	83 ap.
Length..	124	126	119	119	..	..	..	120	116 ap.	113 ap.
Infraspinous Length	88	89	92	90	..	..	..	93	82 ap.	84 ap.
Supraspinous Length	48	46	38	39	..	..	..	39	40 ap.	38 ap.
INDICES										
Tibio-femoral	80·4	81·3	83·7	84·0	..	..	81·8	..	78·0	77·2
Humero-femoral	69·4	69·6	69·0	68·3	69·8	67·6	..	71·0	71·2	69·4
Radio-humeral	78·4	79·4	81·2	82·4	..	..	(79·6)		73·3	73·8
Intermembral	67·9	67·8	67·5	67·2	..	..	(69·4)		69·1	67·6
Scapular	71·8	69·1	72·1	72·1	..	..	..	70·8	72·5	73·4
Infraspinous	101·1	97·7	93·3	95·5	..	..	..	95·7	101·2	98·8
Supraspinous	54·0	52·9	44·2	45·3	..	..	..	45·9	47·6	45·9

Pelves. The two pelves are stoutly built, the translucent area of the alae being small and the remainder of the bone quite opaque. The alae are of considerable extent, but fairly vertical; the pectineal lines are rounded; the measurements and indices are given in the table :—

MEASUREMENTS AND INDICES OF PELVES

		Semán No. 1	Mani No. 3	Jehehr No. 4	Jehehr No. 7	Mai Darát No. 9
1	Breadth of Pelvis	238	236	...	...	223
2	Height of Pelvis	171	172	174	166	172
3	Between Ant. Sub. Iliac Spines ...	219	218	...	...	196
4	Between Post. Sub. Iliac Spines ...	70	81	...	...	...
5	Between Ischial Tubera	126	120	...	...	120
6	Vertical Diameter of Obturator Foramen	46	44	40	44	43
7	Transverse do. do do ...	33	33	30	32	36
8	Subpubic Angle	81°	89°	...	...	84°
9	Transverse Diameter of Brim	111	124	...	...	121
10	Conjugate Diameter of Brim	109	109	...	...	107
11	Intertuberal Diameter	106	98	...	...	97
12	Depth of Pubic Cavity	78	97	...	...	79
13	Length of Sacrum (direct)	94	97	...	...	106
14	Length of Sacrum (along curve) ...	102	100	...	...	119
15	Breadth of Sacrum	106	102	...	...	105
	Pelvic index	71·8	72·8	...	...	77·1
	Brim index	98·6	87·9	...	...	88·5
	Sacral index	88·7	94·1	...	...	100·9
	Obturator index	71·7	75·0	75·0	72·7	73·7

Vertebral Column. In No. 3 the inferior part of the vertebral column, with the exception of the sacrum, is absent; in No. 1 it is practically complete. In the former specimen the centra spinous processes and left transverse processes of the fifth and sixth dorsal vertebrae, have become anchylosed together; while the right transverse processes have remained distinct, that of the fifth vertebra being also separated from the spinous process of the same bone by a jagged break, which does not appear to be due to any posthumous accident. Professor ANNANDALE, who has kindly examined the specimen, thinks that this curious condition may possibly be due to an accident during life, which has, to some extent, been repaired by natural processes; but it is difficult, if this be the case, to account for the absence of callus.

The following measurements of the lumbar vertebrae of No. 1 show the heights, anterior and posterior, of the centra; the mean **lumbar index** is **98·6**:—

	Anterior Height	Posterior Height
First	23·5 mm	20 mm.
Second	23 „	21 5 „
Third	22·5 „	23 „
Fourth	22 „	23 „
Fifth	20 „	22 „

(*B*) Sakais

Jehehr; Temongoh, Upper Perak (Plate XVIII, figs. 1, 2, 3).

This tribe is represented by four skulls, two of which are associated with imperfect sets of the long bones. The specimens were procured in the immediate vicinity of Temongoh, where No. 5 was found by one of us (N.A.) This skull was said by the Malays, who showed me its position, to be that of a Jehehr headman named Padang, whose body had been cast into the river by his followers and had been brought ashore by the current at the village bathing place. The three remaining specimens were collected during my four days' stay at Temongoh by an old Malay woman.

Skulls. Two of the skulls (Nos. 5 and 6) appear to be male and two to be female, the sexual characters being fairly well marked. The male specimens, judging from the condition of the sutures, represent individuals in the prime of life; while both female specimens show signs of considerable age.

Norma verticalis. The outlines of Nos. 4, 5, and 7 is a broad and regular ovoid, the development of the central part of the parietal region not being excessive; but No. 6 is oval, and somewhat squared in the frontal region. The mean **cephalic index** of the four specimens is **76·1**, the extremes being **71·2** and **78·0**. The slope of the post-parietal region is gradual, in No. 6 remarkably so. In all four specimens the vault of the cranium has a tendency to be roof-shaped; this is very marked in No. 6 and least conspicuous in No. 5. In No. 7 the bregma is protuberant. The side walls of the cranium are nearly vertical except in No. 5, in which they are decidedly convex. The circular or oval depression in the post-parietal region, so often noted in our collection, is present, or has its place taken by a localized flattening in every specimen representing this tribe. The parietal arc is considerably longer than the frontal.

Norma lateralis. Prognathism is more marked than the gnathic index would seem to show, especially in No. 7. The nasal bones are very flat and

the nasion is little depressed. The glabella and supraorbital ridges are prominent in the male specimens, especially in No. 6 ; the forehead is low and receding. The outline of the cranial vault, as seen in this view, is irregular, and feebly arched as a whole. The occipital squama is convex outwards, forming a distinct boss at the back of the skull ; the cerebellar part of the bone is relatively large in Nos. 4 and 5, definitely convex downwards in Nos. 4, 5, and 7, and in No. 6 comparatively small and rather flat. The mastoids are somewhat stout, but the zygomata are slender.

Norma facialis. The face is broad and flat ; in No. 4 it is impossible to take measurements for the facial index owing to the complete atrophy of the alveolar border, but the mean **maxillo-facial index** of the remaining three specimens is **48·2,** the extremes being **46·9** and **49·2.** The external nares are very broad, the **nasal index** is practically platyrhine in every specimen; the mean in the four skulls is **52·8,** and the extremes are **51** and **57·5.** The floor of the nasal cavity is separated from the upper jaw by a transverse depression in Nos. 5 and 6, while the corresponding ridge is very feebly developed in Nos. 4 and 7. The orbits are either mesoseme or microseme, the mean **orbital index** being **85·8,** and the extremes **82·0** and **87·1.**

Norma occipitalis. The outline is rounded, except in the case of No. 6, in which it is definitely pentagonal. In Nos. 4 and 5 the conceptacula cerebelli are very prominent.

Sutures. The sutures are complicated in Nos. 4 and 7, but the denticulations are short ; in both specimens there are numerous Wormian bones, and in No. 7 a large double epipteric is present on the left side.

Jaws and Teeth. The only lower jaw preserved is that of No. 7, and in this specimen the alveoli of the molars and premolars have been largely absorbed. The same atrophy occurs in the upper jaw, but is even more complete. In the upper jaw of No. 4 the alveolar ridge has been completely absorbed. In No. 5 the molars of the left side have been lost during life ; but the third molar has been well developed on the right. In No. 6 the same loss has occurred on the left, and the third molar has been large and fully developed on the right. The teeth themselves have disappeared in all cases.

Except in one specimen, in which it is considerably less, the height of the cranium is very nearly the same as the width, the mean **vertical index** being **75·2.** The crania are on the upper limit of microcephaly, the mean capacity of the male skulls being 1,332 c.c., and of the female 1,305 c.c. They are phaenozygous, and rest behind on the posterior border of the foramen magnum.

Summary of Cranial Characters of Jehehr Specimens.

Although the cephalic index varies considerably, in form these four skulls are dolichocephalic, markedly so in the case of No. 6. As compared with our Semang specimens, they are heavy and coarse, and the characters which they have in common with Veddah skulls are more decided. How far these common characters arise from direct relationship is a question that must be discussed in a later part of the paper.

Appendicular Skeleton.

The appendicular skeleton of the Jehehr is represented by the innominate bones of Nos. 4 and 7, both females, and a few of the long bones of the same specimens.

Upper Limb. The two humeri of No. 4, and the left scapula, clavicle, and humerus, and the right radius of No. 5 have been preserved. In general characters these bones resemble those of the Semang specimens already described ; the indices of the scapula (No. 7) are given in the table. The clavicle is even slighter, in proportion to its length, than those of Nos. 1 and 3, and its longitudinal curve is more pronounced, though not excessive. The right humerus of No. 4 has a pointed process above the inner condyle, measuring 7 mm. in length—a feature of great rarity in the skeletons of primitive races. The exact **radio-humeral index** cannot be given, as the two bones of the same side have not been preserved ; but it was probably about **79·6**. The humeri of No. 4 are porportionately more slender than those of any other specimen in the collection, but this is not the case with the radius.

Lower Limb. The two femora of both specimens, and the left tibia and fibula of No. 7 are present. The femora have the same general characters as those of the Semang skeletons described ; the shafts are platymeric, and the linea aspera is prominent. The indices and the measurements, on which they are based, are as follows :—

	No. 4	No. 7
Platymeric Index ...	**95·6** ...	**97·9**
Transverse Diameter	R. 23 mm. ; L. 22 mm.	R. 25 mm. ; L 23 mm.
Anterior-Posterior Diameter	R. 22 mm. ; L. 21 mm.	R. 23 mm. ; L. 24 mm.
Pilastral Index ...	**121·5** ...	**107·0**
Transverse Diameter	R. 18 mm. ; L. 19 mm.	R. 22 mm. ; L. 21 mm.
Anterior-Posterior Diameter	R. 22 mm. ; L. 23 mm.	R. 23 mm. ; L. 23 mm.

The extensor area of the necks of the femora is feebly developed. Though the gluteal ridge is prominent there is no accessory tubercle ; the anterior

intertrochanteric line is in no way remarkable, and the popliteal region is almost flat in the line of its main axis. The tibia is platycnemic, the index and measurements being :—

Platycnemic Index	**68·0**
Transverse Diameter	16 mm.
Anterior-Posterior Diameter	23·5 mm.

The upper third of the shaft is markedly oblique, and the head is retroverted. The external condylar surface is convex, and the internal condylar surface concave. Extra astragalar and fibular facets are well developed, and the internal malleolus is very long. The **tibio-femoral index** of No. 7 is **81·8.** The **humero-femoral index** of No. 4 is **68·8,** and of No. 7, **71.** The **intermembral index** cannot be taken exactly, as neither of the specimens includes a complete set of limb-bones from one side ; but it was probably about **69·4** in No. 7.

Pelves. In the absence of the sacra it is possible to say very little about the pelves, except that they are small ; that the translucent area in the alae is inconsiderable, and that the alae themselves have been moderately vertical.

Mai Darát ; Batang Padang, South Perak (Plate XVII).

This tribe is represented by a fairly complete skeleton and two skulls, one of which lacks the facial region. The specimens were obtained, under our own supervision, from Sakai clearings in the Batang Padang district, Nos. 8 and 9 coming from the neighbourhood of Tapah, and No. 10 from Paku near Bidor.

A point of some interest is the fact that wherever the brass ornaments buried with the bodies had come in contact with them, a compound of copper had been formed which had preserved the flesh beneath it, more or less perfectly, though the bones were elsewhere dry, if they had not disappeared, as was occasionally the case.

Skulls. One of the skulls (No. 8) appears to be that of a male rather past middle life, while the other two specimens exhibit female characters, and were proved to have been the skulls of women by the ornaments buried with them (*antea*, p. 45).

Norma verticalis. The outline in No. 8 is a narrow oval ; in No. 9 a broad and regular ovoid ; No. 10 is, to some extent, intermediate, but the central part of the parietal region is very protuberant. The mean **cephalic index** is **73·8,** but the individual indices show great variation, being **69·4,**

79·1, 72·9. The post-parietal slope is very gradual in No. 8, only moderately so in No. 9, and in No. 10, intermediate. The vault of the cranium is flat in No. 9, decidedly roof-shaped in No. 8, and rather less so in No. 10; in No. 8 there is a definite sagittal ridge. The side walls of the cranium are almost vertical in No. 8, somewhat convex in Nos. 9 and 10. The depression in the post-parietal region, noted in several of our skulls, is absent in Nos. 8 and 10, and is represented by a local flattening in No. 9. In Nos. 8 and 10 the frontal longitudinal arc is slightly longer than the parietal, and the reverse is the case in No. 9.

Norma lateralis. Prognathism is present, but not excessive, in Nos. 8 and 9. The external nares are wide, and the nasal bones flat, but these characters, which are very marked in No. 9, are less pronounced in No. 8 than in any other of our Sakai or Semang specimens. The glabella and superciliary ridges are not prominent in any of the three specimens, and the forehead is fairly vertical in Nos. 9 and 10, but low and retreating in No. 8. The outline is very flat in Nos. 8 and 9, somewhat arched in No. 10. The occipital squama is convex, forming a boss; the cerebellar part of the occiput is moderate in dimensions in Nos. 8 and 10, somewhat larger in No. 9. The mastoids are fairly stout in Nos. 8 and 9, somewhat feeble in No. 10. The zygomata are comparatively stout in No. 8, slender in No. 9.

Norma facialis. The face is broad and very flat in No. 9, the **maxillo-facial index** being only **41**; in No. 8 it is much longer and narrower and somewhat more arched, the same index being **48·1**, while the **complete facial index**, which could not be taken in No. 9 on account of atrophy of the lower jaw, is **89·8**. The **nasal index** in No. 8 is only mesorhine, **50·0**, but in No. 9. it is hyperplatyrhine, **68·1**. The **orbital indices** of Nos. 8 and 9 are **84·2** and **81·1**, respectively.

Norma occipitalis. The outline is oval in No. 8, fairly circular in Nos. 9 and 10. The conceptacula cerebelli are fairly prominent in No. 10, but less so in the other specimens.

Sutures. In all three specimens the sutures are fairly simple and have remained unossified, in spite of the great age indicated by the condition of the jaws in No. 9. This is the only metopic specimen in the collection. In No. 8 there are two small Wormian bones in the right lambdoid suture, and one each in the left lambdoid and the asteria. The conditions in No. 10 are somewhat similar.

Jaws and Teeth. The lower jaw is present in all three specimens; but in No. 9 it has become completely edentulous through age, even the alveolar border having been absorbed, while in No. 10 it is somewhat broken. In No. 8

it is fairly massive; the ascending ramus is comparatively short, and the sigmoid notch moderately shallow; the prominence of the chin in this specimen is considerable, though in No. 10 it is feebly marked.

The teeth are in good condition in No. 8, but in the left side the second premolar and the first molar have been lost during life, while the first and third molar have also disappeared on the right, apparently before death. The dentition has been that of a normal adult. The crowns of the teeth, both in Nos. 8 and 10, are large and have not been worn flat.

The height of the cranium in No. 8 is considerably greater than the breadth; in No. 10 it is slightly greater, and in No. 9 considerably less. The **vertical indices** are **74·8, 73·3,** and **74·0.**

The skull of No. 9 is microcephalic, the cubic capacity being 1,275 c.c., while No. 8 just reaches the lower limit of mesocephaly, having a capacity of 1,350 c.c. The skulls are phaenozygous and rest behind on the anterior border of the foramen magnum.

Summary of Cranial Characters of Mai Darát Specimens.

The characters of these three skulls show such great individual variation, that the only possible summary of their characters is to say that they have few in common beyond a small cubic capacity and a decided dolichocephalic tendency. Their primitive features are, perhaps, less extreme than in the case of the Semang specimens.

Appendicular Skeleton.

The appendicular skeleton of No. 9, a female, is complete but for the loss of the right clavicle, as far as the larger bones are concerned.

Upper Limb. The scapulae are small and light, the axillary border is almost straight, and the supra-scapular notch is shallow. The indices are given in the table. The left clavicle is very slender, but the trapezoid lines and the conoid tubercle are well developed; the longitudinal curve is moderate. The humeri are relatively stout, and the radii and ulnae are extremely short as compared with the humeri, the **radio-humeral index** being only **73·5.** This shortness, however, is to some extent more apparent than real, being partly due to the obliquity of the upper third of the shafts. There are no indications of disease, but the obliquity is so great in the ulna that on a tracing of the anterior view of the bone a straight line drawn in continuation of the outline near the centre of the shaft passes 15 mm. behind the posterior border of the tuberosity; while in the case of the radius, in which the curve is naturally directed in the opposite direction, a straight line drawn in the same way passes

3 mm. in front of the anterior border of the articular surface of the head. These measurements refer specially to the bones of the right arm, but are closely paralleled by those of the left.

Lower Limb. The bones of the lower limb are comparatively stout, and do not indicate any peculiarity comparable to that of the forearm. The linea aspera of the femur is very prominent, the pilastral index and the measurements from which it is derived being :—

Pilastral Index	...	**117·9**
Transverse Diameter		R. 23 mm. ; L. 23 mm.
Anterior-Posterior Diameter		R. 19 mm. ; L. 20 mm.

The platymeric index and corresponding measurements are :—

Platymeric Index	...	**91·6**
Transverse Diameter		R. 21 mm. ; L. 20·5 mm.
Anterior-Posterior Diameter		R. 23 mm. ; L. 22·5 mm.

The extensor area of the neck is not pronounced, and there is no third trochanter. The popliteal region is slightly concave in its main axis. The shaft of the tibia is sabre-shaped ; the platycnemic index and the corresponding measurements are :—

Platycnemic Index	...	**66·2**
Transverse Diameter		R. 14·5 mm. ; L. 15 mm.
Anterior-Posterior Diameter		R. 22·5 mm. ; L. 22 mm.

The head is considerably retroverted. The external articular surface of the head is convex, and the internal articular surface concave. An extra astragalar facet is well marked.

The fibulae are stout, relatively to the tibiae, and have the muscular impressions better developed than on the other bones of the lower limb ; their shafts are straight.

Pelvis. The pelvis is fairly stout, and the translucent area of the alae is small. The alae themselves are of relatively small extent, and are very vertical.

Vertebral column. The lumbar vertebrae are too much injured for exact measurement. The spinous process of the first lumbar vertebra has never become anchylosed to the lateral processes but has merely articulated with them.

The skeleton shows signs of old age, and also of slight abnormality, but in general characters resembles the other skeletons already described in this section of the paper.

A curious point in connexion with our collection of Semang and Sakai skeletons is the large proportion of aged females represented. This peculiarity does not occur in the Orang Laut Kappir or in the Malayo-Siamese collections, and the only explanation that we can suggest is that the Semangs and Sakais, ancestor-worshippers as they are, would have objected to our disturbing the more powerful ghosts of men in the prime of life. The Orang Laut Kappir and the Malayo-Siamese specimens were obtained under somewhat different conditions.

EXPLANATION OF PLATES XVI, XVII, XVIII

PLATE XVI

Semán ; Grit, Upper Perak (pp. 150, 155, No. 1)

Fig. 1. Norma facialis
2. Norma lateralis
3. Norma verticalis

Mani ; borders of Jalor and Rhaman (pp. 152, 155, No. 3)

Fig. 4. Norma facialis
5. Norma lateralis
6. Norma verticalis

PLATE XVII

Mai Darát ; Batang Padang, South Perak (pp. 162, 155, Nos. 8, 9, 10)

(*a*) Skull No. 9, ♀

Fig. 1. Norma facialis
2. Norma lateralis
3. Norma verticalis

(*b*) Skull No. 8, ♂

Fig. 4. Norma facialis
5. Norma lateralis
5. Norma verticalis

PLATE XVIII

Jehehr ; Temongoh, Upper Perak (pp. 159, 155, Nos. 4-7)

Skull No. 6, ♂

Fig. 1. Norma facialis
2. Norma lateralis
3. Norma verticalis

Orang Laut Kappir ; Coast of Trang (pp. 167, 174, Nos. 11-18)

Skull No. 11, ♂

Fig. 4. Norma facialis
5. Norma lateralis
6. Norma verticalis

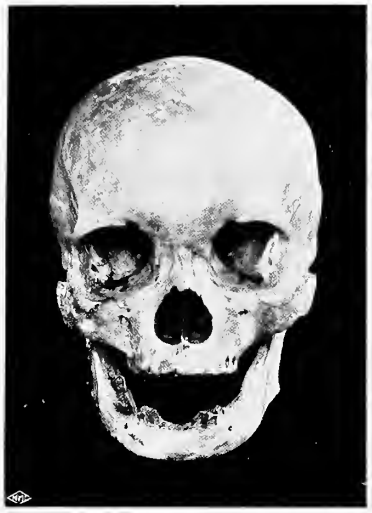

Fig. 1.

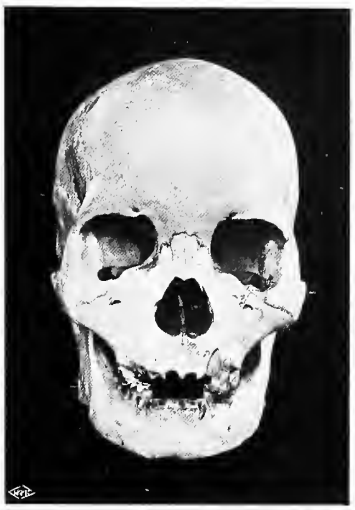

Fig. 4

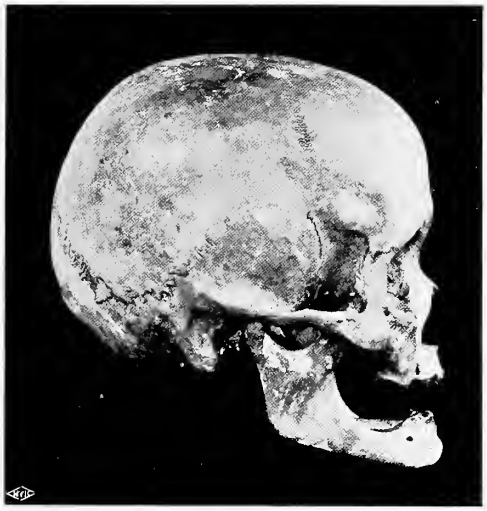

Fig. 2.

Fig. 5.

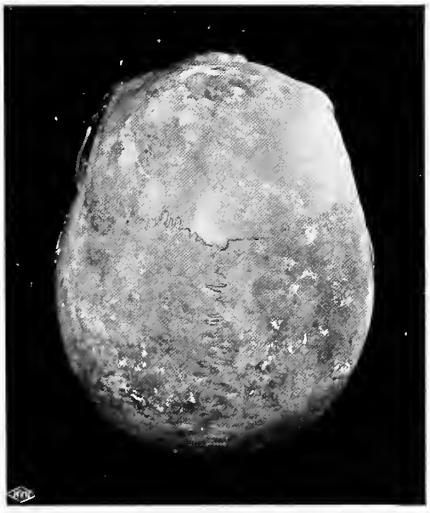

Fig. 3.

Fig. 6.

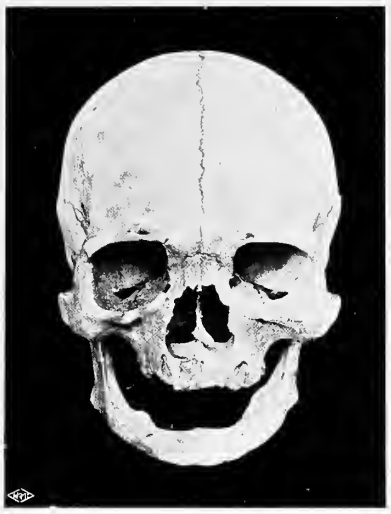

Fig. 1.

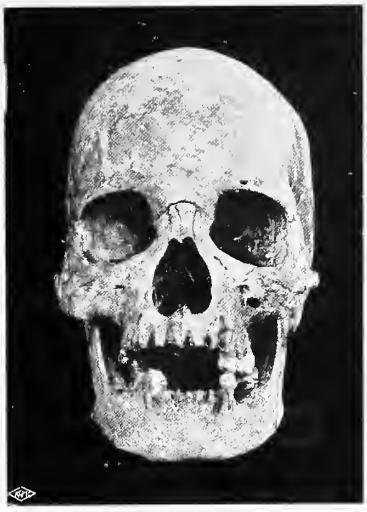

Fig. 4.

Fig. 2.

Fig. 5.

Fig. 3.

Fig. 6.

Fig. 1.

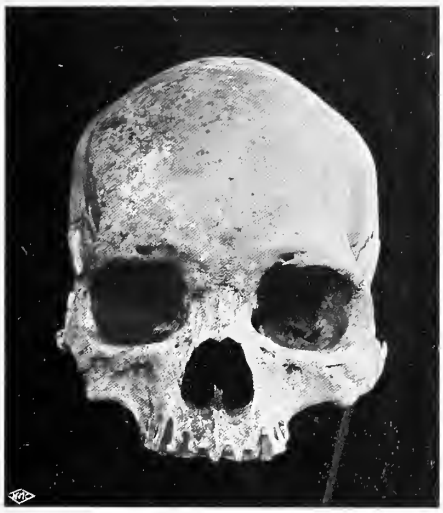

Fig. 4.

Fig. 2.

Fig. 5.

Fig. 3.

Fig. 6.

Part II.—Coast Folk of Trang

N.A.

(*A*) *Orang Laut Kappir, Coast of Trang* (Plate XVIII., Figs. 4, 5, 6; Specimens 11-18)

The eight skulls representing this tribe were found exposed, together with a number of others too fragile and injured for removal, in the second of the two cemeteries described (*antea* pp. 63, 64). Owing partly to the action of the weather and partly to the growth of a microscopic green alga, which has eaten into the bone wherever it was not covered by the sand, the skulls are in a very imperfect condition, the lower jaw having disappeared in the majority of the specimens, while the facial region and the floor of the cranium have been much injured in several. It happens in some instances, that the exact point of measurement has been slightly worn or broken, and in such cases I have measured from the nearest point remaining, and have added $+x$ to the figure recorded, to show that it is rather smaller than it would have been in the perfect skull.

Skulls. I regard four of the skulls as being those of males and four as those of females; but the sexual characters are feebly marked in the majority of the specimens, and the sex of Nos. 17 and 18 is perhaps a little doubtful; the condition of the sutures shows that all the individuals represented in my series have been adults.

Norma verticalis. The outline of the skulls is ovoid, being considerably narrower in the frontal than in the parietal region, but fairly symmetrical in all the specimens. The parietal eminences are distinct, but not very prominent. Out of the eight skulls six are mesaticephalic, while two just fall within the delichocephalic category; the mean **cephalic index** is **77·0** and the extremes are **74·9** and **78·8**. The vault of the cranium is fairly rounded, but shows a slight tendency, more marked in Nos. 16 and 17 than in the rest, to be roof-shaped. There is not a definite sagittal ridge in any specimen. In No. 16 the frontal longitudinal arc is equal to the parietal, but in the other

specimens, where the absence of Wormian bones permit a statement on the point, the parietal is the shorter of the two; the occipital arc appears to have been relatively long. The transverse constriction, known to French anthropologists as *la bande de la Toulousie*, is well marked in No. 16; and in all the specimens a large oval depression, embracing in its longer diameter the sagittal structure, is a conspicuous feature of the posterior parietal region (*cf. antea* p. 151). Possibly it may have been produced by the pressure of a knot or some other fastening during infancy. The posterior slope of the cranium, influenced to some extent by this depression, commences about midway between the bregma and the lambda, and is very gradual. The side walls of the cranium are slightly convex.

Norma lateralis. In those specimens in which the upper jaw has been preserved, prognathism is absent. The contour of the nasal bones, the tips of which have been broken in every skull, shows that the nose could not have been prominent in life, and that a definite bridge must have been present. The glabella and occipital ridges are prominent, especially in Nos. 11, 16, and 17. The mastoid and zygone are comparatively stout, especially in No. 16. The outline between the glabella and the occipital point forms a fairly regular arc, but the external occipital protuberance is very prominent, and the squama itself is flattened rather than convex. The cerebellar part of the occiput is convex downwards, arguing a great convexity of the external surface of the cerebellum; it is also of relatively great extent.

Norma facialis. The face is broad and flat, though the cheek-bones are not so prominent as in many Mongoloid skulls. As the zygomata have been broken in all the specimens on one side or on both, it is impossible to give the exact facial index, but it was probably chamaeoprosopic; the external nares are wide, and in two out of the three specimens in which it was possible to calculate the **nasal index**, it was broadly platyrhine (60·9 and 56·3), while in a third it was mesorhine (48·9). The floor of the nasal cavity is not separated from the upper jaw by a ridge, but rather by a transverse depression, interrupted in the middle line. The shape of the orbits varies considerably, and the extremes of the **orbital index** in five specimens are 62·5 and 84·2, the former being microseme to an unusual degree. The forehead is not a receding one, and the frontal region is well developed.

Norma occipitalis. The outline is somewhat squared. All the depressions and ridges seen in this view are particularly well marked and definite.

Sutures. The sutures are complicated in all the skulls, and the presence of Wormian bones is common. In No. 11 there are three supernumerary ossicles, two of them of considerable size, at the junction of the sagittal and

lambdoid sutures, in the right lambdoid there is a regular chain of small bones, while there are also two or three minute ones in the left. In No. 12 the conditions are much the same as far as the lambdoid suture is concerned, but left and right are reversed and the bones are larger. In No. 13 there is a Wormian bone of considerable size in the lambda. Epipteric bones are present in Nos. 11, 12, and 16.

Jaws and Teeth. The lower jaws are too much injured for it to be possible to discuss their features, but the chin appears to have been fairly prominent. *Post-mortem* action of the weather has split the teeth in several specimens, but in all they appear to have been sound during life. Their crowns are large and have not been worn flat, and there is no trace of blackening through betel-chewing. Though the skulls are those of fully adult persons, there is no sign of the development of the third molar of the upper jaw on the left side in Nos. 11, 12, and 13; it has been present on the right in all three skulls and on both sides in No. 15, while in the remaining four specimens its presence or absence cannot be diagnosed, owing to the broken condition of the jaw. The corresponding tooth of the lower jaw has been present on both sides in Nos. 13 and 15, though apparently in a rudimentary condition on the left side in the former. The palates are relatively broad.

The **cubic capacity** of a male skull (No. 11) is **1,440** c.c., that of a female (No. 12) **1,170** c.c. All the specimens, so far as can be judged, may have been phaenozygous, and probably rested behind on the posterior border of the foramen magnum.

Summary of Cranial Features.

All the eight skulls representing this tribe are practically mesaticephalic by measurement, approaching in form more nearly to the dolichocephalic than the brachycephalic type. A remarkable feature is the great development of the cerebellar part of the occiput. The series is sufficiently large, seeing that its leading features are constant in the different specimens, to give some indication of the cranial type of the race it represents, but is far too small to indicate the exact relationships of that race, even supposing that craniology alone could do so. We may safely conclude that the skulls show both primitive features and features generally associated with more highly developed races, and that they exhibit very close resemblances to the two Selung skulls described by Sir William Turner.[1]

1. In Dr. Anderson's *The Selungs of the Mergui Archipelago*, London, 1894. It may be worthy of note that in one of these skulls, which I have had an opportunity of examining and comparing with my Orang Laut Kappir specimens, the development of the third molars is abnormal.

It will be noted that the measurements of the skulls do not accord with those of the heads of four living individuals (*antea* p. 116), but three of these persons belonged to one family, to which the fourth was probably related, and, in any case, so small an anthropometrical series is bound to be no more than the merest approximation, and is apt to be most fallacious ; we have merely placed the figures on record.

Limb Bones. The long bones of the skeletons that had been exposed in this cemetery were in an even less perfect state than the skulls, and they had been so dragged about by crabs, rats, and small carnivores—with the tracks of which the sand was scored—that it was impossible to say, in most cases, which should be associated with which. I succeeded in preserving two femora (A), that seemed to be a pair, and an incomplete set of limb bones (B). In associating the latter, I was obliged to rely on their condition rather than their position, though they lay within a radius of a few yards. They appeared to be considerably more recent than the other bones near them, but it was impossible to associate them with any skull.

Measurements

	A	B
Femur—Extreme Length ...	R. 403 mm. ; L. 405 mm.	R. 417 mm.
Oblique Length ...	R. 402 mm. ; L. 405 mm.	R. 415 mm.
Tibia—Extreme Length ...	... .	L. 365 mm.
Condylo-Astragalar Length	... ...	L. 356 mm.
Humerus—Length	... ...	R. 295 mm.
Ulna—Extreme Length ...	... ...	R. 247 mm.
Articular Length ...	... ...	R. 245 mm.

Upper Limb. The upper limb is represented by the right humerus, radius, and ulna of B, but, except the ulna, these bones are all more or less injured, and the lower extremity of the radius is shattered. The humerus is slender, but well proportioned, and the muscular ridges are prominent, rather more so than on the corresponding bone of the lower limb. The transverse diameter of the upper and lower third of the shaft is fairly uniform. There is an intercondylar foramen. The radius is also slender, and the transverse diameter of the shaft in the corresponding regions is approximately equal.

Lower Limb. The lower limb is represented by the two femora constituting the specimen A, and by the right femur and left tibia of B. The three femora are all slender, and the muscular ridges are not more than moderately well marked in either specimen. The linea aspera is not prominent, and the shafts of A are rather more rounded, and have the surfaces less distinct, than that

of B; the **pilastral index** of A, taking the mean of the two bones, is practically **100**, and that of B is **96**. The actual measurements, taken opposite the nutrient foramen, are as follows :—

	A	B
Anterior-Posterior Diameter	R. 24 mm. ; L. 23 mm.	24 mm.
Transverse Diameter	R. 23 mm. ; L. 23 mm.	25 mm.

The **platymeric index** for A is **75·4**, and for B, **75·8**. The following are the measurements, taken on the upper third of the shaft :—

	A	B
Anterior-Posterior Diameter	R. 22 mm. ; L. 21 mm.	22 mm.
Transverse Diameter	R. 29 mm. ; L. 28 mm.	29 mm.

The line separating the neck of the femur from the anterior articular surface of the head is fairly definite, and there is no extensor area.

The head of the tibia is somewhat retroverted, the external condylar surface is slightly convex, and the internal surface, concave. The shaft is sabre-shaped, and the **index of platycnemy** is **67·8**; the measurements from which this index is calculated are :—transverse diameter of the shaft, 19 mm. ; anterior-posterior diameter, 28 mm. In the lower extremity, the additional tibio-astragalar articulation, so common in the skeletons of all races who are in the habit of squatting, is conspicuously marked. The groove for the tibialis posticus is unusually well defined.

Without being acquainted with the normal proportions of the body of the Orang Laut Kappir, and without knowing to which sex the bones obtained belonged, it is impossible to calculate the stature of the individuals which they represent exactly, but it is safe to say that these individuals must have been persons of slender build and low stature, as is also indicated by a portion of the pelvis associated with specimen B. The exact tibio-femoral index cannot be taken, as the corresponding bones of the same side are not present, but there is ground for stating that the lower limb was dolichocnemic. The **humero-femoral index** for B is **71·1**.

(B) Samsams (?) ; Pulau Mentia (Specimens 19, 20)

The two skulls and the limb bones described under this heading were procured by myself on the island of Pulau Mentia or Kok Muk; they were lying on the jungle floor, about half-a-mile from the Samsam camp, from which I believe they originated. The man who indicated their position to me was the Siamese who farmed the edible birds' nests of the island; he told me that

the bones were those of members of the Orang Laut Kappir tribe, but at the same time begged me not to inform the 'Malays' (*i.e.*, the Samsams) that I had taken them. From the relative position of the bones as they lay on the ground it seemed probable that they had fallen from a tree, and, so far as I was able to discover, the Orang Laut Kappir never adopt 'tree burial,' though it is very probable that they leave the bodies of those who have 'died badly' exposed wherever they may chance to breathe their last. I did not believe the nest-farmer at the time, and the improbability of the specimens having been of Orang Laut origin is intensified by examination of their anatomical characters and comparison with the series from Chau Mai. There remains the possibility that these Pulau Mentia skulls may be those of Siamese or Chinese, but comparatively few Chinamen visit the islands off the coast of Trang, and those who do so are fairly prosperous merchants; while the Siamese do not live on the islands unless they are revenue officials, as on Pulau Telibun, or farmers of the nests, that is to say, unless they are comparatively wealthy or important persons, whose bodies would be either cremated or buried. Moreover, I do not think that a Siamese would have permitted me to remove the bones of one of his own race. I, therefore, conclude that the specimens represent the Samsams of Trang, but have added a note of interrogation to the heading to show that the exact origin of the bones has not been absolutely authenticated, as in the case of the rest of our osteological collection.

Skulls. I have no doubt that both the skulls are those of adult males, though the third molar has not been erupted on either side of the upper jaw in No. 19.

Norma verticalis. The outline of the skulls is a broad ovoid, rather asymmetrical in No. 19, owing to the greater prominence of the left parietal region. There are, however, no traces of artificial shortening of the cranium. The **cephalic index** of No. 19 is just mesaticephalic **(79·3)**, while that of No. 20 is strongly brachycephalic **(86·1)**. The vault of the cranium is rounded in No. 20, rather inclined to be flat in No. 19; there is no sagittal ridge in either specimen. The posterior slope of the cranium is abrupt in No. 20, rather less so in No. 19. The side walls are convex. The parietal longitudinal arc is greater than the frontal in both specimens.

Norma lateralis. The facial region is missing in No. 20. In No. 19 prognathism is absent; the nasal bones are prominent as compared with those of the Orang Laut Kappir, but not so as compared with those of Europeans or even Chinamen, and there has been a definite bridge to the nose. The glabella and supraorbital ridges are not prominent in either specimen, but

the mastoid and zygoma are stout. The squama of the occipital bone is inclined to be convex, and the cerebellar part of the occiput is comparatively flat and of relatively small extent.

Norma facialis. The face of No. 19 is broad and rather flat, the **maxillo-facial index** (KOLLMAN's) being **55·9**. The external nares are wide, the **nasal index** being **48·1,** mesorhine. The floor of the nasal cavity is separated by a well-defined ridge from the maxillary region. The **orbital index** is **89·7,** megaseme. The forehead is not a receding one.

Norma occipitalis. The outline is square in No. 20, while in No. 19 the sides slope inwards towards the base of the skull.

Sutures. The sutures of both skulls are comparatively simple, and there are no Wormian bones in either.

Teeth. As noted already, the third molar has not appeared on either side of the upper jaw in No. 19. The point, taken in connexion with similar reductions noted in other skulls in our collection, is of interest in the light of statements often made regarding dental degeneration in highly civilized races. The few teeth that remain in the specimen are well preserved and white, and it does not appear that any have been lost during life. Their crowns are of moderate size and have not been ground flat.

The **cranial capacity** of No. 19 is high, **1,655** c.c. The skull is phaenozygous, and rests behind on the posterior border of the foramen magnum.

Summary of Cranial Features.

Both skulls are brachycephalic in form, though one of them falls within the mesaticephalic category numerically. They differ widely from the skulls of the Orang Laut Kappir, and indicate a comparatively high position for the race they represent, so far as it is possible to make a statement of the kind on the evidence of two skulls.

Limb Bones. The appendicular skeleton is represented by the two femora of No. 19, and by the left radius, femur, and tibia of No. 20. In both cases the bones were found in close proximity to the skulls with which they have been associated ; the skulls lying at some yards' distance from one another. No other bones could be found. The measurements are :—

	No. 19	No. 20
Femur—Extreme Length ...	R. 424 mm. ; L. 430 mm.	L. 427 mm.
Oblique Length ...	R. 419 mm. ; L. 426 mm.	L. 424 mm.
Tibia—Extreme Length ...	... ...	L. 325 mm.
Condylo-Astragalar Length	... ...	L. 315 mm.
Humerus—Length	... ...	L. 315 mm.

TABLE VIII

Coast People of Trang (Cranial Measurements and Indices)

	ORANG LAUT KAPPIR								SAMSAMS (?)	
Collection Number	11	12	13	14	15	16	17	18	19	20
Age	Adult	Adult	Adult	Adult	Adult	Adult	Adult	Adult	Adult	Adult
Sex	♂	♀	♀	♀	♀	♂	♂	♂	♂	♂
Cubic Capacity	1440	1170	..	..	..	..	..	..	1655	..
Glabello-occipital Length	180	175	174	179	174	188	176	173	184	166
Basi-bregmatic Height	138	132	..	126 +*x*	..	..	..	..	141	132 +*x*
Minimum Frontal Diameter	98	96	90	84	93	100	94	..	95	96
Stephanic Diameter	110	98	104	102	118	112	100	..	118	113
Asterionic Diameter	108	101	107	111	108	120	114	106	115	110
Greatest Parieto-squamous Breadth	142	131	136	134	136	142	135	136	146	143
Horizontal Circumference	520	490	495	494	496	530	503	490	527	493
Frontal Longitudinal Arc	134	133	122	131	131	132	120	133	130	119
Parietal „ „	235	109	..	119	119	132	117	121	138	125
Occipital „ „		114	..	..	..	115	..	..	127	111
Total „ „	369	356	..	..	..	379	..	..	395	355
Vertical Transverse Arc	310	287	276	..	287	310	285	302	321	..
Basal Transverse Diameter	132	120	112	..	115	132	124	125	128	..
Vertical Transverse Circumference	442	407	388	..	402	442	409	427	449	..
Length of Foramen Magnum	37	35	..	..	..	..	..	..	34	33
Basi-nasal Length	100	100	..	..	..	..	..	..	98	..
Basi-alveolar Length	96	..	..	..	..	..	..	..	89	..
Total Longitudinal Circumference	567	..	..	..	..	..	..	..	..	..
Bizygomatic Breadth	136 +*x*	130 +*x*	..	..	..	..	..	..	134	..
Bimalar „	110	100	95	..	100	..	..	..	112	..
Nasio-mental Length	..	..	107	..	..	..	..	..	..	..
Nasio-alveolar Length	65	..	60	..	..	..	..	56	75	..
Nasal Height	48	..	45	..	46	..	..	45	54	..
Nasal Width	27	..	22	..	28	..	..	..	26	..
Orbital Width	42	41	38	..	40	..	..	40	39	..
Orbital Height	30	34	32	..	30	..	..	25	35	..
Palato-maxillary Length	52	..	46	..	..	..	..	..	50	..
Palato-maxillary Breadth	64	..	60	..	..	..	..	..	65	..
Lower Jaw: Symphysial Height	..	..	..	..	..	..	..	31	..	..
Lower Jaw: Coronoid „	..	..	..	..	..	..	..	..	..	..
Lower Jaw: Condyloid „	..	..	58	..	..	..	..	..	..	..
Lower Jaw: Gonio-symphysial Length	..	..	88	..	..	..	97	72 +*x*	..	..
Lower Jaw: Bigonial Width	..	..	99 +*x*	..	..	..	99	85	..	..
Lower Jaw: Breadth of Ascending Ramus	..	..	38	..	..	..	41	40	..	..
INDICES										
Cephalic Index	78·9	74·9	78·2	74·9	78·2	75·5	76·7	78·6	79·3	86·1
Vertical „	76·7	75·4	..	..	..	..	..	..	76·6	..
Maxillo-facial Index	..	..	..	..	..	..	..	..	55·9	..
Gnathic „	96·0	..	..	..	..	..	..	..	90·8	..
Palato-maxillary „	123·1	..	130·4	..	..	..	..	..	130·0	..
Nasal Index	56·3	..	48·9	..	60·9	..	..	..	48·1	..
Orbital „	71·4	82·9	84·2	..	75·0	..	..	62·5	89·7	..

Upper Limb. The humerus, as, indeed, are all the long bones representing the two skeletons, is comparatively stout, and has the muscular impressions well marked. The lower part of the shaft is relatively flat and broad. There is no intercondylar foramen.

Lower Limb. The femora have the muscular impressions prominent, and the linea aspera is relatively well developed in both specimens; the **pilastral index,** taking the mean of the two bones in No. 19, is 110·2 in that specimen, and 111 in No. 20. The measurements on which it is based are :—

	No. 19	No. 20
Transverse Diameter	R. 25 mm. ; L. 24 mm.	L. 26 mm.
Anterior-Posterior Diameter	R. 27 mm. ; L. 27 mm.	L. 29 mm.

The **platymeric index** of No. 19 is **81·9,** while that of No. 20 is **75·7.** The measurements for this index are :—

	No. 19	No. 20
Transverse Diameter	R. 32 mm. ; L. 29 mm.	L. 33 mm.
Anterior-Posterior Diameter	R. 26 mm. ; L. 24 mm.	L. 25 mm.

The torsion of the shaft of the femur in No. 19 is considerable. The extensor area of the neck is well developed, especially in the right bone of No. 19.

The tibia is relatively very short, the **tibio-femoral index** being only **74·3,** and the condylo-astragalar length of the bone being the same as the extreme length of the humerus. The head of the tibia is not retroverted, but the shaft is platycnemic, though not so conspicuously so as in the case of the Orang Laut Kappir specimen. The **platycnemic index** is **75,** and the measurements on which it is based are :—transverse diameter, 21 mm.; anterior-posterior diameter, 28 mm. In the lower extremity of the bone the extra astragalar facet is well marked. The tibialis posticus groove is ill defined and shallow.

The bones of the lower limb indicate stoutly built individuals of fairly short stature. The **humero-femoral index** is the same as the **tibio-femoral,** viz., **74·3.**

ANTHROPOLOGICAL MISCELLANEA

THE CLEFT ROCK, THE ROCK THAT CATCHES (FOLK)

A Malay Story

[*This story was told me by a Singapore Malay living in Patani, who said that the Cleft Rock was in Malacca. I translated it as he told it me, sentence by sentence, and have thought it worth while to publish my translation, as a contrast to the Siamese story that follows, and as a good example of the etymological explanations in which the Malays delight. It was told me to explain the name of a fish, the Mudhopper (Periophthalmus), which is called 'Ikan Timbakul,' in Patani; but it will be observed that the said fish is heard no more of after the first few sentences.* N.A.]

'There was once a poor man, who had two children, the elder a boy and the younger a girl. Their mother went out to look for the fish called *Ikan Timbakul*, which she took, together with their eggs, in a basket (*bakul*). So she brought home the eggs, and bade her son look after them; but he ate them. Then she went out to look for more fish, and afterwards came home again and asked for the eggs. The boy said that his little sister had eaten them. But, when she saw that the eggs were no more, the mother's heart grew a little sore against her children; and she cooked seven *ketupat* (triangular cakes of glutinous rice packed in strips of palm-leaf), and took a little of her own milk, which she placed on a caladium leaf. Then she left the *ketupat* and the milk with her children, and went out, and came to a certain rock, called the Cleft Rock, the Rock that Catches (Folk)—*Batu Blah*, *Batu Bertangkop*—and entered within it, for it had a great hole in its side like a mouth. But the boy wept when he saw her going within, and seized her hair, and pulled out seven hairs. Then he fetched his little sister, and ran off into the jungle, carrying her in his arms.

'For many years these two wandered in the jungle. The boy's name was Bunga Pekan (Flower of the Market), and the girl was called Bunga Melor (Jasmine Flower). On a day they saw a hawk carrying off a chicken, and the boy went near and struck it from the talons of the hawk; and he took the chicken, and saw that it was a young fighting-cock. So he and his little sister carried it between them, one on each side, and they journeyed, but not for many moons, until the cock grew big. Then, having journeyed, they came near a certain rich city; and here they built a small hut, for they were very poor, and tied it together with their mother's seven hairs.

'So they abode in their hut, but it was difficult for them to eat rice (*i.e.*, to obtain a living), for they were exceeding poor. "Well," said the brother, "my little sister shall stay at home, and her big brother will go and look for food." So the boy went forth with the fighting cock, and entered into the city. Then he took his cock and matched it against another, the lord of which was the prince of the city. But the prince said, "Hey! thou art a poor boy, how much wilt thou wager with me?" "Your Highness," said the boy, "if thy cock wins, take my body to be thy slave; but if my cock wins, I beg for a little mouldy rice, for I am a poor man." But his cock fought and won, and the prince gave him food and clothing. So he went back to his little sister's hut, and called aloud, "Little sister! little sister! open the door! Your brother has returned from his quest." Then said she, "If it be indeed my brother, let the cock crow over the door!" Then the cock crew, and she opened the door, and they ate, and clothed themselves.

'Day by day the boy took his cock (into the city), and day by day it won; until at last the prince sent a man to see where he lived, while he fought it before him. So the prince's slave went forth from the rich city, and saw the little hut; and he saw that the boy's sister was surpassing fair, and went back and told his lord. "It is well," said the prince. "To-morrow ye shall keep the boy, and I will go and see the maid." So on the morrow the boy came with his cock, and the servants of the prince detained him, while the prince went forth with his messenger to the hut. Then when they came to the hut, the prince changed himself into the snake called *Ular Lidi*, the 'Snake (like) the Midrib of a Palm-leaf.' [A common species goes by this name in Patani.] And he crawled within through a small hole, and seized the maid, and wound himself round her waist. Then the boy came back, when he had ceased cock-fighting, and, when he came to the hut, he cried aloud, "Little sister! little sister! open the door!" But the maid replied, "Stay, big brother! a snake is coiled round my waist." So her brother broke open the door, and seized a jungle-knife to slay the snake. "Stay," said the snake, "Slay me not!" Then the snake changed into the prince once more. "It is well," he said. "Slay me not! I will make the maid my wife." So he took the maid and her brother and the cock back to the city; and her he married, but he made the boy his vizier.

'Now the Cleft Rock that devoured the woman may be seen to this day in the country of Malacca.'

A SIAMESE LEGEND OF THE ORIGIN OF LEECHES

[*This legend was told by a Siamese 'nai-ban,' or head of ten households, at the village of Ban Kassôt, on the Jalor-Rhaman border. His Malay was inadequate to express his meaning, and I was, therefore, obliged to make use of a Malay-speaking Siamese as interpreter. The story has probably suffered in double translation, but I believe that the incidents are accurately transcribed.* N.A.]

'There was in a certain country a giantess (*bôtor*) named Nang Sung Sa. She had a daughter, Nang Kang Rhi, and her husband was King of the Giants. He died, and she took a Siamese husband—a man, not a giant—named Pra Rhot Ya Sip. Before he married the giantess, Pra Rhot Ya Sip had twelve wives, so that afterwards he had thirteen; but she took their eyes from the other twelve wives, and rolled them in a cloth, and gave them into the care of her daughter. All these twelve women had children at one time, and they brought forth their children in a well; but eleven of the children died, and one survived, whose name was Pra Rhot Ya Sin. The women were in a well because the giantess was angry with them, for she had made herself into a beautiful woman, having the power of changing her form, and had charmed her husband. Now, it came to pass that Nang Sung Sa fell sick of a fever, and she bade Pra Rhot Ya Sin, who had become a man, to search for the tree *menoi-ru-han* beyond the sea, in the country of Nang Kang Ri; and she gave him a letter, in which it was written that Nang Kang Ri should eat him on the morning after he came to her, and that she should take heed lest his blood or liver fell on the ground. Then Pra Rhot Ya Sin, who was a magician, flew off through the air, and he saw below him Toh Ma Si Koh, a man who lived in the woods, and Toh Ma Si Koh called out to him, "Whither goest thou?" Then Pra Rhot Ya Sin came down to the guest-house of Toh Ma Si Koh, and said to him, "My father has sent me;" but Toh Ma Si Koh took his letter and read it, and Toh Ma Si Koh changed the writing, so that it bade Nang Kang Ri to marry the Prince.

'So Pra Rhot Ya Sin came to the country of Nang Kang Ri, the Queen of the Giants, and married her; and they drank arrak together for seven days, until the Queen was very drunk; but the Prince kept sober. Then he asked her what she had in her handkerchief, and she replied, "The eyes of twelve women, which my mother has given into my care, and my mother's heart (literally 'liver'), which she can take out from her body." After this they fell asleep, and she slept sound, but he slept with his eyes half open. Then, while she slept, he stole her mother's heart and the eyes, and he took also of the fruit of the tree *menoi-ru-han*, for if he had not done so his step-mother would have said he had lied. But he tarried by the way in the woods,

wherein he made him a great house and a garden ; and news thereof came to his father, who sent forth two men, Khoon Kaou and Khoon Krai, to summon him ; but he would not come. Then he tarried other seven days, and his stepmother was wroth with him, because he would not come before that time, and she contrived so that she might slay him ; but he told all these things to his father, who made him King of the Giants. So he returned to his country. Then his stepmother changed her form, so that she became like unto her daughter, his wife ; but Pra Rhot Ya Sin knew her, for he was King of the Giants ; and she claimed a wife's right from him, having it in her heart to eat him. So he drew out his dagger, and cut her heart (from the handkerchief) into little pieces, and she died. But as she died, she said, " If my blood falls on the ground, it will become land-leeches ; if it falls into the air, it will become horse-leeches." Then Pra Rhot Ya Sin gave back their eyes to the twelve women, his father's wives."

[I have given the ending of the legend as narrated by the *nai-ban*, but a Malay in Jalor told me what was probably the correct version, though he was ignorant of the beginning of the story. He said that there was once a giant or giantess (*gergasi*) who was murdered. As she died she cried out, 'May my blood that falls on the ground become land-leeches, that falls in the water become horse-leeches, that falls in the air become mosquitoes and sand flies, such as drink the blood of men !' NEWBOLD[1] mentions a Malay *Hikayet Proat Nang Meri*, derived from the Siamese, and furnished to him by one of the secretaries of the ex-King of Kedah. 'It contains,' he says, 'the adventures of a prince named Proat (Pra Rhot ?), the only surviving child of twelve princesses, who all became pregnant at the same time, and of the Gargasi princess, Nang Meri (Nang Kang Ri ?).' A Chinese mine-owner showed us, in a cave some miles from Ban Kassôt, what he called 'an image, made by men of old, of Toh Ka Si Poh,' or Toh Ma Si Koh. It was a stalagmite, bearing some natural resemblance to an old woman, increased by cloths that had been draped round it by the Chinese miners. They regarded it with great reverence, and had set up an altar of solid masonry in front of it. The idea that something terrible will occur if royal blood be spilt on the ground may be compared with that formerly prevalent in Burma. It is hardly necessary to call attention to the similarity between many of the episodes in the present legend and those of European folk-tales ; but it may be compared with the very different legend of the origin of leeches given by LING ROTH,[2] from Borneo. N.A.]

1. *Political and Statistical Account of the British Settlements in the Straits of Malacca* ; vol. II., pp. 330, 331.
2. *The Natives of Sarawak and British North Borneo* ; vol. I., pp. 308, 309.

ON THE USE OF BOWS AND ARROWS IN PERAK

By LEONARD WRAY, C.M.Z.S.,
CURATOR OF THE PERAK STATE MUSEUM

The use of bows and arrows in the State of Perak is confined, as far as my observation goes, to the Semangs of Selama and Upper Perak. I have heard that the mixed Sakai-Semang people of the Plus Valley sometimes use them, though I have never seen one in or from that district. In 1889, when I spent some four or five months exploring in Upper Perak, bows and arrows were not only in use but were being made there. The wood generally employed for the bows was that of the *Ibnis* palm, and the string was made from the bark of the *Terap* tree. The arrows were of bamboo, with detachable wooden foreshafts. The points were of iron, obtained from the Malays, but forged by the Semangs themselves. For this purpose they used double cylinder bellows made of one of the larger bamboos with feather or leaf pistons. At a place near the left bank of the Perak River, below Janing, I saw one of these forges, and obtained another in the Piak Valley ; this latter specimen is now in the Perak Museum. The bows were also made, not many years back, in Selama, and there is a good example in the British Museum, which I obtained there. The arrows were of two kinds, the one with hard wood points, and the other with points cut out of sheet-iron, probably derived from old meat or biscuit tins. These latter had a cleft wooden foreshaft, with the metal blade cemented into the cleft, so that the foreshaft formed a rib up the centre of each side of the thin metal blade ; in fact, they were mounted in the same way as the blade of the Malayan spear, known as *Apit dendong*.

ON THE POSSIBLE EXISTENCE OF SAKAIS UNINFLUENCED BY MALAYS

I should think it quite likely that there may still be some Sakais in the hill-country to the East of Kinta who have no communication with the Malays. Twenty years back very few of the Sakais had anything to do with the Malays. Prior to the English occupation of Perak, the Malays used to hunt the Sakais like wild beasts, and endeavour to catch and enslave them One of the chiefs in Kinta applied, in all good faith, to my brother, Mr. Cecil Wray, for a pass to catch seven Sakais to work in a mine of his. Sakai women were very common in the houses of the better class Malays before the emancipation of slaves in 1883, and many of them remained after that date in the houses of their former masters.

The Semangs, on the other hand, appear to have been in communication with the Malays from a very early period ; they occupied the position of a subject race, and were made to clear jungle, plant rice, and collect jungle produce, etc., for their Malay masters.

L. W.

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ITINERARY IN PERAK, SELANGOR, AND THE SIAMESE MALAY STATES

By NELSON ANNANDALE AND HERBERT C. ROBINSON

AS accurate information regarding the Malay Peninsula, and especially those states under Siamese rule, is difficult of access, or altogether inaccessible, we have thought it well to add to our report a brief general account, personal as well as zoological and anthropological, of the places at which we stayed and the country we traversed. Those sections of the itinerary deal with districts we visited together which have been prepared jointly, but as each of us worked in places of which the other can have little or no first-hand information, one or other has added his name at the end of other sections, which treat, chiefly or wholly, of places for the facts regarding which he is alone responsible.

PART I. PERAK AND SELANGOR

South Perak

WE stayed rather over two months in the Batang Padang district of South Perak, the greater proportion of our time being devoted to anthropological work, though conditions relatively more favourable than in the Patani States enabled us to get together a considerable zoological collection, representing nearly all terrestrial divisions of the animal kingdom. The district, as a whole, has only been opened up within the last twenty years, and before was entirely buried in primaeval jungle, with only a few scattered Malay hamlets and a comparatively large number of Sakai camps. It is now, under British administration, one of the most important mining districts in the state of Perak, while planting operations have also been commenced on a considerable scale, though the high price of labour, due to the mining industry, has militated against this form of activity. Under these circumstances, it will be readily understood that the district is by no means a favourable one for studying the

indigenous Malay, who is to be found chiefly in the more agricultural districts of Kuala Kangsar and Krian ; as a matter of fact, even the Malay population, such as it is, consists, to a large extent, of Achinese and other island folk, as the official census[1] would seem to indicate.

The case is different when we come to consider the Sakais (Mai Darát). The whole of the main range of the Peninsula, which here attains a height of over seven thousand feet, as well as the subsidiary foot-hills, is still untouched by civilization, and only occasionally visited by wandering Chinese and Malay pedlars ; while the mountains are inhabited by a considerable Sakai population, who still retain, in many respects, their primitive habits and customs. As far as the tribes living in the higher hills are concerned, there has not been time for the purity of the race to be affected by Chinese and Malay admixture—a contingency which the comparatively strict ideas of sexual morality held by the Sakais also postpones for the present.

We give a short account of each village visited in the Batang Padang magistracy, with a record of the work accomplished.

Bidor. A large village some seven miles from Tapah, which was, at the time of our visit, the administrative centre of the district, though now that the railway from Penang to Singapore has reached Bidor, the headquarters have been transferred to the latter place. The population is considerable but mainly Chinese, though several Sakai communities exist within a few miles. In the immediate proximity of the village there is no old jungle, the land consisting of worked-out tin diggings, with a few badly cultivated rice-fields.

We stayed at Bidor, which has an unenviable reputation for unhealthiness, for two or three days at a time on several occasions during January and February, 1902. During this time we measured a fair number of Perak Malays as well as several Sakais from Perangkap, a clearing at the base of the main range, seven or eight miles away, and paid a visit to a Sakai camp at Paku. We also investigated some interments, and obtained an imperfect skull of a Sakai woman, and a small ethnographical collection. Practically no zoological collecting was done, but a few Hymenoptera and Heterocera were obtained, and here, for the first time, we met with the nocturnal wasp, *Vespa doryloides*, which is usually so common in Malayan countries, but which appears to be absent from, or very scarce in, the Patani States.

Gedong. A small Malay clearing, with about forty inhabitants, a few miles from Bidor. The clearing is surrounded by bamboo jungle, and we visited a small camp of Sakais in the immediate neighbourhood, obtaining some ethnographical specimens and the measurements of several individuals.

1. *Fascic. Malay.—Anthropology*, part I, pp. 29, 68, 69.

A number of birds belonging to the ordinary Malayan lowland fauna were obtained, among them a young individual of the rare *Baza sumatrensis*, which was brought to us by a Sakai, but nothing else of note. Among the insects the most striking point was the great abundance of beetles belonging to the family *Languridae*, which we only met with elsewhere sporadically.

We stayed at Gedong from January 6th to 13th, 1902.

Jeram Kawan. A small hill-rice clearing four or five hours up stream from Sungkei, at the limit of navigation for canoes. The place is surrounded by high jungle, and some thermal springs close by are much frequented by big game, including gaur, sambhur, rhinoceros, pig, and tapir. A good many species of animals not elsewhere collected were secured here, among the vertebrates being specimens of the recently described bat, *Emballonura peninsularis*, MILLER, and skins of *Heliornis personata* and *Phodilus badius*. The crocodile *Tomistoma schlegelii* was also noticed on a log on the river. Several camps of the Mai Darát existed at no great distance from Jeram Kawan, and the members of one party who visited us were measured.

We stayed at Jeram Kawan from February 12th to 16th, 1902.

Jor. A public works bungalow on the banks of the Jor river at its point of junction with the Batang Padang, about twenty miles from Tapah, and about two thousand feet above the level of the sea. We stayed at Jor for two or three nights in January, 1902, on our way to and from Telôm, and collected a few species of insects. Jor seems to be about the superior limit of the lowland fauna in the Batang Padang valley, and we noticed that *Ornithoptera brookeana*, still common in the remoter parts of Batang Padang, though almost extinct in the rest of Perak, was not found beyond this point. Dragon flies were very numerous at Jor,[1] but we did not obtain specimens. A species of the Rhopaloceran genus *Leptocircus*, always local in the Peninsula, is here abundant. Between Jor and Tapah we captured two specimens of a tortoise allied to *T. emys*, which has been described by Mr. BOULENGER as *Testudo pseudemys*.

In a restricted belt below Jor the hillsides are covered with clumps of a giant bamboo, which reach an enormous height and girth, producing beast-like sounds as they swing together in the wind, and providing one of the most magnificent manifestations of vegetable growth to be found anywhere in the tropics.

Sungkei. A large Malay village fifteen or sixteen miles from Tapah, on the river of the same name. Being situated in a district largely agricultural, the place has only a small Chinese population, and the Malays are probably of a rather less mixed type than at any other place in the Batang Padang district which

1. See footnote on p. 193, *Fascic. Malay.—Zoology*, Vol. I.

we visited. Through the exertions of the Penghulu (headman of the sub-district), a man of considerable influence among his compatriots and a relation of the Sultan of Perak, we managed to obtain measurements of a considerable number of Malays and of several Sakais, who happened to be visiting the village. In the immediate vicinity the country is mainly arable and orchard land, but at no great distance there are tracts of old jungle. A good many species of birds not elsewhere seen were obtained at Sungkei, including *Treron nipalensis*, *Platysmurus leucopterus*, and a species of *Platylophus*, as well as a new rat, *Mus annandalei*, which is very distinct from any hitherto known from the Peninsula. The situation of the rest-house, near the bank of the river, was very attractive to moths and nocturnal Orthoptera, and a considerable number were captured at light.

We stayed at Sungkei from February 6th to 11th, 1902.

Tapah. A considerable town on the Batang Padang river, about six miles from the railroad between Kinta and Telok Anson, the port of South Perak. Until quite recently it was the headquarters of the district magistrate, but has now been superseded by Bidor. As it is the centre of an important mining district, the population is mainly Chinese, but there are also a large number of Klings (Madras Tamils) and Bengalis. The small and mixed Malay population of the neighbourhood is principally settled in surrounding hamlets, not in the town itself.

We stayed in Tapah on several occasions during January and February, but our time was almost entirely occupied in preparations for other journeys, and we did little or no scientific work in the place; two Sakai skeletons were, however, obtained from deserted clearings in the vicinity.

Telôm. A dilapidated bungalow in the mountains separating Perak from Pahang, about forty miles from Tapah. Though within the jurisdiction of Perak, Telôm is technically in Pahang, as it is situated three or four miles east of the main watershed, on the headwaters of a small stream running into the Telôm River, which is itself a tributary of the Pahang. The height of our collecting station was between three thousand five hundred and four thousand feet above sea level, but the mountains in the immediate vicinity ran up to over seven thousand feet. The district round Telôm is inhabited by tribes of Sakais, of whom, for a variety of reasons, we were unable to see as much as we desired. A large number of them, however, were met with, a few measurements were taken and a small ethnological collection was obtained from them.

Zoologically, Telôm was quite the most interesting place that we visited, as the fauna was entirely a mountain one, differing in important respects from

that of the surrounding lowlands, and assimilating in many features to that of the Himalayas, and of the mountains of the Greater Sunda Islands. The rainfall must have been extremely heavy, and the jungle was denser than that met with anywhere else in the Peninsula. The trees were loaded with epiphytes of various orders, orchids being especially numerous, though but few were in flower at the time of our visit, and the myrmecophilous fern, *Polypodium cornosum*,[1] or an allied species, was common. Of other plants, a fine rhododendron with large umbels of salmon pink flowers, a species of violet, which grew in great abundance among the rocks at the edge of the stream, and a *Rubrus*, bearing small, tasteless fruit, may be mentioned. Curiously enough, no species of pitcher plant was observed on the Batang Padang mountains, though several are abundant on the Larut hills and were also found on the Selangor mountains, further to the south. The Sakais form large plantations, some of them over fifty acres in extent, at an altitude of from one thousand five hundred to five thousand feet, in the neighbourhood of Telôm, in which they grow a kind of millet and a coarse tapioca, bananas and rice not flourishing at these altitudes, and their methods of agriculture are very destructive to the jungle, as no more than two or three crops are ever taken from a clearing.

Mammals were scarce, but one species of rat, three squirrels, one of which, *Sc. maclellandi leucotis*, does not seem to occur in the Peninsula except on high ground, and a tree shrew (*Tupaia*), were obtained, as well as the skulls of a very large bear and of a wild pig, these being purchased from the Sakais. Reptiles and Amphibia were very rare, and no species of *Draco*, so abundant on Bukit Besar and the Selangor hills, was even seen.

Birds[2], on the other hand, were abundant both in species and in individuals, though the thickness of the undergrowth and the precipitous nature of the ground rendered collecting very difficult. Flocks of a small babbler (*Stachyridiopsis locager?*) flitted about the clearing round the bungalow, and were so fearless that it was difficult to get far enough from them to obtain specimens in an undamaged condition. Imperial pigeons (*Carpophaga badia*) were common on the neighbouring peaks, though we never obtained specimens, and on our downward journey both of us saw several individuals of a dull grey pigeon which Robinson has little doubt was the rare *Columba grisea*, G. R. Gr., only known with certainty from Borneo and Sumatra. Other species seen but not obtained were *Melanocichla peninsulae*, afterwards found on Gunong Semangko, Selangor, and a ground thrush that from its strongly hooked beak was probably a *Zoothera*. Ali, our headman, persisted in saying that he had seen a silver

1. See Yapp, *Annals of Botany*, Vol. XVI, No. LXII, pp. 186-299.

2. Information regarding the birds of those districts which we visited together is due to my collaborator. N. A.

pheasant on more than one occasion, but we did not come across it ourselves. The most interesting specimen obtained was a small Ploceid belonging to a genus (*Chlorura*) hitherto only known from the mountains of the Sunda Islands and the Phillippine highlands. Altogether, the Batang Padang mountains, which had previously been explored by Mr. L. Wray of the Perak Museum, would undoubtedly yield a rich harvest to any ornithologist who was prepared to stay at elevations exceeding three hundred feet for some considerable time, and who would be content with quality rather than quantity in his collection.

With the exception of butterflies, which were very numerous, and amongst which were several Tenasserim forms and also a fine new *Prioneris*, the insects were not particularly striking, though small and inconspicuous forms were enormously abundant. Among the beetles, red and black Malacoderms of various genera were especially noticeable, while a magnificent new species of the Longicorn *Lysinda*, a moth and several Diptera were evidently members of the same mimetic association. Dragon flies of all families were very scarce, and not more than three species were even observed. The collections of invertebrates, so far as they have been worked out, show that the fauna, as might be expected, is largely made up of species that are also found in Tenasserim on the one hand and the mountains of Borneo and Sumatra on the other, while the Burmese element, which is so marked in the lowland fauna of the Patani States, is almost absent.

We stayed at Telôm from January 16th to 28th, 1902.

Selangor

Kuala Lumpur. Kuala Lumpur is the capital of the State of Selangor and the administrative centre of the Federated Malay States. While Annandale was in Upper Perak and the Siamese States, I spent some three months in the town, but, with the exception of a few insects captured at light, no collections from this locality are included in the present report. The town is situated in the midst of a thickly populated mining district, and there is no considerable area of jungle nearer than five or six miles. At Batu, about seven miles away, there are large limestone caves similar to those at Biserat, and a few spiders and other Arthropods, including species of *Scutigera*, were collected there, as well as the 'moon snake,' *Coluber taeniurus*.

Semangko Pass. I spent a week in May, 1902, at this locality, which is exceptionally well situated for zoological collecting. It is a rest-house on the border between Selangor and Pahang, on the main watershed of the Peninsula, at a height of two thousand seven hundred feet. On either side the mountains rise steeply to over five thousand feet, and the whole country for miles

around is almost untouched jungle. On Gunong Semangko, to the north of the Pass, an alluvial tin mine has recently been opened, with its main workings situated at a height of over four thousand feet. The path from the trunk road to this mine leads through deep jungle and afforded an admirable collecting ground. Among other vertebrates, a new species of lizard (*Lygosoma miodactylum*) was collected, as well as other forms recently described from the Larut Hills in central Perak, while in birds, specimens of *Cutia cervinicrissa* and *Melanocichla peninsulae*, hitherto only known from the types collected by Mr. Wray in 1887, were secured. Some thirty or forty species of moths were captured at light in the rest-house, and of these some ten or a dozen have been described as new to science by Colonel Swinhoe.[1]

Labuansara. A small jungle clearing some eight miles from Kuala Lumpur, inhabited by a tribe of 'Orang Bukit,' a people of mixed Sakai stock. We visited them together on two occasions in June, 1902, and obtained a series of the more important physical measurements, as well as a small ethnographical collection. On our way to Labuansara we incidentally captured a specimen of the rare butterfly, *Charaxes durnfordi*, Dist., being the third known specimen of the typical form of the species.

HERBERT C. ROBINSON

Central Perak

My personal knowledge of this part of the state is slight, being confined to a visit to the town of Kuala Kangsar and a drive thence to Upper Perak. There appears to be a considerable amount of cultivated land in the districts of Kuala Kangsar and Krian, and not much mining, so that the population has a larger element of indigenous Malay blood than in Batang Padang. Much of the country, however, especially towards the main range, has never been cleared, still supporting the jungle tribes, who, in this region, from what we could hear, are very largely of a mixed Semang stock.

Kuala Kangsar. An important Malay centre in Perak, being the residence of the Malay sultan. The town, which is on the railway, is small, but well laid out. The Malays here take their share in petty commerce, having many shops of their own, though even in Kuala Kangsar the majority of the larger stores are in the hands of Chinamen or Bengalis. From what I saw, I am certain that even the Malay of this district is not a homogeneous type, having probably absorbed a deal of Arab or bastard Arab blood.

I spent four days in Kuala Kangsar in March, 1902, and obtained a series of photographs of native-born Malays.

NELSON ANNANDALE

Upper Perak

The district of Upper Perak, including the 'New Territory,' which was ceded or restored by the Siamese in 1899, occupies a considerable area, but is mainly covered with jungle, there being very little cultivated land and few or no mines, though deposits of gold are said to exist at Berusong, on the Temongoh River. The settled population is small, being centred in the villages of Lenggong, Grit, and Temongoh, or scattered in small clearings on the banks of the Perak River, which here forms a very important ethnological barrier. The jungle tribes living north of it have no settled place of abode or permanent dwellings, while the hill clans to the south make large plantations, which keep them in the same place, at any rate for a time, and there is a marked difference between the Malays of the two regions thus naturally separated; there is said also to be a difference in the gibbons[1] found on the two banks, but this question has not been properly investigated. I spent a month (March 18th to April 18th, 1902,) in Upper Perak, doing very little but anthropological work, except to collect some butterflies.

Grit. The most important place in the New Territory, being situated only a few miles from the Rhaman border, at a point where large numbers of cattle are brought over into Perak. Formerly the village consisted of a collection of rather small Malay houses, but since 1899 a new settlement, with Chinese stores and government plank buildings, has come into being on the opposite side of the Grit River, a small tributary of the Perak. There is now a school for Malay boys at the place, and the district magistrate has a bungalow, which he frequently visits. The Malays of the place and of the surrounding hamlets are of a somewhat different type both from those of Kuala Kangsar and those of the East Coast States, having shorter faces, rather shorter heads, a slightly greater stature, straight hair, and clear yellowish complexions. Many Semangs inhabit the neighbouring jungle, coming regularly into the village to obtain tobacco and the like in exchange for jungle produce. Immediately round the houses the land has been cleared, and there are large wet rice-fields; many patches of secondary jungle and of grassy savannah exist in the vicinity, though most of the jungle is evidently old. The high woods abound in game birds, such as the fire-back pheasant, *Lophnia ignita*, and the long-beaked partridge, *Rhizothera longirostris*; and the butterfly, *Melanocyma faunula*, a very local form, is common. In comparatively open places in the jungle I found other species, such as *Papilio megarus*, *P. antiphates*, *Appias nero*, enormously prolific in individuals; but the scarcity of Danaids was noteworthy.

1. *Fascic. Malay.—Zoology*, Vol. I, p. 3.

I stayed at Grit from March 21st to April 3rd, 1902, and obtained there a considerable series of photographs, specimens (including a skeleton), and measurements illustrating the anthropology of the Semangs, and also a collection of the butterflies typical of the district, which differed considerably in its Rhopaloceran fauna from any we had visited, approaching the Jalor-Rhaman border most closely in this respect.

Janing. The government headquarters in Upper Perak at the time of my visit were here, though possibly they may have been moved elsewhere by this date. The place, situated on the Perak River, was very largely of European origin, and consists principally of government buildings and Chinese shops. The district magistrate, who until recently was the only European in the district, has an extremely comfortable house, with a large garden. The members of the Semang camps in the neighbourhood visit Janing regularly, where, it is said, they often get drunk. Rogue elephants have frequently broken down the telephone poles on the road between this place and Lenggong, and my men declared that one had attacked them as they loitered by the roadside behind my bullock cart. The road is not metalled, but is sufficiently good in dry weather to permit the passage of a gharry, or one-horse carriage. There is a good jungle-track, along which I walked twice, between Janing and Grit—a distance of about twenty-two miles. I stayed at Janing for a night or two on two occasions in March and April, 1902.

Lenggong. This is really the biggest and most important place in Upper Perak, but it has an unfortunate reputation for gang robberies. The Malays here chiefly claim descent from Rhaman or Kedah, but have a fabric of pottery[1] that appears to belong to the characteristic Perak type. There are Klings, Chinamen, and other Oriental foreigners in the village, which is a model of orderliness and respectability, as far as outward appearances go, as compared with the dirty little mining centres of Batang Padang ; a fine rest-house, a hospital, and a school have a wonderfully civilized aspect. Janing is thirty-two miles distant from Kuala Kangsar, and the road is well metalled and in good condition, there being no government railway to compete with it. I left Kuala Kangsar by gharry at daybreak, and reached Lenggong in time for lunch, staying there for a night on my way to Janing, which is about twenty-six miles further on.

Temonggoh. The only other village but Grit of any importance in the New Territory, being in the centre of a region occupied by numbers of jungle folk, who bring in the rattans and other natural produce they collect. The inhabitants of the village are Malays, evidently with a considerable admixture of native blood in their veins, and a Chinese store has lately been set up.

1. L. Wray, *Journ. Anthrop. Inst.*, 1903, pp. 24-33.

Two separate tribes inhabit the neighbouring jungle, one living near the village, in subjection to the Malays, the other leading an independent existence on the hills, where they make large clearings for the cultivation of tapioca, yams, bananas, and millet—rice they refuse to eat. These two tribes, however, do not appear to be racially distinct from one another; we have called them 'Sakais' in the text, but it is evident, I think, that they are merely Semangs with some Malay blood in their ancestry, so that the term 'bastard Semangs,' which is used on the map, defines them more clearly. I reached Temonggoh on foot from Grit; the journey, along a very bad elephant track for the greater part of the way, should only have taken two days, but my guide lost the way, and I only discovered that we were travelling in a circle by noticing a hornbill's feather on the ground beside a tree trunk, where I remembered seeing it before, so that we were obliged to spend two nights in the jungle. On this journey I was very much struck by the variety of frogs and toads in the old jungle, where I noted eight species in one day, and also by the sounds produced by stridulating insects at night and by small birds early in the morning; indeed, the fauna of the tree-tops appeared to be richer than in any locality where we made zoological collections.

I stayed at Temonggoh for four days in April, 1902, obtaining some photographs, anthropological measurements, and ethnographical specimens, as well as four skulls of one of the jungle tribes, known as Sakai Jehehr.

NELSON ANNANDALE

PART II. SENGGORA, PATALUNG, AND TRANG

Senggora

THE state of Senggora, called Sun-kra or Sun-kla by the Siamese, has, if the districts of Tibaw and Chenaw be included, an area rather greater than that of Rhaman (*q.v.*). Of Tibaw and Chenaw very little is known, our own experience consisting merely of two days' hasty march along the coast; they seem to be sparsely populated in the interior, and to consist chiefly of jungle country. Senggora proper, on the other hand, has mostly been cleared, where the ground is not too barren to render clearing a work of supererogation, and it is doubtful whether any old jungle now remains within the district. The coast land of all three districts resembles that of the Patani States, but it is obvious that the sea is here rapidly eating into the land, as we saw many Casuarina trees that had been undermined by the waves and had fallen on the beach. A remarkable feature of the vegetation along this coast, especially in the immediate vicinity of Senggora town, is the abundance of certain myrmecophilous plants; in some places there is hardly a tree other than a Casuarina—for the Casuarina harbours few epiphytes or creepers—but gives support to one or more plants of a *Discidia*, which we found also growing on the same stump as a species of *Myrmecodia*, or an allied genus. We noticed, however, that the modified leaves of the *Discidia* were very liable to have holes eaten in them by some insect or mollusc, and that the ones so injured, which permitted water to enter their cavities, were not frequented by ants; the species inhabiting the bulbous stem of the *Myrmecodia* was not the same as that which lived in the leaves of the *Discidia* that grew a few inches away. On our walk along the shore from the mouth of the Tibaw River to Senggora town, we saw several sea snakes (*Hydrophinae*) which had been buffeted in the tremendous surf, which broke all along the coast, and cast ashore; they were evidently in a very vicious condition, attempting to bite any object thrust in their way. We were obliged to travel very light, and accomplished the journey from Kampong Anak Bukit, in Nawngchik, to Senggora in three days, although the foot track between the former village and the Tibaw River was almost entirely submerged, owing to the heavy rains which had fallen—it was December—and although the sand of the seashore, to which we took in order to avoid the floods, provided very heavy going. It is doubtful whether we could have moved with anything like the same rapidity, had we not gone barefoot, clad in the lightest of Chinese clothing, which the wind dried almost as soon as the rain had soaked it.

Kuala Zircom. A small Malay fishing village, at the mouth of the Chenaw River, where we spent a night on our way to Senggora. Near Kuala Zircom we entered a curious encampment, the huts in which were roughly built on the ground of slabs of bark. The people who occupied it were Malays, who said that they had never heard of white men, and asked whether white men were like Malays, *i.e.*, were Mahommedans. After we had warmed ourselves over a fire in one of the huts, and had grown more friendly with its inhabitants, who were very curious to know what manner of men we were, they told us that they were all just recovering from smallpox, and that the people of the village had driven them out of it. Little pieces of white bark, displayed on sticks at the Zircom side of the camp, were a sign that no one coming from that quarter might approach it, but no objection was made to us proceeding on our way in the opposite direction.

Senggora. The town of Senggora is externally a Chinese city, surrounded with a high castellated wall, and formerly closed at nights by heavy gates, which are now fixed permanently open to admit the entry of telephone and telegraph wires. The principal buildings also are Chinese, except some of the many Buddhist monasteries, whose high-gabled roofs appear amidst the foliage of the trees with the softest of mellow orange-brown, dull copper-green, and emerald-green tiles; they are built in the true Siamese style of architecture, which is founded on the Chinese, but is less solid and even more fantastic. The population, a large proportion of the Buddhist part of which must be in celibate orders, is partly Chinese, partly Siamese, and partly Malay, but the Siamese official element is large, as Senggora is the centre of the administration of all the country between Kelantan and Ligor, and the Malays, who retain el Islam, have mostly foregone their proper language in favour of Siamese. Indeed, we found that English carried us further than Malay in the town, for many of the officials could speak English well, though there are no pure bred Europeans resident in the state. Across the straits from the modern town, which has been built by former Chinese governors on the south bank of the entrance to the Taleh Sap, lies old Senggora, now chiefly occupied by Malays, the descendants of prisoners of war brought from Kedah two generations ago. These people occupy themselves in fishing, and the size of their families is so notorious that childless Siamese women in the town procure all their drinking water from a well in one of the Malay villages, attributing the fecundity of its inhabitants to this source. The Malays have also, in the vicinity, several villages entirely to themselves in which the houses are erected partly on dry land and partly on piles in the lake, so that they can draw up their dug-outs directly from the surface and suspend them beneath the platform on

which their dwelling-rooms are built. Altogether, the environs of Senggora offer a strange study in contrasts ; for while phonographs and acetylene bicycle lamps are on sale in several of the Chinese shops in the town, real lake dwellings are in actual occupation within a mile or two. The town market dues are very heavy in Senggora, and a most irksome regulation was made at the beginning of 1902, forbidding women to carry on their heads, in the immemorial manner, anything intended for sale within the walls, the reason being that all such goods must be inspected by the police, who objected to pry too closely into things which had been sanctified by being placed on the head of a human being.

We spent ten days in Senggora in December, 1901, recruiting our health and preparing for a journey to Kedah, and one of us returned for another short visit at the end of the spring of 1902. A few spiders and one or two ethnographical specimens were all that we collected here, but on both occasions we thoroughly appreciated the kind hospitality of His Excellency the Siamese High Commissioner.

Patalung

This state, the south of which marches with Senggora, the west with Trang and other West Coast States, and the north with Ligor, or Nakawn Sitamarat, is thickly populated in the neighbourhood of the Taleh Sap, but there appear to be only scattered villages in the interior, where considerable numbers of Semangs probably still exist in the jungle. The country is flat near the coast, but dotted over with limestone peaks,[1] and the central range sends down low spurs to within a few miles of the lake. I travelled by boat from Senggora to Lampam in May, 1902, and from Lampam overland to Trang.

Lampam. This place, the capital of Patalung (Muang Talun in Siamese), is a neat little Siamese town, with handsome government offices, a fine temple, and a curious shrine in which crocodile skulls are reverenced. The population consists of Siamese, a few Chinamen and a considerable number of half-castes, the children of Chinese fathers and Siamese mothers. These people, who in the Patani States are confused with the race of their fathers, are here recognized as a class apart, wearing their hair hanging on the shoulders, but not in a queue ; they are called Baba. The country all round Lampam is very highly cultivated, chiefly by Siamese, who have evidently a full share of Semang blood in their veins, and, to a less extent, by Malays, who dress and speak like their neighbours, though they live in their own villages and cling to the Mahommedan religion. The land is very fertile, producing two crops of rice in a year, and

1. It is the pointed conical form of some of these peaks which is believed to give the medicine-men of Patalung such great magical power (Cf. *Fascic. Malay.—Anthropology*, part I, p. 60).

the orchards of the district are famous throughout Lower Siam. The journey from Senggora to Lampam can be done in a day by boat, if there is no wind, and if sufficient boatmen be employed, but it took me two days and part of a night, owing to the choppy character of the waves in May. I spent two nights at Lampam, waiting for an elephant to take my baggage to Trang, and there procured the skeleton of a Siamese child. I also noted a curious insect that I had taken at the same place in 1889, namely, an aquatic glow-worm (apparently the larva of some Malacoderm beetle), which is common in the swamps round the town.

The Taleh Sap. This extraordinary lake, known to the Malays as Laut Dalam (the Inner Sea), is nearly fifty miles long and of very variable breadth, but not, save for a few deep pockets, more than a few feet deep. To the south it communicates freely with the sea, and a canal has been cut between a point near its northern limit and the coast, though there does not appear to exist any such natural channel as that marked on many maps, which very possibly, however, has recently disappeared. Another artificial channel, known as Klong Sukhum, in honour of Phya Sukhum, the Siamese High Commissioner, who directed its construction, now joins the Taleh Sap to the Ligor River. The waters of the lake, at any rate in December, March, April, and May, are only slightly brackish, though the tides are felt in the Lampam River. The islands with which it is dotted are either low and marshy or consist of lime-stone peaks rising abruptly from the water. The latter afford in the caves with which they are riddled a breeding-place for *Collocalia innominata*, the edible nests of which are extremely valuable, while the reed-beds round the other islands and along the shore shelter innumerable water-fowl, especially the cotton teal, *Nettapus coromandelianus*, and the tree-duck, *Dendrocygna javanica*, which is generally called a teal in the Straits. There is a small cetacean, probably a species of *Platanista*, in the lake, and a viviparous sting-ray is caught off Lampam, where sharks are said also to occur. The centre appears to be almost devoid of animal and vegetable life, though a few minute worms were taken by Mr. Richard Evans and myself in 1899; but beds of *Potamogeton* and other water-weeds at the mouth of the Lampam River have evidently a very rich insect and crustacean fauna, while the fish from the same locality are partly marine and partly freshwater forms. The marine or lacustrine zoologist who was willing to be satisfied with minute and inconspicuous specimens would find a most interesting hunting-ground in this lake and its northern adjunct, the Taleh Noi, and although the people who inhabit the shores have an unenviable reputation among the Malays and Siamese, I never experienced anything but courtesy from them.

NELSON ANNANDALE

Trang

This state marches with Patalung on the east and reaches the sea on the west, including within its jurisdiction a number of islands which the native Mahommedans regard as appertaining to the sultanate of Kedah. The interior of Trang, where Semangs are said to have been formerly numerous, is occupied partly by Siamese rice cultivators and partly by Chinese pepper planters, but the coast people are either Mahommedan, Samsams, or pagan Orang Laut. The road from Lampam, a good sandy track recently set in order, passes through little but cultivated ground between the base of the western slope of the main range, which reaches an altitude of several thousand feet at this point, and the large market town of Tap-tien, formerly the capital of Trang, from which I proceeded by boat to Kantang, the whole journey taking three days. The banks of the Trang River are here densely wooded, but the jungle has a peculiar character, due to its estuarine nature at a considerable distance from the sea, for, even as high as Tap-tien, there are a number of small floating islands, composed of the roots of nipa palms with other vegetation entangled among them, which float up stream with every tide. In the neighbourhood of Kantang this palm is largely cultivated for the sake of its sap, out of which sugar is made, and of its young leaves, which serve in place of cigarette papers.

Chau Mai. A place on the coast, a few miles north of the estuary of the Trang River. Formerly the limestone cliffs at this place, and the caves which they contain, were regarded as sacred by the Orang Laut, who deposited their dead in the latter, but Chinese pepper planters, searching for bats'-dung guano, have dispelled the sacred influences. The character of the vegetation on this coast is strikingly varied, for immediately along the shore there is usually a belt of casuarina trees, and behind them there are vast tangled mangrove creeks, the trees of which give support to many orchids and other epiphytes, while the characteristic flora of the cliffs resemble that on the limestone islands of the Taleh Sap, having as its most conspicuous member a large candelabra-like euphorbia. I saw among these cliffs a land crab some six or eight inches across the carapace ; it appeared to be one of the *Oxypodidae*, which has ventured further from the sea than many of the species of this family are in the habit of doing, but my men unfortunately left a specimen which I had obtained behind. The duck, *Asarcornis scutellata*,[1] so scarce in collections, appears to be common on the Trang coast, going inland every evening and passing in numbers over the town of Kantang.

Kantang. The new capital of Trang, founded about ten years ago by the Chinese hereditary governor, who has now been promoted to the high

1. The 'Skeat' specimen was procured by myself in the interior of Patalung, and the note on my label gave the statement that the species was migratory as a native belief (Cf. Bonhote, *P.Z.S.*, 1901, Vol. I, p. 80).

commissionership of the 'circle' of which Trang forms a part. To the ethnologists and naturalist Kantang is not a place of any interest, except, perhaps, as regards the butterflies common in its vicinity, which struck me as being different from those seen elsewhere. The town consists chiefly of government offices and elegant villas, in which the officials live, and it is far more modern in all essentials than any place on the East Coast which we visited. I was obliged to wait at Kantang for some days to get a boat to take me to the coast, and again to catch the steamer for Penang, and during my stay was much indebted to the kind offices of Mr. A. STEFFEN, a German engineer in the employ of the Siamese Government, the native officials[1] being here suspicious of me. From Mr. STEFFEN I procured some valuable ethnographical and antiquarian specimens.

Ban Phra Muang. A large 'Malay,' or, more accurately, Samsam, village at the mouth of the Trang River. I spent several days there in May, 1902, obtaining some ethnographical specimens and a series of anthropometrical data. The people, who call themselves Malays, are recognized as Samsams by their neighbours, that is to say, as being of mixed Malay and Siamese origin. They speak a dialect of Siamese mixed with Malay words and phrases, and resemble the Malays of Upper Perak in appearance.

Pulau Mentia. A little island lying off the Trang coast. Part of it is high, and there edible birds'-nests are collected. The part facing the coast, however, is flat, with the most beautiful white sand, and is occupied for part of the year by a Samsam community which has its permanent village some distance up the Chau Mai River. A family of Orang Laut Kappir were also encamped on the island at the time of my visit. The fauna between tide-marks was very varied, owing to a plentiful growth of sea grass (*Zostera*), among which Holothurians, some of which were captured as trepang, were particularly numerous, while the 'pearl oyster,' *Arenga magaritifera*, or an allied species, was taken in great numbers from the sand, rather as an article of diet than for its pearls, a few of which were, however, collected. A Sipunculid worm, *Phymosoma japonicum* in all probability, was dug out from the sand and eaten by the Samsams, as well as several bivalves and a lantern shell (*Lingula*). On Pulau Mentia, where I was only able to spend one night, I obtained two skulls, which I believe to be those of Samsams.

Pulau Telibun. This island is partly the delta of the Trang River, but has also a limestone basis. It is densely wooded except along the coast opposite the mouth of the river, where it has a muddy shore, in which a variety of

1. The High Commissioner at Senggora had given me a letter of introduction, of course written in Siamese, to the Governor of Trang, and in this letter it was stated that I had come 'to inspect knowledge,' so that I was naturally regarded as some new kind of spy.

molluscs, crustaceans, and coelenterates abound. When the tide goes out, the whole shore becomes covered in a moment with vast numbers of little pinkish crabs, resembling the Australian genus *Mycteris* ; they are perpetually on the move, not infrequently walking right across the discs of gigantic mud-coloured sea anemones, which remain expanded, but very inconspicuous, in little pools caused by the tide swirling round their bases. Hundreds of the crabs cling to their tentacles, but the rest proceed on their way, without apparently learning by experience to avoid them. A Patani man, who accompanied me, and who had never seen so many crabs together, exclaimed when I pointed them out to him, 'What a fine relish they would make!' and rushed forward to capture them, but they sank instantaneously into the sand. I spent several days on Pulau Mentia, staying in the Siamese revenue station recently established on the island, and obtained some interesting musical instruments and other specimens from a Samsam camp, where I also measured a few of the men.

NELSON ANNANDALE

12/3/03

PART III. THE PATANI STATES AND KEDAH

Rhaman

Rhaman is the largest of the seven Patani States, bordering on the north with Tibaw, Jalor, Patani, Jhering, and Telubin; on the west with Kedah; on the east with Kelantan, Legeh, and Telubin; and on the south with Perak. We spent a few days at Ban Kassot on the Jalor border in 1901, and I made a hasty journey from Upper Perak to Patani through Rhaman in April, 1902, so that our acquaintance with this state is comparatively slight. Kota Bharu, the capital, we did not visit, but I was there in 1899; it is a small and unimportant village, not situated on any navigable river, and therefore only of note as a centre of the cattle trade between the East Coast and Perak.

Only a small proportion of Rhaman is under cultivation, the rest being buried, for the most part, in dense jungle, and only a few unimportant tin mines, all worked by Chinamen, now existing, though there are said to be rich mineral deposits. The district between Jarum and the Perak border, however, is an undulating savannah, covered with long buffalo grass, but intersected with many streams, the banks of which are thickly wooded and give shelter to numerous birds and to several of the scarcer jungle butterflies and dragon flies, such as *Kallima buxtoni* and a fine species of *Gomphus*, in comparatively large numbers.

The following villages were visited on my journey :—

Betong. Now the Siamese headquarters in the Hulu Rhaman district, which is often known as Neg'ri Jarum. Betong is a large and flourishing Malay village, evidently, from the size of the fruit trees, and the enormous masses of orchids upon them, of considerable age; the only non-indigenous inhabitants being a few Siamese officials and police and a couple of Chinese traders. The prevailing type of Malay is that noted at Grit, and a Semang tribe has its hunting grounds in the neighbourhood. The village fauna is that characteristic of the central region of the Peninsula, the common squirrel being *Sciurus vittatus*, not *Sc. concolor* or *Sc. caniceps*. The savannah[1] near is said to be inhabited by large herds of Sladang (*Bos gaur*) and Sapi (*Bos sondaicus ?*), with possibly a third species (*Bos frontalis ?*); but the habits of these wild cattle, if what was told me is true, differ from those of jungle individuals, for the former are said to be mild and inoffensive, while the latter are notoriously savage. The jungle fowl (*Gallus gallus*) is very abundant, and the cocks frequently come into the village and interbreed with the tame poultry. The domestic cattle

1. The hunting dog (*Cyon rutilans*) is also comparatively common in this district, and also, very possibly—in my opinion, probably—a species of jackal.

are chiefly of the 'Siamese' breed[1]; but zebu blood has been lately introduced, and many buffaloes are kept.

The journey from the Perak border to Betong took me three days on foot, but could have easily been accomplished in two, had it not been for the state of the track between Grit and Krunei—a regular slough of despond, churned into mud, and rendered filthy beyond description by the passage of cattle from the Patani States to Perak, and of elephants in both directions. It appeared to swarm with a parasite (possibly a Nematode allied to *Strongyloides intestinalis*[2]), which penetrated the skin of the feet, especially between the toes, and caused extreme irritation and discomfort. We had experienced the same pest in places on Bukit Besar where elephants had been, and the Malays say, probably with truth, that it originates in elephants' dung. I found the only way to obtain even comparative immunity from it was to walk barefoot and to wash my feet very carefully at every stream we crossed, as footgear of any kind, which, at any rate, the tenacity of the mud rendered irksome, appeared to harbour the parasite, which it was difficult to eliminate.

Jarum. A smaller Malay village, some six miles north-west of Betong, and probably at one time a more important place than at present. It still contains a residence of the Raja of Rhaman—a miserably dark and dirty old house, swarming with parasitic Acari, which are said to come from the goats stabled under it, sand flies and mosquitoes, especially *Anopheles*, which breed in enormous numbers in puddles of filth in the village, and which are the probable cause of the great prevalence of malaria in the neighbourhood. I stayed here for some days in April, 1902, waiting for an elephant to carry my luggage to the Patani River, and obtained a few butterflies and ethnographical specimens, but only caught a glimpse of the Semang tribe whose Malay master is the headman of the village.

Krunei. A straggling village, wholly Malay, close to the Perak border, which is here marked by a small cairn of stones standing at the edge of a pool called Lubong Gajah Puteh, or the pool of the white elephant. The chief of the Semang tribe whose Malay master lives at Krunei has obtained the right from a former raja to call himself Penglima Sakai; he and his followers acted as my porters for a short distance, and I did not stay at Krunei because he told me that he owed five dollars to a Malay and was afraid to enter the village. I spent the night at Kampong Jong (not the one marked on the map), a mile or two distant; it was evidently a place of recent foundation, as the fruit trees were just beginning to bear for the first

1. *Fascic. Malay.—Zoology*, vol. 1, p. 44.

2. See Dr. Paul Van Durme's *Embryons de Strongyloides intestinalis*, University Press of Liverpool, 1903

time. The headman, in whose house I stayed, told me that his people had come from a place called Kampong Lalang, the ruins of which I passed the next day a few miles to the north-west. It was interesting to notice that the crow (*Corvus enca* (?)), which in the Malay Peninsula is rarely found at any distance from human dwellings, still haunted the site of this and other deserted villages that I passed in this tract of country.

Ban Maiwas. A small Siamese village near the point where the Maiwas River enters the Patani. Judging from the curly hair and dark complexions of many of the people, they have absorbed a considerable proportion of Semang blood, and they call the Semang tribe of the neighbouring jungle 'Sakai Perak,' saying that the jungle men have only recently come from over the border. It is probable, from the age of the fruit trees and from what we know of the Siamese invasions of this part of the Malay Peninsula, that the inhabitants of Ban Maiwas represent a comparatively recent Siamese settlement, which has intermarried to a great extent with the aboriginal inhabitants of the country, and, therefore, it is worthy to note, that while a large proportion of the population approximate to the aboriginal type, a minority appear to have the characters usually associated with purer Siamese blood than that habitually found in the Patani States, having clear yellow skins, straight hair, and somewhat Mongoloid features.

From a zoological point of view, Ban Maiwas is interesting, as being the village furthest west in this latitude in which I found the common village squirrel to belong to the *Sciurus concolor* type. The fauna in the neighbouring jungle seemed to be very rich, and at one point I found the cast pupal skins of *Flata limbata*, the Chinese wax insect, or an allied species, covering the leaves of a shrub in enormous numbers, while the moth-like adults of the same species clung to tree trunks in the vicinity, having much the appearance of a fungus that grows in the same situation.

The journey from Betong to Ban Maiwas took me three days, though the distance is short in a straight line. Several steep spurs had to be surmounted, and the track crossed and re-crossed the Patani River in such a way that the stream had to be forded fourteen times in the course of one morning; though the water was low, I had to swim at one ford. At Maiwas, owing to the kindness of the district magistrate at Betong, a well educated Bangkok Malay, who entertained me most hospitably, rafts were waiting to take me to Bendang Stah, another journey of three days, and from there to Patani, three days more. On the way I was able to obtain some interesting information regarding the popular religion of the people of the district from my raftsmen, especially about the cult, common to Mahommedans and Buddhists, of 'Joh Ni' a late raja of Rhaman.

NELSON ANNANDALE

Patani

Of late years much confusion has arisen from the very varied meaning given in the Straits, in Europe, and in Siam to the term, 'Patani,' and it may, therefore, be well before commencing a description of the country in which the greater part of our time was spent, which was the original goal of our expedition, to explain the three different senses in which this term is used.

1. Until about a century and a half ago the *kingdom of Patani*, which was frequently governed by a female sovereign, appears to have been one of the largest and most powerful in Malaya, exceeding the modern states of Perak, Pahang, or Kelantan in size. It comprised the whole watershed of the Patani and Telubin Rivers, a part of the Upper Perak valley, and probably some of the northern tributaries of the Kelantan ; but very possibly it consisted rather of a confederation of petty native rajas under a powerful chief than of a single state, and Malay domination may never have extended much north of the Patani River, except immediately along the coast.

At the end of the eighteenth and the commencement of the nineteenth century the Siamese finally conquered the country, which had long owed them a feebly defined and easily broken allegiance ; and 'Patani' was divided into seven minor states, each independent of its neighbours, and each under a Siamese nominee, who was in some cases a Malay and in some a Siamese. It is from these Siamese governors, who were tributary to the Chinese governor of Senggora, himself a vassal of Siam, that the present Malay rajas of the seven states are descended. The names of the seven states are Nawngchik or Tojan, Patani or Tani, Jhering, and Sai or Telubin, along the coast ; and Jalor or Yala, Rhaman, and Ra-nge or Legeh, in the interior. During the greater part of our visit their local administration was kept separate, each state being under a Malay raja nominally and a Siamese governor or commissioner practically, except Nawngchik, the governors of which never became Mahommedans and which was entirely under Siamese rule. In 1902, however, the seven states were reunited, with the title of the Division of the Seven Provinces, under a commissioner resident in Patani town but responsible to the High Commissioner of the Ligor Circle, who resides at Senggora.

The term 'Patani' is usually held in the Straits to include these seven provinces, which are indicated when we talk of the 'Patani States.' We are indebted to the High Commissioner of the Ligor Circle for the following particulars regarding their population and that of the neighbouring states. His Excellency regards the figures as substantially correct, and if they are only moderately accurate, the curious and unexpected fact is shown that, even including the nominally independent principality of Johor, there are more Malays under Siamese than under British rule in the Malay Peninsula.

Population of Monthon Nakon Sri Thamarat (Ligor Circle).

'The following figures are from the census, and may, therefore, be taken as accurate :—

Province	Siamese	Chinese	Malays	Total
Ligor (Nakon Sri Thamarat) ...	130,034	32,439	32,580	195,053
Senggora	78,307	31,323	15,662	125,292
Patalung	45,635	3,563	5,563	54,761
Division of the Seven Provinces .	39,563	19,780	138,466	197,809

The following figures for Kelantan and Trengganu are only approximate, as no census has been taken :—

> Kelantan has about 250,000 inhabitants, of whom about 20,000 are Siamese, 15,000 Chinese, and the rest Malays.
>
> Trengganu has about 120,000 inhabitants, of whom very few are Siamese ; there are about 1,000 Chinese, and the rest are Malays.'

There are no Europeans, and few Indians or Arabs, resident in the Patani States, Senggora, or Patalung.

2. *The modern state of Patani*, or, as the Siamese call it, Tani, is a small strip of territory, with a coast line less than ten miles long and a length of rather over twenty miles, the northern part of which extends on both sides of the Patani River, while the southern half is bounded by it to the west. Except in the immediate vicinity of the coast, where the soil is sandy and barren and supports large open woods of casuarina trees, the country is well cultivated, under artificial irrigation, and supports a population probably as dense as that of any part of the Malay Peninsula which is not occupied by tin miners. There is little or no old jungle left in the state.

3. *Patani town*, locally known as Kuala Bukar, is the most important place in the Division of the Seven Provinces, both as the seat of government and as the only port with a reasonably safe anchorage between Kuala Kelantan and Senggora. Patani Roads, indeed, enjoyed considerable reputation among the old voyagers, and formed a nucleus for the trade of 'Further India' in the seventeenth century, at which date there was a factory of the East India Company at Patani ; but nowadays, at any rate, anchorage is only possible in them from March to October, and they are so shallow that vessels drawing more than twelve feet must anchor over two miles from the mouth of the river, which is blocked by a bar rarely covered with more than four feet of water.

The town was situated, in 1901, on the east bank of the stream, about a mile and a half from the sea, but in the course of its history it has frequently been moved from one bank to the other, and in the summer of 1902 preparations were being made to build a new town across the stream. It is divided into two quarters, one occupied by Mahommedans, the other by Chinamen and Siamese, and the government buildings, consisting of a post and telegraph office, a police station, and the commissioner's residence, are situated between them on the river bank. Here also are the buildings of a Siamese *wât*, or monastery (almost the only solid buildings in the place except the mosque in the Malay quarter); they are surrounded by a balustraded wall with ornate gateways in Chinese style, and separated by a row of fine sugar palms from the river, over which a gorgeously painted and gilded guest-house has lately been built.

The Chinese quarter, in which the greater part of the local trade is conducted, contains numerous large houses of brick and rubble, and in its shops articles of European manufacture, such as crockery, hardware, cotton goods, and a limited selection of tinned provisions, can be bought at prices but little in excess of those current in the Singapore bazaars. Much of the purchasing, however, is carried on by means of little perforated pewter coins of Malay manufacture, and only current in the state of Patani, of which eight hundred go to the Straits dollar.

The Malay quarter, in which we rented a house during six months of our stay in the Patani States, is much less pretentious, and also less odorous, than the Chinese, consisting chiefly of a few large compounds belonging to the raja and other wealthy Mahommedans, and a street of small houses with open booths in front of them. This street leads from the raja's compound, in the open space in front of which a daily market is held, to a landing stage on the river, and in the opposite direction the town gradually merges into the cluster of hamlets which surround it, large open spaces being left for the cemetery and for cultivation. Two broad sandy roads, excellent except for their heat in dry weather, lead to Jambu and to the sea from the Malay quarter.

When we talk of 'Patani,' we refer to the town, unless it is otherwise stated or inferred.

The trade of Patani is probably less extensive than it was even at the middle of last century, and is carried on, as far as imports are concerned, almost exclusively with Singapore. A certain amount of jungle produce and a small quantity of inferior tin are brought down from the interior, and silk garments, woven in the town, are exported to Kelantan and Trengganu, being of better quality than the rather shoddy goods manufactured in these places; but the staple industries are the curing of salt-fish and the manufacture of salt in brine

pits on the coast. The crude salt is carried, chiefly to Kelantan but also to Trengganu and Senggora, in flat-bottomed sailing barges of five or six tons burden. A steamer called about once in five weeks on its way to Singapore, and as often on its way to Bangkok, during the first half of 1901, but it was discontinued later, and we are not aware in what way communication of the kind is now kept up.

Leaving Chinamen out of account, the population of Patani town is chiefly Malay, and those Siamese who live there belong largely to the official class and are not natives of Lower Siam. The Chinamen, however, have a large proportion of Siamese blood in their veins, and it is probable that half of them are really half-breeds. There must have been a considerable Bugis element at one time, and ANDERSON[1] states that in the seventeenth century there were many Japanese traders settled at Patani. When we reached Patani most of the shops in the Malay quarter were in the hands of Malays, but later in the same year a sudden irruption of Arabs and Tamils took place, who occupied many of them. The immigrants apparently came from Singapore. It is difficult to estimate the population of the town with any approach to accuracy, but, excluding the surrounding hamlets, it may reach the total of about five thousand, while the remainder of the state probably supports five or six times that number of people.

During the nine months of our stay in the Patani States (April to December, 1901), Patani was practically our headquarters, and we spent, in the aggregate, many weeks in the town, to which one of us returned for a brief visit in May, 1902. We collected a considerable proportion of our ethnographical collection here, and one of us conducted investigations, with interesting results, into the customs and beliefs of the fishermen.[2]

Our zoological work at Patani was chiefly marine, and in Patani Bay we obtained several species of sea-snake, including the anomalous *Thalassophis anandalei*, only known from this locality, and the rare *Distira wrayi*. We also took surface tow-nettings at different hours of the day and night, and Mr. ANDREW SCOTT tells us that they include representatives of a new family of Copepoda. The 'porter' crab, *Dorippe facchino*, which lies in the mud clasping a sea anemone to its back by means of modified ambulatory claws, was taken in shallow water, and we noted that a specimen from which the anemone had been forcibly removed seized hold of a Rhizostomous medusa, which had been accidentally placed in a jar with it, and carried it in the same position. When the anemone from another individual was placed in the jar, the crab dropped the medusa and snatched up the anemone.

1. *English Intercourse with Siam in the Seventeenth Century.* London, 1890, pp. 42-44.
2. *Fasciculi Malayenses—Anthropology*, part. 1.

Jujul. A large Malay fishing village on the east bank of the Patani River at its mouth. We obtained some specimens of fishing apparatus there.

Kampong Uban Tras. A Malay village, some eighteen miles above Patani, where one of us collected some zoological specimens.

Jalor

The state of Jalor has an area about three times greater than that of Patani, from the northern third of which it is separated by the Patani River. The Patani River also separates it to the east from Rhaman, which bends round to the south so as to march with it on this border too ; it marches with Tibaw to the west, and with Nawngchik to the north. The revenue of the state, owing largely to the amount of opium consumed in it, is larger than that of any other of the Seven Provinces, or, as the Malays call them, the 'Seven Fruit of Countries' (*Tujoh Buah Neg'ri*). The northern half is rather thickly populated, partly by Malays and partly by Siamese ; that is to say, by Mahommedans and by Buddhists, for we can find very little difference, except that of religion, between the two peoples in Jalor. South of Petai there is much primaeval jungle, and the tin mines, which are the largest in the Division, occupy only a small area, being, compared to those of South Perak, small and unproductive. A considerable proportion of our time was spent in Jalor, and we made two journeys through the southern half of the state to the Rhaman border or its vicinity.

Biserat. Biserat, which is known to the Siamese as Ta Sap, has been the Siamese headquarters in Jalor for some years, and the Malay Raja, whose residence is at Kampong Jalor, some miles away from the river, has lately been persuaded to take up his abode in a house on the outskirts of the village. The population is considerable, consisting almost entirely of Siamese officials and their families and of Chinamen and Chinese half-castes engaged in river transport or petty trade. At the time of our visits all the houses were of a flimsy nature, being built chiefly of bamboo and palm-thatch ; the largest was the old government offices, one wing of which was assigned to us by the Commissioner, as they were being replaced by more substantial timber buildings : among these a telephone station in direct communication with Senggora, Patani, and Kota Bharu (the chief place in Rhaman), which is also connected with Biserat by a good track.

The country round Biserat consists of a large and fertile plain, most of which is in use as rice-field or orchard, and the only jungle that remains in the district is that on two limestone hills, called Bukit Tapang and Bukit Bayu, which rise abruptly from the midst of swamps behind the village. Their

sides are more or less precipitous at all points, in many places so much so that there is no lodgement for soil, and vertical crags are exposed. Thus the hills, though they are certainly not more than about six hundred feet in height, have a massive and solid appearance, belied by the fact that they are penetrated in all directions by natural tunnels, which here and there expand into lofty domed chambers of considerable extent. Bukit Tapang and Bukit Bayu, in fact, are precisely similar in geological formation to many hills and islands on both sides of the Malay Peninsula. The stone of which they are formed is highly crystalline and has been exposed to metamorphic action of a kind that leaves little hope of the discovery in it of organic remains. It is evident that they represent the ancient land surface, now much eroded, through which the central range of plutonic rock has been erupted. In certain places, especially in the neighbourhood of Kampong Jalor and Tanjong Luar, the two formations meet and become confused together in a very curious way, and in such localities metalliferous veins appear to be common.

The fauna of Bukit Tapang and Bukit Bayu may be divided into two distinct sections, one of which is found on the exterior, while the other inhabits the caves. The former is prolific, for the vegetation that grows in the scanty soil which covers the limestone is more luxurious than might be expected from the rapidity with which the ground dries up after rain, and rich vegetation always means a rich fauna. It is noteworthy, however, that the fauna of these hills is by no means so characteristic, to all appearance, as the flora, which differs, on the one hand, from that found on granite mountains like Bukit Besar, and, on the other, from that which covers marine or semi-marine cliffs like those of Chau Mai or the islands of the Taleh Sap. Speaking generally, while the number of tall trees, epiphytes, and ferns is smaller than it would be in the former situation, the number of fleshy-leaved or fleshy-stemmed species is smaller than in the latter. The animals are mostly those found in the plains, though certain species, for example, the Malay serow, or 'kambing gurun' (*Nemorhaedus swettenhami*), do not occur on level ground. This antelope, the only one that penetrates down into Malaya, is especially common on limestone hills of the kind, taking shelter from the rain in the caves; but it also abounds on Bukit Besar. The avi fauna is not particularly noteworthy; an ant thrush (*Pitta cyanoptera*) becomes common at the base of the cliffs in November, and is partly responsible for the heaps of broken snail shells at the mouths of the caves, but a species of *Myiophonevs*, whose cry we frequently heard, probably contributes its share, for on a previous visit one of us collected a young specimen in just such a place on Bukit Tapang. Insects are rather scarce, but in some patches of jungle the tailor ant (*Oecophylla smaragdina*) is so abundant,

and so vicious, that passage through the thorny undergrowth is difficult. A careful search would probably reveal a large molluscan fauna, always rich on limestone, but we were unfortunate in this respect in the dryness of the year, which probably caused the majority of the species to disappear into the earth. As a member of the 'Skeat' Expedition one of us took on Bukit Tapang several new slugs of the brilliantly coloured and peculiar genus *Atopos*, as well as a very curious snail, *Rhiostoma jalorensis*, Sykes, which has a shell that looks as if it had become partially uncurled and had then been joined together by a tubular bridge running between two whorls. Its operculum is also peculiar, being very thick and fitting into the shell with a regular spiral screw, probably as a protection against the evaporation of moisture, as the species is found, at any rate in dry weather, buried in leaf mould, only dead and eroded shells occurring on the surface of the ground, where they are very common in certain places.

The cave fauna is mainly interesting because it is not a true cave fauna in the sense that that of the Mammoth Cave of Kentucky is one, probably because the Jalor caves, though they penetrate into the hills for a considerable distance, are not uniformly dark throughout, the roof having fallen in in many places and so permitted light and moisture to enter, and with them the fauna of the outside world. Nevertheless, there are several species found in the darker parts of the caves which are, at any rate, very rare elsewhere, notably the so-called 'moon snake,' *Coluber taeniurus*, which, however, is not so common as in the caves of Selangor. A very large whip-spider, *Stygophrynus cerberus*, Simon, is extremely abundant on the walls, and a wingless grasshopper belonging to the family *Stenopelmatidae* is even more so. The latter has extremely long antennae, one of which is longer and stouter[1] than the other, and the whip-spider's first pair of legs, which it carries crossed over its back, are even longer than those of some of its allies, largely taking the place of eyes, though these organs, which would appear to be useless to the animal, are well developed even as regards their internal structure. Certain Isopods, found under stones in the caves, may possibly have degenerate eyes, but they have not yet been examined.

We stayed at Biserat for some weeks in June, July, October, and November, 1902, and there obtained a considerable proportion of our anthropometrical data regarding the Malayo-Siamese, as we have thought it best to call the very mixed indigenous population of the Patani States. Our subjects were partly prisoners in the jail and partly inhabitants of the neighbouring hamlets. We also made large zoological collections in the neighbourhood, and, as regards insects, were particularly fortunate because of two events, viz., the

1. Detailed measurements show that this is usually, but not invariably, the left antenna.—N.A.

discovery in an accessible position of a flowering shrub which attracted enormous numbers of beetles and other insects not elsewhere obtained, and, secondly, the arrival of the High Commissioner with a large train of elephants, which were followed or accompanied by some interesting beetles of the genus *Heliocopris*. The situation of the house in which we stayed, in an open space surrounded by orchards, proved attractive to moths, of which large numbers were taken round our lamp in the evenings. Several species of Diptera belonging to the family *Celyphidae* were collected, together with a Phytophagous beetle which some of them resembled very closely, as well as a number of ant-like spiders (*Attidae*), in some cases with their specific 'models.'

On each occasion we came to Biserat by boat from Patani—a dull and tiresome two days' journey, for the boat, a large flat-bottomed punt with a low-roofed cabin amidships, a small kitchen behind and a sloping platform for the polers in front, kept constantly sticking on a snag or sand bank. The river is so shallow and the currents are so variable that no steersman can know it intimately from one month to the next. The country on both banks is tame, covered with a succession of Malay and Siamese villages, which are separated from one another by patches of secondary growth and clumps of bamboo. The only interesting feature of the journey is the Sungei Bharu or 'New River,' a canal cut across a bend of the river by a late raja of Patani, who wished at one stroke to shorten the journey from the interior to his capital, to bring more water into the river which reached the sea through his territory, and to deprive the governor of Nawngchik of the revenue accruing to him through the passage of goods through his state. All of this the canal has performed satisfactorily,[1] and it is a good instance of what can be affected in engineering by sheer force of numbers of workmen, though, of course, no great difficulty had to be surmounted in its construction. It is about six miles long, broad enough for two house-boats to pass one another with some difficulty, and very fairly straight.

Bayu. A village of indigenous Siamese about two miles from Biserat, from which it is separated by a stretch of level ground and then by Bukit Bayu. The village is surrounded with large orchards, especially of durian trees, which prove most attractive to the giant squirrel, *Ratufa bicolor*, when in fruit. It is separated from a considerable Buddhist monastery by a winding lake which occupies the hollow at the base of the cliff, immediately below which the monastery buildings have been erected. The monks have charge of a cave a little above their residence in which, about a century ago, a Chinese governor of Senggora on tour through the Seven Provinces caused a colossal recumbent statue of Buddha to be built. Since then many other figures of

1. But the Siamese did not permit him to levy tolls at both ends of the canal, as he wished to do.

Bukit Tapang, from near Biserat.

inferior size, but still gigantic, have been set up round it, and the cave is regarded as being sacred by Malays and Siamese alike.

We paid several visits to Bayu to measure the people, who were of the Siamese type normal in Jalor, many of them having wavy hair. From the lake we obtained specimens of a freshwater sponge and a freshwater Polyzoon.

Bendang Stah. An important village, partly Chinese and partly Siamese, a full day's journey, going down stream, above Biserat. Its importance lies in the fact that it is the point of embarkation of the tin from the Jalor mines, with which it is in constant communication by means of elephants and pack buffaloes, which we did not see elsewhere in the Patani States. We made no collections at this place, but spent a very uncomfortable night, tormented by minute Acari, in a Chinese house in the village, on our way from Tanjong Luar to Biserat.

Kampong Jalor. This village, which is marked as Raja Jalor on some maps, was until recently the most important in the state, being the residence of the raja at a date when the Siamese rule was merely nominal. It is still a considerable Malay centre, and its most important feature is the raja's compound, in which there is a large *balei*, or audience hall, built of flimsy materials and now much dilapidated, and reported to have been constructed at the cost of $40. It contains the raja's insignia, which consist of a large drum, made of a hollow palm-trunk, and a huge wickerwork torch-holder. The village itself is dirty and crowded, and its inhabitants, very few of whom are Siamese, are mostly opium-smokers, many of them being employed in connexion with the raja's elephants, and all elephant mahouts, it is commonly said, being addicted to this habit. Few, however, indulge to excess, the majority merely taking a pipe in the morning and another at night ; it appears to do them little harm so long as they can get their two pipes a day, but if this is impossible for a single day they become very weak and miserable. The opium monopoly in the village was held at the time of our visit by a Chinaman who had married a Siamese woman notorious as a witch who kept familiar spirits. She had originally been married to a member of the raja's family, being the daughter of a Bangkok noble, but several husbands had divorced her in succession, because of her reputation in respect of black magic.

The country round Kampong Jalor resembles that round Biserat, from which it is some five miles distant, but the limestone hills are rather higher and occur in close proximity to granite outcrops, on which vegetation is extremely scanty. The mammalian fauna is richer, owing to the neighbourhood of extensive tracts of jungle, and a number of species were brought us by the Malays, who appeared to be rather better jungle men than in some parts of the

Patani States. Among these was the type of a new species of civet cat, *Paradoxurus minor*. We also obtained, chiefly from the same source, several interesting reptiles, including a new tortoise of considerable size, *Cyclemys annandalii*, and a new snake, *Dipsadomorphus pallidus*. As heavy rain fell during the greater part of our stay at Kampong Jalor, we were able to do very little collecting ourselves, but we were fully occupied in preserving the specimens brought to us and in anthropological work. With the rains came numerous wading birds, which had hitherto been absent or scarce, including several species of heron and at least two of stork. Vultures of two species were very abundant, and specimens were obtained of both. The Siamese Commissioner had caused a house to be built for us outside the village, but it had been erected on an abandoned rice-field on which dead cattle and dogs had formerly been cast out, and the remains of these, and of the animals we had skinned, proved most attractive to the vultures, which sat on the ground in rows, often too fully gorged to fly, within sight of our verandah.

As regards anthropology, we obtained a considerable series of anthropometrical data, but not so large a one as we desired, owing to a rumour, spread we know not how, that we were measuring people in order to enlist them against their will in the white men's army. A large collection of ethnographical specimens were made, and much information concerning native beliefs and customs obtained. The specimens included some very fine neoliths, which were preserved as charms against lightning and as hones for the artificial spurs which were formerly attached to the legs of fighting cocks but are now illegal.

We stayed at Kampong Jalor in October and November, 1901, arriving from Biserat, and starting from the former village for our trip to the Rhaman border. Between Biserat and Jalor there is a road which is fairly good in dry weather, except that most of the planks in the bridges spanning the numerous runnels of water which traverse it have been stolen ; during the rains the road becomes mostly mud, though cattle and elephants are warned off it by means of elaborate signs, such as a model of the elephant hobbles used in the country, suspended across the track or from a pole set up at its side.

Mabek. A small community of Malays in the interior of Jalor, situated near the point where the fauna and flora commence to take on a true jungle character, which is practically absent, except on Bukit Besar, northwards towards the sea. We noticed a very marked difference between the fauna of this place and that of the country round Biserat, especially as regards the dragon flies, which were more numerous here than at any other collecting

station, in species and individuals. Among mammals, a gibbon was common, and we obtained a specimen of the monkey *Presbytes* (*Semnopithecus*) *femoralis*, which seemed to replace the common *P. obscurus*. Several specimens of the rare porcupine, *Hystrix grotei*, were brought us by the natives.

Our object in visiting Mabek was to meet a small tribe of Semangs, calling themselves Hami or 'Men,' whose Malay lord resided there. In this we were, so far, successful, for we saw and talked with five adults and obtained from them several interesting ethnographical specimens, as well as taking measurements and photographs of them, but their master was afraid that we intended to kidnap them and so hindered us from seeing as much of them as we desired. At the same time, he arranged that the people of the village should refuse to sell us supplies, so that we could obtain little to eat. The Hami are probably of purer Semang stock than the Semán of Upper Perak.

Petai. A small Malay village some miles north of Mabek. Here we spent a night on the way to Tanjong Luar, incidentally obtaining some curious information regarding the Malay belief in familiar spirits and witches.

Tanjong Luar. Tanjong Luar is a small Malay hamlet only separated by the Sungei Groh, a tributary of the Patani, from the Siamese community of Ban Kassôt ; but as the Sungei Groh also forms the boundary between Jalor and Rhaman, the two hamlets, or rather quarters of the village, are in different states, Ban Kassôt being on the Rhaman and Kampong Tanjong Luar on the Jalor bank. The two together contain some fifteen to twenty houses, whose inhabitants, being too lazy to practice artificial irrigation, cultivate hill rice (which needs no such aid for its growth), maize and bananas in small clearings often some little distance from the village, living during part of the year in their plantations. The scenery in the surrounding country is magnificent. The bold outlines of the limestone hills, which are several times higher than those near Biserat, the whiteness of the exposed cliffs, and the luxuriance of the vegetation at their base afford a series of contrasts very grateful in Malaya. At one point a stream makes its way through a lofty tunnel in a marble crag, and the hills, if the natives' stories be true, are full of splendid caves. We were invited by the Luang Chin, or head of the Chinese community in Patani, to visit a tin mine which he owned in the neighbourhood, having first been warned of the precautions we must take not to scare away the tin spirit. In forming the mine, which is probably the most important in the Patani States, the side of a hill has been completely dug away, but the Luang Chin told us that it did not now pay to work it to its full capacity. He took us to see in the immediate neighbourhood a beautiful little valley at the entrance to which a pair of huge rocky pinnacles stood sentinel, strangely reminiscent of certain rocks in Switzerland, except that one

of them was partly covered with Cycads—a family of plants rarely seen in numbers in the Patani States.

The fauna at Tanjong Luar is that of the central region of the Peninsula, especially as regards the butterflies, the only animals of which we made collections there. They congregate in enormous numbers on the Sungei Groh, which is very muddy owing to the tin workings higher up, and often settle in patches a foot or more square upon the banks. The yellow, red and white species, such as *Appias nero*, *Terias* and several *Pierinae*, keeping, as a rule, densely crowded and confused together, while the more sombre *Euploeidae* and their allies remain separate, consorting with those *Papilioninae* which resemble them in coloration, and the large black members of this last family dart from place to place, settling to drink alone.

At the time of our visit the people of the Ban Kassôt were being decimated—eight adults out of about forty had died during the preceding month —by a disease which closely resembled rapid consumption in its symptoms, while the children, almost without exception, appeared to suffer from something very like tuberculosis of the intestine. The houses of the village were unusually small and close, and were built in a little hollow, shadowed by three mountains, where the sunshine barely reached. As the people themselves told us, they 'dwelt in the path of the spirits,' which were constantly passing from one hill to another. This, they agreed, was the cause of their sickness, from which the neighbouring hamlets appeared to be free; indeed, it was only here that we experienced in the Patani States any form of disease so rapidly or widely fatal as those frequently associated with the tropics, for cholera, plague and beri-beri, if they exist in the Division of the Seven Provinces, are very rare, while smallpox, though probably endemic in a mild variety, only becomes epidemic, virulent and awe-inspiring to the populace at intervals of several years.

We had visited Tanjong Luar in order to meet a tribe of Semangs, who were said at that time (November, 1901) to have taken up their abode for the rains in certain caves, for we had heard that their 'herdsman' or guardian was the Siamese *Nai-ban* of Ban Kassôt, and although we failed in this project, our three days' journey from Kampong Jalor—much of it through flooded rice-fields in which the horse leeches were uncomfortably common—was richly rewarded by the acquisition of an authentic Semang calvaria, which we found lying at the base of a cliff where the rest of the body had been completely devoured by porcupines, and of an almost complete skeleton of the same race, procured for us from a cave, in which the corpse had become partially mummified, by the medicine-man, or *môr*, of the village. The *Nai-ban*, herdsman of

View at Nawngchik town, with Bukit Besar in the distance.

the 'Sakais,' and his friends allowed us to loot their houses in our search for ethnographical specimens, which we did with great satisfaction both to them and to ourselves, having some difficulty in persuading them to accept the remuneration that we considered fair, but they regarded as altogether extravagant. Altogether we spent nearly a week in this neighbourhood, where we had the opportunity of inspecting the preliminaries of an indigenous Siamese funeral, as well as obtaining some interesting specimens.

Nawngchik

The state of Nawngchik lies between Jalor and the sea, marching with Patani to the East and with Tibaw on the other side. Its area is about a third greater than that of Patani. Seen from the flank of the mountain Bukit Besar, the greater part of the state is covered with low brushwood, and little thick jungle remains. The population in a few localities is, however, dense, and there are open plains on which a large number of cattle are pastured. We paid three visits to Nawngchik, staying for some weeks at a time on two occasions, and a considerable part of our zoological, anthropometrical and ethnographical data were obtained in the state, as the conditions were favourable in all cases.

Nawngchik town, called Tojan by the Malays, is situated on a branch of the Patani which was formerly the chief effluent of that river ; it lies about two miles from the sea, and about six from Patani town, with which it is connected by a sandy track and a ferry. A wooden bridge also serves for foot-passengers across the Nawngchik River, but is too weak to support an elephant ; the only vehicular traffic in the neighbourhood is conducted in Japanese 'rickshas, which have been introduced into Patani and are occasionally taken to the neighbouring places. The population of Nawngchik town cannot exceed two thousand, consisting very largely of indigenous Siamese, though there is a considerable Chinese element. The place is the headquarters of the governor, who is also recognised as raja or *phya*. Much of the surrounding country is waste ground, covered with short grass and clumps of bushes, among the roots of which the orchid, *Phalanopsis esmeraldae*[1], is very common and reaches a magnificent development, differing from most orchids in preferring to grow in almost pure sand.

We were detained at Nawngchik for about ten days in December, 1901, waiting for elephants to take our baggage to Senggora. There were extensive floods at that time in the neighbourhood, and we were forced at last to leave

1. Malay children in this district call it *haji naik kuda* (pilgrims on horseback), owing to the shape of the flowers, but its common name is *pisang musang* (civet cat's banana), owing to a belief that civet cats eat the fruit.

in dug-outs, which took us and our belongings in a ditch to within a few miles of Anak Bukit (*q.v.*), where we obtained elephants and porters with considerable difficulty. During our enforced stay we occupied a pavilion used by the raja as a grand stand when bull-fights were in progress. We shared the place with a caretaker, who spent his time in breeding fighting fish—an illegal way of encouraging gambling. The only zoological specimens collected were birds, among which were examples of the Indian roller, not hitherto been recorded from the Malay Peninsula, though it is common enough in December in the coast region of the Patani States. The most important acquisition, however, was a series of native Siamese skulls, which were obtained from trees near the town, a recrudescence of 'tree-burial'—a primitive custom now officially obsolete and utterly illegal in Lower Siam—having recently taken place.

Kampong Anak Bukit. A small Malay and Siamese village, about ten miles from Nawngchik, which has become important as a government station and as the point where the telephone and telegraph lines from Patani to Senggora and to Jalor and Rhaman diverge. The scenery between this point and the Tibaw River is remarkable, reminding one of us of parts of Queensland. Immediately along the coast is a narrow belt more or less sparsely covered with casuarinas and *Pandani* ; above this are wide plains, overgrown with coarse grass, which is usually low but occasionally grows as tall as a man, and, dividing the plains at intervals, stand straight rows of 'trap'[1] trees which closely resemble the ti trees (*Melanoleuca*) of Australia, having conspicuous white bark (out of which the cattle-drovers of these parts sometimes make the walls of their houses) and small foliage not unlike that of a birch. Behind these plains thick jungle, abounding in palms, occurs. Anak Bukit means the 'child of the hill', and the village has gained a name from its proximity to Bukit Besar.

We stayed at Anak Bukit for a night on two occasions in 1901, passing through the village on others and collecting a certain number of birds and insects. On our first visit, in April, when the country was very parched, one of us found the remains of a freshwater sponge, which was suspended, high and dry, but full of gemmules, from the stem of a creeper overhanging the bed of a torrent.

Bukit Besar, the 'Great Hill,' also called Gunong Negiri, is a mountain approximately 3,500 feet high, on the borders of Nawngchik, Jalor and Tibaw. It is a very conspicuous feature in the landscape of the coast region, for it rises abruptly from the plain on three sides, being quite isolated except for a subsidiary range of no great height, with which it appears to be connected towards the west or north-west. Its formation is granitic, with

1. It is probable that this name is given to different trees in different parts of the Peninsula.

JUNGLE ON BUKIT BESAR, NAWNGCHIK.

stanniferous veins in the rock, and its flanks are strewn with large granite boulders. Towards the south it is very steep, with curious gaps and caverns, but the northern slope, with which we are best acquainted, is gradual. On this side a large area has been cleared, reaching as high as about a thousand feet, but most of it is now overgrown with secondary growth, and, above, the jungle is virgin, except for an old clearing, at about 2,500 feet, which was orginally made by tin prospectors, but afterwards occupied as a place of retreat by the monks of a Buddhist monastery at Sai Kau.

This clearing, in which we stayed, is overgrown with long grass, brushwood and wild bananas ; the plate of jungle on Bukit Besar gives a good idea of the vegetation both in such deserted clearings and in the ancient jungle surrounding them, but the small trees in the foreground are durian trees, which the monks have planted. On the lower slopes of the mountain the trees are high, with slender trunks, which are usually almost free of epiphytes, though ferns and orchids abound on the tree-tops. Above 3,000 feet bamboo thickets are common, while about 300 feet below the peak a sudden and complete change takes place in the flora, the trees becoming low and stunted, and their trunks being wreathed in moss, lichen, ferns, orchids and other epiphytes, among which we were surprised not to see a single pitcher plant. The ground orchid, *Annectochilus*, is abundant among the undergrowth, growing where there is a thin layer of soil over rock, and the summits of some of the large boulders in the jungle are buried in ferns and in the foliage and blossoms of a white-flowered orchid belonging to the genus *Calanthe*. Comparatively few of the tree orchids have conspicuous flowers, but a certain number were very beautiful, while the large seed-vessels of others, which scattered an impalable powder of seed at a touch, showed that the blossoms had not been small. Two forms of vegetation may be mentioned as being connected with the fauna in a very special way, viz., (1) the gingerworts and wild bananas, and (2) certain forest trees, the trunks of which are strengthened by the outgrowth of laterally projecting buttresses at their base. Occasionally these buttresses coalesce at their free extremity, thus forming cavities in which dead leaves and rain water collect, and when this occurs, a regular microcosmos is the result. Between the buttresses of one such tree, in the water or on its surface, the following species were taken :—the lizard, *Gonatodes affinis*, which sought shelter in the water when disturbed ; the snake, *Tropidonotus chrysargus*, feeding on the spawn of the frog, *Ixalus horridus;* the water bug, *Rhagovelia insignis*, which covered the surface in a little cloud and was not seen on any pool or stream in the neighbourhood ; the larva of a dragon fly ; the pupa and adult of a Tipulid, and the larvae of several other Diptera and

beetles. Of these the frog is probably peculiar to this habitat, while the same is possibly true of the bug. The broad leaves of the gingerworts and bananas also have their peculiar fauna. Many species of insects—including the members of a peculiar Dipterous family (*Diopsidae*), which, in the Malay Peninsula at any rate, are rarely found apart from these plants—delight to run about on and to hover over their surface, and others conceal themselves during the day in the funnels formed by the young leaves; while the so-called flying gecko, *Ptychozoon homocephalum*, not infrequently chooses the lower surface of the adult leaves on which to lay its eggs.

The larger mammals are scarce on Bukit Besar, but we often heard the curious cry of the male serow, *Nemorhaedus swettenhami*—something between a bleat and a bark—and the still stranger call of the muntjac (*Cervulus muntjac*), which is a regular roar. One night our slumbers were disturbed by the yelping of a pack of hunting dogs (*Cyon*) and by the growls of a pair of tigers which wandered round our hut; while traces of the Malay bear (*Ursus malayanus*) and wild pig were abundant. Among rodents we took specimens of six kinds of squirrels, and saw a family of a seventh, namely the variable species, *Sciurus finlaysoni*. Of those actually collected, two, *Sc. robinsoni* and the ground squirrel, *Funambulus insignis jalorensis*, were new, and we also obtained two new rats, *Mus bukit* and *M. jalorensis*. The birds were neither numerous nor peculiar, though many of them had exquisite plumage; only a few, probably owing to the isolated position of Bukit Besar, belonged to the true mountain fauna of the Peninsula. The reptiles and frogs were mostly arboreal forms, and therefore difficult to collect or even see; but we obtained two new frogs, *Ixalus horridus* and *Rhacophorus robinsoni*, and some interesting lizards, including the peculiar horned species *Acanthosaurus armata*, and also *Dibamus novae-guineae*—the only representative of a family not hitherto recorded from the mainland of Asia. Insect life was rich, but not so rich as in 1899, which was a very much wetter[1] year; we had opportunities both of collecting and also of photographing and observing, under natural conditions, a number of interesting forms, including the marvellous flower mantis, *Hymenopus bicornis*, the white and pink 'varieties' of which were proved to be mere phases in the life history, as SHELFORD believes, while a third phase, of a pinkish coffee-colour, was noted in connection with the flower of a creeper. We were not so fortunate as to obtain specimens of the Peripatus discovered on Bukit Besar by the 'Skeat' expedition.

1. It is possible that the annual rainfall in the Patani States is fairly uniform, but that its distribution through the months differs considerably from year to year. In 1899 there was almost daily rain between April and the end of what would be the summer in Europe. In 1901, a more or less sustained drought prevailed during this period in the plains, while thunderstorms were less numerous and violent on the hills. Neither year was considered extraordinary by the natives, who expect a heavy rainfall and high winds in the latter end of November, in December and January, and a short period of calm, dry weather in March and the beginning of April.

We lived on the mountain, for three weeks in April and May and a fortnight in August and September, in a little hut of branches and palm leaves, tied together with the stems of creepers, which our coolies practically built for us in the course of about two hours, and we had also a photographic dark room, constructed over a clear mountain stream, and a stage for drying specimens erected in the clearing. But for the dampness, due rather to a fine mist, which the sun never wholly dissipated, than to rain, for consequent attacks of violent toothache, for the parasite to which one of us has already alluded, and for land leeches, which were most unpleasantly abundant, we were very comfortable, as the Malays of Sai Kau brought us up provisions, which they sold to the cook for ridiculously small prices, almost every other day. They also brought little bamboo tubes full of specimens which they had collected during the ascent, and Siamese pig-hunters often visited us with similar wares, so that we saw a good deal of the natives even on the mountain. So far as we could discover, there are now no aborigines living on Bukit Besar, though it is quite possible that the stories of spirits with which our men were regaled on their return to the plains were due to the presence of some particular shy and retiring tribe, which may or may not be extinct.

Ban Sai Kau, sometimes called Kampong Pasir Puteh by the Malays (both names meaning 'the village of white sand'), is a large village, or rather collection of hamlets, with about six hundred inhabitants, and lies immediately below Bukit Besar. The population is almost equally divided between Malays and Siamese, the two 'peoples' here, as in Jalor, being more accurately described as the followers of Buddha and Mahommed respectively. They do not, however, occupy the same hamlets, for every small group of houses is hidden in a grove of cocoanut and areca palms and other fruit trees, and separated by extensive rice-fields from its neighbours. Many cattle and buffaloes are also pastured in the neighbourhood, and the people, though very poor, are well able to live in comfort on the products of their fields, orchards and poultry, the sale of their cattle, many of which are sent over into Perak and Kedah, providing them with such luxuries as they desire. In type they differ somewhat from the Malayo-Siamese of Jalor, the common occurrence among them of wavy hair, a dark complexion and a very broad nose probably pointing to Semang blood, while it is possible that there has been less mixture with Chinamen or true Siamese. Their customs and education are very primitive, though Malay boys are invariably taught to read the Koran—often without understanding what they read—in Arabic, and we found that the majority of them could not count above ten, so that a purely concrete system of decimal arithmetic had to be used in our monetary

dealings, every ten cents being placed by itself in a little heap, and the different heaps being again combined in tens to form dollars. An interesting feature of their culture was the fact that they displayed a far greater tendency, possibly inherited from Semang ancestors, to decorate bamboo articles with engraved patterns than their Malayo-Siamese neighbours, though their patterns were of a more regular and elaborate character than those common among the wild tribes of the Peninsula. Their cloth, on the other hand, was very coarse, only three kinds of dye—the bark of the jack-fruit tree (*Artocarpus integrifolia*), the wood of a species of acacia and an indigo—being at all commonly employed, and checks being the only type of pattern as a rule attempted. Unlike most of the Malayo-Siamese, however, they grew a proportion of the cotton they used, and many of their spindles and other implements were finely carved, while the stands of their cotton-winders were often ornamented in a very tasteful way with a combination of carving and painting in simple colours. The everyday language of Mahommedans, as well as Buddhists, was a dialect of Siamese, but all the older Mahommedan men, and most of the younger ones, could also speak Malay.

The country round Sai Kau is not particularly interesting, except towards the mountain, and the greater part of our work there was anthropological. We obtained large ethnographical collections during the two visits we paid, one in May, when we stayed for about a week, and one in September, when our sojourn was rather longer. A number of people were measured, photographs were taken and two skeletons of murdered persons were procured, for it is not very difficult to carry off the remains of those whose violent death has caused their ghosts, which follow the remains, to be a menace to the neighbours.

Jhering

The state of Jhering lies between Patani and Telubin, which we did not visit, and the most direct route from the interior of Rhaman to the coast runs through it. Although its area is considerably larger than that of Patani, the proportion inhabited is very much smaller, for the interior of the country, according to all accounts, consists chiefly of swamps and morasses, in which the Jambu River, which appears to have been at one time connected with the Patani, now loses itself. The population is chiefly Malay, being almost entirely occupied in fishing and salting fish, but we heard persistent rumours of the existence of a large Siamese village, peopled by the descendants of former invaders, and the rajas of the state are of true Siamese origin, though now Mahommedans.

Jambu.[1] The capital of Jhering was probably the most thoroughly Malay place we visited in the Malay Peninsula, for it was of sufficient size, on the one hand, to be something of a centre for local traffic, and too insignificant, on the other, to be attractive even to Chinese traders, while Siamese influence appeared in 1901 less obvious than in other places in the Patani States. It is probable, from what one of us heard in Patani in 1902, that considerable external changes have since taken place in the town. In the summer of the previous year the place certainly had not more than 2,000 inhabitants, the great majority of whom were Malays, and the only building of any solidity was the mosque, which betrayed strong traces of Chinese design. A number of Malay rajas had houses in the town, for the place enjoyed the reputation of being very healthy, probably on account of the sea breezes which reach it through the odoriferous casuarina woods; but these 'palaces' were built for the most part of bamboo and palm thatch, though the size of some of them was considerable. One, assigned to us as a lodging, belonged to the Raja Mudah of Rhaman, at that date (June, 1901) a fugitive from justice, and was extremely commodious and cool, our quarters consisting of a large central hall, a room of the same width at the entrance for our followers, and a bedroom behind for ourselves. There was a well of good water inside the house, and the only objection to the place, according to the Malays, was that it was haunted by a spirit.

The surrounding country consists partly of barren, sandy stretches, partly of mangrove swamps, the latter following the course of the river, which is little more than a tidal creek, and of the many channels into which it breaks up at its mouth. The town lies about a mile and a half from the sea, and six miles by road from Patani.

More extensive traces of the old pagan religion of the Malays exist in this neighbourhood than at any other point on the coast which we visited, and the worship of spirits is carried on quite openly, whereas it is usually concealed. The custom of 'casting away sickness' on little models of ships is especially rife, and we were told that a few years ago, when an epidemic of smallpox raged throughout the Patani States, many children who were attacked by the disease were set adrift on rafts, in order that they might carry it away with them out to sea.

We spent ten days at Jambu, originally visiting it in search of health, as we were never well in Patani, probably because of the bad water supply. Much of our time was occupied in watching the habits of the 'walking fishes'

1. The name has been given the town on account of the large numbers of cachew nuts which flourish in the sandy soil of the neighbourhood, for this fruit, as well as the rose-apple, is called *jambu* in the Patani dialect of Malay.

(*Periophthalmus* and *Boleophthalmus*) on the mud flats exposed at low tide. An interesting series of these truly amphibious forms was obtained, and a number of the specimens have been found by Mr. J. Johnstone to belong to a new species, which he has named *Periophthalmus phya*. A few ethnographical specimens were obtained, as well as the skeleton of a murdered Malay.

Cape Patani is a narrow sand spit, ranging in breadth from nearly a mile to a hundred yards or less, which stretches out to sea for ten miles from the south bank of the Jambu estuary. Its southern beach is exposed to the open sea (the Gulf of Siam), while it protects Pantani Roads to the north, at the same time rendering them liable to be silted up.

No greater contrast could be imagined than that between the jungle on Bukit Besar and the vegetation on Cape Patani, for here we have no tropical luxuriance, except in the tiny thickets which surround the pools of water that well up in the broader parts through the sand, but either woods as open as those on the South Coast of England, or scenes as parched and dry as the sun-stricken deserts of Somaliland. In the casuarina woods, with their lawn-like glades, gnarled tree-trunks and absence of undergrowth or epiphytes, there is little to tell the eye that one is not in a northern pine-forest, while in the sandy wastes round the villages, so hot that a European cannot walk barefoot on the sand at midday, the hedges of spurge, *Pandanus* and prickly pear[1] recall a country far other than Malaya.

As will be readily understood, the fauna of such a locality is peculiar and impoverished, though large numbers of cattle and sheep are pastured in the woods. Mammals, except otters and the two common monkeys, *Presbytes obscurus* and *Macacus fascicularis*, are rare ; we heard stories of an enormous red rat which lived among the hedges, but saw neither it nor the civet cat which inhabits the woods ; squirrels especially are scarce. Of birds, several woodpeckers are common, and a little black-and-white tit is particularly characteristic ; the place of sea birds is largely taken by the fishing eagles, hawks and ospreys which nest in the highest casuarina trees, swarming on the beach wherever fishing operations are in progress. Towards the point, however, terns (*Sterna sinensis* and at least one other species) are fairly numerous, as is also a cormorant indistinguishable, except by its small size, from the common British species, while at the time of our visit (September and October, 1901), enormous numbers of plovers and sandpipers had just arrived on migration. The Malays who lived in the fishing villages on the Cape told us that, a little later, a bird they called *burong lah* paid them a visit of a few days in large flocks, and was captured for food with nets and snares. Their

1. Of course introduced ; a species of *Opuntia* is now not uncommon in the dryer parts of Malaya.

View in the Casuarina Woods on Cape Patani.

description of its appearance and habits answered exactly to *Pitta cyanoptera*, which a Patani man later picked out from the whole collection in the Selangor State Museum as the *burong lah*, though this species is known at Jalor as *burong pachat*; but they said that there were two kinds of *burong lah*, one a little larger than the other, which did not travel together.

The insects in this locality are mostly small and inconspicuous, and there are few other invertebrates except marine forms. Among these we took, on the beach, an Opisthobranch mollusc so closely resembling a seed which commonly germinates in sea water that only a very close examination revealed its true nature. Indeed, one of us, some argument having arisen about these seeds, actually lifted the animal up under the impression that it was one of them.

The people living on Cape Patani are all Malays, who appeared to differ considerably, especially as regards their narrow faces, from any others we met with on the East Coast. Unfortunately, they were unwilling to be measured, and we only secured a very small series of physical data ; their hair was straight. The nature of the soil makes agriculture impossible for them, but their cattle are valuable for export overland to Perak. The sheep are chiefly kept to be sacrificed at the shrine of 'Toh Panjang,' a Mahommedan saint, whose legend has been told by Mr. W. W. Skeat in his *Fables and Folk-tales from an Eastern Forest.*

There are several little fishing villages on the sand-spit, of which Kampong Datoh, the seat of the shrine, and Kampong Tanjong Budi are the most important. We stayed at the latter for some days, being literally driven to it by the mosquitoes, which rendered life a misery in the camp we had established at the edge of the woods on the other side of the Cape. It is difficult, without seeming exaggeration, to give any idea of their numbers, and the only consolations we had regarding them were that their presence was to some extent compensated for by the absence of another plague, namely land leeches, and that they included few or no specimens of the malaria-bearing genus *Anopheles*, which appears to have a very local distribution in the Malay Peninsula.

Kedah

Our only personal knowledge of this state was obtained during a hurried three days' journey through it from Senggora to Alor Stah, where we stayed one night. We were able, however, to verify one important geographical fact bearing on the question of the high level fauna of the Peninsula, which differs so completely, at any rate as far as the birds are concerned, from the fauna of the plains. There is a very distinct break in

the main range in Central Kedah, for in crossing from Senggora we neither ascended higher than a few hundred feet above sea level, nor did we see a single high mountain in the vicinity of the track. This fact is interesting, because it has frequently been taken for granted that the mountain fauna of Perak, which is not found much below 3,000 feet, has a continuous distribution with that of the mountains of Northern India, to which it is so nearly related ; whereas it is evident, in the light of this observation, that no such exact relationship can exist at the present day, unless, as seems improbable, the mountain forms are in the habit of migrating across intermediate tracts of level ground. In short, it seems that the Malay Peninsula, as our whole collection has served to confirm, is connected with India, as regards zoogeography, in a degree not much more intimate than that which links it to Borneo, though many mainland forms peculiar to the plains have made their way south across the Isthmus of Kra. The discovery of an elephant, known from the Upper Siwalik beds, also in Nawngchik,[1] affords definite evidence that the Isthmus existed as long ago as late Pliocene or early Pleistocene times, and it is more probable that land has sunk beneath the sea in this region than that it has risen since the modern fauna came into existence.[2]

The part of Kedah through which we passed was almost covered entirely with secondary jungle of no great age ; ancient forest did not exist, and villages were few and far between. We noted what appeared to be an abrupt change in the population as we passed into the state, the coarse, rather flat-faced type, common on the East Coast, giving place largely to one with far more refined and delicate features, resembling those of the people of South Perak. The track across the Peninsula at this latitude has largely fallen into disrepair, but is still good at many points.

Alor Stah. The modern capital of Kedah is situated some miles up the Kedah River from the West Coast of the Peninsula. Though it has not more than half-a-dozen European residents, it closely resembles Penang or Singapore in outward appearance, having handsome public buildings and private residences, a large Chinese and a large Indian quarter. We saw, however, during a walk through the town, at least one shop devoted entirely to the manufacture and sale of the *kris*, a weapon which is rapidly becoming obsolete in most parts of the Peninsula and is, of course, typically Malay. A daily steamboat service exists between Alor Stah and Penang, and there is a large export trade in cattle, poultry and fish, among the last being rice-field Silurids, which can be carried alive for long distances in wooden tubs with very little water and a cover to prevent their escape.

1. C. W. Andrews, *Fascic. Malay.—Zoology*, Part II, p. 305.

2. Fossils of marine origin were found in Central Patalung by Mr. W. W. Skeat and myself in 1899, which Professor McKenny Hughes (*Report Brit. Assoc.*, 1901, p. 414) regards as being of late Carboniferous or Permo-Carboniferous age. N.A.

EXPLANATION OF THE MAP

THE map illustrating *Fasciculi Malayenses* has been prepared by the Edinburgh Geographical Institute from the latest surveys of the Malay Peninsula, to which we have added the positions, as nearly as it was possible to do so, of certain villages in South Perak and the Patani States. We are also responsible for the location of the jungle tribes as indicated. With regard to spelling, we have chiefly followed that of the large map published by STAMFORD for the Straits Branch of the Royal Asiatic Society, but have attempted to standardize such common geographical terms as *tanjong* (Cape), and in a few instances, such as that of 'Senggora,' we have returned to an earlier form that seems to give a more accurate rendering of the Malay name. For adding an *h* at the beginning of such words as *hulu*, we can plead no such excuse, but only the custom of Malay writers and scholars. Especially in the Patani States, it is often impossible to render native names with any degree of accuracy, but we have thought it best to follow a simple mode of spelling in such cases, even though it is phonetically inexact, rather than to adopt the somewhat complicated symbols used by Mr. W. W. SKEAT in transliterated local names in this and the adjacent dictricts.[1]

The expenses in connexion with the map have been defrayed out of a further grant of £100, made by the University of Edinburgh from the Earl of Moray Fund, towards the publication of our Reports.

ERRATA

For *Malayensis* (heading) *lege*, *Malayenses*.
For Lampan *lege*, Lampam.
For Nwangchik *lege*, Nawngchik.

1. *Proc. Zool. Soc.* 1901, pp. 583-586.

SKETCH MAP SHOWING POSITION OF LARGER MAP

MAP OF CENTRAL SECTION OF MALAY PENINSULA

SPECIALLY PREPARED FROM LATEST SURVEYS AND FROM DATA BY N. ANNANDALE AND H. C. ROBINSON TO ILLUSTRATE "FASCICULI MALAYENSIS"

SKETCH MAP SHOWING POSITION OF LARGER MAP

PATALUNG

PALEAN

SUNG KRA

SATUN

CHANA OR CHENAW

TEPA OR TIBAW

POLIT OR PERLIS

JHERING

JALOR

SAIBURI OR TELUBIN

RANGA OR LEGEH

KEDAH

RHAMAN

KELANTAN

TRENGGANU

PERAK

PAHANG

SELANGOR

NEGRI SEMBILAN

SUNGAI UJONG

PROVINCE WELLESLEY

PENANG

SUMATRA

Unexplored Country

SIAM

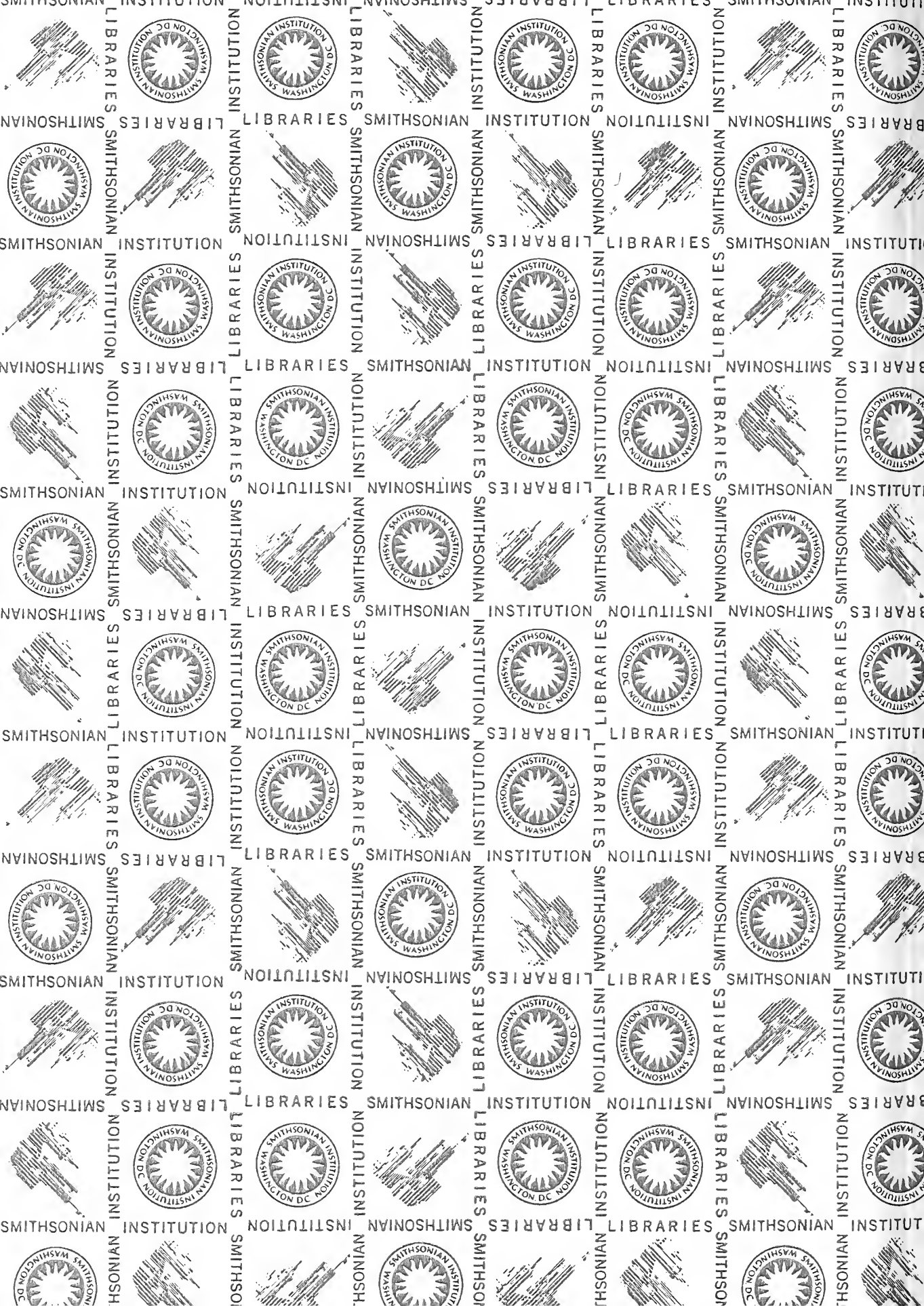
GULF of SIAM

SOUTH CHINA SEA

BORNEO

Singapore

Scale of English Statute Miles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