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The Pagan Races of the Malay Peninsula.

By W. W. Skeat and O. Blagden.

(A Review). By H. N. Ridley.

As the work of civilization progresses and the forests fall before the axe of the planter, the more primitive tribes of jungle folk disappear, to be replaced by the imported and more civilized labourer from other countries; and should these old world folk themselves not actually disappear, they amalgamate with the later arrivals, and adopting their ideas and customs, they become so changed that all that is interesting about them is lost. Many tribes of the human race have thus passed away, leaving few or no relics of their ever having existed. One such race, indeed the makers and users of the stone implements known here as Batu Lintar, has vanished from the peninsula; but we have still with us that simple people commonly known as S'akais, whose manners, customs, traditions and language, have been long the study of Messrs. Skeat and Blagden, who together have published a most excellent record of the vanishing tribes of the jungle folk of the Malay Peninsula. The work in two volumes excellently illustrated by photographs and woodcuts is perhaps one of the most important of ethnological works that has appeared for some time. No trouble has been spared by the authors, both well known officials here some years ago, to collect all possible evidence on all ethnological and anthropological questions concerning these races, and the extensive list of the Bibliography of the subject shows how thorough their work has been.

The Bibliography dates from 1800, or thereabouts, and is divided up into three periods. The first two from 1800 to 1850, and thence to 1890, though giving a good many amateur's notes and some amount of research work, supplied little more than enough knowledge to stimulate research into these interesting

races. The only representations of any of the tribes in those days were the rough sketches of profiles by Miklucho Maclay which were to be found in all ethnological books. Indeed till about 1890 photographs of these races were quite unprocurable in Singapore. From 1890 onwards the wild men were the subject of study by a large number of ethnologists and antropologists. Several scientific men came from Germany, and many local residents investigated the ethnology and collected specimens of their handiwork, made researches into their language, and took photographs of the people themselves, besides securing skulls and skeletons. The results of this work in which Mr. Skeat took a very large share himself, are well represented in these two volumes. One of those who devoted a great deal of time to the wild tribes was Mr. Vaughan Stevens, a very well known character here for some years, who was employed by the Berlin and St. Petersburg Missions to collect ethnographical specimens of the Sakais, and who wandered about all over the peninsula in search of them. He published voluminous accounts of his researches, on some of which considerable doubt has been thrown. The authors have made use of his work while drawing attention to inaccuracies and improbabilities in his observations and theories. The most important of the anthropologists who visited the peninsula was Herr Rudolf Martin whose monumental work "Die Inland stamme der Malayischin Halbinsel" was the first sound and reliable work on the subject.

The book commences with an introductory account of the environment of the wild man, and his character and relations to it.

The racial characters and names of the tribes and the problems of their origin are next dealt with. The three types of the tribes are the *Semangs*, negritos with woolly hairs and brachycephalic heads, the *Sakais*, dolichocephalic with wavy hair, and the southern *Jakuns*, brachycephalic and smooth haired. The relationship of the Semangs with the Andamanese and the Philippine negritos is certainly close. The Sakais are perhaps related to the Veddahs, Australians and Tamils. They vary much in skin-colour and height, and their origin must

remain at present doubtful. The Jakuns have been stated to be aboriginal Malays who refused to accept Mohammedanism and therefore fled to the interior to avoid persecution. The author points out however that they are rather a composite group of heathen Malays mixed with Semang and Sakai, and this is probably the case.

The methods of hunting, trapping and fishing, the weapons, cultivation, food, arts and crafts, social order, dealings with other races fill the first volume, which terminates with an appendix containing much important matter in measurements, color of hair, eyes, and skin and a large collection of Sakai songs chiefly collected by Mr. Skeat. Many of these are hunting songs describing the chase and capture of about all the jungle animals. Most songs end with a request to give each of the community a portion of the prey. This is a true characteristic touch of the socialism of the Sakai community. I remember once being out with some of the wild tribe of the Kuala Lumpur district near the well known caves. In the party were two men and one delightful little boy of about nine years of age clad as most of the men were in the simple costume of a strip of trap bark about as broad as a bootlace, and an armlet of fungus. While at tea we offered the child some bread and jam which he took eagerly and ran off at once to divide it with his father. When given a cigar he would not take it till he had another one for his father, showing the innate socialistic tendency of the race.

But to return to the songs after this digression. One is struck at first sight by the graphic descriptions of the habits of the animals, their appearance and cries. Some of the songs and charms too have an element of poetic feeling running through them.

In many cases the language of the Besisi from whom the author has derived most of the songs and charms is a mixture of Malay and Sakai words, the meaning of some of the latter being obscure. Mr. Skeat has translated them as literally and carefully as may be, though perhaps it might have been better not to have called the Kijang, the Roedeer, or if no other translation was to be found, to have explained what the ani-

mal really was, but its common name of Muntjac is fairly well known. Here and there in the songs and charms we see words and names of places of quite modern origin, such as Tanjong Pagar, Singapore, Telasih, (the Hindu Tulsi) for the Basil plant known to Malay as Selasih, and this has been commented on by one reviewer as somewhat discrediting the songs, but such innovations in folk song occur in many nations, having drifted in later perhaps than the original song was written.

A long list of names of people is given, many of which are not translated but among them are such poetic ones as Blossom, Convolvulus, Earth, Wind, Star, Butterfly, and Father of Leaf for boys, and White, Quick, Mother of Grass, Little One and Handmaid for girls.

The second volume opens with accounts of customs and beliefs. The Semangs acknowledge two deities, Kari and Ple but there seems to be no cult of these gods who are rather shadowy beings. The Sakais have a similar deity who however was probably of Malay or Arabic origin. There are however numerous demons and spirits, which are feared and have to be kept off by charms, as in all races of the world. The creation legends seem to be mainly original. In Semang and Jakun mythology man multiplied so fast, being immortal, that the earth was overcrowded, and Kari according to the Semangs slew them with his fiery breath, while according to the Jakuns, Tuan dibawah their deity turned half of them into trees. But this check on the population being insufficient death was instituted as a relief. The Jakuns appear to have anticipated the discovery of evolution in ascribing the origin of mankind to a pair of white apes, which is curious, especially in view of the fact that the ape specified, the wawa (*Hylobates*) is generally considered the most nearly related to man of any of the apes. The charms, ceremonies, traditional sales, dances, and such subjects are fully dealt with, and the last part of the book deals with the language, the special task of Mr. Blagden, than whom it would be difficult to find a better authority. A vocabulary of the dialects is given at the end.

The amount of research which this work must have entailed has been extremely large, and the authors have spared

no pains to get together everything that has been recorded in the various journals and works on the subject of these strange races, besides adding extensively from their own observations. They have collected too a very fine series of photographs of the different races, and added many of the weapons, houses, dress, traps, and other objects, so that the whole work gives a very full and graphic view of one of the most interesting and least known of the peoples of the earth. When one looks back for a comparatively few years ago in ethnological and anthropological works to see what was known about this people, and sees what poor and often inaccurate accounts we then had, and find the only existing portraits of any of the races were Miklucho Maclay's rough sketches, one can appreciate the value of this work, and the immense labour of the authors in compiling it, and they are heartily to be congratulated on the results.

As they very pertinently point out in the introduction to the work there is great need of a thorough survey of the whole Peninsula from both a geographical and ethnological point of view by the local Governments. The Governments of French Indo-china, the Dutch Indies and the American Philippines have published and are still publishing excellent works, beautifully illustrated, on the ethnology, geography, and all branches of science of the colonies under their control. The British nation with larger, richer and more important colonies, for some reason not very clear to anyone, has practically done nothing at all for the advancement of knowledge of its vast empire. The whole of this work has been left to enthusiastic private persons who devote their time and money to such work. This apathy must be much regretted by all who have the cause of science and progress at heart.

On Tally Sticks and Strings in Borneo.

By Dr. Hose and J. Hewitt.

Amongst the natives of Sarawak, notched sticks and strings are in common use for keeping record of contracts. To some of the various tribes the custom is one of antiquity whilst in other cases *e.g.* the Sea Dayaks, it is certainly a new idea borrowed from their neighbours.

If a Malanau undertakes to meet another person in a definite number of days he ties up a piece of string into as many knots as there are days before the fulfilment of his engagement: as each day passes by he unties a knot. The same people often appear in the debt courts carrying a knotted string or rotan and explaining that each knot represents a debt of one pasu of lemanta (8 gallons of raw sago). On one occasion a Malanau produced in the debt court a stick notched on two sides: on the one side the notches corresponded to his debt, and on the other side he had cut a notch each time he had made a repayment.

Amongst the Kenyahs, Punans and other tribes of the interior this custom reaches its highest development. The string is made from bark of the tree known to Kenyahs as Kumut and to Sea Dayaks as Tekalong (*Artocarpus sp.*) As before, it is knotted according to the number of days before that of the engagement, and each party keeps a string. They wear it on their person tied to the unus, slender leglets of twisted fibre usually from the ijok palm (*Arenga saccharifera*). As each day passes by a knot is cut clean off. To such people a definite contract thus arranged is kept quite seriously and the evidence of his tally string is usually deemed quite sufficient to relieve the wearer of other conflicting duties which might be imposed upon him by the head-man of the house.

But this custom is by no means confined to men. Even Bali Atap, a god of the Kenyahs, wears such knotted strings around his neck to tell off the number of doors in the house

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under his care, and also to indicate the number of people under his protection in each house. The image of Bali Atap outside the door of a Madang house has a whole fringe of knotted strings tied round his neck. This deity (Bali—a hero, Atap—a spear) is the special protector of the house, and when they want him to take charge of a house it is necessary to kill at his altar a fowl or pig, the blood of the sacrifice being sprinkled over the head of the wooden image of the god and on those persons of the assembled crowd, who wish for his protection; in some cases however an egg in a cleft stick has to suffice as the offering. To the Kenyah or Punan the tying of the knot for Bali Atap has a deep significance: it means to them the sealing of a fixed contract. They will only tie such knots whey they receive an omen from Bali Atap sufficiently favourable to justify them in assuming that the god is willing to make the agreement with them. The actual manner of obtaining such an omen is as follows: a man fixes up two vertical poles in the ground and on the top of these and again two feet below he attaches horizontal poles; then he sits down behind the square thus formed and looks through it to the area of sky beyond. At this part of the ceremony the above mentioned sacrifice is made. And now, after waiting perhaps for hours, if a hawk soars in this patch of sky in a direction from right to left, he knows that this hawk will carry his message to Bali Atap, and seeing it he waves a fire brand in the air towards the flying bird at the same time loudly shouting the message which is carried upwards in the ascending smoke to the hawk. Thus being assured that Bali Atap has been willing to receive and hence is favourable to his request he completes the ceremony by tying the knotted string to the image of the god as a seal to the agreement just made between Bali Atap and the man.

The same idea in the tying of a knot is met with in entirely different ceremonies of which we may mention one example. It is held by Kenyahs that when a person falls sick his soul leaves the body and to heal the patient all that is necessary is the return of the soul. The witch doctor (Dayong) in charge of the case obtains assistance from the next world and thus is able to persuade the erring soul to return. In the ceremony

the Dayong affects the motions of a person going a long journey—paddling a boat for instance—chanting all the time and accompanied in the chorus by the people who repeat over and over again the words 'Bali Dayong;' then returning with the soul he with the assistance of a fowl or pig waives it back into the body. And now, when safely in and the fees paid, the Dayong knots round the patients wrist with a string of 'Daun silat' (leaf of a Licuala palm) and thus ties in the soul and at the same time completes the undertaking. During this time however the soul of the Dayong has been absent from his body and at this stage to the cries of 'Mulai Mulai' (Come home, come home) from the crowd it re-enters, the man himself suddenly relapsing from a quivering hissing maniac into a rational being who, as if just awakening from a sleep, takes his seat unconcernedly amongst the crowd.

Tally sticks also are very much used by Kenyahs, Punans, and other inland tribes (but not Kayans) who have not come in contact with more civilised peoples. An ordinary Kenyah tally stick is a strip of wood about a foot long, an inch or more wide, and an eighth of an inch thick: at one end is a rudely carved head and hands, a representation of the god. At one side of the stick are marks each referring to one door of the house. A debt incurred by the occupant of any 'door' is recorded by a notch in the corresponding position on the stick. Bartering among these people is very limited: their objects of barter are few, being mainly pigs, fowls, parangs, gongs, and pieces of iron. For each of these different objects there are separate positions on the stick. Excepting in rare cases debts are not incurred between occupants of different houses so that one stick of the type just described is as a rule quite sufficient to record all the debts owed to one man. When a debt is paid the owner of the stick will just snip away the wood from either side of the notch so as to replace the notch by a curved depression in the wood.

The tally stick is usually to be found hung up near the fireplace where it becomes smoked and blackened with age: such a stick would be accepted as evidence in case of a dispute respecting a debt of long standing, for it would not be easy to

forge an old notch. A stick which has been kept for years acquires quite a high value as a 'lucky' stick: it is customary also in disputes to swear with such sticks calling down vengeance on themselves if they tell a lie. Kenyahs, whose conservatism is not very strong, often content themselves with sticks devoid of carving or polish and even sometime without the image of the god.

In conclusion therefore it seems to us very probable that in the knotted string (terbuku tali) of the more civilised and better known natives of Borneo and perhaps in the tally stick we have something which did not originate merely as a means of counting but which is a relic that has largely lost its original meaning of covenant.

New or Rare Malayan Plants.

Series III.

By H. N. Ridley.

This is another series of novelties and notes on little known plants from the East. The recently published numbers of the Materials for the Flora of the Malay Peninsula by Dr. King contains the *Scrophularineæ*, and I find in the genus *Torenia* one common species altogether omitted and two very distinct plants wrongly identified with two common Siamese plants cultivated here only. I have therefore given descriptions of these three plants. Some new plants obtained in Sarawak by Mr. Hewitt, some from Southern Siam by Mr. Down, and other little known or new plants from elsewhere are described.

Neckia.

The small genus *Neckia* comprises a few species of small half shrubby plants belonging to the section *Sauvagesiaceæ*, of *Violaceæ*. They are usually under a foot tall, often only a few inches high, with lanceolate toothed leaves, and small rose or white flowers. The slender woody stem seldom or never branches and is more or less covered with bristly hairs. The fruit is a small capsule containing a large number of very small reticulate seeds.

The Neckias are to be found on rocks, usually sandstone or granitic, in the forests of the Malay Peninsula, Sumatra and Borneo.

N. Malayana, n. sp.

Whole plant 3-12 inches tall. Stem naked below (from the falling off of the leaves), woody slender, above covered densely with the bristle-like stipules red brown ¼ inch long. Leaves alternate lanceolate acuminate at both ends, margins biserrate but obscurely, glabrous

dark green above glaucescent or pale beneath 1½ to 7 inches long, nerves very numerous inconspicuous. Flowers axillary on long slender peduncles 1 inch long. Bract linear minute, pedicel ¼ inch long. Sepals 5 lanceolate acute toothed. Petals 5 rose pink ovate obtuse. Stamens monadelphous 10. Pistil conic, style straight longer than the stamens, capitate. Capsule ovoid acute with the style persistent longer than the sepals, seed obovoid punctate dark brown.

Johor: Gunong Janeng (Lake and Kelsall), Telepak (C. B. Kloss), Gunong Panti (Ridley 4164); Pahang: Tahan river (Ridley 2264), Lingga, edge of a stream at 200-300 feet (Hullett).

There are two forms of this, one small to 1 foot tall, the leaves broadly lanceolate 2½ inches long by ½ inch wide and more strongly toothed. This is the form common in Johor and Lingga. The Pahang plant has leaves 6 inches long and ⅜ inch wide, and might be made a variety under the name of *angustifolia*.

N. distans, n. sp.

Stem slender woody over a foot tall, internodes ¼ inch long. Leaves alternate stipules of dark brown branched hairs, persistent shorter than in the preceding. Leaves lanceolate acuminate narrowed gradually at the base, margins bidenticulate, 5 inches long ¾ inch wide, scattered over the stem and not persistent only at the top. Flowers solitary axillary, peduncle very short less than ⅛ inch. Bract lanceolate acute minute, pedicel ½ an inch long or very much less. Sepals broadly lanceolate acute striate ⅛ inch long with a few teeth towards the tip. Petals shorter ovate, lanceolate blunt pink. Stamens shorter than in the preceding. Style shorter than the petals. Capsule ovoid shorter than the sepals.

British North Borneo: Bongaya in Labuk Bay (Ridley 9054).

Neckia serrata, Boerlage. Ic. Bogor XXVI. may possibly be this species.

N. lancifolia, Hook. fil. Trans. Linn. Soc. XXIII. p. 158.

The whole plant about 6 inches tall. Stem woody, internodes short ; stipules of long erect bristly brown hairs. Leaves crowded towards the tip broadly oblanceolate obtuse, base narrowed acuminate, edges stringly bidenticulate dark above rather coriaceous, pale beneath 4 inches long by 1 inch broad or less. Flowers solitary axillary on peduncles ½ inch long, pedicels shorter. Sepals ovate lanceolate, not or little toothed ribbed, longer than the capsule. Petals very small ovate. Capsule subglobose shorter than the sepals.

Borneo : Sarawak on Matang (Hullett, Ridley).

Miquel, and Boerlage and Koorders (Ic. Bogor lxxvi) identify Hooker's plant collected by Lobb in North Borneo, with Korthals' plant *N. serrata* which is described as four feet tall and is a native of Sumatra. I never saw any species of Neckia nearly as big as this. The plant figured in the Icones Bogorienses as *N. serrata* seems to be different again. It can hardly be Hooker's plants, for in his description the leaves are said to be bidenticulate whereas in the plant figured they are almost quite entire, remarkably so for one of the genus. Hooker's plant is probably the one described above, but his description is too short for so critical a genus. It can hardly be either Korthals' plant or Bœrlage's.

N. Klossii, n. sp.

Stem 4 or 5 inches tall woody leaves crowded upwards. Stipules ferrugineous. Leaves oblanceolate, subacute, narrowed towards the base glabrous dark green above light green beneath edges bidenticulate especially towards the tip 2½ inches long ¾ inch wide. Scapes very slender several together or solitary ½ inch long. Bract linear very narrow. Sepals lanceolate acuminate very narrow, acute, with a few rather large irregular teeth on the edge green. Petals oblong obtuse much broader and a little shorter white. Staminodes very numerous

bright yellow, linear clubbed. Stamens pale spathulate. Style a little longer; fruit not seen.

Pulau Battam (C. B. Kloss, March 1906).

Nearly allied to *N. parviflora* Ridl. but with extremely narrow sepals and oblong petals nearly as long and much broader.

N. parviflora, n. sp.

Stem decumbent rooting 6-8 inches long woody, nude below, stipules dark red. Leaves lanceolate shortly acuminate blunt, narrowed a little at the base toward the short petiole somewhat coriaceous bidenticulate 3 inches long ½ inch wide. Flowers very small on slender peduncles with several bracts. Peduncles 2 or 3 in each axil in a tuft ¼ inch long with three linear entire bracts. Pedicel of flower very short. Flower sepals ⅛ inch long ovate crenulate at the edge enlarging to ovate denticulate in fruit nearly ¼ inch long and ribbed. Petals much smaller lanceolate ovate, anthers oblong ovate. Capsule much shorter than the sepals ovoid oblong. Seeds reticulate.

Sarawak: Banks at Puak (Ridley 12320.)

Distinct in its small flowers, and numerous peduncles, with several bracts, linear in the flowering stage but becoming larger lanceolate dentate in the fruiting stage. The largest bracts I have seen in the genus.

N. humilis, Hook fil. Trans. Linn, Soc., XXIII, p. 158. Labuan. (Lobb.).

N. serrata, Korth Ned. Kruidk. Arch. I. p. 358 Miq. Fl. Ind. Bat. I. 2 p. 118. This is described as four feet tall, a native of Sumatra.

I have never seen anything fitting the descriptions of either of these two species.

Gluta.

There are a number of trees belonging to the *Anacardiaceæ* commonly known to the Malays as Rengas, and all are well

known for their poisonous properties. This poison lies in a black resin which is abundant in all parts of the trees, chiefly in the wood and fruit. Several of these Rengas trees belong to the genus *Melanorrhoa* characterised by its small fruit furnished with bright crimson wings, others belong to the genus *Gluta* in which the fruit is a larger or smaller drupe with often a corky brown exterior full of black resin.

There are about ten known species of *Gluta* occuring in Cambodia, Andamans, Tavoy, the Malay Peninsula and Islands.

Nearly all these Rengas trees possess a very fine red timber marked usually with black streaks of the resin and have been known as Singapore mahogany. When used as furniture wood however they are said to exhale a certain quantity of the poison probably in the form of dust which is very injurious to those using the furniture. An article on poisoning by Renghas (*Melanorrhea*) was published by Dr. Brown in Journal 24, 83, (1892). Cases of poisoning among jungle folk by these plants are by no means rare, a drop of the juice from a broken bough even of a seedling falling on the face or body often producing serious effects. The resin is also said to be used as a poison with criminal intent producing violent irritation of the stomach and intestines.

It is interesting to note that though the Mangiperas (Mangos) are closely allied to the *Gluta* and contain to a lesser extent the same black resin, their timber is more or less of a yellow colour, while that of the Melanorheas and Glutas is red.

There are four species of *Gluta* known from the Malay peninsula, one of which however has not been described, and I have received specimens of fruit and flowers of this fine timber tree from Mr. Burn-Murdoch.

Gluta Benghas, Miq.

A medium sized tree usually much branched low down. Leaves elliptic or obovate coriaceous with a fairly long petiole, and glabrous panicles of white flowers. The fruit brown, corky outside, with much black resin. This tree has only been met with by my-

self in the Malay Peninsula on the banks of the Pahang river and on the Rumpin river. It occurs also in Sumatra, Java and Borneo, and a variety is recorded from Madagascar.

G. elegans, Kurz.

Is a smaller tree slender and tall, with rather long narrow elliptic leaves rather long petioled, and bright red calyces to the flowers. The fruit is flattened and rounded 1½ inch across smooth and black. It occurs commonly in Penang, and has been met with in Malacca and a variety occurs in Tenasserim and the Andamans. Native Name "Rengas Ayam."

G. coarctata, Hook fil.

This I take to be the extremely common bush or bushy tree occurring in most tidal waters in this region. It never seems to attain any great size and is conspicuous in the water edge of the river from its bright red young leaves. The flowers are yellowish white in panicles shorter than the leaves. The fruit is subglobose, corky, light brown and very resinous.

This is the commonest species; very abundant in all our tidal rivers, and also very conspicuous in Sumatra and Sarawak.

Gl. Wrayi, King.

I have seen no type of this but I take the description given in the Materials of the Flora of the Malay Peninsula to apply to this plant, of which good specimens were sent to me by Mr. Burn-Murdoch, under the name of Rengas Kerbau Jalang or Red Rengas. It is a very big tree with stiff coriaceous leaves 4 to 6 inches long elliptic acute narrowed at the base to a broad flat petiole, nerves about 12 pairs conspicuous on the lower surface, finely reticulated on both sides. Panicles 4 inches long with rather distant branches to near the base; flowers very numerous red and white

Panicle and flowers pubescent. Calyx half as long as the corolla bilobed pubescent lobes rounded. Petals linear oblong obtuse, back pubescent. Stamens slightly longer, filaments slender glabrous. Ovary rounded ovoid pubescent style lateral shorter than the stamens. Fruit oblong red brown, a large hard drupe of a laterite red colour 4 or 5 inches long and 3 inches thick elliptic smooth slightly oblique. Dindings: at Lumat (Ridley 7974); Perak (Wray 2290); Penang: Telok Bahang (Curtis).

"Rengas Kerbau Jalang" This gives a very fine timber known as Red Rengas according to Burn-Murdoch. There is a plant in the Botanic gardens raised from seed brought from the Dindings in 1894 which is now about 8 feet tall. The leaves are much larger in the young plant, some being 8 inches long and of a bright green. Compared with Sir George King's description this plant only differs in the leaves not being thickly coriaceous, though rather stiff when dry, and the nerves are quite visible on both surfaces and prominent on the underside, the petiole too is not channelled but distinctly flat, but there is some variation in the foliage.

Gl. lanceolata, n. sp.

A big tree. Leaves narrowly lanceolate obtuse narrowed into a long slender petiole, coriaceous blade 6 inches long, 2 inches wide, nerves rather inconspicuous about 12-14 hairs, reticulations conspicuous, petiole 1½ to 3 inches long. Panicles 4 inches long much resembling those of *Gl. Wrayi* pubescent. Calyx half the length of the corolla, tubular split on one side, pubescent. Petals linear oblong obtuse 5 back pubescent tip tufted with hairs, and a band of hairs down the centre of the inner face. Stamens considerable longer than the petals, filaments very slender. Ovary sub-globose quite glabrous, style lateral rather long. Fruit unripe globose glabrous black.

Penang: Balek Pulau (Ridley 9465).

This differs from *Wrayi* in the less pubescent spathaceous not bilobed calyx, the pubescence on the inner face of the corolla lobes and the perfectly glabrous ovary. A specimen collected by Curtis in Penang of what seems to be the same plant has elliptic acuminate leaves very much resembling those of *Gl. Wrayi* but the flowers are exactly those of the above described species.

COMPOSITAE.

In the 16th part of the Materials for a Flora of the Malay Peninsula Sir George King publishes the account of the Compositæ of the peninsula. Most of the plants of this order here are introduced species often of wide distribution, but a considerable number have apparently not been seen by him, although they are thoroughly established in the country. They are

Sparganophorus Vaillantii Gaertn.

So common as to be a pest in the gardens. A herb with axillary balls of purple flowers, growing in damp spots. Common in Tanglin and elsewhere. I have also found it in Selangor at Batu Tiga and in Borneo at Lundu in Sarawak district. It is said to be a native of the West Indies.

Elephantopus tornentosus L.

This is a very much taller plant than the common *E. scaber* four or five feet tall and much more woolly The stems are much branched and the leafy shoots tall and very woolly. It has a very different appearance from the common plant and is said to be a native of North America.

Johor, Roadside Castle wood, Tebrau river (Ridley).

Conyza semipinnatifida, Wall.

A very common weed in new clearings and waste ground. A tall branched plant with small heads of yellowish flowers, quite resembling *Erigeron linifolia* in appearance. Clarke says in his description of it in the

Compositae Indicae that its flowers are "intense flava," but it is a very dull thing here. I have it from Pulau Ubin, Bukit Mandai (Ridley 3807); Johor: Batu Pahat (Hullett); Pahang: Pulau Jellam, Pahang river, Sungei Ujong, Burunang (Cantley's coll); Selangor: Kwala Lumpur (Curtis); Penang Hill (Ridley 10205); Selangor Caves (Ridley 8235). A big plant 6 feet tall. Malacca: Bukit Asahan (R. 12586), and Perak in Cantley's Collection.

Its Native names are "Sumbong Jantan" and "Sari bulan."

A specimen collected by Dr. Keith in Bangtaphan is also in the Botanic Gardens Herbarium.

These three species were identified at Kew.

Xanthium strumarium.

Occurs as a weed in Singapore Town.

Caesulia axillaris, Roxb.

What appears to be this plant occurs in Singapore at Galang (7085 of my collection), and at Dato Kramat in Penang (Curtis 3455). It is known as Chinkro and Kangkong Kerbau in Penang and is used as a salad by Malays and as medicine by Chinese.

Acanthospermum xanthioides, Dec.

A prostrate herb with white flowers and spiny fruit, occurs in Singapore on road sides, Macpherson Road (8417, 6241), Ang Mokio (2740), of my collection and was also collected by Hullett on Drew's road in 1884.

Blumea spectabilis, Dec.

A tall weedy plant growing in woods. Selangor: Ginting Bidai (Ridley 72 16); Kwala Lumpur (Curtis 2350); Sungei Ujong (Cantley's Coll.). I have it also from Siam at Bangtaphan collected by Keith and from Christmas Island. It is recorded from India and Ceylon. The plant known as Chapur and Kupugis is boiled and applied in cases of Rheumatism.

Bl. densiflora, Dec.

I take a stout plant like *Bl. Balsamifera* but not aromatic which grows on the road up the Taiping hills to be this plant. It is abundant on the road side at 4000 feet alt.

Vernonia eleagnifolia.

Is also omitted from the Flora. It is a sarmentose shrub with lavender flowers. I met with it in Pahang at Pekan on the riverbank near Ayer Hitam in flower in June (Ridley 1199). Plants brought to the Botanic Gardens grow into bushes but have never flowered since. I have it also from Bangtaphan in Siam collected by Dr. Keith.

CYRTANDRACEÆ.

Chirita rupestris, Ridl.

Since publishing the account of this plant in the Journal, I have obtained and raised plants of this species from a seedling which came up in a pot in Penang Gardens, and am able to add fuller details to my account of it, which was based on somewhat weak plants collected by Curtis in the Lankawi islands in 1889.

The plants now raised are more robust, the stems stouter, more or less purplish and sometimes much branched. The leaves are light green as are the urn-shaped involucres of two bracts. The flowers described as dark blue in Curtis field-note are light violet blue with a white tube and yellow throat, $\frac{3}{4}$ inch long, the limb half an inch across, the corolla lobes are rounded and glabrous in front, but the tube margins of the lobes, and mouth of the tube are covered with white hairs. The two stamens have short thick sinuous filaments, and elliptic anthers. The ovary is cylindric and hairy the style not much longer. The stigma is flat and linear.

Cyrtandromaea minor, n. sp.

Whole plant 20 inches tall, stem angled pubescent. Leaves opposite ovate lanceolate obtuse, base acute mar-

gin crenulate 2½ inch long 1¼ inch wide, scabrid hairy on both surfaces, petiole ¼ inch long hairy. Flowers in axillary umbels, peduncle ¾ inch long hairy. Bracts lanceolate acute white hairy. Flowers 5 in an umbel, pedicels ⅛ inch long white hairy. Calyx ¼ inch long campanulate pubescent, lobes 5 acute red. Corolla ½ inch long tubular lobes rounded, pubescent firm texture, white or yellow. Stamens 4 didynamous. Style shorter than the two longer stamens stout, stigma broad subquadrate. Ovary small quadrate truncate surrounded by a sinuate disc.

Sarawak: Kuching (Hewitt).

Cyrtandra Gimlettii, n. sp.

Stem woody brown, 4 inches tall pubescent, especially the young parts. Leaves obovate subacute narrowed gradually to the base serrate, bright green reticulate bullate, main nerves 6 pairs, shining above, with appressed scattered hairs, nerves beneath thickly hairy 6 inches long four inches wide, petiole beneath purple. Flowers in small tufts from the lower leaves or from axils of fallen leaves, 4 or 5 together sessile. Bracts small ovate pale whitish yellow hairy. Calyx short tubular deeply bilobed with two acute points hairy. Corolla tube ½ inch long thick curved dilated upwards hairy, limb ½ inch across upper lobes subtriangular obtuse lower three oblong obtuse, glabrous in front, creamy white, lower lip yellower, with deep purple blotching ending in two purple bars on the lower lip. Stamens 2, filaments stout sinuous purple, anthers orange elliptic pressed together. Pollen floury white. Stigma transversely oblong large green. Staminodes 2 very short sinuous filaments, from near the base of the tube.

Kelantan: Kwala Lebir (Dr. Gimlette).

This little plant was sent alive by Dr. Gimlette from Kelantan and flowered in the Botanic Gardens in December 1906. The stamens project first after the flower

opens, and shed the pollen on the lip. The second day the filaments contract and curl up and the stigma appears at the mouth of the flower.

Didymocarpus (§ *Bæopsis*).

I propose this section of *Didymocarpus* for a number of small species with the short corolla-tube and two short stamens with thick sigmoid filaments and subglobose or elliptic anthers. The form of the flowers and habit of the plants is exactly like that of *Saintpaulia*, an African genus, and that genus only differs in the thick conic capsule. It would probably be better to separate the section above mentioned into a distinct genus, *Baeopsis*, but there are intermediate links with the long tubed *I. idymocarpi*. The section would include. *D. perdita* Ridl., *D. puncticulata* Ridl., *D. heterophylla* Ridl., and the following new species from the island Pulau Battam, south of Singapore.

D. battamensis, n. sp.

Leaves elliptic obovate 2 to 3 inches long 1½ inch wide, apex and base rounded minutely bullate, deep green more or less softly hairy with a grey green central bar, edges crenate, beneath purple covered with pink hairs, nerves elevated reticulate; petiole ½-2 inches long pink hairy. Scapes numerous slender purple 3 to 4 inches long pubescent one-flowered. Calyx 5 lobed, lobes lanceolate acute purple. Corolla tube short campanulate white ⅛ inch long, limb ½ inch across very unequal, lobes rounded pubescent outside upper lobes 2 pale violet, lower larger deep violet with three darker nerves on each lobe, tube inside white with a bright orange spot on each side. Stamens 2, anthers elliptic yellowish white large parallel. Filaments broadly linear short and recurved at the tip. Style cylindric purple at the base, tip yellow. Stigma capitate. Capsule an inch long sausage shaped, terminated by the style.

Pulau Battam, an island south of Singapore (C. B. Kloss), Sept. 1905.

This species is certainly closely allied to *D. perdita* Ridl. but is much more hairy with shorter petioles, and stem and more slender fruit. It is a very pretty little plant but I have failed to cultivate it.

SCROPHULARINEAE.

Torenia mucronulata, Benth. Dec. Prodr. X. 410.

A prostrate creeping herb a foot or more long, with slender branched hairy stems. Leaves ovate crenate narrowed at the base tip rounded sprinkled with hairs above, the nerves on both surfaces more densely hairy ½ inch wide and as long, petiole hairy ¼ inch. Flowers axillary solitary or in pairs nearly sessile. Calyx lobes ovate reticulate hairy. Corolla small white with a pale blue bar on each lower petal.

On paths Singapore, Garden jungle, Bukit Timah (Ridley 6894), Galang; Dindings, Gunong Tungul (Ridley 9444); Pahang: Pahang river Ridley); Penang: Waterfall and Government Hill (Curtis 1837); Tringanu, Bundi (Rostado).

Native Names K'ra Nasi; Gelumak Susu, Rumput Labang.

The powdered leaves are applied in cases of snake bite or rheumatism.

Hooker in Flora Brit. Ind. seems to think this but little distinct from *T. polygonoides* but in life at least it is extremely different in its hairiness, and quite differently coloured flowers. It always dries black which *T. polygonoides* does not.

Torenia caelestis, n. sp. A slender creeping plant, the stem and leaves pubescent hairy. Leaves ovate dentate subacute base broad 1 inch long petiole ¼ inch long. Flowers solitary terminal on slender peduncles 1½ inch long. Calyx bilobed not winged hairy ½ inch long, lobes

lanceolate subacute, ribbed in fruit. Corolla ¾ inch long, Lobes oblong rounded, light blue.

Johore: Kota Tinggi and along the road to Gunong Pantai (Ridley 4169).

This plant was identified in the Materials for the Flora of the Malay Peninsula as the very different *T. Benthamiana*, a Cochin Chinese plant commonly cultivated under the name of *T. Bailloni*. This plant has large yellow flowers with a brown centre, while *T. caelestis* has much smaller flowers of a light blue.

Torenia atropurpurea, n. sp.

Stems creeping and rooting slender 2 feet long or more, branched internodes 1 to 4 inches long. Leaves ovate to deltoid glabrous minutely pustular above, apex acute base broad or slightly cuneate margin crenate serrate, 1-2 inches long ½-1 inch wide, petiole slender ½ inch long. Flowers solitary in the upper axils on slender 1 inch peduncles. Bracts very small linear. Calyx ⅜ inch long narrow tubular, lobes linear acute free for ⅔ of the length of calyx. Corolla deep violet purple an inch long tube narrow tubiform mouth ½ inch across lobes rounded. Capsule oblong ½ inch long abtuse shorter than the calyx. Seeds subquadrate.

Perak: Maxwell's Hill (Ridley 5507), Bujong Malacca (at the first Waterfall Ridley 9756) without locality (Scortechini 2122); Selangor: 15th mile, Pahang track (Ridley 8533). On claybanks often growing in great clumps.

This charming plant has somehow been mistaken in the Flora of British India for *T. asiatica*, a native of Siam commonly cultivated in the East and occasionally appearing is an escape from cultivation. It differs from this species in being a creeping perennial, instead of an erect annual, in its narrow linear calyx lobes and long narrow-tubed deep purple corolla. It is a very pretty

plant well worthy of cultivation but I have failed to succeed in establishing it.

Microcarpæa muscosa, R. Br.

A small herb forming large tufts of a bright green colour under water in shallow spots. Stems one to 4 inches tall succulent glabrous, leaves $\frac{1}{10}$ to long opposite oblong blunt. Flowers axillary solitary sessile very small. Calyx tubular five toothed, teeth acute erect, at length spreading pubescent. Corolla tube cylindric shorter pale, limb hardly projecting beyond the calyx, violet 5-lobed, four short acute, one longer linear oblong all fringed with white hairs. Stamens fertile 2 included, anthers 1-celled yellow, no staminodes. Style shorter than the calyx with a curved lateral stigma. Capsule much shorter than the calyx tube oblong ovoid dehiscing into two valves. Seeds oblong elliptic ocreous rugose.

Singapore: on the edge and shallow water of the Reservoir. September 1906.

This curious little plant has not previously been recorded from the Malay peninsula, but is known from India, Java and Australia, Griffith, (Notulæ Asiaticæ IV. 101. Ic. Pl. As. t. 417. f. 2). describes a species as *M. diandra* from Bengal which Hooker in the Flora of British India is doubtful about because Griffith says that the calyx is 5-fid, Griffith's rough sketch of the structure of the flower is however very good as far as it goes, showing the curious corolla lobes, one of which is linear oblong and much longer than the others which are small and nearly equal, a point overlooked in all descriptions of the plant, and further he shows the curious processes which terminate and fringe the lobes of the corolla, nor is he altogether wrong about the calyx being deeply cleft. The sepals are indeed connate to near the tip where the five lobes are free and in fruit spread out starwise, but they are so slightly

connate that they very readily separate with but little force used, and in one flower I found them quite free. In fruit they seem to be more firmly attached. The corolla in this plant is very much reduced, and the limb really almost rudimentary, suggesting that its usually submerged life has caused the limb so conspicuous in the *Limnophilas* to be useless and reduced to a rudiment still retaining however traces of the violet coloring (especially conspicuous in the bud) so characteristic of the Limnophilas. The little plant forms bright green masses in shallow water, and when submerged is usually very short little over an inch tall; here owing to the drying up of the water edge it is quite free of the water it becomes taller and is three or four inches tall.

Bignoniaceæ.

Tecoma Curtisii, n. sp.

A slender climber with wiry stems, internodes 8 inches long. Leaves opposite 4 inches, petiole 1 inch, leaflets 5 lanceolate acuminate base rounded entire glabrous light green shining 1½ inch long by ⅝ inch wide, petiolule ⅛ inch long. Cymes axillary and terminal on short peduncles. Flowers numerous crowded pedicels ⅛ inch long. Bracts shorter linear subulate. Calyx cupular ¼ inch long greenish purple with 5 short subulate processes. Corolla 2 inches long, base cylindric enlarging funnel-shaped upwards to the mouth, one inch across; lobes subequal oblong rounded, base of tube and interior yellow, outside pinkish yellow lobes pinkish white. Stamens 4 included, anthers white bases divergent, apex terminated by a violet subulate process. Style longer. Stigma lanceolate flat white.
Fruit unknown.

Penang: Batu Feringhi (Curtis);

This has long been cultivated in the Botanic Gardens at Singapore, but it has never set fruit and I have never

seen fruit on wild plants. It seems to be local in Penang, growing over trees to no great height at Batu Feringhi. It flowers nearly all the year round. Mr. Sprague of Kew proposes to call this *Nyctocalos Curtisii* as the plant is hardly a typical *Tecoma*. It is however so utterly different from any other species of this genus, that it will perhaps be preferable to retain it in the genus *Tecoma* till we can obtain fruit of it.

ORCHIDEÆ.

Microstylis aurata, n. sp.

Stem an inch long hardly bulbous. Leaves 6-9 erect narrow lanceolate acuminate, inacquilateral narrow at base into a petiole winged to the base 6 inches long 1 wide or narrower. Scapes 1 or 2, slender 6 inches lengthening with flowering to one foot, base (about 4 inches) nude except for a few linear bracts ¼ inch long, 4 angled. Floral bracts lanceolate acuminate longer than the pedicels. Flowers very numerous opening one or two at a time about 50 sepals ovate, laterals rather broader than upper one ⅛ inch long three nerved blunt. Petals narrower linear one nerved blunt. Lip auricles very large recurved red, ovate lanceolate acute, as large as the rest of the lip, limb obovate narrower at the base and enlarged into two rounded oblanceolate lobes, elevated veins at the base between the auricles column short with very short arms. Capsule elliptic oblong ¼ inch long.

Sarawak: Quop. Fls. yellow, lateral lobes of lip red, (J. Hewitt).

Siparis Downii, n. sp.

Stem about 1½ inch long. Leaves few elliptic lanceolate herbaceous 3 inches long ¾ inch across slightly narrowed to the base acute at the tip. Peduncle slender terete 4 inches long. Bracts linear acuminate ⅛ inch long deflexed. Flowers 5, small, ovary and pedicel

¼ inch long. Dorsal sepal oblong linear, pale fuscous purple, laterals oblong decurved inacquilateral green with indistinct purple breaks along the outer edge than the lip. Petals linear narrow purple ⅛ inch long. Lip fleshy shining, base broad parallel to the column. Apex oblong obovate decurved emaginate with very obscure teeth on the outer edges dull green at base passing into purple at the tip, calli 2 conic at the bend in the lip green between them and for some way on the blade a deep purple groove. Column acuate green wings short rounded base dilated. Anther green skull shaped.

Southern Siam. Coll. St. V. B. Down, flowered in H. B. Singapore June 1905.

Bulbophyllum longerepens, n. sp.

Rhizome very long slender emitting tufts of roots from below the pseudobulbs. Pseudobulbs 1 inch apart oblong ½ inch long angled. Leaf elliptic apex rounded 1¼ inch long by ⅛ inch across, petiole ⅛ inch long scapes from the internodes very short hardly ¼ inch, with ovate amplexicaul bracts. Floral bracts ovate acuminate longer than the pedicel. Flowers very small ⅛ inch long about 5 or 6 on a scape, glabrous sepals lanceolate condate. Petals about half as long oblong subacute. Lip shorter than the petals narrowly linear oblong with two slightly raised veins running the whole length. Column stout stelidia tooth-like acute erect longer than the anther.

Sarawak, Santubong (Hewitt), off 18. Java Tremb.

Dendrobium sulphuratum, n. sp.

Rhizome creeping ¼ inch through. Stems swollen slightly 2 inches long covered with close sheaths. Leaves 2 oblong coriaceous acute, 3 inches long 1 inch wide glabrous. Raceme subterminal with one lateral branch 2 inches long. Bracts ovate or lanceolate acuminate ⅛ inch long. Flowers rather thick in texture.

Pedicels 1 inch long ovary elongate angled. Sepals lanceolate acuminate $\frac{3}{4}$ inch long. Petals narrower sulphur yellow. Lip shorter $\frac{1}{2}$ inch long base rather narrow, lateral wings short round distinct, midlobe fleshy lanceolate acuminate acute reddish brown.

Sarawak: Sajingkat (Hewitt). Feb. 10, 1906. This belongs to the *Sestochilus* section and is allied to *D. Treacherianum*. I have not seen the old bulbs.

Dendrobium (*Sestochilus*) *radicosus*, n. sp.

Rhizome very long slender with numerable wiry roots, pseudobulbs elliptic oblong $\frac{1}{4}$ inch long and as far apart. Older ones larger conic $\frac{1}{2}$ inch long. Leaves 2 to each pseudobulb elliptic coriaceous subacute narrowed at the base $\frac{1}{2}$-$\frac{3}{4}$ inch long $\frac{3}{8}$ inch across. Flowers solitary terminal, pedicel slender $\frac{1}{2}$ inch upper sepal lanceolate hardly $\frac{1}{3}$ inch long acute laterals slightly broader. Petals narrower shorter oblong obtuse. Mentum short and rounded. Lip as long as sepals, three lobed base narrowed, lateral lobes broad oblong triangular truncate. Midlobe longer elliptic with 2 thickened papillose ridges at the tip, a number of small papillae on the nerves of the base of the side lobes. Column rather long.

Sarawak: Tiang Lagu (J. Hewitt): "Petals dull pale yellow with a rosy tinge. Lip yellow with red brown spots."

Coelogyne exalata, n. sp.

Epiphytic, pseudobulbs crowded subglobose rounded. Leaf solitary lanceolate petioled coriaceous 6-12 inches long by 3 inches wide acuminate at the base tip mucronulate, petiole 4 inches. Raceme lateral erect, bearing 6 or 7 flowers, 8 inches long. Bracts convolute $\frac{1}{4}$ inch long brownish green. Pedicel as long. Sepals 1 inch long $\frac{1}{4}$ inch wide. Upper one spathulate lanceolate acute laterals oblong acute green tinted brown or

light brown, spreading petals shorter spathulate lanceolate acute green, appressed.

Lip spathulate entire, sides at base convolute, tip acute 1 inch long with three distinct nerves and no crests, green. Column white ½ as long as lip dilated upwards top flattened, apex broad clubshaped truncate Clinaudrium elevated entire, anther deeply sunk, wings incurved. Pollinia 4 in 2 pairs each pair on a distinct lanceolate disc, yellow pyriform, anther 2 celled skull-shaped beaked beak bifid, rostellum lobes large 2 upcurved oblong rounded.

Sarawak : on Serapi, the top of Matang end of August 1905 (Ridley 12470). This singular plant differs from any species of *Caelogyne* in having a perfectly entire lip with no side lobes.

Platyclinis minor, n. sp.

Pseudobulbs oblong void, crowded (yellow and much wrinkled when dry) ⅜ inch long. Leaf linear lanceolate blunt narrowed at the base into a petiole, 3 inches long ¼ inch wide, petiole very slender 1 inch long. Peduncle 2-3 inches long very slender flowers crowded in a raceme 1-3 inches long. Bracts papyraceous persistent ovate acute ⅛ inch long ribbed. Pedicels slightly longer than the bracts. Flowers ¼ inch across. Sepals lanceolate acuminate acute, 3 nerved, central nerve thickest. Petals shorter broader oblong slightly dilated upwards rounded obtuse strongly 1 nerved. Lip pandurate base broad oblong short side lobes small rounded inconspicuous, midlobe elliptic obtuse 3 ribbed. Column narrowed at the base with large triangular wings acuminate, rising from near the top and projecting above the column, wings of clinandrium triangular. Anther ovate.

Sarawak Santubong (J. Hewitt).

Platyclinis minima, Pseudobulbs very crowded conic obtuse ¼ inch long. Leaf elliptic slightly narrowed towards the

rounded tip shortly petioled 1 inch long ⅜ inch wide. Raceme very slender 2 inches long rising from the axil of a broad lanceolate papery sheath. Flowers about 14, distant bracts oblong obtuse papery persistent ⅛ inch long. Pedicel half as long. Sepals lanceolate acute long. Petals half as long elliptic obtuse lip clawed oblong entire dilate towards the tip rounded. Column have narrow dilated above with lanceolate acuminate arms rising a little below the stigma.

Sarawak: Tiang Layu. (J. Hewitt).

Eria (*Trichotosia*) *aurea*, n. sp.

Stems rather slender erect 18 inches or more tall nearly glabrous except for a line of red hairs on the side opposite the leaf and a circle of red hairs at the mouth, (young parts sprinkled with short red pubescence). Leaves, lanceolate light green acute with a broad base rather fleshy glabrous. Racemes 1 inch long few flowered red hairy. Bract at the base cup-shaped covered with red hairs. Bracts lanceolate obtuse red hairy. Flowers small about 6. ⅛ inch long, enclusive of ovary. Upper sepal lanceolate acute red hairy laterals ovate fulcate acuminate red hairy, mentum scrotiform. Petals linear falcate obtuse. Capsule elliptic ¼ inch long.

Sarawak Santubong (Hewitt).

Flowers golden yellow with reddish brown hairs. The specimens were nearly past flower.

Eria (acridostachyae) triloba, n. sp.

Stem apparently cylindric 3 inches long. Leaves lorate or linear-lorate obtuse 14 inches long by one inch wide, subherbaceous. Scapes a foot long, raceme dense all coverd with brown wool. Bracts lanceolate ⅛ inch long brown woolly, peduncles nearly ¼ inch long. Sepals upper lanceolate obtuse, laterals subtriangular, mentum short thick rounded. Petals very thin narrowly linear. Lip three lobed shorter than sepals, base long linear

very narrow, side lobes triangular lanceate recurved acuminate, midlobe nearly as long as the claw lanceolate obtuse fleshy pustulate, all strongly nerved the main nerve elevated on the disc. Column dilated upwards rostellum projecting.

Sarawak Santubong (J. Hewitt).

This resembles *Aeridostachya* Rchb. f. but has a very different lip.

Pholidota grandis, n. sp.

Pseudobulbs several crowded elliptic or conical 2-3 inches long, angled and ribbed. Leaves 2 to each pseudobulb oblong oblanceolate long petioled, acute, blade 12 inches long narrowed into the 13 inch petiole, ribbed. Raceme erect 8 inches or more from the base of a pseudobulb, peduncle half the length nude dull green spotted red. Raceme dense many flowered. Bracts caducous elliptic subobtuse, ½ inch long, as long as the flowers, ovary and pedicel spreading green. Sepals ovate obtuse apple green. Petals smaller oblong white recurved. Lip base rounded saccate edge elevated undulate side lobes, broad irregularly oblong rounded, bifid on the outer edge white. Column short, hood very broad truncate retuse narrowed downwards green. Anther orange semiorbicular, trigibbous two celled stigma cordate.

Selangor Semangko Pass. Il in H.B.Singapore Aug. 1905.

This fine Pholidota was collected by me with *Caelogyne Dayana* on trees in the Semangkok Pass. In habit it quite resembles a Caelogyne. The flower spike with its dense white flowers is quite attractive.

Tainia borneensis, n. sp.

Rhizome creeping covered with broken upsheaths. Leaf ovate acuminate 6 inches long 2-2¼ wide. Glabrous petiole 1 inch long stem a foot long from the axil of a

leaf pubescent with three or four lanceolate bracts scattered about. Flowers 2 to 6, crowded at the top, pedicel woolly, ¼ inch long, bract lanceolate acuminate glabrous. Upper sepal lanceolate acuminate, laterals broader, forming a short blunt mentum at the base ¼ inch long. Petals narrower, linear acuminate. Lip shorter obcuneate, base oblong dilated towards the end into a broad truncate limb with two short side lobes and one small oblong median one. Column rather long curved, stelidia short, anther lanceolate. Pollinia ovoid flattened.

Sarawak : Mt. Lingga (Hewitt).

Plocoglottis borneensis, n. sp.

Pseudobulbs several, terete thickened slightly towards the base and purplish 2 inches long. Leaf solitary, broadly lanceolate, 8 inches long, 4 inches wide, plicate tapering to the winged petiole, seven-nerved dark green. Peduncle 12-16 inches tall pubescent arising from above the base of the pseudobulb. Bracts small ovate acuminate.

Flowers several. Upper sepal largest ½ inch long lanceolate, long acuminate-yellow base red spotted, laterals similar but narrower at the base, backs pubescent. Petals similar but glabrous. Lip less than ¼ inch long, quadrate, tip broad equally shortly trifid pale yellow. Column about as long yellow with two broad flat wings white with red edges and descending bar, a violet streak below, widened at the base. Anther cap thick dark yellow blunt with a strong ridge running to the tip. Pollinia 4 in two pairs in narrow cells of the anther, elliptic one slightly above the other, pedicel linear-pulverulent, discs oblong yellow rather large. Margin of clinandrium elevate subovate. Stigma large ovate.

Common in Sarawak especially at Lundu, and Tambusan, terrestrial in damp woods. Also at Bidi.

This plant I took at first for Reichenbach's *Plocoglottis Lowii* (Xenia Orchidacea Vol. II p. 142. pl. 154). But even allowing for very rough drawing this can hardly be intended for the common Sarawak species. The flowers of this exactly resemble those of *P. moluccana* Bl. but that is figured and described as belonging to the group of many leaved *Plocoglottis*. No one seems to have seen *Plocoglottis Lowii* since it was first introduced. It is described as having yellow and brown flowers as large as those of *cattleya luteola*. By some extraordinary error Hallier has identified it with a plant which from his figure and description I take to be *Pl. porphyrophylla* Ridl. and J. J. Smith has followed this determination in his orchids of Amboina. No two species of the genus are more utterly dissimilar. *Pl. porphyrophylla* with its dull purplish flowers half an inch across, and most peculiar lower sepals cannot possibly be the plant Reichenbach intended, with flowers 2 inches across, bright yellow with the lower sepals quite resembling the upper one.

The following are the species of the genus known. Some from Borneo.

Species with single leave to each pseudobulb.

Pl. Lowii, Rchlf. Locality unknown said to be Bornean.

Pl. borneensis, Ridl. Sarawak.

Pl. porphyrophylla, Ridl. (*Pl. Lowii* Hallier not Reichenbach) recorded from Borneo by Hallier.

Pl. parviflora, Ridl.

Species with leafy stems.

Pl. dilatata, Bl. Sarawak, Mt. Kowa. Braang (Haviland 76) on limestone rocks.

Pl. parviflora.

Leaves lanceolate acuminate 2 glabrous thin 5 nerved narrowed to a long petiole 12-16 inches long 1½ inch wide. Scape lateral from the rhizome, rather stout 2 feet long, scurfy pubescent, flowers distant few, small. Pedicel and ovary ½ inch long. Closely scurfily pubescent. Sepals narrow linear oblong cuspidate $\frac{3}{10}$ inch long. Petals subspathulate narrower. Lip base oblong, limb broader ovate oblong cuspidate, with two short linear ridges on the limb. Column tall, anther cordate in outline, top fleshy retuse.

Sarawak: Mt. Lingga (Hewitt).

Allied to *Pl. Porphyrophylla*, Ridl. but the flowers are much smaller and the lip of a different shape.

Saccolabium aureum, n. sp.

Stem about 2 inches long. Leaves crowded lorate 3 inches long little more than ¼ inch wide thick, apex very unequally bilobed, tops rounded. Racemes 1 inch long dense flowered. Bracts lanceolate acuminate ¼ the length of the pedicel and ovary. Flowers ¼ inch long pale greenish yellow or golden yellow, spur white. Upper sepal ovate acute, laterals ovate oblong mucronulate. Petals as long oblong obtuse narrower. Lip ovate rather longer than the sepals, sides elevated rounded (lateral lobes) terminal lobe narrower half the length of the hypochil, linear oblong, ending in a fleshy rounded callus spur as long as the lip nearly as long as the pedicel stout cylindric obtuse upcurved. Column very short with two much longer erect horns acute. Anther skull-shaped with a very large oblong truncate beak. Pollinia 2 globose small on an oblong linear pedicel with a much larger oblong truncate disc bearing a short process beyond the point where the pedicel adheres.

Sarawak: Kuching (J. Hewitt).

This curious species is most nearly allied to *S. secundiflorum*, Ridley.

S. brachystachys, n. sp.

Stem short, 4 inches long very thick. Leaves lorate coriaceous, thick 8 inches long, 1½ inch wide, deep green, apex bluntly unequally lobed. Panicles short 3 branched, branches 1 inch long many flowered. Bracts very short ovate acute. Sepals oblong obtuse ⅛ inch long. Petals shorter narrower linear, all yellow with a central reddish bar. Lip, side lobes large oblong ending in a cusp, midlobe ovate obtuse violet, spur short rounded scrotiform white, a broad oblong fleshy bar over the mouth of the spur, and a short conic boss in the centre of the lip between the side lobes. Column thick, wings incurved white, anther broad long-beaked. Pollinia elliptic curved, on a long linear pedicel with a small disc.

Sarawak : Tambusan, fl. H. B. S. 1905.

This plant is not rarely brought from Sarawak by native collectors.

S. validum.

Roots copious thick corky, stem stout 4 inches long ½ inch through. Leaves coriaceous lorate 6 inches long ¾ inch through unequally bilobed. Panicles from lower axils 9 inches long slender, peduncle 3 inches long, branches 2, upper one longest. Flowers numerous but remote. Bracts ovate acute small. Pedicels ¼ inch long. Sepals lanceolate subacute. Petals much smaller, dull yellow, with reddish purple blotching in centre. Lip shorter, spur nearly as long as the ovary straight cylindric blunt, side lobes short oblong rhomboid blunt, midlode longer, short ovate fleshy callus in mouth of spur fleshy quadrate large decurved. No septum in spur or callus. Column short, anther 4 celled ovate. Pollinia transversly bilobed, pedicel oblong linear, disc oblong truncate column wings short incurved. Rostellum arms horizontal oblong truncate with a minute process at the upper edge.

Perak : Kamuning (Machado) July 10, 1905.

Certainly allied to *S. pallidus*.

S. fissicors, n. sp.

Stem 4 or 5 inches long. Leaves linear oblong rounded emarginate at the lip 4-5 inches long 1 inch across rather thickly coriaceous. Raceme 10 inches long very slender, peduncle 6 inches long purple. Bracts very small ovate. Flowers rather distant small. Rachis faintly black scurfy. Occasionally one branch near the base. Pedicel and ovary $\frac{1}{8}$ inch long bright yellow green. Sepals ovate oblong, $\frac{1}{10}$ inch long blunt dark red brown. Petals narrower linear similarly colored. Lip side lobes small erect truncate yellowish, midlobe cordate acute, notched on either side, violet with centre and edges white. Spur nearly as long as the pedicel parallel to it or deflexed cylindric slightly flatened, violet, an oblong recurved fleshy lamina truncate in the mouth, spur not divided. Column rather tall violet, wings obscure. Anther white scull shaped truncate emarginate in fruit. Pollinia flattened globose orbicular, 2 bilobed, pedicel, flat, narrowed above and below, slightly dilate in the middle, disc very small oblong. Rostellum lobes short oblong truncate with deflexed points. Stigma cordate.

Perak: Kamuning (A. D. Machado). Flowered Singapore Botanic Gardens 1906, December.

This is near *S. Scortechinii*, but has the habit of *Spensile*, Ridl.

Trichoglottis punctata, n. sp.

Stem slender branched 18 inches long, sheaths ribbed 1 inch long, leaves narrowly lanceolate acuminate 4 inches long $\frac{1}{4}$-$\frac{1}{2}$ inch wide, narrowed at the base. Racemes $\frac{1}{8}$ inch long few flowered, 1 or 2. Flower $\frac{1}{4}$ inch fleshy, upper sepal oblong obtuse, laterals deltoid triangular. Petals oblong obtuse. Lip adnate to the column at the base, very fleshy, shorter than the sepals, base oblong channelled hardly spur-like, but excavate, below the column a linear flat lamina obtuse entire, apex

bilobed dilate lobes rounded with obscure fleshy processes projecting from the tip, behind two horn like side processes, all glabrous column thick, anther skull-shaped shortly beaked in front. Stelidia thick subtriangular, rostellum very short and indistinct. Pollinia not seen. "Flowers yellow with red brown spots on the inside and reddish edging outside."

Sarawak: Lingga (J. Hewitt).

Only one specimen with a single flower seen.

Near *Tr. lanceolaria*, Bl. but the spur is less developed, the lip is distinctly bifid at the tip.

Sarcochilus fragrans, n. sp.

Stem 3 inches long. Leaves 9 linear lanceolate subfalcate narrowed at the base 6 inches long one inch wide, dull green coriaceous. Scape 5 inches long, subterete winged. Bracts persistent ovate $\frac{1}{8}$ inch long green. Flowers open three at a time. Pedicels $\frac{1}{2}$ inch long. Upper sepal orbicular obovate, lower ones much larger $\frac{1}{2}$ inch long orbicular ovate. Petals small $\frac{1}{4}$ inch long spathulate all white with a transverse line of one or 2 ocreous blotches. Lip $\frac{3}{4}$ inch long, side lobes oblong rounded, spur shoe-shaped narrowed to a blunt point, with a raised boss or tooth in the upper face, calli in the mouth three, 2 longer than the median one short blunt tooth-like. Lip all white except an ocre blotch below the mouth. Column short, with a long foot, white with an indian red bar on each side of the foot running up and meeting behind the column. Anther broad and flat, thin ovate shortly beaked. Pollinia 2 globular bilobed, pedicel very short, disc oblong lanceolate small. Clinandrium shallow. Rostellum bifid of two linear processes, column wings incurved. This pretty and deliciously fragrant orchid was found on a coffee-bush on Matang estate. It is allied to *S. unguiculatus*, but very distinct.

S. stellatus, n. sp.

Stem thick 3 inches long. Leaves 6 oblong obtuse unequally bilobed 4 inches long and one inch across, thick and stiff. Racemes ½ inch long. Bracts small ovate. Flowers expanded, ovary and pedicel ¼ inch long, sepals ½ inch long spreading oblong acute pale greenish yellow. Petals smaller linear oblong acute. Lip ¼ inch long, side lobe oblong rounded broad yellowish, with dull Indian red and ovate markings inside, spur short blunt white, a large rounded callus just below the lobes white with 2 violet spots. Column longer than the foot ¼ inch long yellow, anther thin ovate acute, with a bar-shaped rib across the top. Pollinia semilinear yellow, pedicel linear short, disc small oblong. Clinandrium very shallow. Rostellum lobes short broad triangular. Capsule sessile oblong an inch long.

Sarawak: cult. in Bishop Hose's Garden exact locality uncertain, Sept. 1905. A pretty little plant with its green starlike flowers. The pollinia curl forward and hang into the stigma. The plant appears to be thus regularly self-fertilized.

Dendrocolla fimbriata, n. sp.

Stems 1½-1 inch long forming large tufts. Leaves lorate 3 inches long ½ inch wide pale green. Scapes 2 inches long, rachis thickened. Flowers white. Sepals lanceolate, lower ones oblong lanceolate acute with a process at the base. Petals lanceolate spathulate smaller. Lip convolute acute pubescent, side lobes distinct rounded, median linear obtuse all white and fringed with hairs, a callus short oblong truncate in the centre of the lip maroon edged with yellow a tuft of hairs behind it, an orange spot in the spur. Column short white, broad belly depressed in the centre, foot short. Clinandrium not raised. Anther skull-shaped retuse in front broad. Pollinia pale yellow oblong on a short triangular disc, no pedicel. Rostellum short indistinct.

Sarawak, on trees near the race course Sept. 1905 (Ridley and Hewitt).

Allied to *S. trichoglottis*, Hook. fil. which occurs there too, conspicuously different in its white flowers, and the lobed lip. A very pretty little plant, and fragrant.

Goodyera rostrata, n. sp.

Stem a foot tall. Leaves narrowly lanceolate slightly falcate acuminate at both ends and distinctly petiolate, 5 inches long including the petiole (1 inch) sheaths short papery.

Raceme (in bud only) rather crowded. Bracts ¼ inch long lanceolate acuminate. Pedicel hairy short.

Sepals hairy red, upper one lanceolate, base gibbous, adnate to the thin pale petals, laterals connate ovate hairy blunt red. Lip shorter, base thin saccate equalling the rather long curved beak, red, glabrous inside with no calli.

Column short with small rounded side wings. Anther very long beaked. Anther cells gibbous. Beak curved cylindric acute longer than the sepals.

Rostellum entire large spathulate, truncate, base narrowed dilated upwards into broad wings, shorter than the anther, minutely pustular with a strong rib up the centre.

Sarawak: Lingga, (J. Hewitt).

Differs from *Grubens* Bl. in the long beaked lip and entire broad winged labellum, and narrow leaves.

Habenaria pelorioides, Rchb. fil. Trans. Linn. Soc. XXX. p. 139. Tab. 27.

This plant was described from a specimen, obtained in Amherst, Tenasserim by Parish. The specimen, in Herb. Kew seems to be very ill-preserved, and it is suggested that it is an abnormal form, of some other species. Mr. Micholitz has recovered what appears to be the identical species in Tonkin. It was he says abundant and I have three good specimens. In habit

foliage and perianth it is absolutely identical with Reihenbach's figure except that it has a short distinct conical spur to the lip, pendant, about half the length of the petal. The column however differs. From the side of the anther projects a triangular flap, about half its length at the base, behind this is a papillose stigma. The rostellar lobes are broad inflexed fleshy truncate as long as the anther processes. The pollinia are more pyriform with long narrow pedicels widest at the apex and narrowing to a terete-portion ending in a small rounded disc. The flowers are white. The plant was obtained from Tonkin.

The species seems to be a good and distinct one, and I see nothing to suggest it is a monstrosity. The spur varies very much in length in the various flowers, and in some I cannot see any. In others very short not a quarter of the length of the petal. The minute ciliation of the lip and petals by Reichenbach is really a very minute denticulation.

H. geniculata, Don. this fine white *Habenaria* was also brought by Mr. Micholitz from the same locality.

Habenaria borneensis, n. sp.

Whole plant 6 inches to a foot tall, tubers subcylindric. Leaves crowded at the base of the stem, lanceolate acuminate 3 inches long ½ inch wide glabrous bright green drying black. Raceme 9 inches or less, floriferous nearly to the base. Flowers very numerous crowded green. Bracts narrow lanceolate acuminate with a long point, keeled and the lowest 3 nerved, lower ones longer, much longer than the flowers. Sepals upper ovate lanceolate obtuse ⅛ inch long, lower narrower lanceolate. Petals broader ovate obtuse. Lip trifid, central lobe linear fleshy obtuse as long as the petals lateral lobes filiform more than three times as long with a broad flat base, spur thick cylindric about as long as the petals, tip bilobed. Column small. Anther short. Arms very small. Ovary ¼ inch long, narrow.

Sarawak : Matang. In clay banks in the coffee estate and on the path up the hill, Aug. 1905. (No 12475).

Habenaria roseata, n. sp.

Stem slender 2 feet tall. Leaves distant few, linear acute 3 inches long ¼-½ inch wide dull glaucous green sheathing at the base, upper one narrower and more acuminate. Raceme lax about 8 flowered. Bracts ½ inch long lanceolate acuminate. Ovary and pedicel ¾ inch, not twisted, ovary narrowed upwards. Flower reversed. Upper sepals ovate obtuse boat-shaped forming a gaba with the oblong petals ⅛ inch long pale pink. Lateral sepals oblique ovate obtuse strongly 3 ribbed spreading. Lip tufted to the base lobes narrow linear white median longest ½ inch long. Spur ¾ inch long slender obtuse geniculate in the middle. Anther hooded nearly as long as the petals, arms rather long abruptly upcurved. Pollinia pyriform small with a very long slender pedicel. Stigmatic processes on the side of the anther distinct pustular. Stigmas porrect thick fleshy clubbed flat on the inner face. Rostellum trilobed erect, side lobes very short, midlobe linear pustular.

Siam at Trang (Cult. H. B. Penang, 1906).

This slender plant with pale rose flowers is allied to *H. Vidua* Parx. Rchb. f. a native of Tenasserim figured Trans. Linn. Soc. XXX. t. 27 B. The structure of the rostellum and stigmas is however different and the leaves are much narrower.

SCITAMINEAE.

Globba insectifera, n. sp.

Stem slender 14 inches tall, with cylindric pubescent sheaths lower ones reddish, 3 inches long, upper two with very small green lanceolate acute laminas nearly ½ inch long ⅛ inch wide. Panicle of a few short, inch-long branches. Bracts minute green oblong obtuse deciduous. Flowers sessile, ovary short oblong pubescent. Calyx tube ⅛ inch long pubescent equally 3 toothed

tubular. Petals narrow linear, staminodes large and conspicuous rounded ovate oblong ½ an inch long, ½ inch across bright yellow.

Lip small very narrow linear bifid at the tip for about ¼ its length, yellow. Filament long slender, anther orange with 4 equal triangular acuminate spurs.

Shan States, (Coll. Micholitz).

This very curious *Globba* came up in a plant of *Cypripedium bellatalum* cultivated in the Botanic Gardens. It is remarkable not only for its almost leafless habit, which is seen in some others of the species from this region, but especially from its very large staminode, the most conspicuous part of the flower. The flowers resemble some small yellow butterfly.

G. glandulosa, n. sp.

Stem 18 inches tall. Leaves lanceolate acuminate caudate hispid 4½ inches long, ¾ inch wide narrowed at base, sheath and ligule hairy. Panicle 2 inches long slender with few short branches. Bracts ovate oblong cuspidate glandular, ⅛ inch long. Calyx funnel-shaped with three equal lanceolate cuspidate leaves ⅜ of an inch long glandular corolla-tube twice as long shortly pubescent dilate upwards, lobes ovate obtuse dotted all over with glands. Staminodes linear much shorter. Lip short and broad half as long as the petals, bilobed lobes broad rounded. Filament rather stout. Anther with a single rather thick horn from near the base on each side, ovary glabrous ribbed.

Sarawak : Mt. Lingga (Hewitt).

Flowers light purple or red. Leaves with a red brown tinge on the under surface. The most curious thing about this species is the glandular dotting of the whole of the perianth, petals staminodes lip and filament. The hairy leaves and very short broad lip are also peculiar points.

Camptandra ovata, n. sp.

Stems solitary 3-6 inches long the base covered with oblong lanceolate sheaths 1-2 inches long cuspidate. Leaves 2-3 ovate peltate acuminate inaequilateral, base rounded, 1½-3½ inches long ¾-2 inches wide, petiole slender 1-1½ inch long, sheath less than half the length. Peduncle ½-1 inch long subterminal erect. Bract ½-1 inch long urnshaped with a recurved tip orbicular when spread out and an inch across. Flowers 2-3, nearly sessile. Calyx tubular dilated upwards shortly 3 lobed lobes blunt ⅛ inch long. Corolla tube slightly longer than the bract, lobes pale blue or white ¼ inch long blunt. Capsule oblong ⅜ inch long grey thin walled punctate and blotched brown, seeds several fusiform obtuse dark grey with a thin white fimbriate aril.

Selangor: Hulu Semangkok at about 4000 feet elevation, first collected by Mr. Burn Murdoch in February and later by myself in August 1904.

This is a much smaller plant than *C. latifolia* which in general form it resembles.

H. licmeres, n. sp.

Stem apparently tall. Leaves oblong lanceolate cuspidate narrowed to the base 20 inches long 2½ inches wide, glabrous, ligule oblong rounded on the top ½ inch long.

Bracts papery linear acute, tips pubescent, 1½ inch long ⅛ inch wide. Inner bracts spathaceous narrow, tip pubescent. Calyx, tube narrow-spathaceous 2 inches long, tips of lobes silky hairy. Corolla, tube little longer, lobes linear obtuse red, about an inch long. Lip much shorter about ½ inch long, lateral lobes erect convolute, midlobe with a narrow claw ending in a broader triangular bi-lobed or hastate thicker limb. Anther not distinctly crested.

Sarawak: Kuching (Hewitt).

TACCACEÆ.

Tacca borneensis, n. sp.

A large tufted plant with the habit of *T. cristata*. Leaves ovate acuminate, petiole 6 inches or more long, blade 24 inches long, 9 inches across glabrous nerves about 9 pairs primary distant ascending one intramarginal running to the tip, margin undulate. Scape stout 6 inches long. Involucral bracts 4, subequal and similar, ovate sessile obtuse opposite pubescent on the back 2½ inches long 1½ inch wide, the two inner ones shortly petioled. Filamentous bracts rather short.

Flowers smaller than those of *T. cristata* purple. Sepals oblong slightly narrowed at the base apex rounded. Petals ovate acute mucronate, ¼ inch long. Stamens, with very short but distinct filament, anthers ovate base retuse, stigma, too-much crushed. Ovary and pedicel ½ inch.

Borneo: Sarawak on Matang, (Ridley.)

The broad ovate leaves of this plant would be quite sufficient to distinguish it from *T. cristata*. The involucral bracts too are very distinct, the outer ones broadly ovate, the inner ones narrowed slightly at the base, and all minutely and scantily pubescent. The flowers are smaller and the stamens more distinctly stalked.

T. laevis var. *minor*.

Differs from the description of the type in its generally smaller size. It has an erect cylindric stem 1½ inches long, leaves elliptic acuminate bright green 6 inches long 4 inches wide, petiole as long. Scape 6 inches or less deflexed or hardly ascending. Involucral bracts outer ones lanceolate acuminate an inch long, wide, inner ones ovate acuminate as long but much wider all olive green. Bracteoles filiform 5 inches long dusky tips paler flowers few pedicels thick purplish ¾ inch long. Perianth ½ inch across. Petals oblong triangular acuminate brownish green, spreading. Sepals erect about half the width. Stamens purple 6.

Fruit 1½ inch long green, 3 keeled to the sepals a ridge representing each petal.

Kelantan : Kwala Lebir (Dr. Gimlette.)

T. vespertilio, n. sp.

Stem short as in *T. cristata*, leaves numerous elliptic lanceolate long petioled, petiole sheathing 2 inches 6-8 inches long stout smooth lamina 12 inches long or less 6 inches across base rounded, usually unequal, one side further decurrent on the petiole than the other, tip acuminate margin minutely wavy, bright polished green above paler beneath, nerves conspicuous elevated beneath. Scape over a foot long smooth. Involucral bracts, 2 outer ones short lanceolate acuminate 1½ inch long by ½ inch purple tipped green, 2 inner ones sessile ovate at right angles to the others brown purple 2 inches long 1½ inch wide, margins wavy all glabrous. Flowers few 3-5. Filiform bracts 7 inches long about 12, base purple tips white Pedicels stout purple 1 inch long. Perianth tube campanulate purple ½ inch. Sepals lanceolate acute purplish ¼ inch. Petals broader oblong ovate obtuse. Stamens shortly pedicelled filaments short but distinct. Anther conic, retuse at base lobes excurved. Stigma peltate with three lobes retuse, plaits more deeply cut than in *T. cristata*.

Perak : Kamuning (Machado) fl. H. B. S. November.

This has flowered twice in the Botanic Gardens and is a very distinct plant in the matter of the large bracts, the two inner ones much larger than the outer ones and spreading like the wings of a bat.

Siliaceæ.

Chlorophytum longissimum, n. sp.

Rhizome stout short 2-3 inches long. Leaves tufted, lanceolate acuminate narrowed at the base subpetiolate 7 inches long 1½ inch wide glabrous dark green. Raceme deflexed at first 8 inches long terete, with distant alter-

nate flowers 1½ inch apart. Bracts lanceolate acuminate 1 inch long narrow. Pedicel shorter. Flower about 1 inch across, sepals and petals widely spreading similar lanceolate oblong narrow acute, pure white. Stamens connivent, filaments terete acuminate white longer than the anthers Ovary 3 lobed yellow, style as long as the anthers. stigma minute, white. After producing a few flowers the receme elongates to about 6 feet trailing on the ground, and bears bulbils.

Siam : Trang (St. V. B. Down, and Penang Gardens Collectors.)

ARoIDEA.

Criptocoryne striolata var. *cordifolia.*

In streams on Siul hill near Kuching (Sept. 1905). I believe this is a variety of *C. striolata* but the leaves are ovate blunt, more deeply cordate, almost auricled. The flower spathe was purple. It grew with *Cr. grandis* Ridl. which has a yellow spathe.

Hapaline appendiculata, n. sp.

Leaves one or more, always few, erect ovate acute hastate, lower lobes lanceolate, sinus narrow, light green with curved ascending nerves 4 inches long, 2 inches across of which the lobes are 1 inch long petiole white 1½ inch long. Spadices several, entirely pure white, peduncle slender 1½ inch long white. Spathe linear acuminate 1 inch long very narrow hardly ⅛ inch across at the base, base convolute round the base of the spadix. Base of spadix adnate to the tube of the spathe, with 3 flask-shaped shortly stalked pistils on the opposite side. Stigma capitate yellowish. Male flowers few very irregular in shape the lowest oblong the others smaller, rounded. Appendage long filiform acuminate slender longer than the spathe.

Sarawak : at Puak, in woods. (H. N. Ridley).

This very curious little plant is the first species of the genus recorded from Borneo, the other two species being natives of Nepal and Kedah. This little plant is remarkable for possessing a very narrow spathe and a long slender appendage with no trace of flowers on it, and only a few irregular male flowers on the base. In the other species the male flowers occur to the top or nearly to the top of the spadix and the appendage is very short. The slender white spadices are usually deflexed and lie on the ground, looking like white roots.

Alocasia Villeneuvei.

This aroid is very common in Sarawak especially on the hills of Matang and elsewhere, and the plants often attain a large size. The flowers of it have never been described. I was fortunate in finding it well in flower in August 1905. The peduncle of the inflorescence is 6 inches or more tall but deeply sunk in the petiole sheaths, it is pale green in colour. The spathe is pure white, the swollen part of the base 1½ inch long and nearly an inch in diameter. The ovate lanceolate acute and cuspidate limb is 2½ inches long and 1½ inch wide white. The spadix is sessile 4 inches long. The pistils subglobose with the stigmas on a short thick distinct style. They are round, oblong or ovate and wide white. There are no abortive flowers mixed with them as is often the case in other species. Above them are some abortive female flowers. The male portion appears above the tube, it is only half an inch long the flowers close packed crenulate. The appendix is cylindric and obtuse reticulate, cream colored. The fruiting spadices are white. The spadices shortly after opening were found to be swarming with dipterous larvae. In large plants the inflorescences are numerous.

Alocasia Beccarii, Engler.

Is an anomalous species in many ways, in its creeping rhizome and entire leaves. I found it as before on Serapi, the top of Mt. Matang. It was in

fruit, and I observed that instead of the tubular portion of the spathe, covering the fruit, disrupting irregularly as is usual in Alocasias, the top of it came off whole in the shape of a small conical cap, exposing the orange red fruit standing in a regular cap. In *A. denudata* the spathe base disrupts irregularly.

Homalomena Lindeni, *Alocasia Lindeni*, Ill. Hort. 1886 p. 111, Pl. DCLII.

This plant was originally described (l.c.) under the name of *Alocasia Lindeni* having been introduced from "Papouasia" by Linden, who suggests that it may be a Homalomena.

A plant obtained from Rangoon this year flowered in the Botanic Gardens Singapore, and *proved* to be a species of *Homalomena*. The leaves are ovate cordate 6 inches long and as wide, deep green with yellow veins, petiole 11 inches long sheathing for 3 inches, white. The plant when cut or broken exhales a strong scent of aniseed.

The spathes are produced several together each on a greenish white peduncle 3-4 inches long, $\frac{1}{8}$ inch thick. Spathe cylindrical $2\frac{1}{2}$ inches long tightly fitting the spadix, pale green darker towards the tip where it ends in a mucro $\frac{1}{8}$ inch long. The spadix barely longer sessile. Female portion 1 inch long, rachis thick and white, pistils very numerous, cylindric rounded, green, stigma round flat capitate, broader than the ovary, white, no abortive flowers. The male portion cylindric slightly tapering at the tip, white, flowers oblong, very numerous.

Homalomena multinervia, n. sp.

Leaves elliptic acuminate, slightly oblique, base cuneate 8 inches long $3\frac{1}{4}$ wide, nerves primary very numerous, about 50 pairs, hardly distinct from the secondary ones, petiole rather slender 4-5 inches long. Spathes thick 3 inches long constricted above the

female portion with a long slender mucro, $\frac{1}{8}$-$\frac{1}{4}$ inch long, peduncle 3 inches long. Spadix little shorter than the spathe. Female portion an inch long. Pistils numerous globose, no abortive flowers visible. Spadix sessile.

Sarawak: Lundu (Ridley Sept. 1905).

The very close nervation of the leaves, which are also thickly dotted with dark colored dots, and the large constricted spadix distinguish this from allied species.

Homalomena Griffithii var. *falcata.*

Stem stout 2-3 inches long. Leaves long petioled ovate with a broad base, apex falcate acute, nerves about 7 pairs 6 inches long 4 inches wide. Spathes several, on slender red peduncles $1\frac{1}{2}$ inch long; curved cylindric acuminate $\frac{3}{4}$ inch long, male and female portions of the spadix equal. Female flowers in 4 spirals.

Kuching: (Ridley 12417).

Schismatoglottis multiflora var. *latifolia.*

Mr. Hewitt sends from the Sarawak Museum a specimen of a plant collected on Matang by Mr. Bartlett July 21, 1895, which resembles *Sch. multiflora* except in the leaves which are much broader elliptic cuneate at the base, tip acuminate, 8 inches long 3 inches wide. The flowers ill-preserved seem identical with those of *Sch. multiflora.* I propose the variety *latifolia* for it.

Sch. nervosa, n. sp.

Stem stout erect 2 inches long. Leaves ovate obtuse cordate, lobes rounded, 7 inches long by 4 inches wide dark shining green, nerves about 26 pairs conspicuous gradually ascending, midrib channelled, above thick elevated beneath, back of leaf pale, petiole 6 inches long smooth green channelled above, sheathing for 3 inches, sheath pale tapering upwards, thin spathe very shortly $\frac{1}{2}$ inch, thickly peduncled, with a lanceate bract keeled, 2 inches long mucronate subtending it. Spathe green 3

inches, limb lanceolate cuspidate as long as the tube, tube swollen at the base then narrowed. Spadix 3 inches long, male portion cylindric acute 1¼ inch long white flowers similar to the tip. Below a narrowed portion, female portion ½ inch cylindric dilated towards base, on a stout short peduncle. Pistils very numerous small cylindric oblong narrow in 13 spirals dilated above with a small pulvinate stigma, no sterile flowers intermixed.

Sarawak: Bau (Ridley). This plant brought alive from Sarawak flowered in the Botanic Gardens in January 1907.

Piptospatha remiformis, n. sp.

Stem short suberect. Leaves narrowly elliptic, tip rounded cuspidate, base cuneate 3 inches long ½ inch wide, nerves about five pairs ascending rather inconspicuous, blade dark green minutely pustular, petiole slender 2 inches long, sheathing about half an inch. Peduncle 1½ inches long, spathe absent. Fruiting spathe turbinate ¼ inch long.

Sarawak: Mt. Lingga (J. Hewitt) Only a single specimen was collected of this plant, and that only fruiting. It seems however a distinct little species in its foliage, though it must be admitted that as in most other aroids the foliage of this genus is apt to vary very much. The leaves in outline resemble a native boat-paddle.

Raphidophora grandis, n. sp.

Stem very long and stout over an inch through. Leaves of climbing stem ovate obtuse cordate 4 inches long 3 inches wide, shining light green, very closely imbricate. Leaves adult of free part of stem very large, the blade 18 inches long 9 inches across or more, pinnatifid with subalternate lobes 1 to 3 nerved truncate broadly, lower ones acute at the upper margin, secondary nerves 5 to 9 between each pair of main nerves, transverse nervules conspicuous when dry numerous undulate petiole woody 6 inches or more long $1\frac{3}{16}$ inch through,

knee short. Spathe peduncle stout woody 6 inches or more long ¼ inch through, spadix sessile 6 inches long ⅓ inch through cylindric. Pistils oblong longer than broad. Stigma linear stamens projecting. Anther cells ovoid.

Sarawak on big trees at Tambusan Sept. 1905. (Ridley 12414).

A fine plant either with its neat creeping stem, with its overlapping oval leaves, or with its fine Monstera-like full grown foliage.

R. elliptica, n. sp.

Stem slender woody branched, nodes an inch long, ⅛ inch through when dry. Leaves remote elliptic inaequilateral narrowed at the base, acuminate rather abruptly, glabrous thinly coriaceous drying black 4 to 9 inches long 1-2½ inch wide, petiole slender 2-3½ inches long. Spadix on a peduncle ¾ inch long. Spathe oblong acuminate boat-shaped 1½ inch long coriaceous. Spadix sessile obtuse cylindric 1 inch long, ¼ inch through. Pistils rounded hardly angled. Stigma round-pulvinate.

Sarawak: Kuching (Hewitt) Oct. 3, 1905.

A Journey into the Interior of Borneo to visit the Kalabit tribes.

By R. S. Douglas.

I propose to give a short account of a journey I recently made to visit the Kalabits, a people who had only quite recently acknowledged allegiance to the Sarawak Government, and are quite one of the most uncivilized in Borneo.

The Kalabits, who are scientifically I believe of the Indonesian race, are an agricultural people inhabiting the large tableland in the centre of Borneo from which spring the Baram, Tutau, Limbang, Trusan and Padas Rivers on the West Coast and the Bahau River on the East Coast. They are very industrious and are one of the few tribes who farm by irrigation, and are therefore able to obtain two crops of paddy in the year. They are practically the same race of people as are known as Muruts in the Trusan and Padas Districts.

In build they are above the average height of Bornean natives and are well made. They are tremendous walkers (a fact which is impressed on one by the size of their feet) and it is said by Kayans that they are capable of walking in one day what other people would take two days to accomplish. This I can quite believe, as all getting about having to take place on foot they are naturally very adept and hardy at this method of progress. They have however absolutely no idea of paddling or using a boat, and when they were first brought down to the Government station at Claudetown, and saw the Baram River, they sat down in the bottom of the Kayan canoes and burst out crying, having never seen such an enormous volume of water before.

As a lot of these people had just moved into the head of the Tutau River I determined to proceed by this route, although it meant crossing the Mulu Range of hills.

On the third day of my departure from the Government Station at Claudetown I picked up Dyau Blawing, the Kenyah

chief who was going to escort me on my journey. After leaving his house, we proceeded on up the Tutau River till we reached the Tepin River.

Here the river becomes impracticable for boats on account of rapids, so the next day we started climbing up the hills, which flank the river. We were met by a party of Punans, the wild people who live in the jungle, who had been called by Dyau Blawing to show us the route over the hills. The going was very bad and fatiguing, as we had to clamber up and down the spurs of Mt. Mulu until mid-day, when we reached the foot of a hill called Bukit Sigerun Sigop, called so by the Punans on account of the wild tobacco growing there (Sigop being the Punan name for tobacco). We did not reach the summit of this hill till 5 o'clock in the evening when we must have been at least 5,000 feet up. I decided to encamp here for the night, as we were all very tired and hungry. Cooking was managed with difficulty as there was no water to be found near the summit. It was lucky for us we had the Punans with us, as they soon produced some liquid, which they had found in a pig's bathing place and which therefore did not look very appetising; still beggars cannot be choosers, so we had to make the best of it. It was bitterly cold all the night.

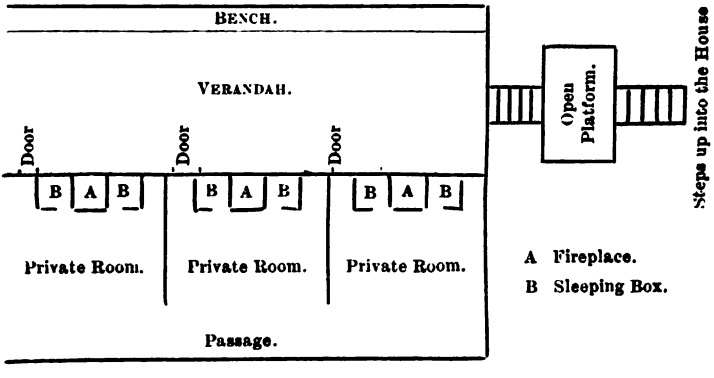
The next morning we started on the descent, and when the mists had cleared away the view was perfectly magnificent. At our feet in what seemed a crack in the hills, flowed the Tutau River whilst all round hills towered up to some thousands of feet. At midday we got through the range of hills and from a spur had a still more beautiful view. Right in front of us was the Kalabit country laid out like a map, and as this tableland is comparatively flat, we could see for miles and miles. Away to our right to the South, were the hills in which rise the Pata and Akar rivers, tributaries of the Baram. In front of us rose up Mts. Pamabo and Murud, which separate the head waters of the Baram River from the Trusan; whilst on our left were the ranges which separate the Tutau and Limbang waters.

In the afternoon we reached the Tutau River again at Long Taoh and the next day continued our journey in some canoes

we found there. We then branched off up a tributary called the Magoh and on the second day from leaving Long Taoh reached the first Kalabit villages at the mouth of a small stream called the Seridan. On our arrival we were saluted with salvoes of firing from muskets and bedils and tremendous cheering, to which we retaliated to the best of our ability. The chief Ili Bawang received us at the landing place and a sort of triumphal procession was made up to the house, where my escort were regaled with 'borak' (rice beer) and smokes, to refresh them after the fatigues of the journey.

The people of this village, who numbered some two hundred souls, had quite recently moved here from near the headwaters of the Trusan, and their chief, Ili Bawang, had evidently taken a lesson from the dimensions of the long Kayan houses in the Baram River as he had constructed a splendid house on a scale hitherto unattempted by Kalabits, whose dwellings are generally veritable hovels.

I append a sketch of the ground plan of the house.



A wall divided the house in two lengthwise; the front half was a wide verandah of about 20 feet whilst the back part was divided up into rooms, each family having a separate room. The dividing wall however did not extend to the back wall of the house, as they do in Kayan and Dyak houses, thus

leaving a passage, by which communication could be kept up from one end of the house to the other, without it being necessary to come out into the common verandah. This passage I found was used by the women, who did not appear in the verandah except on special occasions. In the centre of the middle wall was erected an enormous fireplace and on either side of this was a sort of kennel, in which the married couples slept. These were not walled in on the side next the fireplace, so as to get all the warmth possible, but of course as there was no chimney, they also got their full amount of smoke, and soot. The cold at night quite warranted these people desiring a close proximity to the fire, and I found also that a plunge into the river in the morning seemed as icy and as exhilarating as a cold bath in England.

The next day all the Kalabits collected from the villages round to the number of five or six hundred, and a grand feast was held; a buffalo and nine pigs were killed. I must admit that although the feast was a fearful orgy, still I could not help admiring the thoroughness with which these people enjoyed the meal. They began to eat at about noon and did not stop doing so until the evening and then only because there was nothing more to eat. All that was left of that buffalo were its horns and leg bones, which even Kalabit indigestion seemed to shy at. The skin I found was being eaten with the hair still on and evidently relished. Of the pigs nothing was left at all.

The meal being finished, some twenty jars of 'borak' were produced and a drinking bout was started, which lasted till day-light. Whilst this was going on, all the women, attiring themselves in their best clothes and ranging themselves in a long line one behind the other, clasping the shoulders of the one in front, began to march round the house, up the verandah and down the passage at the back and then out into the verandah again. The leader of this procession suddenly burst forth into song, whilst the others joined in the chorus, keeping time with their feet. Although their voices were rather raucous, still the song had a weird plaintive air, which was decidedly fascinating, and to which the smoky torches and wild faces made an impressive 'mise-en-scène' The song was

a historical recitation of the brave deeds done by their forefathers in the days of yore down to the present time, when they first came into touch with Europeans and the Government. The rhythm gradually got faster and faster until the march became a quick-step and then a double, whilst the soloist kept time by beating the floor with a stick. Presently the men got carried away with enthusiasm and joined on to the line behind, until there must have been a procession of over a hundred performers careering round the house, shouting the choruses at the top of their voices, but all keeping tune and time. The song then suddenly ceased, and the men returned to their drinking and the women to their duties in the rooms.

The next morning I went and visited the villages near by, but was not much impressed by their appearance as the houses seemed horrid dirty hovels. At one of these villages I saw the people having a rat hunt. All the men, women and children armed with sticks were engaged in turning over the heaps of rubbish and filth accumulated under the house in search of the wily rodent, which is considered a great delicacy by the Kalabits. Whenever a rat was seen, there was a tremendous 'view halloa' and the whole crowd flung themselves violently into the chase, frequently whacking one another in their attempts to slay their prey. They also lay very ingenious traps, made of bamboo and rattan, all over their houses to catch them.

I was very much struck with the industry of the women; they never seem to stop working and never shield themselves from the sun by means of sun-hats or head handkerchiefs. They wear a short skirt reaching to the knee just like the Dyak women. They are great smokers and are continually using a sort of brass cigarette holder, into which they stuff a little tobacco and puff away for a few minutes.

These people store their paddy in one large hut, which is raised off the ground some six feet, to prevent rats and other pests climbing up. Inside, this hut is divided into separate rooms for the different owners.

That night another meeting was held and all the different chiefs proclaimed their loyalty to the Sarawak Government.

Dyau Blawing then toasted the Kalabit chief Ili Bawang to the rousing tune of the Kayan drinking song which with its rolling chorus was much appreciated by the Kalabits. Opportunity is taken during these extempore songs to tell the individual who is toasted the customs of civilized Government and to make certain trite remarks as to his former life and conduct, which he must now reform.

After this was over they settled themselves down to drinking, in which occupation every night was spent during our visit there. I noticed that when a drink was offered to any man, all the people near by caught hold of the arm of the giver, those further off catching hold of the arms of those nearer, thus making the drink appear to come from all of them and so the harder to refuse. If a chief was being offered one it often happened that some thirty or forty persons would collect round him to assist in forcing the liquor down his throat.

The Kalabits were the most generous of hosts, and whilst we stayed with them we wanted for nothing in the way of food, and every day presents of fowls, eggs, sugarcane and sweet potatoes were brought to us. They seemed genuinely pleased to see us and compared favourably their life under the Government to their former one further in the interior, with its constant alarms of war and rumours of war.

On the fourth day I received their poll tax, and, as dollars or coins of any sort were unknown in these regions, it had to be paid in rubber; every married man therefore paid in three katties of rubber.

The next day we started on our return journey. We were escorted down to the landing place by the whole population, and amidst the banging of guns and repeated expressions of 'au revoir' and wishes for a safe journey, and the usual accompaniment of cheering, we started down-river.

Our return was very different from the journey up; there was no hard poling and pulling up rapids, for with our experienced boatmen, these were shot with ease in quick succession.

At midday we reached the mouth of the Magoh River and here I had arranged for a meeting of all the Punan tribes who range through the dense jungle round here. We found about

fifty of these strange wild people awaiting our arrival. They live entirely on the produce of the jungle. Wild sago and fruit constitute the greater part of their food. When they find a clump of wild sago they encamp there until it is finished and then move on in search of more. They work the sago in the usual way by felling the trunk and then splitting it in two, then the pith is scooped out with a piece of bamboo tied on to the end of a stick. The end of the bamboo is scraped until it presents a sharp edge which easily works through the soft pith.

Their chief weapon of offence and defence is the deadly blowpipe, from which they shoot out poisoned darts. With these they kill pig and deer, and even rhinoceros have been known to die from the effects.

We spent the night at Long Taoh, as Dyau Blawing had decided to attempt to shoot the rapids below here, the water being just the right height to enable us to do so; as if the water is too high the waves are so big that a canoe could not stand them; whilst if the water is too low the sharp edged rocks show up, making it too dangerous to proceed.

This was a great piece of luck, as it saved us making the ascent of Bukit Sigerun Sigop again, and thereby we gained a day, to say nothing of escaping the trouble and labour of the climb. Besides this we had the exciting experience of shooting the dangerous rapids through the gorge, about which I had heard so much; and was glad of having the chance of seeing them.

We started early the next morning and soon got to the mouth of the gorge, where two spurs of the mountains, one from each side, run down to the river and form a narrow gateway about twenty yards broad. As the river above this place is about a hundred yards in width, it can be imagined the pace at which the water pours through this narrow neck. We held on to the rocks here whilst the appearance of the water below was examined. It was a wonderful sight looking down the gorge. The river ran pretty straight at first and one could see for about a mile the water pouring down between cliffs, which rose perpendicular to the height of two or three hundred

feet. The man in the bow of the canoe, apparently being satisfied with the state of the water, pronounced that the passage was possible and with a final injunction to sit still and hold tight, we let go and started off. Then ensued one of the most exciting times I have ever experienced. For five hours we simply flew down between those cliffs, without a single stroke of the paddle to assist us, except a quick touch every now and then from the men in the bows and stern to keep the boat straight or to avoid a rock or whirlpool. It was breathless work and nobody seemed inclined to speak, but all attention seemed to be strained as to what was going to appear round this corner or that rock. On we dashed between those grim cliffs on which there was absolutely no foothold to be gained if the boat happened to upset. It gave one the idea of what one would imagine the river Lethe (Long Balek Mati, the River of Death, as the Kayans call it) to be like; although the sun was shining brightly above us still it was chilly and dull down in the gorge between the grey limestone cliffs, whilst the mountains towered thousands of feet above us, and absolute silence reigned, except for the hiss of the rushing waters; and no sign of life was visible.

Just before noon a small cleft in the cliffs on the left bank appeared, where the Maap stream tumbles down a valley between the hills and manages to burst its way through the rocks. This being the first place when it was possible to obtain a foothold, we got out and ate a hurried lunch, the water and weather being closely watched, as a heavy shower of rain would have caused the river to rise several feet and we should have been caught in a trap, unable to proceed up or down-river. Happily luck was still with us, and having finished our meal, we continued our career downstream. After about an hour we heard the roar of waves, which warned us that we were approaching a large rapid, and we quickly pulled into the bank, where, luckily, the cliffs were broken down, and, the pilot having pronounced that it was impossible to shoot this rapid, we carried all our luggage and hauled our canoes over the rocks to a place below the rapid. This proved very hard work as some of the rocks were thirty to forty

feet high, and in one place where there was no way between the rocks, we had to pull the boats up the perpendicular face and let them down again the other side, dangling on to the ends of rattans. This process was repeated four times before we got through the gorge and reached our old encampment at Long Tepin, so it can be understood that we were very hungry and tired.

Each one of us, I think, heaved a sigh of relief when we got through the gorge and had left those grim grey cliffs behind; and for myself I am sure that, although the journey was a unique and exciting experience, still I have no immediate wish to repeat it. The grimness and solitude to which I have already referred were too awe-inspiring to make it exactly enjoyable. How it affected my followers was shown by the fact that, although the Kenyahs are inveterate smokers and are never without a cigarette between their lips, not one of them had touched tobacco the whole of that day.

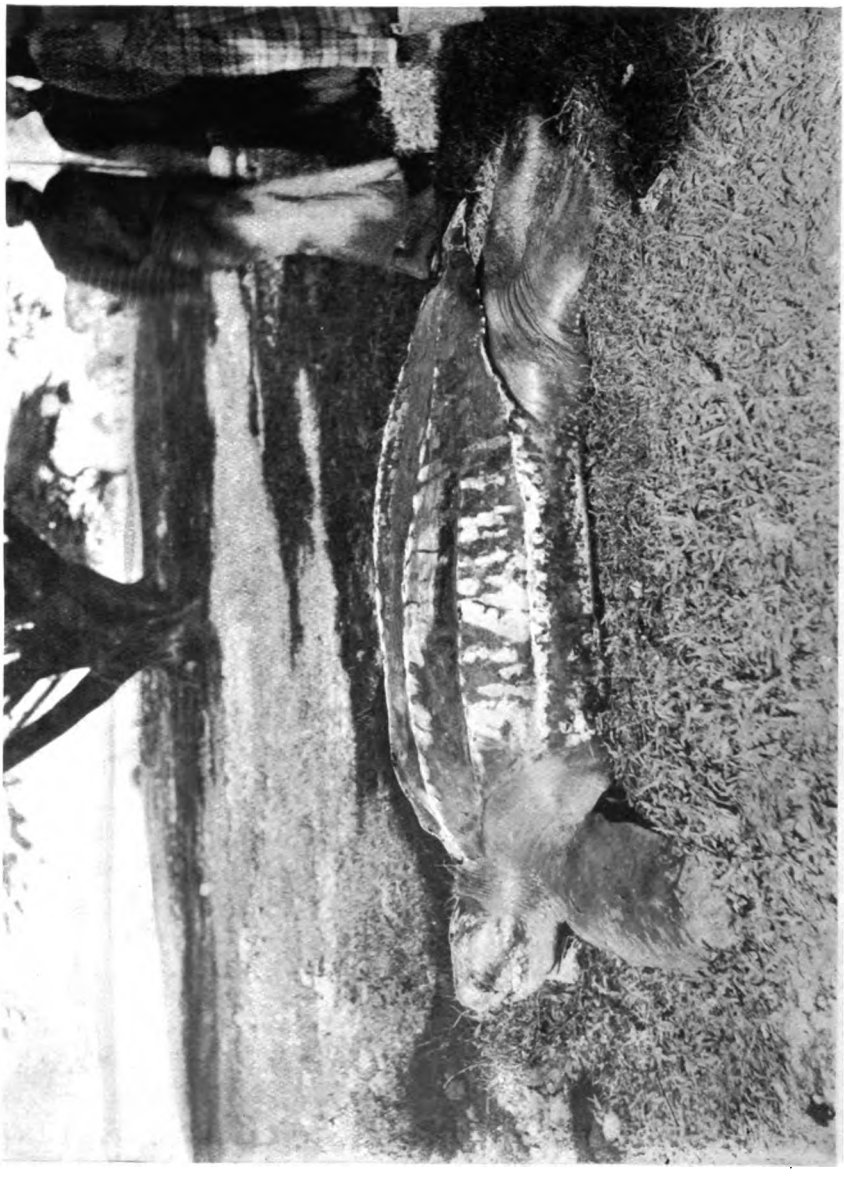
What also struck me was the terrific pace at which the water ran through the gorge, and although I have been up rapids in the Baram River and up all its larger tributaries, still I have never seen the pace equalled. It is accounted for by the fact that the greater portion of the gorge is never more than about 40 yards broad, and the cliffs on either side are worn so smooth that there is absolutely no resistance aquainst this large volume of water. The natives aptly resemble it to "pouring water through a bamboo." When we had reached Long Taoh, we were much troubled with the rubber which I had received as tax from the Kalabits, as it loaded the canoes down too much to enable them to go safely through the gorge. Dyau Blawing persuaded me to allow them to despatch it in the way they sent their rubber through, when they had been trading with the Punans. I reluctantly agreed, and it was immediately strung piece by piece on to a long rattan until it made a huge rope about 50 yards long; it was then wound up in a gigantic ball about 9 feet in diameter, just like one winds up a ball of worsted. Just before we started this ball of rubber was pushed into mid-stream; Dyau Blawing promising that I should find it on the morrow ashore on a gravel bank near the Iman River.

On our passage through the gorge nothing had been seen of the rubber, so my anxiety was great. But on the morning after leaving Long Tepin, we reached Long Iman, and there, sure enough, on the gravel bank was the ball of rubber which proved to be none the worse for its rapid voyage. I was assured that this had been done hundreds of times with rubber and it always fetched up at Long Iman, even if it was occasionally detained by rocks or whirlpools. Once a ball of rubber stuck in the gorge for 6 months and its owners gave it up for lost; but it eventually turned up rather battered and broken at Long Iman.

From here homewards there was nothing of interest in my journey, and after leaving Dyau Blawing and his escort at their village, I proceeded on and reached Claudetown after an absence of seventeen days, the return journey having only taken four days.

R. S. Douglas.

Note :—The term 'Long' which is used, is a Kayan word meaning the mouth of a river. Thus Long Taoh and so forth.



Leathery Turtle (side view).

Notes on the capture of a rare Leathery Turtle (*Dermochelys coriacea*) in Johore waters.

C. Boden Kloss, F.Z.S.

Whilst residing at Johore Bahru in 1905 a specimen of the rare Leathery Turtle (*Dermochelys coriacea*, L.) was brought to me by Malay fishermen who had found the reptile entangled in their fishing stakes at Kampong Batu Jawa in the Johore Strait on March 11th of that year.

According to their account of its capture, for several days previously, the screens and nets of their *kelong* had been broken and torn by some unknown agency that at length, at day-break of that morning, proved to be an immense turtle of a kind unknown to them which had entangled itself beyond escape in the material of the damaged fish-trap. For a time they were at a loss to know how to dispose of their unwieldy capture, but finally brought out a large lighter which, filling with water, they sank beneath the turtle; then by baling out the water, the latter was soon reposing on the bottom of the dry boat, where unfortunately it shortly expired and was left exposed to the heat of the sun's rays until it reached me at three o'clock in the afternoon.

Getting it ashore was an operation of some difficulty for it was impossible to grip the creature in any way, and it was not until I had collected a gang of ten Chinese coolies furnished with poles and ropes that it was finally lifted from the boat and up the steps of the sea-wall.

The weight of this turtle—a male—I estimated as between nine hundred and one thousand pounds and the principal measurements taken were as follows.

Total length in straight line from tip of head to tip of tail	234 cms.	(7 ft. 8 in.)
Extreme breadth of carapace	84 ,,	(2 ft. 9 in.)
,, ,, between tips of extended flippers	240 ,,	(7 ft. 10 in.

In colour the upper surface was black, mottled with pinky white, while the lower parts were principally yellowish, scantily blotched with dark brown.

The carapace and plastron presented a mosaic-like appear ance; the remaining parts were covered with smooth skin, that of the head being entirely free from shields of any nature as is sometimes reported.

The contents of the stomach consisted mainly of small fishes, prawns and other crustaceans, mixed with a lesser amount of different vegetable substances.

So little is this turtle known locally that it was some time before I could obtain a name for it, but at length the word "kambau" was given me with the additional information that the term also applied to anything slow or sleepy, such as a *prau* in a calm, or light head-wind.

Various circumstances, besides its already somewhat putrid state, prevented me from preserving this valuable specimen in its entirety, but early on the following morning I obtained a number of prisoners from the gaol and with their help got out the skeleton. The flesh, though said to be of a rank and unpleasant flavour, was eagerly begged for by numerous Chinese as soon as stripped from the carcase. The novel appearance and huge size of the reptile were causes of much attraction, and all the afternoon during which it was lying on the sea-front, it was a centre for crowds of interested people.

Though the species is widely distributed through tropical seas (and is occasionally noted outside such areas) I know of only one other example captured in our locality, and this—a much smaller specimen—was forwarded to the Raffles Museum, where it is now exhibited, by Mr. A. M. Skinner who obtained it at Tanjong Katong, Singapore, in 1884. The Johore specimen may therefore take rank as the second recorded capture in this part of the Malayan seas.

A full account of the anatomy of the Leathery Turtle, based on the investigation of a small Japanese specimen, appeared in a recent number of the P. Z. S. (1905, Vol. I Pt. II) but my photographs of this locally-obtained individual

Leathery Turtle.

are reproduced here as hitherto illustrations of this species have given in general a far from accurate representation of its appearance.

Leathery Turtle (Head).

Malayan Pigs.

A Recent Zoological Paper.
G. S. Miller's "Notes on Malayan Pigs."

By C. Boden Kloss, F. Z. S.

One of the most recent of publications dealing with the fauna of the Oriental region is a most interesting and valuable paper by Mr. Gerrit S. Miller, which throws a fresh light on the varieties and distribution of the pigs of the Malayan area.

"Notes on Malayan Pigs" * is based on a quite unique collection of 62 specimens from the Malayan Peninsula and Islands, presented to the U. S. National Museum by Dr. W. L. Abbott, and a small contribution of 4 specimens obtained in Johore by myself. In addition to having all this material to work upon Mr. Miller has also examined the types and collections in the Natural History Museums at Berne, Berlin, Leyden and London.

Excluding the Javan species (as not being yet represented in the U. S. N. M. collection) the pigs of Western Malaya are broadly defined as belonging to one or the other of three groups typified as the Barbatus group, the Cristatus group and the Vittatus group.

In the first group, the "bearded pigs," of greatest local interest perhaps is *Sus oi*, Miller, the species which occurs in the Sumatran area, and is, so far, known from the swampy plains of south-eastern Sumatra, from Banka and from the Rhio Archipelago, where, inhabiting Pulo Battam, it most closely approaches the Straits Settlements.

The other members are *Sus barbatus*, Müller, of Borneo, with which Mr. Miller finds *Sus longirostris*, Nehring, to be

* Proceedings of The United States National Museum, Vol. XXX pages 737-758, with Plates XXXIX—LXIV.

synonymous, and a new species, *Sus gargantua*, founded by Mr. Miller on the skull of a young adult male from south-eastern Borneo. This, besides being the largest of known living pigs (upper length of skull of *young* adult 570 mm., of *old S. barbatus* 510 mm.), is further distinguished by having its extremely low occipital region produced backwards to a degree quite unknown in others of the group.

The members of the Cristatus group are confined to the mainland and the near-by islands. It has long been thought that the wild pig of the Peninsula was the same as the *Sus cristatus*, Wagner, of India proper and when writing a note on the Sumatran *Sus oi* for the Journal (No. 45, p. 60), I stated that "only one species of wild pig is at present known to occur in the Malay Peninsula and that is the animal regarded as identical with *Sus cristatus* of India," but it appears that the animal ranging from Tower Tenasserim southwards must now be separated from the Indian form. It is now described under the name of *Sus jubatus;* and to a form from Pulo Teratau, and perhaps other islands off the west coast of the Peninsula, that is like *jubatus* but not as large, Mr. Miller has given the name *jubatulus*. It is unfortunate however that in making into a separate species an animal that inhabits a shoal-water island situated close to the mainland, the author has only one example to work upon.

The pigs of the Vittatus group are purely insular except one new species from the southern extremity of the Malay Peninsula. They range from the Andamans and Nicobars in the west to the Natunas in the east. The typical *Sus vittatus*, Müller and Schlegel, inhabits the mainland of Sumatra and the Rhio Archipelago form now becomes a separate species under the name of *rhionis*. The largest known member of the group, which is specially interesting as inhabiting the Asiatic mainland (so that the Peninsula is now found to possess at least two peculiar pigs), occurs in Johore. This is *Sus peninsularis* and presumably the pig of Singapore Island is of this species also.

The remaining species of this group are widely distributed. On Pulo Nias, on Pulo Babi together with Pulo Tuanku and lastly on Pulo Simalu, all islands of the West Sumatra chain,

are found respectively *Sus niadensis*, *Sus babi* and *Sus mimus* all described for the first time. The animal that occurs in the islands of the Natunas between the Peninsula and Borneo is *Sus natunensis*, Miller, while *Sus nicobaricus*, Miller, is known as yet by specimens from Great Nicobar Island only. The smallest member of the group—smaller even than *nicobaricus* or *minus*, is *Sus andamanensis*, Blyth. from the Andaman Islands.

The paper contains full descriptions, keys and measurements, and is illustrated by many plates (amongst which are reproductions of a mounted *Sus barbatus*), of mandibular teeth and skulls in various aspects, all of which greatly facilitate the identification of the different species.

Mantra Gajah.

By W. George Maxwell.

In an article, which I contributed to the Society's Journal No. 45, and in which I gave a translation of a book of charms used by Malay elephant-drivers, I mentioned that I had in my possession another book of similar charms.

It consists of six sheets of stout paper, sewn down the middle so as to make a small book of twelve sheets or twenty-four pages. The outer cover has been stained a rich chocolate colour by the moisture of warm and perhaps not over clean hands and by the smoke of the fire-places over which the Malays keep, in hanging racks, the articles which they wish to preserve from damp. There is nothing in the book or on its cover to give any idea of its age, and Mat Jawi, the Assistant Penghulu of Kuala Plus, who gave it to me, could only say, in general terms, that it was old, and that it had been in his family for a long time. Mat Jawi is the grandson of the former Orang Kaya kaya Sri Adika Raja, and, as the book of which I have already given a translation is expressly stated to contain the hereditary lore "that has come down from the Datohs Sri Adika Raja unto the present day," it is only to be expected that the charms set forth in the two books should closely resemble one another. This book begins abruptly without an introduction of any kind, and ends even more abruptly by reason of the available space on the paper being exhausted. In the last line, the writer started to give a charm to soften the heart of an elephant, and then, seeing that he had no more paper, scratched it out, and scribbled under it "tamat" "the end."

I here reproduce the book in its entirety in "roman" characters. I have not attempted to edit it in any way, of such part of it as is Malay no translation is necessary, and of such part of it as is not Malay I am unable to give a translation. I am inclined to think that the non-Malay charms are nothing but a corrupt form of Siamese, and to ascribe to

them a much more recent period than I had suggested in my first article.

It is impossible to say when the Siamese first came down the Peninsula in search of elephants. Their own country has always been richly stocked with elephants; and at this day, from all accounts, there roam through the forests, in a semi-wild condition, herds of these great animals for which there is little or no commercial use. It is unlikely, therefore, that the Siamese should, at any early period, have gone far afield in search of animals for which there was but little demand in their own country; unless, of course, the search was one that was being made for the sacred white elephant.

It was perhaps not until the development of India and Burmah caused a demand for elephants for state ceremonies and for business purposes, and created a trade between Siam and these countries, that the Malay Peninsula was laid under contribution to supply elephants.

This trade in elephants was particularly referred to by Gemelli Careri, who in 1695 went from Goa to Malacca. He wrote in his "Giro del Mondo" (Vol. III. pp. 358, 359) an account, which is translated in Churchill's Voyages, Vol. IV. p. 284, as follows:—"all the country of Malacca, Cambaya "Siam, Ciampa, Cocincinna and Tunchin abounds in elephants "of which the Siamese particularly make a great trade, carry-"ing them by land to the opposite coast and port of Tena-"zarin, belonging to the King of Siam, near the Gulf of Bengala, "where merchants buy to transport them by sea into the "dominions of Mahometan princes."

The extent to which this trade in elephants grew is shewn in the records of the India Office. The following notices of ships with elephants arriving at the port of Masulipatam, from Tenasserim alone, are taken from the Diary and Consultation Book of that factory.*

April	25	1680	A	ship	with	elephants	
May	3	1680	A	ship	with	16	,,
April	21	1681	,,	,,	,,	13	,,

*Anderson's "English Intercourse with Siam in the Seventeenth Century" p. 20.

Feb.	21	1682	,,	ship	with	15 elephants.
Feb.	22	1682	,,	,,	,,	15 ,,
Feb.	22	1682	A	,,	,,	11 ,,
April	20	1682	,,	,,	,,	6 ,,
April	22	1682	,,	,,	,,	4 ,,
March		1684	Two	ships	,,	46 ,,
April		1684	A	ship	,,	12 ,,
April		1684	,,	,,	,,	20 ,,

The Siamese who ransacked the Malay Peninsula to supply this surprising demand for elephants probably used the *Mantra Gajah* that are recorded in these manuscripts. But whether it was in the Seventeenth Century that the Malays learnt these *Mantras*, or whether their acquisition of this lore dates from a period before it or after it, can, until further information on the subject is forthcoming, only be matter for conjecture.

Mantra Gajah.

Bab ini hendak tiup tentang atau di-bacha pada batu di-limpar-kan pada gajah itu.

Ini-lah di-kata-nya

Om kundanga ding kundanga sai teluwang tekulin dipin-tai rambut teluling di-hadapan tibalulon kakanan tibalulun kakiri sikab piah nenek-mu.

Hai gajah aku tahu asal angkau mula menjadi,
Merkubulia ka-mulia asal mu,
Kau turut kata,
Jika tiada turut kata ku,
Mati di-bunoh Sri Rama;
Jika angkau turut kata ku
Di-hidupi uleh Maha Risi. Kul.

Ini melembut-kan hati gajah di-bacha pada tebu tiga krat Ini-lah kata-nya,

Om darang muka-nya darang darang lang-li muka-nya langli telon changku kan kusa mu hati-ku akan chucha-mu lidah kau akan sangkal mu tendurong kakanan tenduron kakiri tundok chinta kapada aku puah rab.

Bab ini buang hantu rimba. Ini kata-nya.

Om berang berat pikat pikau rambin perai siah pindah leku turun luwai hantu rimba puah rengab. Pada tiga likur bulan Safar pada hari malam khamis, ini pematah hati gajah barang biut-nya mau katahui asal-nya kata-nya.

Hai Adam lemit aku tahu asal mu,
Allah Tuhan mu,
Nabi Muhammad penghulu mu,
Siti Hawa nama ibu mu,
Nan Pachi nama mu,
Jusan nama aku,
Jangan angkau derhaka pada aku,
Jika angkau derhaka kapada aku,
Sarupa angkau derhaka kapada Piarawan.

Fasal pada menyata-kan segala ubat penyakit gajah. Pertama ini ubat besar deripada Pijang, pertama ambil akar pesambu dan daun-nya, dan pesambu kayu ambil akar-nya, dan daun-nya, dan akar chanerai hitam, dan akar chichir, dan akar pianggu, dan akar pulai, dan akar rotan dini, dan akar rotan tetawar, dan akar tutop bumi, dan akar panggai panggai, dan akar jerun, dan akar kuchai, dan akar gelenggang, dan akar kedudok dan akar paku, dan akar tambun tahi, dan akar temu.

Bab ini patih kusa; ambil daun kekiat segenggam, herat gosokkan pada kapala gajah dengan kusa-nya sakali.

Bab ini ubat tuai, maka ambil sampah yang lekat kapada kayu yang ter-gerak-gerak di-ayer itu, maka per-habu harang buboh minyak, maka sapu-kan pada ekor gajah itu.

Bab ini ubat gajah tiada mau bernang, maka ambil kiambang, maka per-habu harang buboh minyak maka sapu-kan kapada gumba-nya, dan piah-nya kiri kanan.

Bab ini ubat gajah tiada mau tidor di-ayer maka ambil lumut yang lekat di-pangkal-pangkal prahu orang, maka per-habu harang maka buboh minyak, maka sapu-kan pada gumba-nya dan piah-nya kiri kanan.

Bab ini ubat membuang geli gajah, maka ambil ulun merah sa-genggam herat, maka gosokkan kapada gumba-nya, dan piah-nya kiri kanan.

Bab ini ubat gajahiya-itu maka ambil daun labu yang naik pada rumah orang, maka mengambil dia itu churi jangan di-tahu uleh tuan-nya, dan timba perigi orang itu pun churi juga, maka per-habu harang maka bubok minyak gosokkan pada belalai-nya.

Bab ini ubat pelambut hati gajah, maka ambil asin asin sa-genggam herat, maka gosokkan pada piah-nya kiri kanan.

Bab ini ubat orang kena chemahang, maka ambil getah merbau yang muntah-kan darah ambil dengan tanah-nya sakali dan chemara putri dan mempalas dan ayer buku kayu dan ayer kubang babi, maka ramas sakelian-nya itu maka limau-kan kapada orang yang kena chemahang itu 'afiat uleh-nya.

Bab ini ubat gajah kena kesar api ambil akar jenjuang merah dan ambil umbut tebrau dan daun limau nipis dan maswi bawang merah kunyit terus dan lada sulah, maka mamah dengan sirih pinang, maka sembor tujoh petang 'afiat.

Bab ini ubat gajah kesar ambil akar bunga raia dan akar jerangau mamah dengan sirih pinang sembor tiga petang 'afiat.

Bab ini ubat gajah sakit perut chirit, ambil kulit pauh dan buah asam jawa, dan kulit kebantong dan kulit jambu ayer, dan kulit sena dan langkinang atau kulit-nya sakelian-nya itu di-tumbok lumat-lumat beri makan gajah itu serta dengan garam siam 'afiat.

Bab ini ubat gajah makan tanah, ambil chaching dan tanah lembah; ada pun chaching itu di-rendang dahulu sudah itu champur dengan tanah lembah itu, makan beri makan gajah itu tiga petang 'afiat.

Bab ini ubat gajah bengkak kaki-nya atau tuboh-nya, ambil halia dan kunyit dan limping dan kunyit terus, maka giling lumat-lumat buboh garam siam maka hangat-kan pada api chamur-kan kapada gajah itu barang tiga petang 'afiat.

Bab ini ubat gajah ter-salah, ambil daun gelenggang dan daun raminggu dan daun asin, asin semua-nya itu rendang kring kring buboh minyak buboh di-dalam tempurong hangat-kan pada api, maka chamur-kan pada gajah sakit itu barang tiga petang atau tiga hari 'afiat.

Bab ini ubat hendak beri gemok, ambil kulit badak dan garam siam maka rendam-kan kulit badak itu dan garam siam

itu kapada ayer madu, maka beri minum gajah itu barang tiga hari.

Bab ini ubat gajah hendak gemok maka ambil buah pedindang dan garam siam, maka rendam-kan pada ayer madu beri minum gajah itu barang tiga hari.

Bab ini ubat tiada mahu trum, maka ambil akar kuchai yang jantan makan dengan sirih pinang sembur kapada segala siku gajah itu barang tiga hari.

Bab ini ubat gajah mata ber-ayer, maka ambil buah mating bakar hangus hangus, maka asah dengan ayer limau nipis, maka buboh pada mata gajah itu.

Bab ini ubat tiada patih kusa, ambil amas dan perak dan tembaga dan besi, maka rendam pada ayer maka mandi-kan kapada kepala gaja itu serta dengan kusa-nya barang tiga hari.

Bab ini ubat membunoh segala penyakit di-dalam perut gajah, maka ambil terong perat yang masak dan lengkuas padang dan garam siam dan kulit melak, maka kita belah terong itu dan lengkuas itu tumbok lumat lumat maka kita buboh di-dalam tebu atau pisang, maka kita beri makan gajah itu barang tiga hari.

Bab ini ubat gajah melenggang, ambil akar gelenggang dan akar terong asam, maka makan dengan sirih pinang sembur-kan kapada gumba-nya dan pipi-nya kiri kanan lalu pada buah anchar-nya kiri kanan barang tiga petang.

Bab ini ubat pengasih gajah yang liar akan gajah jinak maka ambil akar tutup bumi maka kita makan dengan sirih pinang, maka kita semburkan kapada dahi gajah kita dan gumba-nya dan pipi-nya kiri kanan dan telinga-nya maka lepas-kan-lah gajah kita itu.

Bab ini ubat gajah kena kesar ayer, ambil jenjuang puteh umbut-nya dan kulit bonglai dan kunyit terus, maswi bawang merah dan lada sulah, maka sembur saperti dahulu juga.

Bab ini akan jarang karang ambil buah kabong dan pisang benggala dan umbut chiru maka tumbok lumat lumat rendam di-dalam pasu jaram-kan kepala gajah itu. Ini-lah mantra-nya

Om kat ti-u tawi sak.

Bab ini ubat gajah beri pulang sendiri, ambil tungku rumah orang tinggal dan tangga-nya dan bendul-nya maka beri makan gajah itu dengan tebu barang tujoh hari.

Bab ini ubat kena besir, ambil kunyit terus hitam dan puteh, dan tanah lembah yang hitam dan umbut terau, maswi, bawang merah, lada sulah, maka masok kapada tebu atau pisang maka beri makan.

Bab ini ubat gajah hendak gemok ambil temakol dan pusat buaia beri makan gajah itu di-dalam ayer hingga lembong perut-nya serta garam siam dan kapada bulan tiga-belas atau lima-belas sudah-nya temakol dengan kulit buaia itu jemor kering kering.

Bab ini ubat gajah tiada mahu makan maka ambil lengkuas dan akar pisang pisang tumbok lumat lumat, maka beri makan serta garam siam.

Bab ini ubat gajah hendak gemok, ambil patawali dan akar terong perat dan akar terong pipit dan akar terong asam dan akar mentajam chinchang lumat lumat serta garam siam rendam kapada bekas, maka beri minum gajah itu. Sabagai lagi ubat gajah gemok ambil jenjuang besar dan jenjuang puteh dan akar betik dan akar mentajam, maka beri makan serta garam siam.

Bab ini ubat gajah sejuk kena penyakit, ambil akar terong asam dan akar rotan dini dan akar chekor jerangau dan akar jenjuang merah dan akar kunyit terus dan bawang merah lada sulah, makan dengan sirih pinang sembur kapada selerah tuboh gajah itu.

Bab ini jika gajah kena sakit hangat ambil daun tetawar dan akar nior dan akar tebu betong dan akar jenjuang puteh dan akar chiru dan akar rotan tetawar mamah dengan sirih pinang sembur selerah tuboh gajah itu.

Bab ini ubat gajah kesar ambil buah kayu yang lekat pada pasir merah warna-nya, beri makan serta garam siam barang tiga hari. Danlagi ubat kesar ambil daun sunting hantu dan daun mentajam dan daun pinang tumbok buboh kapor tuhor bedak-kan pada tuboh gajah itu barang tiga hari.

Bab ini ubat membunoh biar di-dalam perut gajah, maka ambil sendawa dan jemuju kharsani beri makan gajah itu 'afiat.

Bab ini fasal pada menyatakan nama penyakit gajah.
Per-tama-tama, jika bengkak hujong belalai gajah itu,
Mersud nama penyakit,
Dan jika bengkak di-bawah dagu-nya,
Merchun nama penyakit,
Dan jika bengkak gumba-nya,
Mertab nama penyakit,
Dan jika bengkak mata-nya,
Mer-ka-but nama-nya,
Dan jika bengkak pada telinga-nya,
Keron nama penyakit,
Dan jika bengkak di-dalam perut-nya,
Merpun nama penyakit,
Dan jika bengkak pada supek karong atau shahwat-nya,
Mertemu nama penyakit,
Dan jika bengkak sabelah kaki-nya,
Mernu nama penyakit,
Dan jika bengkak kedua kaki-nya,
Maratalum nama penyakit-nya,
Dan jika bengkak jubór-nya,
Merchap nama penyakit-nya,
Dan jika bengkak hujong ekor-nya,
Merpahat nama penyakit-nya,

Dan jika bengkak belalai-nya, ubat-nya ambil daun langkudi dan daun peria, daun labu kentang, dan tahi lembu, kapor tahor dan garam semua-nya itu pipis lumat lumat tampalkan pada bengkak itu,

Dan jika bengkak gumba-nya itu,
ambil kulit remunggai dan kulit dedap dan kulit lemping dan kunyit terus dan lengkuas padang dan limau nipis, maka tumbok lumat lumat, maka rebus hangat sapu-kan pada gumba-nya, dan bengkak di-bawah dagu pun ubat ini jua. Dan lagi ubat bengkak mata-nya maka ambil kulit lembu dan kapala arak dan daun peria dengan akar-nya dan daun langkudi dengan akar-nya dan daun labu gantang dengan akar-nya, maka bakar kulit lembu itu hangus hangus sakelian-nya itu tumbok lumat lumat champur dengan kapala arak, maka bubohkan kapada yang bengkak itu neschaya semboh uleh-nya, dan

jika gajah bengkak telinga-nya maka ambil buah asam jawa dan buah limau kerbau, limau purut, limau manis, limau kerat lintang, maka sakelian itu ambil daun-nya dan akar-nya chin-chang lumat lumat rebus kapada api, maka tuang dengan hampas-nya kapada bengkak itu barang tiga hari.

Bab ini pada menyatakan laksana gajah,

Jika ada gajah itu ber-jalan saperti lembu ber-tuah gajah itu,

Dan jika gajah itu ber-jalan saperti kuda atau pelandok gajah itu ber-tuah.

Fasal pada menyatakan tuah gajah,

Apabila gajah itu mengerab telinga-nya ber-temu di-hadapan dan belalai-nya sampai ka-tanah dan gading-nya dekat dengan tanah selak nampak-nya lima lapis atau tiga lapis kuku-nya dua puloh, dan shahwat-nya sampai ka-tanah, dan ekor-nya sampai ka-tanah gajah itu chalaka.

Bab ini pri menyatakan chelaka gajah,

Jika hitam langit-langit gajah itu atau bukor lidah-nya chelaka.

Atau yang kelong gajah itu bidak dua belas chelaka-nya

Atau kuku-nya anam belas,

Atau ekor tiada gajah itu chelaka.

Atau bidak di-bawah dagu-nya rupa-nya merah,

Atau di-telinga-nya gajah itu bidak chelaka,

Atau di-bawah perut-nya bidak chelaka

Atau ekor-nya yang helong tiada baik.

Bab ini pri menyatakan kapada masa iya makan atau minum jangan di-sembur-kan-nya biar-lah dengan per-lahan lahan juga, jikalau ada lebih di-makan-nya itu di-letakkan-nya di-hadapan-nya gajah itu baik.

Bab ini pada menyatakan bangsa gajah,

Per-tama-tama, Mersan nama-nya gajah itu tinggi-nya dua belas hesta, akan bangsa gajah itu deripada Membang.

Jika tinggi-nya anam hesta, bangsa gajah itu deripada Dewa,

Jika tinggi-nya lima hesta gajah itu, bangsa deripada Indra,

Jika tinggi-nya lima hesta gajah itu, bangsa-nya deripada Bangsawan,

Jika tinggi-nya lima hesta, maka yang ter-sebut saperti di-dalam temrai nu 'aini tarong sikan.

Jika gajah itu gading-nya angkat sabelah kanan gajah itu mata-nya puteh gajah itu ber-tuah.

Dan jika gajah itu bulu ekor-nya puteh gading-nya angkat sabelah kiri gajah itu tiada baik. "Finai" nama-nya.

Jikalau gajah itu gading-nya angkat sabelah kanan, "Tink" nama-nya gajah itu, tetapi baik.

Jikalau gajah itu hitam gading-nya dan sabelah puteh, chelaka gajah itu.

Ada pun gajah yang baik gading-nya puteh kadua.

Bab ini kita hendak menarek tunggal,

Jika tunggal itu tiada mahu mengikut, ini-lah mantra-nya, maka ambil tanah tiga kepal, atau barang yang patut dapat di-makan gajah itu, maka mantra-kan dengan mantra ini, maka di-lontarkan kapada gajah itu. Ini-lah yang di-bacha-nya,

Ma-tapu chum-kan midun yoh ka-yau ambi kawan teng-wan wan pirak dut pirak situn duraja cham-kan lan teng nura ambi kewat tengwan wan.

Bab ini jika kita di-hambat tunggal. Ini-lah mantra-nya

Tut tahai chati chatang lipu tut hai.

Bab ini jika hendak menjerat gajah di-dalam hutan atau di-dalam kubu, atau membuka hutan atau kubu,

Ini-lah mantra-nya,

Am kanching kandui kaikitai karum kau chakan tang-langkan langka peryumaha pau Sidi-kan guru ombak batiya.

Bab ini kenaling kambing hutan, ini-lah kenaling-nya

Om yang chong bang dai bang tu bang ru bang tipal yang kemun kamaya om shar wa bang sidi-kan guru om buk batiya.

Bab ini ubat gajah supaya berani ber-juang maka ambil akar leletup dan akar panggil, maka tumbok lumat lumat buboh di-dalam tebu beri-kan gajah itu makan barang tiga hari neschaya berani uleh-nya.

Bab ini jika gajah itu cherdek, pertama ambil kulit remunggai dan kulit asam jawa dan buah-nya yang masak ambil ayer limau nipis dan ayer tebu, maka buboh di-dalam rumput beri-kan makan neschaya 'afiat uleh-nya.

Bab ini ubat mantra suku,

Tima safaha charu s'osi ra ara saufa katu yash a sema kankha teru kiseru asam pintu.
Ada pun sakelian ubat itu, ini-lah jampi-nya maka di-hambuskan tiga kali.

Bab ini mantra membuang perai,

Om biranduk randai kaparai perai pundum nichampaling cham chik irak ku wan cham yut nacham-mu lang mu terung kuk miter muchang teping tau peria munteri puah,

Om chating ting chaketang telang kau chung-kan yet kuta yet kau naret terat tuanku suroh luloh lulai peyak tau ter u yerwon bat teha teraua biba yun tahom yaman changrai miok keta wie.

Bab ini membuang hantu kambing hutan,

Om bing bing bangtu bang dai bangti pada bang kamut meya om rengab serpa rengab.

Bab ini mantra perabun gajah,

Om pan pang maha pang pit om tau tau sahom siti kertana sahom om sauhom.

Bab ini perengab,

Om rengab chang rengab dzai rengab pitai piyat yakrom rengab per-yom apom rengab rungkang karamai rengab pada payaman pong om rengab maha rengab sidikan guru om bok batiya.

Bab ini mantra gajah naik rengka

Om pat maha pat chailaku pat kuru hei mihan changrai mayu tani.

Bab ini mantra mengarang-kan tali rotan

Om kan kat changra mau kau ikat pekarangku.

Bab ini jika menjerat gajah yang besar, maka di-tahan sidin itu maka di-sembur dengan kunyit terus kemdian di-kunchi-kan mata sidin itu. Ini-lah mantra-nya.

Om yok bat kau chabat diran dai bau bangkat chang pacha nangkrai om maha risi si bok katarak tanta pongtala cha nangai aurab rab perakamtu rengab, maka lalu disemburkan dengan kunyit terus lalu di-tahan.

Bab ini jika ber-kubu gajah bacha-kan kapada kunyit terus beri-kan kapada orang kubu itu suroh sembur-kan sakeliling kubu itu. Inilah mantra-nya,

Ikrai min puni chi chana rak

Bab ini per-tahan tunggal. Ini-lah ubat

Tut kerar tut kanching kandai kanpatai tut hei.

Bab ini jika kita hendak masok gajah jinak, maka kawan ber-tunggal itu, maka bacha mantra ini tiga kali sa'nafas.

Om wi chit terui kambara ula sipu wah suwah suhom dai bang kembang tikada samkam.

Bab ini mantra bomo' yang kechil kechil, maka orang hendak menjerat gajah masok kubu, maka bomo' yang besar membacha mantra juga, maka bomo' yang kechil kechil pun membacha melepas diri-nya. Ini-lah mantra-nya,

Om kenaling chak chap chap kenaling rengab kenaling om chap kenaling suwah su hei.

Maka di-sembur dengan kunyit terus kakanan dan kakiri.

Bab ini perengab,

Om rengab chang rengab pai tai bakarom rengab pera yom apom rengab rengkong kangku ramai rengab pada peman pong rengab maha rengab sidikan guru ombok batiya.

Bab ini pelambai tunggal, maka ambil chamar maka patah paras mata gajah jinak itu. Ini-lah mantra-nya,

Ma tapu chomkan liyon tak chong ambi ya kasayok ombiya kawan chom-kan lisan tangku an pirak dos pirak siton nang makaru tangkuan.

Bab ini membuang hantu hutan. Ini-lah mantra-nya,

Om berah berom berah berai patari patarai patabuna ramiya tin shah pindah kau turun laui mur-tangan kamui kamailui.

Bab ini perabun pun jadi di-bacha masok hutan atau barang pilak tiada kita kena atau barang kerja kita.

Ini-lah mantra-nya yang di-bacha dahulu,

Om kenaling pajanaru pajanari saraba bangkom bangkak takabonting lai pat pachaupi bangkom bangkamanya turun kau pindah kahutan yang pana puah karab turun kapadang yang maha luas karimba yang maha besar.

Bab ini suatu kenaling.

Om kenaling perah pom perah pai patabu rasin marang salik samsatom sirapatom perpai tataban ting tui pat kau chat pai ai chakat tom bang tom turun-lah pindah kau kahutan

pana puah kerab turun kan kapadang yang maha luas karimba yang maha besar.

Ini-lah kelamin-nya,

Om kenaling tang chandap kenaling ating kambakut kenaling yaku wah yanata baka parom peratang kenaling nai sitikan guru mu batiya rengab,

Bab ini mantra Raja Gajah, maka kita pergi kapada tanah kita kuais dengan tumit, maka ambil tanah itu kita mantra tiga kali sa'nafas, maka buboh kapada ubon ubon kita.

Ini-lah mantra-nya,

Om pan pang maka pang pit om tau sa hom sitikan tana sahom.

Bab ini hendak buka hutan. Ini-lah mantra-nya,

Om bik bik bang bang bangtu bangru bangti pada bang ka-muai maia om rengab sara para ngab.

Ini-lah kelamin-nya,

Om kanching kandai kun pitai naka nara nakaru pi pat chamdi kam ti pa man da puni sara perengab.

Bab ini penutup hutan. Ini-lah mantra-nya,

Om bang chang bangdai bangtu bangru bangti pada bang-kemu kamya om bang sara para bang.

Ini-lah kelamin-nya,

Om rengab chang rengab undai rengab piti di yat bakarom rengab rakang lang kerahei rengab pada pai man pong am rengab maha rengab ombang chong bangdai bangtu bangru bangti pada bang kamu kamai am bang sarpa bang om rengab chang rengab dai rengab pitai pi yat bakarom rengab rakong lang karamai rengab pada pai man pang om rengab maha rengab.

Bab ini hendak ber-buat hikmat akan orang jangan ber-oleh menjerat gajah, maka ambil tanah bekas gajah jinak orang itu dan gajah yang hendak di-jerat itu di-perbuat akan gambar gajah, ambil daun kandan akan satam-nya, maka surat nama bomo'-nya dan nama gamala-nya pada daun kandan itu, sudah maka korek lubang sajengkal dalam-nya, maka tutop dengan papan maka tiup api di-atas-nya jangan padam padam. Ini-lah mantra-nya,

Am wi mata kamarah angkar aula sula chi puan sau hom suhom. Kelamin-nya

Am berah berom berai petari petarai pekuboran mi suti sah pindah-lah angkau turun kaui ui tatong kambi kamlai.

Bab ini mantra melambai tinggi lambai dengan chamar.

Ma tepu cham kan liyan dutang ching abiya keyak abiya kewan chum kan liyan tangkuan.

Bab ini mantra tunggal.

Am kasak kan terak hak chantek junsa nak selak setaha tikah wi serawi kak wi tera wapu taua ati yan nik mekurai techuntang kepurantai sura mamawi serawikak wi puru purak binat siyan tiga bulan naik siyan bulan turun.

Bab ini menahan kawan, maka keliling tiga kali.

Ini-lah mantra-nya,

Teru 'om ambi tan bimak lok tu wadin keluwi lok pik pitai lok mas yata yang kerai chandan kerai perok nangai tuan ti yang salok tan mu chaku chakkatom.

Bab ini mantra kapada tapak tangan kiri, maka gosok kapada telinga gajah yang kanan dan yang kiri.

Om chikan chichu samit palai a'itu rati duchang bayi duchang san bisai yi.

Ini tunggal atau kawan, ini-lah mantra-nya,

Tut sapera tut changlu mi changkan changsu mu kan chantang pera piyat sitikan kuru bati per-hai kalu hai.

Bab ini makan bomo'.

Pau bub yabub kindi judi tang-pong'ai malab miyaji janak kan pastak taru chai-ku kat cha king.

Ini-lah kelamin-nya,

Ter om pu wat om nya midak midong midak mi-kalang sata yang chadin karai paruk pangai lo'tu mu chak kan jakatom.

Bab ini buang hantu hutan,

Om kali miwah kacharai rai keli duk kalidan tera-yang kachang kanan sah pindah laui turun kau wi hantu kamsat kamya nyamihan changrai miyu katu wai.

Bab ini kepala segala mantra, maka barang suatu kreja, ini-lah dahulu di-bacha-nya.

Om kenaling kanalai kanaling tuk-ting kanaling nuk tai kut kut katakong kalai kamalut kuh kanaling takongkalai om sing kupasing changrai om sah kapasat changrai arah rah

terong perat tijau beli turun ber-titi salah di-batang tuboh kau wi mitarau kau miloh sidikan kuruku batiya para-kan haikaloh kachat pi tukkami kau mipai lui sarapa changrai.

Ini-lah mantra Raja Ibrahim maka jika gajah itu sakit atau demam mantra-kan kapada ayer, maka mandikan kapintu kubu dan mandi-kan chelong pun.

Ini-lah mantra-nya,

Om patabu ramai san kau cha'an angkat matang pin pindan au kau kuklu mata changrai kachat pit ongpami kau miki lui sarapa changrai kau minan tara anglai sitikan guru-mu batiya om setaidai sati yudong sati karang kana parak yatu tuk sam diyak samdak sakala yak sakadong nai ong nong chakaran sib ang tong chakaran siyan ontong chaparat pat pat changrai oksaksi pataradi sarap chatarai matarang changrai kan miman ter englui situ-kuru-mu batiya.

Bab ini jikalau gajah sakit maka bacha-kan kapada ayer mandikan, atau kunyit terus sembor-kan petang petang.

Ini-lah mantra-nya,

Om pa paru paparai maha rasai sakunta parah Sri Rama per yit terang siti-kan Oh Maha Risi yak tamarahai parai' aurai awai dai madong sarpa angkan per-angkau sakang sakom sarapa rengab siti aku Rama batiya. Hu!

Ini-lah kelamin,

Om kenaling kanalai perah puat perah pai pata burasan materong chai salik sumtom karapatom per pai tut ban ting tui pat ka chat ai chakatom bangtom turun kau pindah kau kahutan pana puah karab turun kan kapadang yang maha luas karimba yang maha besar.

Kelamin-nya,

Om kenaling tang chandai pa kenaling ating kumalut biti kenaling yakut yanata baka parom parom paranang kenaling nai siti-kan guru-ku batiya rengab.

Bab ini perabun pun jadi dan lagi tetkala hendak masok hutan di-bacha barang kiblat tiada kena kapada kita.

Om kenaling paja narui serbabangkom bangkok tak banting tai pat pachan pai bangkam bangli pada somkom ting kamaia turun kau pindah kan kahutan pana puak karab turun kau kapadang yang maha luas karimba yang maha besar.

Bab ini buang hantu anak gajah, maka pukul dengan kosa jangan dengan mata-nya kapada anak gajah itu,

Am panirang panarak malachoh kau pindah kahutan pana puah karab turun kau kapadang maha luas karimba yang maha besar.

Kelamin-nya,

Om chawi chawat chawi chamarat malachoh kau pindah kahutan pana puah karab turun kau kapadang yang maha luar karimba yang maha besar komya maia.

Ini perabun gajah tiada mahu masok chelong maka bacha-kau kapada kunyit trus sembor kapada chelong.

Om kaling yating tamdit batka lingkit salik santom am kamin kar kau lasantom.

Kelamin-nya,

Om chau samin samin plai ranghai tamku lamipaina tau kalim parak nak tuah tawanta.

Bab ini menahan kawan atau tunggal masok kawan jinak maka kita patah kayu delapan jarang lebar keliling kawan atau tunggal itu.

Ini-lah mantra-nya,

Puntang pakachakak tamang pakachakak sangkong paka-chakak.

Ini-lah kelamin-nya,

Ara hak aro puhon kau mihai umok dun au mihai mang-wa au mihai mang hincha ok chong pak hukdab tang chakang changma lamatong chun sini karong chong put nak omdib.

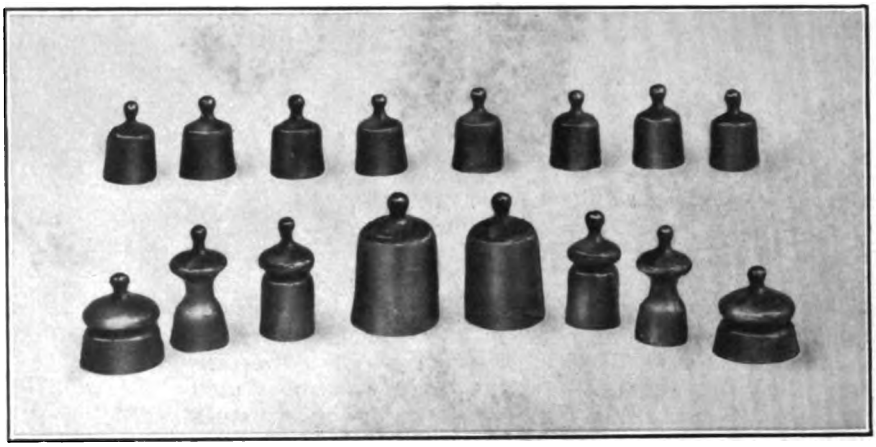
Ini membuang hantu rimba.

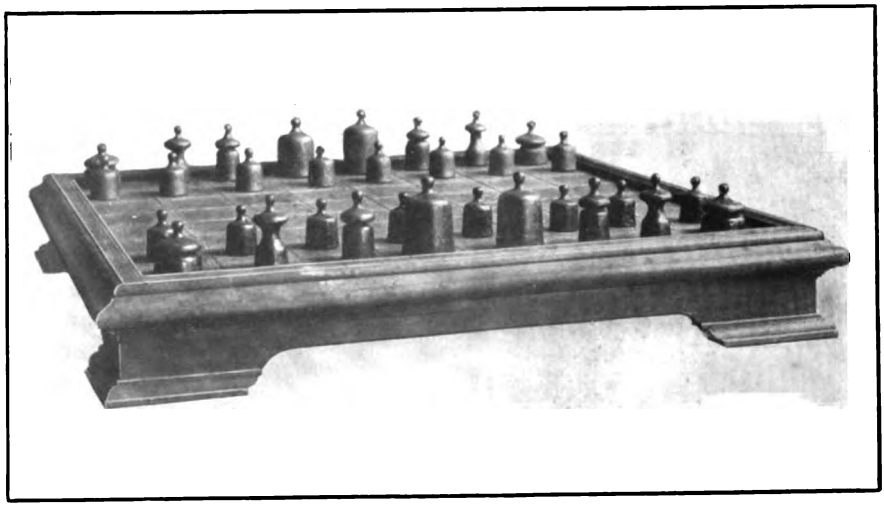
Ini mantra-nya

Am kenaling kanalai pajanaru saraba bangkom takbun tau pat kut chat pai ngaban kom bangti pada saiekom salik suttom mada chak kau turunlah wi kahutan pana karimba yang besar puah rengab. Temat.

* * * *

Here the manuscript ends. I ought in conclusion to say that I have made no attempt to alter, in the hope of amending the spelling: *Sidikan* and *sitikan*, *guru* and *kuru* (to take examples) are in every case exact transliterations.





MALAY CHESS-BOARD AND MEN.

Malay Chess.

By T. B. Elcum.

I have seen few things so amusing as a game of chess played in a Malay village, with the whole population of the village standing round, and all of them who possess even the most rudimentary knowledge of the moves, "assisting" their champion with vociferous advice, and abusing his stupidity when he makes a move which for some reason, generally entirely wrong, they think inferior. The rule of "touch and move" is not generally observed among Malays. The spectators frequently will seize upon a piece which has been moved, replace it and make another move, pointing out how superior their method is. Very frequently the suggested improvement is absolutely futile, putting a piece "en prise," or offering an obvious mate to the opponent, but the suggestor is quite unabashed when this is pointed out to him, and the fire of advice and remonstrance goes on until the game is over.

The appliances for these village games are generally of a very primitive character. There will be probably a rough hand-made lot of pieces, perhaps all of one colour, and a hand-made board. The squares of the board are never marked in different colours. Probably some of the men are missing, and various substitutes have to be provided; and sometimes there are no pawns, and their place has to be supplied by little stones, or bits of leaf.

Sometimes the pieces used by Malays bear more or less resemblance to the shapes with which we are familiar, except that the *tir*, the rook, is generally a flat piece like a draughtsman. But more usually they are much less distinctive in shape. The illustrations show a handsome set, gold and brown, kindly lent to me by one of the Johore Royal Family. It will be noticed that the board is uncoloured; the king, queen and pawns are all of the same shape, and distinguished by size only.

The rooks in this set are not of the usual flat description. As a rule the carving of the pieces is very rough, and it is seldom that one sees an elaborate set like that here illustrated. A set often suffices for a village. It is difficult to procure a genuine set of Malay chessmen.

In some parts of the Peninsula very few Malays play chess, in others a large proportion of the inhabitants. On the whole the proportion of men who can play chess more or less is probably greater than with most races. The same game is played in Sumatra as in the Peninsula, and I believe also in Borneo.

How the Malays acquired the game is a mystery. They may have done so from the Arabs, or they may have learnt it directly from natives of India. Neither the peculiar rules of the game, nor the names of pieces and terms used in play throw any light on this point. I give at the end of these notes a list of the words most commonly used in the game, and the languages from which they are derived, as given in Wilkinson's dictionary. The Sanscrit words seem as likely to have come through the Arabs, who learnt the game from India, as direct. Nor do Malay records shed any light on the way in which the game was introduced, so far as I have been able to discover. The most interesting points about the game are the similarities to, and the differences from, the game as now played in Europe, and as formerly played.

The board is 8 by 8 as in European chess, and the men except for the modifications to be pointed out, have the same moves and powers. They are the King (*raja*) the Queen (*mentĕri*, minister), two Bishops (*gajah*, elephant), two knights (*kuda*, horse), two Rooks (*tir*, a name which appears to have no other meaning), and 8 pawns (*bidak*, also only the name of this piece).

The first great difference between the Malay game and ours, and one which entirely upsets all book knowledge of the openings which may have been acquired by a student of our game, when he attempts to play the Malay game, is in the arrangements of the pieces. With us king stands opposite king and queen opposite queen. In Malay chess the mentĕri stands

on the right of his king, and is so opposite to the opposing king.

In the early days of European chess occasional modifications appear to have been made in the position of the pieces at starting, before the game had settled to its present strict form. I have not seen any mention of the Malay method of arranging the men, but we read of games starting with a "tabiyat" or battle array, which seems to have taken may forms, in which the pieces were arranged in positions quite different from the normal starting arrangement and it is probable that the relative positions of king and queen were not always in early days entirely settled.

However that may be, the next variation between Malay chess and ours is certainly a survival of a rule, now dead, which prevailed at one time in Europe.

The Malay king, provided he has not been checked or moved, has the privilege of once leaping like a knight, or of moving over two squares whether another piece intervenes a not, laterally but not forward or diagonally. He can thus practically castle, but in two moves instead of one. Castling as we know it is not a part of the Malay game.

The "king's leap" was recognised in Europe in mediaeval chess before the present method of castling was generally adopted.

The results of this power of the king are very disconcerting to a player unused to the Malay game. Thus an unguarded knight giving check can be taken by the king, or in a crowded position the king skips away from an otherwise fatal check by a knight's move or over another piece. In playing Malay chess at first, it is very common to overlook this curious privilege of the king. The Malays frequently give what would otherwise be an aimless check in order to deprive the king of this power. I have not played the game sufficiently to be sure whether it would be generally advisable to do this between even players—whether the loss of one or two moves involved in giving the check is made up for by the king's loss of his privilege. But it is certainly advisable for a European skilful at his own form of chess, but a novice at Malay chess,

to endeavour to force the king to move only in the way to which he is accustomed, even at the loss of a little time.

A pawn is taken "en passant" at Malay chess, as with us. That a refinement of the game such as this should exist among a primitive race is curious, but it is well established.

The rules of the game mentioned so far contain nothing which might not have been naturally developed from the same form of the game which produced chess as now played in Europe. The curious rules in force among Malays with regard to the promotion of a pawn appear to be peculiar to Malay chess only, and to have no parallel, so far as I can discover, in other forms of chess, ancient or modern.

In Europe any pawn reaching the eighth rank can at once become a queen or any other piece at the option of the player. In Malay chess a rook's pawn, so reaching the 8th rank, may become a mentĕri or any other piece immediately, except that it can only become a piece which is off the board; it cannot become a mentĕri if the mentĕri has not been taken. Should, however, the pawn so advancing to the eighth rank be on any other file, it does not acquire the privilege until it has played back diagonally a sufficient number of moves to enable it to reach the rook's file. Thus a pawn reaching knight's eighth has to play back diagonally one square, on reaching bishop's eighth, two squares, and on king's or queen's eighth, three squares. It is not necessary to actually play the pawn to the rook's file, but it must play back sufficiently far to have reached it. This curious rule makes winning by the odd pawn more difficult that in the European game.

There are other rules which tend to make it easier for the weaker force to draw. The king if left alone on the board must be mated in not more than seven moves or the game is drawn. When the stronger force is barely sufficient to mate, or the position is such as to make it difficult to mate in a few moves, Malay players of the weaker force frequently try to force the capture of these last remaining pawns or pieces, in the hope of escaping defeat by this rule.

Mate cannot be given by a discovered check. It is not good form to exchange queens unless the game can be immediately

won or saved by doing so. A prejudice against the exchange is very common amongst beginners in Europe. There is, of course, no reason for this, but in Malay chess there is some. The rules as to queening a pawn, and as to the lone king make it so difficult to win a pawn ending that it is seldom advisable for the stronger force to clear the board by exchanges.

These rules, which make it easier for the weaker force to draw, are to my mind a weak point in the Malay game, which otherwise is probably equal in essentials to our own. It is certainly a pleasant change to play a game in which no openings have been analysed, and in which the player has to rely entirely on himself from the very beginning of the game.

Malays generally open with a fianchetto to avoid exposing the king to an early check. Whether this is the best method of beginning I cannot say. Few Malays are really strong at the game, though a considerable number play respectably.

The point of most interest with regard to the game is how the special rules which differ from those of other forms of chess, were evolved—whether they are a survival of the form of chess originally taught to the Malays, or whether they have been invented by the Malays themselves.

Terms commonly used in Malay Chess.

English	Malay	Derivation according to Wilkinson's Dictionary.
Chess	Chator	Sanskrit (chaturanga)
Chessmen	Buah Chator (Bauh = fruit)	
King	Raja	Sanskrit
Queen	Mentĕri (Minister)	Sanskrit
Rook	Tir	
Bishop	Gajah (elephant)	Sanskrit
Knight	Kuda (horse)	
Pawn	Bidak	Arabic
Check	Sah	Persian

English	Malay	Derivation according to Wilkinson's Dictionary.
Mate	Mat	
Draw	Sěri	Sanskrit
To take	Makan	

To take "en passant" Makan bidak suap.

(suap = mouthful or bribe)

The origin of "tir" is doubtful

The words "buah," "kuda," "makan." "suap," are probably pure Malay.

"Mat" apparently comes from the same source as "Sah." If "Sah" is derived from the Persian, so probably is "mat." "Sah Mat" may mean "the king is dead."

Note on the Malay Game 'Jongkak.'

By M. Hellier.

I lately obtained, and sent to the Raffles Museum for exhibition, the playing board and seeds for the Malay game "Jongkak."

Haji Othman the Visiting Teacher of Province Wellesley, from whom I obtained the board, describes Jongkak as a women's game originally played by the ladies at the courts of the Malay Rajas. The playing board is shaped like a junk or boat, and, according to Haji Othman, the name of the game is derived from "jong" a junk. The board has 7 holes on each side, with a larger hole or compartment at each end.

The game is one for two people and is usually played with Tamarind or other seeds, but marbles are now sometimes used. Each player has one "village" (kampong) or row of holes, and in each side hole she places 7 seeds. The board is then ready for play.

The players start together. Each player taking the 7 seeds from the hole on her right and carrying them from right to left, drops one in each hole, the last seed falling into the large hole at the end. This seed is said to have "entered the house" (naik rumah) and this house belongs to the player on whose left it lies.

Each player then takes all the seeds from any one of the other holes in her "village" and moving as before from right to left around the board again drops a seed into each hole, taking care to drop one into her own 'house' but none into her opponent's.

Should the last seed fall into an empty hole the player is dead (mati), and must wait until the other player is 'dead' before she can again play. If this hole is in the player's own "village" any seeds in the opposite hole on her opponent's side may be taken and put into the "house." This is said to be (?) "a sacrifice" (mati béla).

When the last seed falls into a hole in which there are other seeds, these are taken and the player continues in play, and should the last seed fall into the player's "house" she also continues in play, taking the seeds from any hole in her "village."

When no more seeds remain in a player's "village" she is said to be "once defeated" (kalah sa-papan). She may however, take any seeds there may be in her "house" and place them again in the holes in her "village" putting 7 in a hole as before. Should any holes be left empty they are called "ruined wells" (telaga burok) and the player owning "ruined wells" must wait until her opponent is dead before playing again.

The game goes on in this way until a player has lost all her seeds. She is then "utterly destroyed" (mati kena abu). Skeat, who calls the game "chongkak," gives a short description of it in his "Malay Magic."

Concerning some old Sanskrit Inscriptions in the Malay Peninsula.

BY PROFESSOR H. KERN.

Extract from 'De Verslagen en Mededeelingen der Koninklijke Akademie van Wetenschappen.' Division 'Literature' 3rd Series. Part I. *

To complete my former communications in these pages upon the history of writing in the Indian Archipelago, I now desire to consider some inscriptions in the Malay Peninsula. Of these inscriptions, discovered by Colonel Low and published by him in facsimilé, one only has come down to us perfect; the rest are very fragmentary.

The first inscription was found in Kedah. It was engraved on a stone—a kind of slate—under the floor of a ruined building which had once measured ten to twelve feet square. This circumstances together with the contents of the inscription lead us to suspect that the building may have been the hut (kuti) of a Buddhist monk. A transliteration and translation of the inscription were published by J. W. Laidlay in the Journal of the Royal Asiatic Society of Bengal XVIII 247 (1). Although this gentleman who was at the time of the publication Secretary of the Asiatic Society has noticed the chief points in the inscription which call for comment, I give my own transliteration of it which differs in a few minor points from his. It runs thus:—

* *Note.*—This translation is published with Professor Kern's permission.

(1) The facsimile on plate X. (This paper and plate are republished on pages 232-234 of Volume I of 'Miscellaneous papers relating to Indo-China' reprinted for the Straits Branch Royal Asiatic Society London 1886).

Ye dharmmâ hetuprabhavâ teshâ (m) Tathâgato (hy avadat)?

Yeshâ (m) ca yo nirodho eva (m) wâvi Mahâçramana (h)

Ajnâc ciyate karma (*sic*) jenmana-karma kâranam

Jnânân na kriyate karmma (*sic*) karmâbhâvâ (n) na jâyate

The first couplet in halting âryâ-measure is the well known Buddhist creed-formula and need not detain us. The second in Anushtubh can be translated thus:—

'It is through lack of knowledge that the *Karma* (2) ac-'cumulates. The *Karma* is the cause that men must be reborn. 'Through knowledge (of the nature of things) it comes about 'that men effect no (more) *Karma* and from the absence of '*Karma* it follows that men need not be born (again).

The idea expressed in the couplet is by no means exclusively Buddhistic but seeing that it follows immediately after the better known formula there can be no doubt that the sentence must be regarded here as the profession of faith of a disciple of Sâkya. We shall find the same phrase further on in another and indubitably Buddhist inscription from Province Wellesley. Elsewhere in British India and in Ceylon it is usually another sentence which we find coupled with the formula *Ye dharmâ &c.* I mean the couplet in Dhammapada stanza 183 (edited by Prof. Fausböll).

Sabbapâpass' akaranam kusalass' upasampadâ

Sacittaparyodapanam, etam buddhâna sâsanam.

i. e. to refrain from all evil, to apply oneself to the good; to purify one's heart: that is the bidding of the Buddhas (the wise).

The couplet runs thus with a slight difference in the halting Sanskrit of Tibet:—

Sarvapâpasyâkaranam, kuçalasyopasampadam

(2) *i. e.* the sum of good and evil actions which is the cause of man's remaining shackled to life and unable to escape from incarnation.

Svacittaparidamanam, etad buddhânuçâsanam (3)

Between the two formulas *Ye dharmâ &c.*, and *Sarvapâpasya &c.*, there is no more necessary connection than between the former and the sentence *ajñânâc ciyate &c.* There is therefore nothing strange in finding as the second couplet first the one sentence and then the other (4). The second inscription in which the couplet *âñjânâc &c.*, is found, was dug up by Colonel Low in the North of Province Wellesley (5). The inscribed stone seems to have been the upper part of a column. On a copy of this ancient record which was published in 1835 without any explanation (6) can be seen the representation of a stûpa, the under part of which is formed by a sphere and not as usually by a hemisphere. Above the sphere rises a row of so-called umbrellas. On either side stands a line of writing. On the right side can be read:—

Ajñânâc ciyate karmma janmanah karmma kârana (m)

Of the writing on the left side I can only make out the word *jñânâ* (7) Fortunately what is left is sufficient proof that the inscription, apart from certain differences in spelling, is identical with the second couplet on the Kedah stone. That stone reads *janmana* with a 'Jihvâmûliya' whilst the inscription on the pillar spells the same words with a 'visarga.'

Besides this two-lined verse the pillar has also another inscription along the edge. Beginning from the top on the right-hand side we can recognise the inscription given in facsimile on Plate IV in the Journal of the Royal Asiatic Society of Bengal XVII 2 and numbered 8 (8) It runs:—

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(3) See Csoma Körösi in J. As. Soc. B. IV 134 Cp. Spence Hardy Manual of Buddhism 198.

(4) Already noticed by B. H. Hodgson in J. As. Soc. B. 1V 211.

(5) J. As. Soc. B. XVII 2, 64 (Misc, Papers relating to Indo-China. Vol. I. 223-226).

(6) J. As. Soc. B. IV pl. 1II.

(7) On the facsimile No. 10 on Pl. IV of J. A. S. B. XVII 2 the second line is almost entirely missing.

(8) The transliteration and translation given by Babu Rajendralal Mitra bear little resemblance to it.

Mahânâvika-Buddhguptasya Raktamrittikâvâsa.

i. e. of the eminent shipowner Buddhagupta, resident at Raktamrttikâ (9). The words following these cannot be made out with certainty, possibly *sya* (sign of genitive) *dânâm* (gift) or *deyadharmah* (pious donation). Even less can we decide if anything was written on the broken foot of the pillar.

On the left hand side beginning at the top we read—Sarvvena prakârena sarvvasmât sarvvathâ sarvva—Then follows a gap until at the end of a second line we see:—

Siddhayânâsanna.

What is left of the first line can be translated word for word: 'In every way, from every thing, in every respect, all'... *Siddhayânâsanna* might mean 'who has performed a successful journey' but it is impossible to decide with certainty that that is the meaning; too much of the sentence is missing to allow of its restoration to its original form.

Despite the incompleteness of these inscriptions which all appear to be by the same hand it is probable that the monument is the gift of a pious Buddhist sea-trader to a temple. As regards the man's residence, Raktamrttikâ *i. e.* Red-earth I would remark that the Chinese accounts make frequent mention of a port in the Gulf of Siam *Chih-tu* 'Red-earth' (see Groeneveldt in Verhand: Batav: Genootschap XXXIX8 2-101) (10) That is probably the place meant.

The style of writing of Buddhagupta's inscription agrees exactly with the type found in Wenggi and in Tjampda in West Java. The agreement is so striking that I have no hesitation in regarding the inscriptions from Wenggi, Tjampa and

(9) Mrittikâ is a misspelling for *mrttika*. A similar mistake is found in *kritwa* in an inscription at Ajanta (Pl. XXI in No. 9 of the Archaeological Survey of Western India by J. Burgess Cp. No. 10 page 79 inscrip. 7) and elsewhere. The mistake is explained by the fact that in many parts of India r is pronounced as *ri*.

(10) Misc. papers relating to Inde-China Second Series Vol. I page 205, 242.

Province Wellesley as being of approximately the same date *i. e.* as belonging to the same century. The inscriptions from Wenggi were determined by Burnell—too early lost to science! —as being of the fourth century (11) and in my opinion, (the grounds for which I have already published) the views of that scholar cannot be far wrong. I should therefore give the date of Buddhagupta's inscription as being roughly 400 A. D. (12) It is undoubtedly the oldest Buddhist fragment yet found in these parts unless indeed the Kedah inscription is given the preference. In view of the fact that the characters in the two inscriptions notably differ—especially in the *ka* and *na* and that the difference in type points to different places of origin, a comparison of the two can lead to no reliable conclusion.

Different again is the type of some of the rock-inscriptions at Tokun, a place lying in the middle of Province Wellesleys The seven fragments copied by Colonel Low and published on Plate IV (13) of the Journal mentioned are so small and, in part, so indistinct that they have no value except as contributions to palaeography.

No. 1 I can decipher in part only. It begins with *sarvva* which is written quite distinctly and in nearly the same type of characters as is Buddhagupta's inscription. The word following seems to represent *ârâma* or *ârâmam*—monastery-garden. The remaining few groups of letters are indecipherable.

No. 2 is in different characters which seem to me, judging from the great development of the vowel-sign for *i.* to be not older than the 6th century. The type reminds me of that

(11) South Indian Palaeography Pl. XX and XXI.

(12) The oldest inscriptions in the Talaing Country in Pegu are in the same Wenggi-type and according to Dr. E. Forchammer date from the fourth Century A.D. 'The oldest Talaing inscriptions date back to the 4th Century A. D. and the lythic characters are almost identical with the Dravidian-Vengi alphabet of the same period.' See notes on Buddhist Law by the Judicial Commissioner British Burma (John Jardine) III Marriage page X.

(13) (Misc. Papers relating to Indo-China Vol. I page 231).

at Djamboe and of that at Pattadakal in the Deccan and also of the oldest Cambodian inscriptions of Bhavavarman. The two first words are quite clear; they are *prathame vayasi i. e.* 'in time of youth.' The reading of the next two groups of letters which stand in the same line, is however uncertain. I would read *nâvvi* since this combination is intelligible. The second line I can make nothing of; the three last groups of letters might, allowing for defective writing, represent *dvividham.*

The two first letter-groups in No. 4 are *jaya.* In No. 5 I read with some diffidence 48. No. 6 might represent *siddhi.*

These fragments of inscriptions from Tokun do not, like those from Kedah and from the temple ruins in Province Wellesley, bear a clear stamp of Buddhist origin. The most noteworthy point of this respect is the word ârâma—the reading of which is unfortunately not beyond doubt. Fortunately it is clear from the other inscriptions that Buddhist establishments existed in the Malay Peninsula at the period to which the earliest Brahman and Hindu remains in Western Java are referred.

With the exception of the inscriptions mentioned no others have, I believe, been found in the Malay Peninsula itself, but one which formerly stood on a large rock at the entrance of Singapore River, is worthy of description. In the Journal of the Asiatic Society of Bengal for 1837 (14) there is a drawing of this ancient record which shews that even then it had suffered considerably. Later on, shortly previous to the year 1848, the stone was apparently removed and so damaged that a few years later only fragments of it could be found. Mr. Laidlay so far succeeded in deciphering some of the pieces that he was able to give a facsimile. He rightly recognised the Kawi characters in the writing and he came to the conclusion that the language of the inscription was also Kawi. This conclusion was certainly legitimate though Mr. Laidlay could not have known that the Kawi alphabet was at one time used in Java for Sanskrit inscriptions.

(14) (Misc. Papers Indo-China Vol. Igepa 219).

I have attempted to decipher the three fragments published by Mr. Laidlay and to determine the language of the inscription but I must confess that I have not succeeded. Most of the characters can be recognised singly but the gaps are so numerous that no words can be positively recognised. Thus I read in the third line of figure 1 the letter-groups *salâgalalasayananara*: in the second line of figure 2 *ya-âmânavana*; in the third line *kesarabharala* in the sixth line of figure 3 *yadalama*. Granted that no vowel-marks and Anusswâra's have been omitted in the facsimile, I see no chance of so dividing these letter-groups as to make an unmistakeable Javanese word. I cannot however assert that the inscription is written in any other language.

In a work entitled 'The Malayan Peninsula' by Captain Begbie quoted by Mr. Laidlay, reasons are given for believing that inscription dates from the reign of Cri-Râja Wikrama (1223-1236). Palaeography is not opposed to the conjecture.

As regards the question, which of the Kawi types—that of Java or of Sumatra, the characters on the Singapore inscription most resemble, some letters, notably *ma*, which in Javanese Kawi differ markedly from those found in Sumatra, reappear in their Javanese form on the Singapore stone and I therefore believe that we must assign the inscription to the Javanese type. *Ma* is the most characteristic letter in these alphabets since it is different both in later Cambodian in the time of sûryavarman (15) and in the Sumatran Kawi. On the other hand the form for *sa* is common to both Sumatran and Javanese Kawi and different in the later Cambodian.

It is to be feared that the Singapore record has been damaged beyond hope of restoration; so much the more reason for fixing our attention on the little of it that remains in transcription.

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(15) In my paper on the Koetei inscription, I assumed on the strength of one date that Suryawarman reigned in the 8th century of Caka; it appears however from the investigations of Messrs. Aymonier and Bergaigne that this date is two centuries too early, see the remarks of the latter savant in the Journal Asiatique (February March 1882) Note 4.

Miscellaneous Notes.

By W. George Maxwell.

I have found in an old note book the following jottings of folk lore picked up by me at various times from Pa' Senik, an old Kelantan Malay now resident in Kinta. They are mere trivial disconnected scraps, but are perhaps worth recording.

* * * *

"When one leaves the house to go hunting deer, one "ought, in order to avert from oneself any evil consequences, to "repeat this *mantra*,

"Bukan aku yang memburu,

"Pawang Do Resat yang memburu."

Pa' Senik was unable to tell me anything about Pawang Do Resat or his connection with deer, but supplied the following information about deer generally.

"The first hunter of rusa was Pa' Chu Seming.* Upon "his death, which took place in the *rimba* he became a *hantu* "*rusa*.

"His son Jitan died in the *bluker*, and likewise became a "*hantu*. He looks after the kijang, pelandok and jungle fowl.

"Nang Peluntong Chai was the wife of Pa' Chu Seming. "She died in the *padang*. It is she who sends the deer "away before a drive begins, if the preliminary propitiatory "ceremonies have not been duly performed.

"After the death of these three, the next hunters of deer "were Cho Resat, Do Resat, Pran Ali, Pran Rasu, Pran "Maiar and Putri Bongsu."

---

* Another account, recorded in considerable detail in a Ms. (written by a Perak Malay) which I hope to have ready for the next number of this journal, makes out that Pa' Chu Seming became the *Hantu Pemburu*, the Great Spectral Huntsman.

"Before one goes out shooting, one should make an offer-
"ing at the edge of the forest, and repeat the following *mantra*.

"Chorteh, Chordeng,
"Kong Pali, Nak Terining,
"Marilah terima idangan kami ini,
"Kami na' minta menembak rusa didalam rimba ini"

For the word *rusa* one substitutes *sladang*, *gajah*, *or badak* if necessary. All that Pa' Senik could tell me regarding the four personages invoked in this *mantra* was that they were *Hantu Rimba*.

* * * *

The following is a *mantra* to be repeated after the death of a rusa.

"Om Ma'hong gana,
"Gana kechil, gana besar,
"Gana saratus sembilan puloh ;
"Bukan aku mahu buangkan gana,
"Dewa Agong turun buangkan gana ;
"Bukan aku mahu mengalahkan gana,
"Dewa Mantra Guru yang mengalahkan gana,
"Dewa Bantra Umar yang mengalahkan gana,
"Dewa Puteh yang mengalahkan gana,
"Sang Kaki Bantra Galah yang mengalahkan gana,
"Dalang Yahuda Semak Turah yang mengalahkan gana,
"Rădîna Kreta Pati Selangor Majitan Petra Jangkal aGajahGemala Kuda Lawi yang membuang gana."

* * * *

Pa' Senik told me that after the completion of the ceremony known as *sapu bahdi*, whereby the evil influence consequent upon the death of a deer are swept away, and after the animal has been cut up, there is a final ceremony called *labor*, of which the literal meaning is "smearing." With a stick, the *pawang* turns over the blood-covered leaves that disfigure the site where the carcase has been out up, and so far as possible attempts to restore the pristine appearance of the place.

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As he does so, he repeats this *mantra*.

"Om dĕling kădăllang,
"Sorak tepi di rimba raia,
"Sakali aku balik membuang bala,
"Dua kali aku balik labor,
"Labor anak bini aku,
"Labor segala permainan aku,
"Kalau t'ada satu, ganti dua,
"T'ada dua, ganti ampat,
"T'ada ampat, ganti delapan,
"T'ada delapan, ganti anambelas.
"Labor. Labor. Labor.

The *pantang* in connection with this *mantra* is, that upon its completion, the hunting party must leave the place without looking back.

* * * *

"If, by any mischance, a man is attacked by *bahdi* (the "premonitory systems are dizziness and trembling) he should "collect some of the clay and mud that lies nearest to him and "besmear himself all over with it."

* * * *

If bitten by a snake, or stung by a scorpion, in the forest, one should repeat this *mantra*.

"Medang aku Si Medang Raia,
"Tumbuh di padang gĕlă gâtă,
"Urat menikam ka bumi,
"Puchuk menikam ka angkosa,
"Aku tahu asalnia bisa,
"Sedang Bruai yang punya bisa.

* * * *

If bitten by a water snake, one should call on Hana Taskun, the great Water Jin. Splash water over the wound and call out "Hei! Hana Taskun!" and the swelling will subside

"If poisoned by Sakais' poison (*ipoh*) take some Indian "corn (*jagong*), chew it, then rub the wound with it, repeating "this *mantra*.

"Malim Karimun yang punya tawar,
"Tawar Allah, Tawar Muhammad,
"Tawar Baginda Rasul Allah."

* * * *

Pa' Senik once told me the following account of the *asal snapang*, "the origin of the gun." The story is so ridiculous that it affords matter for speculation as to the manner in which it can have been evolved.

"Abda'l kaka was the son of Nabi Musa, but disgraced "his father by persisting in having dealings with Jins, and "upon his death, Allah punished him by turning him into a "gun."

* * * *

"Halan Muda, Halan Chapik, Halan Glanggi and Halan "Dosa were four men who became tigers."

* * * *

Most people are aware of the Malay belief that a *batul intar* (a stone weapon of the neolithic age often found in Perak) is a thunderbolt, and that when a tree or house has been struck by lightning a *batu lintar* may, if it has not been destroyed by its own blow, be found in the torn-up ground. (Some Malays tell you that the *batu lintar* is a weapon which the Jins hurl at one another in their fights). Pa' Senik supplemented this account by saying that it is dangerous to keep in one's house a perfect *batu lintar* as it has life. A *batu lintar* that has been chipped in any way is however dead, and therefore harmless. The live *batu lintar* will attract lightning to the house, and then disappear in the flash.

* * * *

"The sun and earth had once human form, the sun being "the male and the earth the female. The tin ore found in the "alluvial strata of the Peninsula is the earth's milk, and the "gold is its blood.

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"The *pusat bumi*, its navel or centre, is at Acheh. This "was first discovered to be the case by Nabi Ibrahim' by "measurements (sukat)."

(When I suggested that Mecca was the centre of the world, Pa' Senik was for a minute at a loss. Then, with an allusion to the methods of the Survey Department, said that that, of course, was a re-survey).

* * * *

The two following scraps may be assigned to the period of Hindu influence that succeeded the pagan, and preceded the Muhammadan, era.

"The earth is supported upon the horns of a bull. Facing "the bull is a mosquito that threatens, if it stirs, to enter its "nostril and bite it. The bull therefore supports its heavy "load without moving. Sometimes, however, it tosses its head, "and then there is an earthquake."

* * * *

"At the end of the world the sun will go down to hell in "the shape of a bull, and will gore the men who have wor-"shipped him upon this earth.

Notes and Queries.

Colonel Low, writing in 1850, A. D., in Volume IV of the Journal of the Indian Archipelago, page 18, has the following notice of Perak.

"25th: February 1814. The Perak Raja addressed a "letter to the chief authority at Penang: 'I am' wrote this "potentate 'he who holds the royal sword and the dragon betel "stand and the shell which came out of the sea which flowed "from the Hill of Se Guntang.'"

Do the dragon betel stand and this sea-shell still form part of the Perak State Regalia? If so, can any one say what the sea-shell is, and what the legend connected with it is?

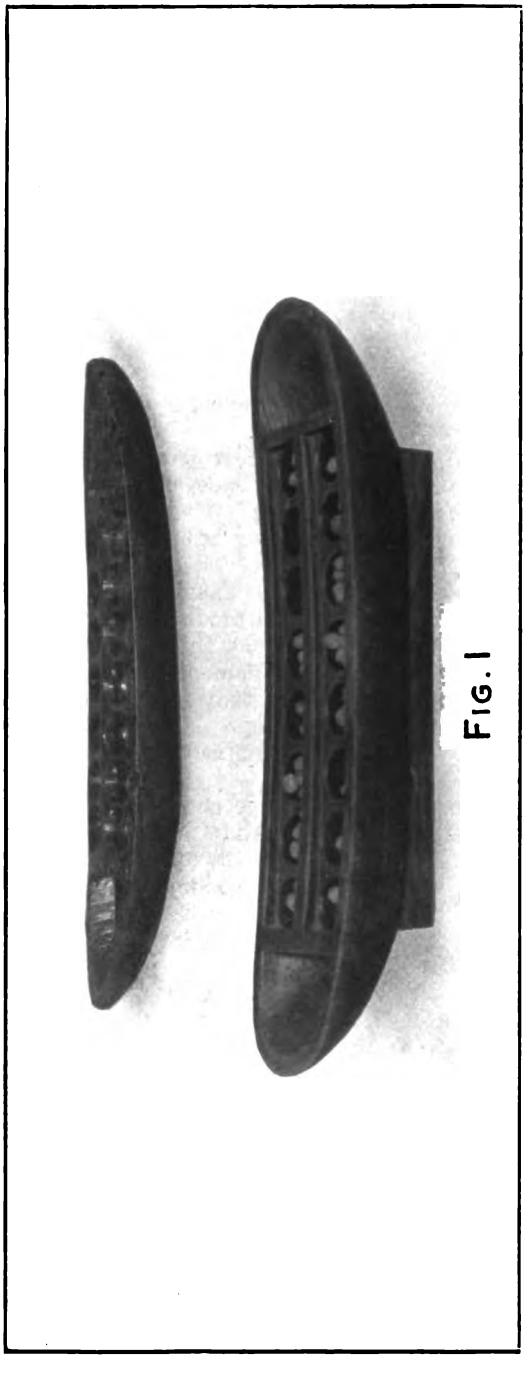
This hill, which is perhaps the Sagatang Maka Miru of the Sejarah Malayu, is connected with the Perak regalia in the following lullaby [which was published on page 76 of the "Notes and Queries" of the Society].

Mangqueta nama-nya kayu,
Doun-nya luruh menelentang,
Mahkota raja Malayu
Turun deri Bukit Saguntang.

II

Daun-nya huroh meneletang,
Daun puan di-raut-raut.
Turun deri Bukit Seguntang,
Kaluar deri dalam laut.

W. G. M.



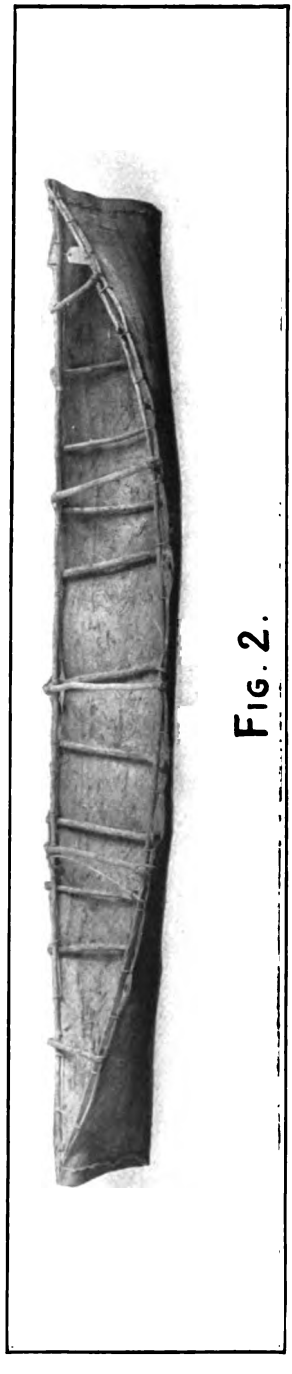


FIG. 1.—JONGKAH BOARDS. FIG. 2.—BARK CANOE FROM BORNEO.

Bark Canoes among the Jakuns and Dyaks.

By Dr. W. L. Abbott.

(See Plate I, fig. 2).

As no one seems to have noticed the use of bark canoes in Malaya, the following note may be of interest:

In July, 1902, during a trip up the Rumpin River in Pahang, I saw the Jakuns using some roughly made canoes of bark. It was *meranti* bark as well as I can remember. Their use was said to be confined to the Jekáti and Kerátong tributaries of the Ulu Rumpin.

They were but little trouble to make and the Jakuns brought down large cargoes of Rattans and other jungle produce in them. They did not always take the trouble to take them back up stream again, or to repair them when split or damaged.

I did not measure any of these "rapako," as they are called in the Rumpin, but they were 4 or 5 metres long.

I sent a specimen to the National Museum in Washington, but it warped very much out of shape when drying.

The bark is removed from the tree in one large sheet. The ends are cut square and stitched up with small rattan.

Ribs are placed transversely about 18 inches apart, and straight sticks are lashed transversely across at corresponding places to hold the sides in position. A large split rattan encloses the edge of the gunwale. The sewn ends are freely cauled with mud or clay.

In July 1907, I found similar canoes in use among the Dyaks of the Semundung and Ulu Sempang Rivers, West Borneo. Slightly more roughly made if possible—a thick spongy bark is used containing much resin(?) The same bark is much used as flooring by Malays and Dyaks. The Malays said it was the bark of *bintangor batu* (*?*)

The Dyaks dispense with the split rattan along the gunwales, as they use a much stronger and thicker bark than the Jakuns. These canoes in no way compare with the elaborate birch bark structures of the North American Amerindo, but they are very easily and quickly made. I was told that two Dyaks could make a large canoe in half a day. The Dyaks had no special name for them—they used a term which I can't recall, but it meant only *bark canoe* (according to the Malays).

FIG. 1.

FIG. 1A.

FIG. 3.

FIG. 3 A.

FIG. 2.

FIG. 2 A.

TIN COINS FROM BRUNEI.

Tin and Lead Coins from Brunei.

By R. Hanitsch, ph. d.

With Plate III.

The curious tin and lead coins from Brunei, Borneo, described below, were, with one exception, exhibited at the Kuala Kangsar Agricultural Show, August, 1907, by Mr. Edmund Roberts, of the P. W. D., Labuan, and subsequently presented by him, on behalf of Pangeran Shabander, of Brooketon, Brunei, to the Raffles Museum, Singapore. They had been found in an earthenware jar, buried two or three feet below the surface, at Brooketon, in July, 1907. A number of coins were in the jar, but most of them were seized by natives and cannot now be found. Those which reached the Raffles Museum were of two types only. A few months later Mr. Roberts presented to the Museum a third kind of coin which he had found when clearing the site for the Brunei residency, in 1906.

The first two coins differ only slightly from each other; one of them is of a simpler design and in a less perfect state of preservation, so that it may be considered as the older one. It is 36 mm. in diameter, 1 mm. in thickness and weighs 5·9 grammes (see pl. III, fig. 1). It is more or less of pure tin, its specific gravity being 7·5 (that of tin is 7·29). Its obverse shows a recumbent buffalo, minus its horns, with erect tail, the space between the figure and the edge of the coin being filled up by circles, cloud-like scrolls, and dots.

The reverse bears an inscription, in Malay characters, which is arranged in what Lane Poole* calls the "mill-sail pattern," a pattern which is met with on Persian and other coins, the writing being placed within the four arms of the sail-wheel. The division into four fields is effected by a line which starts from near the centre of the coin, runs parallel

* See O. Codrington, A Manual of Musalman Numismatics, London, 1904, p. 17.

and somewhat to one side of the radius, then turns along the periphery, follows it for nearly 90°, runs back along the next radius, and having thus enclosed the first field which is somewhat smaller than a quadrant, crosses the centre and continues to form a second, third and fourth field, within the second, third and fourth quadrants respectively. The inscription is

سلطان العادل ملك الظاهر

- or in Romanized characters:

Sultan ul-adil malik ul-dhahir,

i.e. The just Sultan, the acknowledged Ruler.

I am indebted to Mr. M. Hellier for kindly deciphering this coin for me. Unfortunately neither the year nor the name of the sultan is given, nor have I any other data to fix even approximately the age and the origin of the coin. There were four specimens of it.

The second type (see pl. III, fig. 2) is practically of the same size as the first one, viz. 36 mm. in diameter and 1 mm. in thickness, and is only slightly lighter, viz. 5·7 grammes. It is also of tin. It may be of later date as it is better preserved and its design is somewhat more elaborate. There is only one specimen of it.

The obverse shows again the figure of a recumbent buffalo, but with the tail curled downwards. The buffalo with its scroll work is enclosed by a circle, the space between the circle and the margin of the coin, about 4 mm. across, being filled up by a zig-zag line.

The reverse contains the same inscription as the first coin, also arranged in mill-sail pattern. Like the figure on the obverse, the inscription is enclosed by a circular line, the space between the latter and the margin of the coin containing a series of dots.

The third coin, found by Mr. Roberts when clearing the site for the Brunei residency, in 1906, is of lead. It measures 30 mm. in diameter, 1·5 mm. in thickness and weighs 10·6 grammes (see pl. III, fig. 3). Its specific gravity is 10·1, that

of pure lead being 11·37, the slight difference probably being due to impurities and oxidation.

The obverse shows the (yellow) State umbrella, one of the insignia of Malay royalty, surmounted by the Sultan's (yellow) flag. The other leaf-like ornamentations have probably no special significance.

The reverse bears the inscription

اينله تيته
قرنته كمڤقاتن
كاتس بلنجا نكري
بروني تاريخ ي
١٢٨٥

or in Romanized characters

Inilah titah
perentah kamuafak-
atan ka'atas bĕlanja
Negri Brunei ta-
rikh y
1285

meaning

By order
of the administration
of the Finances
of the State of Brunei
date 1868.

The dates 1285 and 1868 refer, of course, to the Hejira and to the Christian era respectively, and Abdul Mumin was Sultan of Brunei at that time.

I am indebted to the united efforts of the Rev. Dr. Luering and of Messrs. Hellier, McArthur and Elcum for deciphering this coin for me.

Although this coin is of such a recent date, only forty years old, I have not been able to discover any more specimens of it. The only other Brunei coin known to me is the copper cent, dated 1304 A. H. (= 1886 A. D.), which until recently was current in Singapore too.

Explanation of Plate III.

(N. B. All figures are reproduced in natural size).

Fig.	1.	Obverse of tin coin	See	page	111
Fig.	1A.	Reverse of the same	,,	,,	111
Fig.	2.	Obverse of tin coin	,,	,,	112
Fig.	2A.	Reverse of the same	,,	,,	112
Fig.	3.	Obverse of lead coin	,,	,,	112
Fig.	3A.	Reverse of the same	,,	,,	113

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