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NOTES ON MALAY HISTORY.

BY C. O. BLAGDEN.

I. AN EARLY REFERENT TO MENANGKABAU.

In Chau Ju-kua's "Chu-fan-chi," translated by Hirt and Rockhill, under the heading "Palembang. San-fo-ts'i,"* p. 61, the following passage occurs:—

"There is an old tradition that the ground in this country once suddenly gaped open and out of the cavern came many myriads of cattle, which rushed off in herds into the mountains, though the people all tried to get them for food. Afterwards the crevice got stopped up with bamboo and trees and disappeared."

The editors have rightly surmised that this contains a reference to the legendary etymology of the place-name "Menangkabau," § in Central Sumatra. It evidently represents one of the many variant ways in which "popular etymology," as it is called, has attempted to explain this obscure name. The second half is always identified (rightly or wrongly) with the Malay word for "buffalo," but in other respects the explanations are very various. In connection with this Chinese authority, the chief point of interest is that he speaks of the legend as "an old tradition:" evidently it had been current for some time before his own date (which was about the middle of the 13th century of our era); and this goes to show that the Menangkabau country was known by that name from a considerably earlier period, that the real meaning of the name had been forgotten and there had been time for legends to grow up around it.

II. AN EARLY MENTION OF THE OLD SINGAPORE.

In Wang Ta-yüan's "Tao i chih liu" (dated 1319 A.D. and recently partially translated by Rockhill in *Young Pao*, March 1915), under the heading "Hsien,"† p. 100, the following passage occurs:—

"The people are much given to piracy: whenever there is an uprising in any other country, they at once embark in as many

* 三 佛 齊

§ First actually mentioned, I think, in the *Nagaratreta-gama* (A. D. 1365): see this *Journal*, No. 53, p. 147.

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as an hundred junks with full cargoes of sago (as food) and start off and by the vigor of their attack they secure what they want. (Thus) in recent years they came with seventy odd junks and raided Tan-ma-hsi† and attacked the city moat. (The town) resisted for a month, the place having closed its gates and defending itself, and they not daring to assault it. It happened just then that an Imperial envoy was passing by (Tan-ma-hsi), so the men of Hsien drew off and hid, after plundering Hsi-hi.”‡

According to the editor, “Hsien” was Siam, and I think there is no reason to doubt that it especially referred to some part of that country adjacent to the Gulf named after it. Tan-ma-hsi was the old Singapura (see this Journal, No. 53, pp. 155-6). Assuming these identifications to be correct, as I believe we are entitled to do, the above quotation suffices to establish the fact that a naval expedition from Siam attacked Singapore in the first half of the 14th century. That is an interesting scrap of information about a period of Malay history which is otherwise almost a blank, so far as real history is concerned, though of course legends and traditions are not altogether lacking. Slight as the information is, it fits in well with what we already knew about the relations of the Siamese with the Malays of the Peninsula in this period, and it confirms the view (now pretty well established) that the old Singapore was a flourishing port during the first three quarters of the 14th century.

† 單 馬 錫

‡ 昔 里

An Experimental Investigation concerning the Effects of "Tuba" (*Derris elliptica*) Fish-Poison.

BY J. ARGYLL CAMPBELL.

"Tuba" is a term used by the Malays to denote various plants which possess fish-poisoning properties. *Derris elliptica* Benth., Leguminosæ, is the most powerful of these plants.

Interesting accounts of "tuba" fishing are given by George Maxwell (1) and W. H. Furness (2). According to these authors the root of the low climbing plant, *Derris elliptica*, is most commonly employed. The root is pounded by a club and then extracted by soaking it in water contained in boats. The soaked root is compressed and a milky-white watery fluid escapes. This fluid is mixed with lime to make it sink and spread when poured into the river. Previously a barricade has been erected some distance down the river to prevent the fish escaping. The poison stupefies the fish and they flee before it. Men in boats and on the barricade scoop up the fish in nets or spear them as they come to the surface. Furness says that the fish seem to be affected by suffocation.

Research has been done concerning the chemical composition of this poison. M. Greshoff (3) obtained a resin which he called "derrid" and which he found to resemble pachyrrhizid, timboine, nicotoline and piscidine in composition. Wray (4) also isolated a resinous substance which he named "tubaine."

I can find no research concerning the actions of the poison upon the living tissues, although much has been written about its apparent actions. Greshoff (5) says that drinking the poison produces vomiting, dizziness and death. He records a case of suicide in Java. Ridley (6) mentions that "tuba" poison is speedily fatal to man when swallowed or to fish when in contact with the gills; and that it is used by Malays as an abortifacient (7). Gimlette (8) gives a good deal of information. Fish stupefied by the poison can be eaten with impunity by man. Chinese use the poison extensively as an insecticide, especially for spraying pepper vines. It is put into wells with criminal intent, but death seems to be rare. A decoction is used by Malay girls to produce abortion; death sometimes occurs owing to uterine hæmorrhage. Acute cases of poisoning are characterised by fixation of the jaws. In Borneo the Dyak girls use it to commit suicide. It is also mixed with "ipoh" poison by the Sakei in preparation of dart poison for blow pipes.

Preparation of the Poison.

In my research the extract was prepared in the same way as Malay fishermen prepare it. When necessary the root was not extracted with water, but with Ringer's physiological saline solution (NaCl .9% ; KCl .01% ; $\text{Ca}(\text{PO}_4)_2$ to saturation). It was then filtered and boiled. These processes do not interfere with its toxic properties and the fluid is still milky-white. The poison passes very slowly through parchment; only one seventieth part of the poison passes through in five days, so that it seems to be in colloidal solution. The extract keeps at least for a week. In most cases the extract was prepared fresh when required. The specimen of the root used by me, was kept for three months in a cupboard and retained its full powers all that time.

The extract is not antiseptic. Organic matter soaked in it soon putrefies at ordinary room temperature (28 °C).

The extract is faintly acid in reaction. It has an acrid taste and smell. The taste persists for a long time; strong solutions cause slight numbness of the gums and mouth about ten minutes after tasting.

I have not attempted to separate the active substance, but I have investigated the actions of the extract as used by the natives.

In estimating the strengths of the solutions used, I have taken 1 gm. by weight of the root in 100 cubic centimeters of water as 1 in 100 solution.

Before performing any experiments, the milky extract to be used was first tested to prove that it was capable of killing fish. It never failed to do this. A given weight of the root contains a constant quantity of the poison and kills fish in a definite time.

Effects on Different Animals.

EFFECTS ON FISH. Fish, *Ophiocephalus qachua*, Buch.-Ham., of about fifty grammes weight were used. Solutions as weak as 1 in 100,000 are fatal to these fish. Wray (9) found that 1 in 350,000 of the isolated resin "tubame" kills fish in half an hour. Greshoff (9) obtained the same results with a much weaker solution of the resin "derrid."

The symptoms of poisoning as observed by myself are constant. In a solution 1 in 1500 the fish becomes agitated almost at once and swims about wildly at the surface of the water taking in mouthfuls of air which escapes into the water by the gill slits. In two minutes time the fish is lying on its side at the bottom of the vessel, breathing slowly and deeply. In another five minutes the breathing stops, the fins twitch, but reflex movements can be elicited for another three minutes. The fish dies eleven minutes after immersion. A solution 1 in 12,000 kills in twenty eight minutes, a solution 1 in 50,000 in eighty three minutes. The fish

does not seem to lose consciousness until the breathing is greatly affected. Post mortem examination shows venous congestion of the organs; the heart is full of blood, but still capable of contracting in response to stimuli. If the heart be examined soon after the breathing has stopped, it is observed to be beating feebly, and if relieved from the distension with blood, will beat for a long time.

From these observations it seems very probable that death is due to asphyxia.

Another series of experiments was done in which a small quantity (1 cubic centimeter) of the extract was injected into the stomach of the fish by means of a long narrow metal tube passed down the oesophagus.

The minimal lethal dose, in this manner of injection, is the extract obtained from 1,200 gm. of the root. The extract actually injected is 1 c. c. 1 in 200 solution. The symptoms of poisoning are exactly the same as those described above. The poison is rapidly absorbed by the stomach, the fish becoming affected two minutes after the injection. Wray (9) points out that "tubaine" is insoluble and that he has seen a fish eat a quantity without ill effects. I have not used the isolated substance "tubaine," but the milky extract is certainly rapidly fatal when administered in this way. The extract from 125 gm. of the root kills fish in twelve minutes, from 1200 gm. in one hour.

I have not experimented with fish larger than 50 gm. Undoubtedly larger fish would require larger doses to kill them.

EFFECTS ON TADPOLES. Tadpoles of the common Singapore toad, *Bufo melanostictus*, were immersed in solutions of various concentrations. The symptoms of poisoning closely resemble those described for fish, but stronger solutions are required. Solutions weaker than 1 in 12,000 do not kill tadpoles. A solution 1 in 12,000 kills in forty three minutes and a solution of 1 in 4,500 in twenty minutes. These solutions kill fish in half these times respectively.

EFFECTS ON MOSQUITO LARVÆ. *Stegomyia* larvæ were employed. Solutions weaker than 1 in 10,000 are not fatal, nor do they prevent the larvæ developing. A solution 1 in 10,000 takes at least two days to kill larvæ; 1 in 5,000 kills them in about two days; 1 in 1,000 in one day, 1 in 500 in three hours, 1 in 10 in one hour. Therefore much stronger solutions and much longer periods of action are required to kill mosquito larvæ than to kill fish or tadpoles.

EFFECTS ON TOADS. The common toad, *Bufo melanostictus*, was employed. The poison was administered either by subcutaneous injection or by injection into the stomach of one cubic centimeter of the fluid extract. The minimal lethal dose by the

first method of injection is 1 c. c. 1 in 50, that is the extract obtained from 1.50 gm. of the root, by the second method of injection 1 c. c. 1 in 12, that is the extract obtained from 1.12 gm. of the root. In both cases the symptoms are similar. In a few minutes the animal becomes agitated for a short time, then quiets down and in another ten minutes its breathing becomes deeper and irregular in rate, the nostrils dilating at each inspiration. The animal is still conscious and all its reflexes are normal. In another twenty minutes the breathing stops, reflexes diminish and finally disappear about thirty five minutes after the injection. Post mortem examination reveals signs of death from asphyxia, the organs being congested, and the heart full. The heart can be stimulated to contract for a long time after removal from the animal.

EFFECTS ON MONKEYS. Two varieties of monkeys were used, the common kra (*Macacus cynomolgus*) and the larger pig-tailed monkey (*Macacus nemestripinus*).

The poison was injected subcutaneously; the injection causes no pain. The minimal lethal dose is the extract from 2 gm. of the root. The extract is concentrated to small bulk by boiling; boiling does not effect the poison. Within five minutes the animal becomes weak, and the gums and tongue are very pale. There is usually slight vomiting about this time. The vomiting resembles cerebral vomiting and soon ceases as the animal goes to sleep. It can be aroused and its reflexes are normal. Then the breathing shows great increase in depth, and soon becomes very deep and slow; then gasping inspirations occur about six a minute; the reflexes now disappear and the animal cannot be aroused; gasping gradually ceases and the animal dies. The heart beats for several minutes after the respiration ceases. These symptoms are those of asphyxia and post mortem examination shows the signs of death from asphyxia. Death occurs in about forty minutes.

Experiments in which the poison is introduced into the stomach by a stomach tube give the same results. Vomiting comes on in about five minutes and is not excessive. In any case sufficient poison is absorbed because death takes place even after vomiting. The extract from 2 gm. weight of the root is the minimal lethal dose. Death occurs in forty minutes, the symptoms resembling those produced by subcutaneous injection of the poison. When the respiration is greatly affected, the reflexes disappear, the corneal reflex being the last to go. The pupils are dilated.

Action on the Tissues and Organs Removed from the Body.

EFFECTS ON VOLUNTARY MUSCLE. When in concentrations 1 in 8 to 1 in 2,000, its action on the voluntary muscles of the tongue and of the calf of a toad is to weaken their power of contraction. The motor nerves and end plates are not affected. This

weakening of the muscle is removed by washing out the poison. Weaker solutions have no action on voluntary muscle.

In the experiments on the tongue the poison was injected under the mucous membrane. Induction shocks were used to stimulate the muscle.

EFFECTS ON INVOLUNTARY MUSCLE. "Tuba" poison in solutions 1 in 60 to 1 in 6,000, diminishes the tone and movements of the involuntary muscle of the intestine of a monkey. This weakening is counteracted by the presence of a dilute solution of sodium carbonate.

EFFECTS ON HEART MUSCLE. "Tuba" poison, even in strong solutions, has no action on heart muscle. The isolated heart beats strongly and for a long time in Ringer's solution containing the poison in concentrations 1 in 8 or 1 in 100. The same results are obtained when the heart is perfused with the poison 1 in 80.

These results with heart muscle, verify the fact that for some time after the respiration has ceased in the living animal under the influence of the poison, the heart may be felt still beating strongly.

EFFECTS ON THE BLOOD. Strong solutions (1 in 100) of the poison in Ringer's solution alter neither the red nor white cells of the blood of the monkey. The white cells show the usual amoeboid movements if the solution be kept warm. There is no haemolysis or breaking up of the red cells.

The oxygen capacity of the blood is not altered by the poison, the red cells taking up oxygen easily and giving it off easily.

EFFECTS ON THE BLOOD VESSELS. Solutions of the poison varying in strength from 1 in 30 to 1 in 4000 were perfused through the blood vessels of a toad. In most cases the poison dilates the blood vessels, in a few cases no effect is produced.

In another series of experiments the extract (from 1 in 50 up to 1 in 1250) was perfused through the blood vessels of a limb of a monkey. In these vessels dilatation is produced and the poison so affects the blood vessels that the power of adrenalin to constrict them is markedly lessened and in most cases abolished.

Experiments on Anaesthetised Monkeys.

Macacus cynomolgus and *Macacus nemestipinus* were the monkeys employed, chloroform being used as the anaesthetic. The poison was injected into a vein, usually the femoral vein, by means of an injection cannula; records of the blood pressure, usually that of the femoral artery, and of the respiration were taken.

Injected in this way the extract from 1/50 gm. of the root is sufficient to produce death. In all cases marked effects are produced on the respiration and blood pressure (Fig. 1). Respiration is usually stimulated at first, then depressed and finally paralysed. The blood pressure falls considerably but only temporarily.

Later further changes are produced in the blood pressure, but these are produced by the asphyxia.

A dose as weak as 1 c. c. of 1 in 10,000 solution produces similar changes in the respiration and blood pressure but the changes are not so well marked: the respiration is not paralysed and death does not occur, the normal conditions prevailing again.

The tissues apparently become accustomed to the poison in a slight degree. Thus a dose from 1.50 gm. of the root kills if injected without any previous injection being made: but if many injections of weaker solutions of gradually increasing strengths are first performed, a stronger dose than 1.50 gm. is required to produce death.

The poison acts upon the respiratory nervous centre in the medulla and not on the vagal ending in the lungs, because the same results are obtained if the vagi are cut (Fig. 2). Also if the poison is injected into the carotid artery, the respiration is affected in a few seconds.

It has already been stated that the poison dilates the blood vessels of the isolated limb of a monkey and that it greatly weakens the tone and movements of the involuntary muscle of the intestine of the same animal. The fall of blood pressure is explained by these actions. Further experiments and chemical analysis are required to prove whether one substance causes both paralysis of respiration and dilatation of the blood vessels or whether there are two distinct substances for these actions.

The previous injection of adrenalin only slightly modifies the depressing influence of the poison upon the blood vessels, and the fall of blood pressure is still very well marked.

After-effects of the Poison.

In some experiments injections were made subcutaneously into monkeys, but although these injections were strong enough to produce very great effects on the respiration, causing a marked degree of asphyxia, they were not strong enough to kill the animals. In these cases the animals recover completely in a few hours and exhibit no ill after-effects,—no paralysis, no digestive troubles and no weakness of any kind.

Discussion.

From the results on different animals it is evident that the poison affects the more highly developed members of the animal kingdom more readily than it does the primitive members. This is only to be expected since its action concerns the brain and one particular part of this, namely the medulla oblongata.

It could be used to destroy mosquito larvae, but it should be used in solutions not weaker than 1 in 1,000, that is just enough

of the extract should be added to the pool to make the water cloudy. Of course this would kill fish up to 50 gm. far more quickly than it would the larvæ and in time it would certainly affect much larger fish.

Its effects on the higher animals can be explained from the results obtained in the experiments performed on anaesthetised animals. The great weakness exhibited in cases of poisoning is due to the fall of blood pressure and to the weakening of the voluntary and involuntary muscle. The effects on the respiration are due at first to the stimulation and afterwards to the paralysis of the respiratory centre. The vomiting which usually occurs seems to be due to the stimulation of the vomiting centre in the medulla. After injection of the poison into the stomach whatever the dose a definite interval elapses before vomiting takes place. It occurs at the same time as the other changes and it is never excessive. Even after vomiting death takes place thus showing that sufficient poison is absorbed before vomiting occurs.

From the facts that the animal remains conscious and that the reflexes are present until the respiratory centre is greatly affected, it follows that the poison has no previous effect on other parts of the brain and spinal cord. The animals do become sleepy but that can be explained by the muscular weakness and the fall of the blood pressure. The unconsciousness and absence of reflexes come on during the asphyxia.

It has already been mentioned that cases of abortion with fatal hæmorrhage have occurred by the use of this poison. The poison does not act directly on the uterus since it weakens involuntary muscle. The abortion must be due to the asphyxia produced by the poison. The uterine hæmorrhage is due to the dilatation of the blood vessels.

The poison is very virulent since the extract from only 2 gm. (30 grains) of the root is sufficient to kill a large monkey. Cases of murder have not been reported probably because the would-be victim detects the presence of something to be avoided owing to the acrid taste and smell of a strong solution. Cases of suicide have been reported. A few months ago a case of suspected "tuba" poisoning was recorded in Singapore. I am indebted to Dr. R. D. Keith acting Government Pathologist for the details. A quantity of "tuba" root was found in the room with the body. Post Mortem examination revealed nothing but venous congestion of the organs. The lungs possessed an acrid odour. Analysis of the stomach contents was negative. "Tuba" poison was not tested for, because chemical tests for this poison are unknown, although Greshoff (3) describes crystals of definite shape and colour, which are obtained from the poison.

The Post Mortem examinations in my experiments only show venous congestion of the organs.

It should be easy enough to detect the presence of "tuba" poison in the stomach contents by simply testing the effects, after boiling and filtering, of some of the fluid upon small fish, seeing that they are killed by very weak solutions of the poison.

The treatment indicated is that for poisons which produce muscular weakness and paralyse the respiratory centre. The natives of Sarawak administer sugar and cold baths. (8).

Conclusions.

(1) "Tuba" fish-poison (*Derris elliptica*) causes death by paralysing the respiratory centre in the medulla. The sap from 2 gm. weight of the root when administered by mouth, is sufficient to kill a monkey (*Macacus nemestipinus*).

(2) It usually stimulates the respiratory centre before depressing it.

(3) It causes great weakness, because it weakens both voluntary and involuntary muscle and because it produces a great fall of blood pressure.

(4) It has no action upon the heart muscle or heart nervous mechanism.

(5) It produces a marked fall of blood pressure because it greatly weakens the muscle of the vessel walls, thus causing dilatation.

(6) It causes vomiting probably by stimulating the vomiting centre in the medulla: but, after swallowing large doses, sufficient poison to cause death is absorbed even if vomiting occurs.

(7) Fish poisoned by "tuba" can be eaten with impunity by man, because fish are killed by very small quantities of the poison.

(8) It is not antiseptic and its poisonous action is less marked on the lower members of the animal kingdom than on the more highly organised members. It kills mosquito larvæ and tadpoles but it is less toxic to these than to fish.

I am indebted to Dr. Hanitsch of The Raffles Museum and to Mr. I. H. Burkill of The Botanical Gardens, for assistance with the literature.

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6. H. N. Ridley. Agricultural Bulletin, Straits Settlements, page 218, 1898.

7. H. N. Ridley. *Journal of Straits Medical Association*, page 136, 1894.
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(The author regrets that no reference has been made in the above paper to Van Hasselt's research published in the *Archives internationales de Pharmacodynamie et Therapie*, xvi. (1911) p. 243. Information regarding the existence of Van Hasselt's work was received after the paper had gone to press).

Fig. 1. Monkey under chloroform anaesthesia. Effects on respiration and blood pressure of injecting 1 c. c. 1 in 30 "tuba" poison into the femoral vein. A. Record of respiration. B. Blood pressure in femoral artery. C. Signal of injection. D. Time in two seconds. Note that the respiration and blood pressure are effected about forty seconds after the beginning of the injection. Respiration is greatly affected and ceases eleven minutes after the injection (Fig. 1, X), thus producing death. The blood pressure falls very considerably at first but recovers in a few minutes, and is still well maintained when the respiration ceases. The heart was felt beating after the respiration ceased.

Fig. 2. A. Monkey under chloroform anaesthesia, vagi intact. Effects on respiration and blood pressure of injecting $\frac{1}{2}$ c. c. 1 in 100 "tuba" into the femoral vein. A. B. C. D. same readings as in fig. 1. Respiration is at first slightly augmented and later, weakened.

Fig. 2. B. Same animal as in fig. 2 A, but with vagi cut. Effects on respiration and blood pressure of injecting 1 c. c. 1 in 100 "tuba" into the femoral vein.

The respiration is similarly but more markedly affected in fig. 2 B, than in fig. 2 A, a larger dose of the poison being injected. The respiration recovers eventually. Note the fall of blood pressure in both cases. In fig. 2 A, the heart beats are just perceptible on the tracing. After cutting the vagi, Fig. 2 B, the heart beats are greatly augmented and the blood pressure is raised considerably, these results being the normal effects of cutting the vagi.

In this experiment death does not occur, because the dose of poison administered is non-lethal.

New and Rare Malayan Plants.

Series VIII.

BY H. N. RIDLEY, F.R.S.

Herewith I give an account of some additions to the Flora of the Malay Peninsula, with notes on species insufficiently or incorrectly described, in continuation of the Series previously described in the Journal.

Ryparosa Wallichii, n. sp. (*Bicucera*). A tree: branches when young covered with red hair. *Leaves* glabrous above, coriaceous, lanceolate-oblong, base slightly narrowed, apex acute, pale whitish beneath, 8-9 inches long, 2 inches wide, the nerves five pairs, elevated, ascending, often hairy beneath; midrib also hairy; petiole 1.5 inches long, hairy. *Male racemes* axillary or from the trunk of the tree, 6-8 inches long; bracts small, lanceolate; pedicels .25 inches long. Flowers .2 inches long, yellow. *Sepals* 5, short, ovate, hairy. *Petals* rounded, hairy, much larger than the sepals, with the scale inside about half as long, and hairy. *Staminal* column glabrous; anthers 4, oblong.

SINGAPORE: Gardens' jungle (*Ridley*). PENANG: "A climber from the hills, October" (*Wallich* 7847B); Herb. Finlayson (*Wallich* 7847A).

Wallich's specimens are like the Botanic Gardens ones—male, but with young spikes, axillary and quite short. Those from the Gardens' jungle were fully developed and borne on the trunk. Wallich describes it as a climber from the Penang hills; but it has not been collected again, and as no species of the genus is a climber, it is possible that the label is wrongly affixed. The species is chiefly remarkable for its narrow leaves and hairy inflorescence.

Xanthophyllum puberulum, n. sp. (*Polygalaceae*). A large shrub with pubescent branches. *Leaves* oblong-elliptic or lanceolate, cuspidate, shortly narrowed at the base, thinly coriaceous, 5.5 to 8 inches long, 2.25 to 2.75 inches broad, nerves 5 to 6 pairs, elevate beneath; reticulations large, all pubescent; petiole .25 inches long. *Flowers* white, in short terminal panicles 2 to 3 inches long, pubescent; branches few. *Sepals* unequal, ovate obtuse, minutely pubescent. *Petals* spatulate, glabrous; keel slightly pubescent. *Stamens* glabrous except at the base. *Ovary* villous, stipitate; ovules 4.

SERANGOR: by the stream at Klang Gates (*Ridley* 13396). DINDINGS: at Lumut (*Ridley* 10366). Flowering in August.

A handsome bush, distinguished by its villous 4-ovuled ovary and pubescent leaves.

Chodat in the *Bulletin de l'Herbier Boissier*, iv, p. 255, has published a revision of this genus since it was described by King in the *Materials for a flora of the Malay Peninsula*, and made several corrections and additions:—

A. ellipticum, King, is not the species described by Miquel under that name, but a plant of the Malay Peninsula which is now called *A. Kingii*, Chodat.

A. eurhynchum, King, is also not Miquel's plant, and is renamed *A. verrucosum*, Chodat (l.c. 263).

A. glaucum, Wall. Chodat separates King's plant from Wallich's, as *A. microcarpum*, saying that it has "*Fruitus parvus nec verrucosus nec costatus*" which is an excellent description of Wallich's type of *A. glaucum*. King's plant from Trang is absolutely identical with Wallich's *A. glaucum*.

He describes two new species.

X. hebecarpum, Chodat (l.c. 263) based on imperfect fruiting specimens collected in Pangkor (*Curtis* 1639) with large velvety fruit.

X. discolor, Chodat (l.c. 257). A small tree with leaves glaucous beneath, and rather large white flowers, collected by me at Seletar and in the Gardens' jungle, Singapore.

Garcinia clusiaefolia, n. sp. (*Guttifera*). A tree, with black branches not angled. Leaves stiffly coriaceous, obovate, apex obtuse, base cuneate, nerves very fine inconspicuous above, invisible beneath, 5.5 inches long, 2.25 to 3 inches wide, drying greenish; petiole .5 inches long, stout, not wrinkled. *Male flowers* in fascicles upon axillary tubercles 10 or more in a fascicle, very small, .1 inch long; bracts ovate, numerous; pedicels thick, .25 inches long. *Sepals* 4, 2 outer coriaceous orbicular concave, 2 inner thinner obovate oblong. *Petals* oblong, obtuse, as long as the sepals. *Stamens* connate into a subconic mass, not lobed; anthers sessile, minute, 2-celled, cells separated by the broad subtriangular connective. *Pistillode* 0. *Female flowers* and fruit not seen.

PAHANG: at Wray's camp on Gunong Tahan (*Ridley* 16242).

Allied to the lowland swamp-loving *G. bancana*, Miq. but distinct in the more finely and numerously veined foliage, much shorter and thicker petiole, smaller flowers, and the connective of the anther triangular, with the cells at the point and so closer together, and not quadrate as in *G. bancana*.

Garcinia pyrifera, n. sp. (*Guttifera*). A tree; branchlets yellow, angled. *Leaves* coriaceous, drying light greenish, elliptic, subacute, shortly narrowed at the base, 3.5 inches to

5.5 inches long, 1.75 to 2.25 inches wide, nerves very numerous horizontal meeting in an intra-marginal nerve close to the edge; reticulations visible; costa rounded; edge not thickened; petiole very short, wrinkled, .5 inches long. *Male flowers* not seen. *Female flowers* solitary, axillary from tubercles covered with short ovate bracts. *Fruit* obovoid pear-shaped, narrowed at base, widest near apex, tip depressed, 2.5 to 3 inches through, on a long 1.75 inches peduncle, yellow. *Sepals* persistent, small, ovate. *Stigma* small, 5-lobed, lobes rounded. *Seeds* 2-3, reniform, brown, 1 inch long, .25 inches wide.

PENANG: Penara Bukit (*Curtis* 3094).

Near *G. densiflora*, King, of which the female is unknown but the foliage is quite different, the texture being thinner; and drying pale, the midrib is not acute and the margin not thickened.

***Ternstroemia montana*, n. sp. (*Ternstroemiaceae*).** Branches stout, grey. *Leaves* thick, coriaceous, obovate to oblanceolate, blunt, long-narrowed to the petiole, 2.5 to 3 inches long, 1-1.25 inches wide, nerves above invisible, beneath often invisible but sometimes distinct, 3-4 pairs, arched, and anastomosing some way from the margin. *Flowers* in the upper axils of the leaves or below the leaves; pedicels short and thick .20 inches long; flowers .5 inches across glabrous. *Sepals* subequal, rotund, coriaceous. *Petals* coriaceous, rotund, edges denticulate. *Stamens* glabrous; anthers linear, oblong, longer than the filament.

PERAK: Gunong Kerbau at 4500 feet (*Robinson*).

This differs from *T. Maclellandi*, Ridl. for which I at first took it in the nervation, which in that species so far as it is ever visible is horizontal slightly ascending, in this it is curved in the centre and anastomoses some way from the edge, the flowers are bigger, the pedicels much shorter and thicker, the petals coriaceous and minutely denticulate.

***Gordonia singaporeana*, Wall. Cat. 1457, (*G. grandis*, King in Journ. As. Soc. Bengal, lix. (1890) p. 203) (*Ternstroemiaceae*).** There seems to have been some confusion as to the *Gordonius* of the low country of the Malay Peninsula. The type of *G. singaporeana* referred by King to his *Gordonia excelsa*, is undoubtedly the common *G. grandis* King, a native of Singapore. This species is closely allied to the true *G. excelsa*, Bl. of Java, resembling it in the leaves in which the lamina is decurrent on the petiole, differing in the rather smaller flowers, and silky pubescence of the bud and young shoot. *G. grandis* having these parts quite glabrous.

G. excelsa, King, is a totally different plant, and has rather an affinity with *G. Maingayi* as King suggests than with the *G. excelsa*, Bl. I describe it under the name of *G. penangensis*.

Gordonia penangensis, n. sp. (*G. cecilsa*, King l.c. 203 not of Blume) (*Ternstroemia*). A tree 30 to 40 feet tall, 10-15 inches through the stem, branchlets silky pubescent. Leaves thinly coriaceous, glabrous, lanceolate elliptic acuminate, edges serrulate or entire, base acuminate, 2.5 to 4 inches long, 1-1.75 inches wide, nerves very faint sometimes almost invisible 5 to 7 pairs marching doubly within the edge; petiole .25, creamy white or yellow; pedicel very short silky. *Sepals* rounded, silky outside. *Petals* round, narrowed at the base, backs silky. *Stamens* very numerous; anthers oblong. *Ovary* conic, silky; style 1, stout, pubescent, 5-lobed. *Capsule* 5- or 6-angled, 1.25 to 1.5 inches long, conic, hairy or glabrescent, valves acute.

PENANG: common on Penang Hill (*Curtis*), and I have also found it in SINGAPORE at Seletar (6214 and 3913 of my collection).

Gordonia hirtella, n. sp. (*Ternstroemia*). A tree with silky buds and shoots. *Leaves* coriaceous, elliptic lanceolate, acuminate, base narrowed subacute, nerves very fine much reticulate, the secondary nerves and reticulations as distinct as the primary nerves, above almost as invisible as on the lower surface, margins crenulate or entire, above glabrous, beneath appressed hairy, 3.5 to 6 inches long, 1.5 to 2 inches wide; petiole .25 inches long. *Flowers* rather small, cream coloured; peduncles silky .1 inch or less long. *Sepals* orbicular, silky tomentose, .2 inches long. *Petals* obovate, silky on the back. *Stamens* apparently few. *Capsule* .75 inches long, appressed pubescent outside, valves subacute.

SELANGOR: in mountain forests, Bukit Kutu at 3000 feet (*Ridley* 7350). PERAK: Gunung Batu Puteh (*Wray* 1116).

This species is nearest to *G. diplosperma*, Kurz, of Bhotan. The leaves are more coriaceous, and it is more hairy, and the hairs do not spring from large pustules on the leaf as in that species. From *G. penangensis* it differs in the hairy backs of the leaves and smaller flowers and fruits. The nervation is much the same as in *penangensis* but the reticulation is more elaborate.

Hopea albescens, n. sp. (*Dipterocarpaceae*). *Leaves* coriaceous, ovate to elliptic, acuminate, apex blunt, base rounded, glabrous, nerves 8 pairs very slender almost invisible above, 2.75 to 3 inches long, 1.25 inches wide; petiole .4 inches long. *Panicles* axillary and terminal, 3-4 inches long. *Flowers* subsessile, white tomentose, shortly pedicelled. *Sepals* lanceolate ovate, obtuse. *Petals* .2 inches long, a little longer than the sepals, oblong, broad, blunt, pubescent outside. *Stamens* 15, filaments elongate triangular; anther elliptic, seta very fine, as long as the anther. *Ovary* pubescent; style short.

PAHANG: at Raub (*Burn-Murdoch*) "Merawan."

This species is allied to *H. odorata*, Roxb. of Tenasserim, but has smaller leaves more coriaceous, fewer nerved, and more abruptly acuminate, flowers distinctly pedicelled (not sessile as in *H. odorata*), petals smaller and the filaments different in shape.

***Hopea Lowii*, Brandis.** This moderate sized tree has not previously been recorded from the Malay Peninsula. I have met with it at Chua Chu Kang, (No. 6685 of my collections) but I believe the only tree I ever saw there is gone now; and I have had it also from Muar, and Penang Waterfall (*Curtis* 3635). It is also a native of Borneo and Sumatra.

***Durio singaporensis*, n. sp. (Malvaceae).** A large tree. *Leaves* oblong, obtuse or subacute, base blunt rounded, coriaceous, glabrous above, with channelled midrib, beneath scaly raw sienna colour, nerves very numerous, and inconspicuous above, and hardly distinct beneath, 7-9 inches long, 2.5-3 inches wide; petiole thick .25 inches long, angled. *Flowers* in clusters of 2 or 3 on the trunk; peduncles short; pedicels .5 inches long, 4-angled, with 2 lanceolate bracts at their bases; floral bracts ovate, acute, 1 inch long and as wide. *Sepals* oblong, 2 inches long, acute, scaly, cinnamon colour. *Petals* linear, oblong, 1.5 inches long, outside scaly with fringed scales, cinnamon colour, within pubescent white. *Stamens* and pistil like those of *D. malaccensis*, Griff.

SINGAPORE: Bukit Timah (*Ridley* 3204); Ang Mo Kio (*Ridley* 6676); Seletar. JOHORE: in Johore Bahru (*Ridley* 6677), and Mount Austin (*Ridley* 11996).

***Scaphium longiflorum*, n. sp. (Sterculiaceae).** Tree. *Leaves* coriaceous, elliptic rounded, shortly acuminate, blunt, sometimes glaucescent beneath, nerves 7 pairs strongly raised, and the reticulations conspicuous beneath, above smooth, 4.5 to 6 inches long, 2.8 to 3 inches across; petiole 2.2 inches long. *Panicles* axillary, 6 inches long, sparingly red-tomentose, compact, much branched. *Flowers* numerous glabrous; bracts caducous; pedicels glabrous, .1 inch long. *Calyx* .3 inches long; tube cylindric, .2 in. long; lobes 4, much shorter, ovate, acute, all glabrous except the inner edges which are woolly. *Stamens* 8, in a globose woolly head, staminal column longer than the calyx tube, woolly.

PERAK: (*Scortechini* 2077 and 2026).

I have seen no female flowers or fruit of this species which was confused with *S. affine*, but from which it is very distinct in its long tubed glabrous flowers and woolly long androecium. The panicles are also much more glabrous.

I consider it advisable to keep the genus *Scaphium* distinct from *Sterculia* from which it differs not only in its membranous one-seeded carpels but also in the form of the flowers. Besides this there are known four other species.

1. ***Scaphium Wallichii***, R. Br., only known from one gathering in Martaban in Wallich's collection and described usually as *Sterculia scaphigera*, Wall. Cat. 1130. I have seen no flowers of this species which has much larger leaves than the commoner species, *S. affine*.
2. ***Scaphium affine***, Ridl. (*Sterculia affine* Masters). This plant is the "Kembang Semangkok" of the Malays and occurs in Singapore, Malacca and Pahang. Pierre's *Sterculia scaphigera* (Fl. For. Cochinchine, t. 201) may be this species but the flowers have not been seen.

The species is very distinct in its small short-tubed flowers with a very short stalked staminal column quite glabrous. The inflorescence is very tomentose.

3. ***S. Beccarianum***, (Pierre L.) is a native of Sarawak, in Borneo, and has quite glabrous flowers more resembling those of *S. longiflorum*. I found fallen fruits and leaves of what I take to be this species in the Matang forest. The fruit which has not been described is thin and green, 5 inches long and over 1.5 inches deep, much shorter and broader and quite blunt at the tip. The seed was an inch long.
4. ***Scaphium linearicarpum***, (*Sterculia linearicarpa*, Masters) a rare Malacca tree, belongs to the genus also.

Pterygota Roxburghii, Schott and Endl. Melet. p. 32 (*Sterculia alata* Roxburgh) (*Sterculiaceae*) is given in King's *Materials* as a native of the Malay Peninsula on the strength of a specimen in Scortechini's collections without locality. The tree is a native of Southern India and the Andamans. It has been introduced from the Calcutta Gardens and largely planted as a road side tree in Singapore and Penang, and perhaps Scortechini's specimens are not from a wild plant. No one else has found it wild, and it would be advisable to leave it out of our Flora until we get additional evidence of its being a native tree. The genus *Pterygota* of which there are several species in Africa, is a very good one, and distinct from *Sterculia*.

Buettneria brevipes, n.sp. (*Sterculiaceae*). A glabrous woody climber. *Leaves* coriaceous, elliptic, obtuse, base narrowed truncate, nerves five pairs conspicuous on both surfaces as are the reticulations, inarching within the margin, 4.5 inches long, 2 inches wide; petiole .2 inches long. *Cymes* numerous, slender, axillary, 1 inch long; pedicels umbellate, very slender, minutely pubescent. *Sepals* lanceolate, acuminate, .3 inches long. *Petals* about as long as the sepals, base obconic with 2 short points at the upper angles, apex caudate. *Staminal tube* short, broad, cylindric; anthers small, oblong. *Ovary* small, ovate, conic 5-lobed bluntly with scabrid angles. Fruit not seen.

DINDINGS: at Simpiti near Lumut (*Ridley*).

Allied to *B. Curtisii*, Oliv. of Penang, but the leaves are much broader with more nerves and conspicuous reticulations. They are dark brown when adult and dry.

Buettneria uncinata, Mast. in Hook. fil., Fl. Brit. Ind. i. p. 377 and King, Journ., As. Soc. Bengal, p. 200, 91. (*Sterculiaceae*). The type of this in Herb. Kew, is a fruiting specimen of *Mallotus Griffithianus*, Hook. fil. (*Euphorbiaceae*) collected by Maingay in Malacca. Another sheet put with it in Herb. Kew as possibly the same is also a species of *Mallotus*.

Waltheria indica, Linn. is given by King as occurring "in all the provinces, a weed." I have never seen a specimen of this at all from the Malay Peninsula, either in Kew or the British Museum herbarium: nor have ever seen it myself anywhere in the Peninsula. It is a common weed in many parts of the world and may be expected to turn up; but it has not done so yet.

Murraya caloxylon, Ridl. (*Rutaceae*). I found that this plant was flowering in the Singapore Botanic Gardens in the spring of 1915, although little more than a bush about 6 feet tall. The petals and stamens have never been described. The *petals* are 1.5 inches long and .25 inches wide in the upper part; they are linear spathulate, gradually narrowed to the base and pale green, four or five in number. The *sepals* or rather lobes of the calyx are also either 4 or 5. The *stamens* nearly half an inch long, have long slender filaments, small oblong anthers with the connective prolonged into a short point beyond the cells: they are 8 in number. In the flower and foliage this plant resembles most a *Murraya*, but the fruit is quite unlike that of any species described, and is more like that of *Limonia*. On the whole I think it better to keep it in the genus *Murraya*.

Diodia sarmntosa, Sw. Prodr. Veg. Ind. Occ. p. 30. (*Rubiaceae*). I found this new addition to our Flora abundantly on the East Coast road near Tanjong Katong in Singapore. It is a herbaceous plant growing as much as 2 feet tall, the stem hairy, four-angled, stout, the ridges crisped in the upper part. *Leaves* obovate, sessile, 2.5 inches long, 2.25 inches wide, apex subacute, base narrowed, hairy on both sides, with 6 pairs of nerves; stipules linear, bristles numerous. *Flowers* numerous, crowded in axillary heads. *Calyx* lobes 4, hairy, .25 inches long. *Corolla* .12 inches long, lobes rounded white tipped with lilac. *Capsule* .1 inch long hairy, splitting from the top to near the base into 2 cocci, which dehisce on the inner face. Each contains one elliptic brown seed deeply grooved on the inner face.

This plant is a native of South America and the West Indies and also occurs in Tropical Africa and the Mascarene islands, but I cannot find any specimens from Asia in the Kew Herbarium, nor any record of its occurring in any part of Asia.

Dendrocalamus hirtellus, n. sp. (*Gramineae*). A tall bamboo, about 40 feet long, and 2 inches through, but rather weak, walls thin, internodes long. *Leaves* broad, oblong, acuminate, with a long point, base broad rounded, glabrous above, softly pubescent beneath, 11 inches long, 1·5 inches wide; petiole thick, ·1 inch long, glabrous; ligule of few stiff bristles; sheath glabrous. *Panicle* branches pendulous, 3 feet long. Spikelets in dense heads ·5 inches through and 1·5 inches apart; bracts numerous ovate acute keeled. *Glume* I, lanceolate; glume II similar, but longer many nerved; III twice as long as I, mucronate; IV similar longer. *Palea* shorter, lanceolate, three-nerved, pale. *Stamens* 6, filaments free; anthers oblong, mucous, exsert. *Style* simple shortly plumed.

JOHORE: in forests at Genuang (*Ridley*) April 1915.

Schizostachyum elegans, n. sp. (*Gramineae*). Stems slender, 1 inch through; walls rather thick; internodes long and weak; branches slender, whorled. *Leaves* thin, lanceolate, acuminate, pubescent beneath, margins denticulate, base narrowed to the very short petiole, 6 inches long, ·5 inches wide; ligule of few rather long bristles; sheath hairy. *Panicles* graceful, 15 inches long slightly geniculate, branches 2-4 inches long; spikelets ·25 inches long, light green, 4 or 5 in a fascicle, with several ovate bracts at base, fascicles little over ·25 inches apart. *Glume* I ovate; II longer, lanceolate, shortly mucronate; III still longer, mucronate; IV similar but longer. *Palea* a little shorter, lanceolate, not keeled, glume-like but thinner. *Stamens* 6; filaments free; anthers exsert, oblong, obtuse, violet. *Ovary* conic, stipitate, subtriquetrous; style simple, grain obliquely blunt conic stipitate.

KEDAH: Lankawi Islands: common, cultivated in the Botanic Gardens Penang, where it forms a large bush of samentose habit and where it flowered in March 1915.

William Jack's Letters to Nathaniel Wallich, 1819-1821.

copied for the
Straits Branch of the Royal Asiatic Society.
from the Records of the Royal Botanic Gardens, Calcutta,
by kind permission.
under the superintendence of Major A. T. GAGE, edited, with a
list of the plants known to have been collected by Jack,
and with notes by I. H. BURKILL.

Sir Stamford Raffles, in 1817, when on leave in England, was appointed by the Court of Directors of the Honourable East India Company to the post of Lieutenant-Governor of the decaying settlement of Bencoolen in Sumatra: and he sailed from Portsmouth to take up his new duties. He had attached to his staff the naturalist Joseph Arnold, whose name is so aptly associated with his own in *Rafflesia Arnoldi*.—that of the parasite with the gigantic flower, which they discovered together on a journey into the interior of Sumatra (May 20th, 1818). Soon after this, perhaps from the fatigues of this very journey, Arnold died (vide *Memoir of the Life and Public Services of Sir Thomas Stamford Raffles*, London 1830, p. 365).

Affairs so fell that after Arnold's death Raffles had to revisit Calcutta, and when there he got together a staff of naturalists. This is how he alludes to them in a letter dated Nov. 26th, 1818 to the Duchess of Somerset "I take down from hence a medical man of the name of Jack, who will be entrusted with the botanical part of my researches: and I have two Frenchmen, M. Diard and M. Duvaucel, the former the pupil and the later the step-son of Cuvier. These three savans with a missionary clergyman, who takes charge of a printing press, form my equipment from Calcutta, so that I hope we may do something."

William Jack, who has thus been introduced to the reader, was the eldest son of the Rev. William Jack, and his wife Grace Boulton.

Of the father, Dr. J. W. H. Traill, Professor of Botany in the University of Aberdeen, has been so good as to supply the following information. He had the degrees of M.A. and M.D. and was chosen to be Professor of Mathematics in King's College, Aberdeen in 1794. This chair he held until 1811 when he exchanged it for that of Moral Philosophy. In 1815 he was elected to the post of Principal, and held it until his death at a great age in 1854.

The son's career is given in Hooker's Companion to the Botanical Magazine, i. 1835, p. 120, from the pen of his mother:

and thence the following statements have been taken. William Jack, the younger, was born in King's College on January 29th, 1795, and at the age of six was sent to the Grammar School. At the age of twelve he proceeded to the University, and at fourteen commenced the study of medicine. Mr. McLachlan, the Head-Master of the Grammar School, seems to have given him an excellent grounding in latin, and at the same time Mr. Duncan, Professor of Natural Philosophy, taught him to apply his knowledge by reading descriptions in the latin botany books of the period of the wild plants which already interested him. There were two other Aberdeen botanists of the time who are said to have helped him—Dr. Beattie and Dr. Knight; but the first named can have had little influence as he died when Jack was eight. William Knight must have had much more influence: he was a young man, nine years older than young Jack: and from 1811 to 1815 he taught Botany in Aberdeen privately.

At the age of sixteen Jack graduated M. A. in Aberdeen, and was preparing to proceed to Edinburgh to go through the Medical Schools there, when scarlet fever laid him up, and caused him to lose the session. During this break Mr. Duncan having been paralysed, young Jack taught the university botany class for a short time. In October, 1811, he proceed to London to finish his medical training there, and on the last day of January, 1812, he was orally examined by the Court of the College of Surgeons, and admitted a Fellow.

His friends, chiefly the eminent judge Sir Vicary Gibbs and Lady Gibbs, at once sought for him a surgeonship under the Honourable East India Company, but he preferred to defer his departure, and remained in Britain until the sailing of the Company's ship "Baring" on January 29th, 1813.

Published with the memoir from which the above facts are drawn are extracts from letters, which show that after his arrival in Calcutta, he was attached to a regiment stationed at the adjoining cantonment of Dum-Dum, and was then sent out with troops which fought in the Nepalese war. It is recorded that on January 9th, 1815, he was encamped on the Chorea ghattee hills with the force advancing on Khatmandoo, but he had not been in the fight at Pursua. A month later he was at Bichiakoh, encamped in the broad stony bed of the stream which debouches from those hills at that halting place. In May he was back at the cantonment of Dinapur, near Patna.

From Dinapur he wrote to his parents as follows "I have lately opened a correspondence with Dr. Wallich the Superintendent of the Calcutta Botanic Garden, from which I expect to derive both pleasure and advantage. Till now I have always felt at a loss in my botanical researches, from not being acquainted with the progress of the science in India, and particularly with Roxburgh's extensive labours and discoveries, so that I could never

be sure that my own were not anticipated. It was to remedy this and to obtain, if possible, a copy of Roxburgh's manuscript descriptions, that I wished to commence an intercourse with the present Superintendent. In the first letter which I wrote to Dr. Wallich, I sent him some seeds, and a description of a *Lobelia* which I had found in Nepaul, and which did not agree with any published species. I received in reply a most friendly letter, accompanied by some papers of his own on Indian Botany, informing me that my *Lobelia* was a perfectly new species, and soliciting further communications. I have since transmitted to him another despatch, with more plants which I conceive to be new." Then again he wrote on July 19th, 1818, I have paid a visit to Dr. Wallich, at the Botanic Garden, a short distance from Calcutta: he received me with great kindness and warmth, and insists on my coming to stay with him while I remain here. He is..... much inclined to assist me in obtaining some situation, which may open a field for Botanical research, and connect me with himself in that Department. He has already introduced my name with due acknowledgements, in a paper presented to the Asiatic Society, containing an account of some new plants from Nepaul, one of which was communicated by me." Then again he writes under the date August 19th, 1818, "Dr. Wallich has kindly insisted on my staying with him to pursue my Botanical researches: he has an excellent house in a delightful situation, about six miles below Calcutta, where I hope to pass my time most agreeably, free from those temptations to fatigue and exertion which beset me at Calcutta, and where I trust to be so much benefitted by ease of body and mind, that my health will improve as fast as it could from a sea voyage." So Jack had been ill: it was of lung trouble: and Sir Stamford Raffles says in a letter of Jan. 1st, 1823, that it was contracted during the Nepalese war, with which his Indian Service began. Jack continues:—"I am now engaged in drawing up a paper of some of my discoveries, which I have promised to furnish for a periodical work, about to be printed at the Serampore press."

Again on November 10th, 1818, he writes:—"I hasten to inform you of the occurrences of the last few days, which have made a considerable alteration in my plans, since I wrote to you. Some days ago Sir Stamford Raffles, the governor of Sumatra, came here to see the garden, and spent the day, during which Dr. Wallich and I had a long conversation with him, the result of which has been my agreeing to accompany him to Sumatra, and his promising to forward my views, and in particular, to afford me every facility for exploring the Natural History of that island. I expect to sail, shortly, with Sir Stamford Raffles in the Company's cruiser "Nearchus."

Nathaniel Wallich, who was thus instrumental in bringing Jack to the notice of Sir Stamford Raffles, was a Dane, and had been in the service of the Danish East India Company established

at Serampur on the river Hoogly above Calcutta. From Serampur, when the Danish territory was ceded, his ability secured, after some little delay, the post at the Botanic Gardens which he desired so much. To him,—a generous and good friend,—Jack wrote as he had a mind to do; and the letters were filed by Wallich along with other considerable accumulations. They have been copied at the expense of the Straits Branch of the Royal Asiatic Society under the kind supervision of Major A. T. Gage, the present Superintendent of the Royal Botanic Gardens, Calcutta, on the suggestion of Mr. H. N. Ridley, and are here for the first time printed with the omission—always indicated—of certain criticisms passed on Diard and Duvaucel, and of the official letters from Raffles to them at the end of their service which may be read in the first edition of Lady Raffles' *Memoir of Sir Stamford Raffles*.

The voyage from Calcutta to Penang (Dec. 10th to Dec. 31st, 1818) was made as planned in the "Neerchus" and took just twenty-one days.

The voyage from Calcutta to Penang (Dec. 10th to Dec. 31st, Council by Colonel John Alexander Bannerman, a senior officer who had even served on the Directorate in London, and had been sent out in 1817. Bannerman seems to have considered himself too senior to suffer the interference of a younger man like Raffles and to have lent a very willing ear to opposing counsels from his second commissioner. But Raffles had the authority of the Marquess of Hastings then Governor-General in India (1) to bring to a close the disputed succession to the Kingship of Acheen, and (2) subsequently to endeavour to effect a settlement further to the eastward than Penang,—both matters which had been very much in the hand of the Governor of Penang; in fact Bannerman had just tried under the orders of the Court of Directors to effect this last himself, and failed, because the Dutch forestalled him. It seems that he was therefore unwilling to see how another could succeed, and he proved obstructive. It has been hinted that some of his subordinates were venial; and if so it may be asked whether it was merely by prescience or by leakage of information that the Dutch came to forestall Bannerman at Rhio; but the biscuit had been fingered hesitatingly before by Bannerman (see *Memoir of Sir Stamford Raffles*, p. 395). With these matters Jack had nothing to do; they took Raffles away from Penang where he left his wife in the charge of Jack as her confinement was approaching.

Major W. Farquhar, we shall see, met Raffles at Penang possibly by accident but more probably by appointment; for if by accident why had he brought his drawings (see p. 153) with him. It was he who had been sent by Bannerman only a few weeks earlier to found the establishment at Rhio; and he on his return found himself under Raffles orders instead. Doubtless the handing over of the services of his emissary to the younger man would be a thing particularly nettling to Bannerman; for that the services were

handed over is evident from Jack's remark that Raffles had sent Farquhar on a mission down the Straits, when the change of front on the part of the Governor caused him to go first to Singapore, and only afterwards to Acheen.

The Acheen affair proved very tedious, and Raffles records that the proceedings taken down in the investigation ran to upwards of a thousand pages of the Company's largest sized paper. He had returned from founding Singapore to Penang and thence gone forward to Acheen: and all this time Jack was left with light duties and the interesting flora of Prince of Wales Island to investigate.

Of books Jack seems to have possessed Roxburgh's *Hortus Bengalensis*—a mere catalogue printed in 1814, his *Coromandel plants*, Loureiro's *Flora cochinchinensis*, Rumpf's *Herbarium amboinense*, and Lamarck's volumes of the *Encyclopédie Méthodique* and some of Poiret's, together with extracts from the manuscript of Roxburgh's *Flora indica*. Later he employed through Wallich, a clerk to copy the whole manuscript, and he commenced to subscribe for Rees' *Cyclopaedia*, De Candolle's *Regni Vegetabilis Systema* and Roemer and Schultes' *Systema vegetabilium*. He also bought Rheede's great *Hortus Malabaricus*. In 1820 Carey and Wallich produced the first volume of their revision of Roxburgh's *Flora*, and an early copy was sent to Jack, who thereupon sent back to Carey what seem to have advance sheets.

He employed a Chinese draftsman in Penang: but it is not recorded if he continued to employ artists afterwards.

The interest of the time was the finding of new species, and their cataloguing. Jack brought to this work a really excellent understanding of the natural system of classification, a kind of intuition, the origins of which must have come from work in Britain: and had he lived longer his work would have been splendid. He also showed a small interest in geographic botany.

SERIES 1—PENANG LETTERS.

Prince of Wales Island

Jan. 14th 1819.

My dear Wallich,

At length the land of promise begins to open to me, and very glorious it seems to be. I am so thoroughly occupied that I perceive I shall have little time to write to you, if I put it off to the last, therefore mean to take an hour or two from the night occasionally and to continue my letters at intervals, which though it will make them a little disjointed, I am sure you will excuse, as I shall thereby be able to give you longer details. Of the voyage I need not say much but that it was long and tedious, and on several accounts far from comfortable. Sir Stamford was very ill during part of it.

We landed on the 31st and soon forgot everything unpleasant. Among the first objects that saluted me were the Nutmeg and Clove;¹ of the latter there are two trees in full blossom before my door. The pride of the East, the Mangosteen, next presented itself. I must seek and get someone to attempt grafting it for the purpose of being sent round. The variegated Pineapple,² I believe is only a variety of the cultivated; but I have heard of another kind which probably differs specifically. The *Melastoma malabathricum* is in the greatest profusion. The situation of the anthers before flowering is very remarkable.

I am convinced this Island will produce many things entirely new. I have already met with and described two species of *Mangifera*, which must be quite new. The first is called the Bachang and for which I intend the specific name of *M. rubicunda*.³ [*Foliis lato lanceolatis retusis, paniculis ascendentibus, floribus submonandris, corollis infundibuliformibus limbo patente demum reflexo*]. The other is a very singular one, which I propose to call *M. quadrifida*.⁴ [*foliis oblongo lanceolatis, paniculis axillaribus laxis, floribus quadrifidis, monandris, petalis nudis glandulosis*]. Another very interesting discovery is the *Nelumbium javanicum*, Lamarck,⁵ which seems to have been overlooked by later authors, but is without doubt a distinct species from the *N. indicum*. I have also found the *Rubus alecatifolius*, Lamarck,⁶ which also seems

1. In the year 1818 there were 6,900 nutmeg trees in bearing in the island of Penang (vide Ridley, *Spices*, London, 1912, p. 102) besides large numbers of younger trees or males—the acquisition of 22 years; for it was in 1796 that the East India Company undertook the introduction and sent Christopher Smith to the Moluccas for the purpose; and by 1802, when the trees first fruited, Smith and his successors had sent out from the Moluccas 71,266 in all, mostly to Penang.

To the same date they had sent out 55,265 clove trees, also in chief part to Penang; but there was only a lesser measure of success with them up to the time of Jack's visit.

2. It is quite possible that the pineapple with variegated leaves was familiar to Jack from existing in the Calcutta garden. Roxburgh the first Superintendent of the Garden, knew of its existence "in Malacca." It thrives well in Penang.

3. Jack subsequently found that the bachang had received the name of *Mangifera foetida* from Roxburgh; and in these letters we find him first suspecting that this was so, asking Wallich for a diagnosis; then sending specimens to Wallich, which appear to have reached Calcutta safely for, in or after 1828, Wallich when distributing the collections of the East India Company sent out under No. 8488 material of *M. foetida* collected by Jack. We find in Carey's and Wallich's revision of Roxburgh's *Flora Indica* a description borrowed from Jack (vol. ii., p. 440).

4. *Mangifera quadrifida*, Jack, found a place in the same work, where occur almost the very words used above.

5. *Nelumbium javanicum*, Lamk., has been reduced to *Nelumbium speciosum* along with *N. indicum*.

6. *Rubus alecatifolius*, Poir., is the common bramble in the low ground of Malaya, which has passed in our floras as *R. moluccanus*. It is interesting that Curtis had not found it in Penang (this journal No. 25, 1894).

to have been neglected. I have a species of *Loranthus*, which from the specific name I think may be Roxburgh's *L. ferruginea*.⁷ Mine is quadridid, tetrandrous. There is also very common here a species of *Morinda*,⁸ which appears to differ from all Roxburgh's in having both the anthers and style exsert. What confusion there has been about the *Minusops Kauki*.⁹ I wish I had Roxburgh's character of it. There is a hexandrous species here about which I am doubtful. Major Farquhar¹⁰ who has been for many years resident at Malacca, arrived here the day before us. He has made a very large collection of drawings and subjects of Natural History. I have just had an opportunity of examining his drawings of Malacca plants. Most unfortunately, from want of scientific acquaintance with the subject they are deficient in many essential points of dissection, but they will be extremely useful as a guide, by taking the native names of all that promise to be new or interesting, and making inquiries accordingly for the originals.

I have not yet been up the hill, but shall soon, when I shall find an abundant harvest. There is a species of Fir here with solitary leaves¹¹ which is probably new—I am in hopes of getting cones. The arborescent ferns are I am told in great abundance.

Our future plans are not determined, probably we shall go first to Bencoolen, it being a great object to arrive there early on account of Lady Raffles.

There does not appear to be any great cordiality here on the part of this Government, nor am I surprised, for they cannot but feel how little and insignificant they are in comparison with the energy of Sir Stamford.

I cannot express to you how much I am delighted with him: he is of the real Sterling stamp, of that active and comprehensive mind that diffuses a portion of its own energy to all around: even

7. *Loranthus ferrugineus*, Roxb., is one of the commonest of the mistletoes in Penang.

8. *Morinda umbellata*, Linn. is the common *Morinda* of Penang. Whether anthers are exserted or not, is but a sexual character in it: and sexual dimorphism was little understood in Jack's time.

9. Wallich quotes a series of synonyms under *M. Kauki* in his Catalogue: and it is known that he was both confused and confused others over this species. Probably he had been talking to Jack about it.

10. There were two Farquhars connected with Malacca about this time. The one was the Lieutenant-Colonel Sir R. T. Farquhar who as Governor of Penang in the year 1795 suggested the demolition of the fortifications of Malacca. The other, this Major William Farquhar of the Engineers, described truly by Jack as for many years Resident at Malacca—actually from 1803 to 1818,—and at a later date, when a Colonel, the first Resident and Commandant of Singapore. He employed, so we learn also from Wallich, a Chinese artist, and was the discoverer of that strange fern *Matonia pectinata* on Mount Ophir. Buckley in his *Anecdotal History of Singapore* (1902) vol. 1, p. 50 details his service, and adds (p. 105) that he died in retirement in 1839.

11. *Dacrydium clatum*, Wallich, which was new at that date.

our two savans¹² feel a little of the Promethian touch, without which—it is needless to say more. Twelve o'clock, so good night.

Jan. 16th—I find mention made of a species of *Mangifera*, *M. foetida*, which I suspect is the Bachang, and which I prematurely proposed calling *rubicunda*.¹³ Have you a description of that species? if so, you will be able to judge from the character I gave you and you shall have specimens by the first opportunity: there has not been one yet. We have remarkably rainy weather, which probably is one cause of the difficulty I have found in getting the plants poisoned, I have been obliged to throw away many.

Do you know that the *Rhizophora* has four ovula, three of which abort? I have made a very accurate investigation and sketch of the carpology of a species which I found here,¹⁴ which approaches to the *R. cylindrica*, but differs in several respects, particularly in habit, erect consuplicate petals, and peduncles 3—4-florous. They are a very extraordinary tribe: if I am not mistaken, you refer *Aricennia* to it. Are you acquainted with the Rambutan, *Nephelium lappaceum* of authors, *scytalia rambutan*, Roxb.¹⁵ Is it not surprising that the analogy with the Litchi should have escaped observation? Look at what a strange corner Jussieu has popped it into. Its being diclinous, is very peculiar, and I suppose the cause of the mistake. I think Roxburgh was right in his idea of the Natural Order, whether it is admissible merely as a species of *Scytalia* is not quite so certain, what say you? I have found a singular species of *Pothos* with aculeate petioles and scapes, and large pinnatifid leaves with long linear divisions, can it be Roxburgh's *pinnatifida*?¹⁶ Pray send me his specified charac-

12. Diard and Duvaucel; see the introductory lines, p. 147, and letters below at pages 187 and 201 et seq.

13. See note No. 3, p. 152.

14. *Rhizophora caryophyllodes*, Jack, which is now placed as *Braquera caryophyllodes*, Blume. The species to which he compares it, *Rhizophora cylindrica*, is now placed as *Braquera parviflora*, W. & A., and is common in the Sundribans of Bengal. Jack described *Rhizophora caryophyllodes* in the Malayan Miscellanies and the description was reprinted in Hooker's Botanical Miscellany, ii. p. 86.

15. The rambutan had been introduced into the Calcutta Botanic Gardens during Roxburgh's time; but it does not thrive in northern India, and was probably lost before Jack came to know the plants therein. Jack wrote at a later date than this, as internal evidence shows, his description of the plant which was published in the Malayan Miscellanies, vol. 1, (1820) No. 1, p. 10.

16. *Pothos pinnatifida*, Roxb., for the characters of which Jack asks, is a climbing plant of Sumatra which was introduced into the Calcutta gardens under Roxburgh, and described by him from leafy specimens. It has been reduced in the *Flora of British India* to *Epipremnum mirabile* where the locality is given as "Penang, Roxburgh." But without doubt Ridley is right in stating that this is probably an error; perhaps the original source of it is here, and its perpetuation was due to one of Wallich's annotations, vide Ridley, Materials for a Flora of the Malayan Peninsula, iii. (1907) p. 46.

Jack's plant would be *Lasia aculeata*, Lour., and therefore Roxburgh's *Pothos heterophylla* instead of *P. pinnatifida*.

ters. I find here a remarkable variety, or more probably a distinct species¹⁷ from the *Acanthus ilicifolius*, to be readily distinguished even at a distance by its flowers being white, much smaller, and in longer quadrifarious spikes, only at the summits of the branches. The true *A. ilicifolius* is also to be found here, so that I have the opportunity of comparing them together, and find besides the above striking differences the following more minute ones—Calyx shorter than the tube, one bracteate at base, style shorter than the stamina, and stigma simple in the white one; the contrary of which is the case in *A. ilicifolius*, which has three bracts to the calyx and a bifid stigma. In leaves and habit they are much alike, and equally prickly. By the bye, is not Lamarck in a mistake in attributing to the *ilicifolius*, alternate leaves? see "Enc. 1 sub Acantho." Pray is not that splendid *Cassia* which we often took notice of on the walk down to the great *Ficus infectoria* the *Cassia alata*, Linn. and not a Roxburghian species? it is here abundant on the road sides.¹⁸ The *Mussaenda frondosa* is another ornament of these neglected spots.¹⁹

Jan. 23rd—My occupations have been a little interrupted by an unexpected series of events which have produced quite a revolution in our little world, and which I must now give you a short account of, that I may carry you along with me in everything that occurs. I have already mentioned that I thought there was no cordiality on the part of the Government towards Sir Stamford, and you shall hear presently the lengths they have since proceeded in their spirit of jealousy. You probably know that Sir Stamford left Bengal with a commission to settle the affairs of Acheen where two rivals²⁰ have been contending for power, and

17. *Acanthus bracteatus*, Vahl. It happens that *A. ilicifolius*, Linn., is not recorded from Penang; but there is no reason why it should not occur or have occurred in Jack's time.

18. *Cassia alata*, Linn., occurs in Penang as a cultivated plant and an escape from cultivation. It is used medicinally as a poultice for Ringworm, and grown for the purpose.

19. *Mussaenda frondosa*, Linn. does not occur in Penang; but *M. glabra*, Wall. is of common occurrence; and it would be this which Jack had noticed.

20. The rivals were (1) Johar Alam, the king, who had ascended the throne in 1802 and (2) Saif-ul-Alam, son by a slave girl, of a wealthy Penang merchant named Said Husein, the father himself being again the son of a slave girl.

Acheen for long had been a hotbed of trouble because the chiefs were almost as powerful as the king and therefore able to resist him. In this case they seem to have been done out of import exactions by the King, who permitted trade only at Acheen, and they conspired with the rich Penang family for the sake of the money that they needed for resisting; so that armed vessels paid for by Said Husein sailed from the Settlement to harass the King. From 1815 to the date of Raffles' mission this particular brew of mischief fermented; and the Penang Government was miserably timid throughout,—parleying with traitors, permitting hostile acts to take their origin in their own port, and worse than that by some of the officials assuredly taking bribes. Once a judge condemned Said Husein to prison, and the Recorder released him with honour. So they played fast and loose.

The story may be read in John Anderson's *Acheen and the ports of the north and east of Sumatra* (London, 1840).

both are desirous of obtaining our aid and protection. He has also in view to make some settlements farther to the Eastward, and as these are in fact the most important, he was anxious to make the earliest possible arrangement of the Acheen affairs in order to be more at liberty in proceeding with his other plans. Expedition however forms no part of the political code of Penang, besides which, there has been such a scene of intrigue, and I believe I may add corruption²¹ going on here in regard to Acheen as is quite disgusting. Of the two rivals whose claims are to be decided, the one is the legitimate King, with whom the nobles quarreled some time since, and whose power is insufficient to preserve peace: the other is the son of a Penang merchant, who appears to have no other claim than his father's immense wealth, and the support he has,—God knows why!—been receiving from this government. You may easily imagine that the arrival of a man like Sir Stamford to clear up such a business as this, could not be welcomed by those whose schemes were likely to be upset by the event: and they accordingly determined to throw every possible obstacle in the way, and to try every scheme that cunning could suggest to defeat his objects and prevent if possible their own disgrace. It would be tiresome to relate to you the artifices, the meannesses they had recourse to in the pursuit of this object, suffice it to say their conduct was disgraceful not only to their rank and situation, but to their character as men. But they had to do with a man too much their superior. Sir Stamford first intended to have gone to Bencoolen on Lady Raffles' account, and to have returned to make the final arrangements. The intrigues that were going on here however rendered the execution of that plan impossible, and he was at last obliged to determine on her remaining here,²² and going himself over to Acheen. In the meantime, that his other plans might not be entirely suspended, during the delays of the Acheen business, he employed Major Farquhar to proceed on a mission²³ down the Straits, as, though very desirous of it, he could not go himself. Major Farquhar sailed on the 18th and he was to go in a few days after to Acheen. Now you must know that Sir Stamford had offered to the Governor that if he wished to make any reference to Bengal on the subject of Acheen, that he would delay his proceedings till an answer should arrive and in the meantime pursue his ulterior object, but the Governor was just as averse to these other views, and wished if possible to

21. Lady Raffles recorded that an attempt was made to influence Sir Stamford by the presentation of a casket of diamonds to her. Vide *Memoir of the Life and Public Service of Sir Thomas Stamford Raffles* 1830, p. 379. Anderson hints that the official interpreter for Achinese, a man with an European name, was not without bias.

22. Raffles' determination to leave Lady Raffles in Penang is mentioned in one of his published letters dated Jan. 16th, 1819, i.e. two days before the Governor's change of front.

23. Jack is silent as to the object of the mission, which is quite likely to have been an examination of the Karimon islands.

prevent his accomplishing either, therefore declined the offer, in hopes, by throwing obstacles in the way, to keep him idle here. He was afraid to take any decided step to prevent his going to Acheen till after Major Farquhar should have sailed for fear he should go away on that expedition. But no sooner was Major Farquhar's ships out of harbour than he addressed to Sir Stamford the most urgent solicitation that he would suspend all proceedings relative to Acheen till a reply should be received to important references that had *already* been made to Bengal. This, I suppose was considered a master stroke of policy, but *respice finem*. The moment he received this, Sir Stamford took his resolution: Major Farquhar's ships were but just outside the harbour, and at anchor till next tide: he immediately dispatched intimation to them, ordered the ship in which he was to have proceeded to Acheen to get ready to go to sea immediately, and commenced sending everything on board. This was in the evening, and as soon as everything was arranged for his starting before day-break next morning, he wrote to the Governor to say that he had determined to meet his wishes, and complied with his request of suspending all proceedings relative to Acheen till the arrival of the expected reply, and had in consequence determined to sail next day to overtake Major Farquhar, and that he should return in time to resume the Acheen affairs after the requested delay had been granted. Every arrangement being made he did embark next morning and set sail.²⁴ Before the people here, who had no idea of any such promptitude and decision, knew anything about it, or had time to consider on any further obstacles to impede his progress. You may easily conceive the Governor's astonishment and disappointment, at finding his scheme defeated, and falling into a snare of his own devising. But there was no remedy. As Sir Stamford wished me to remain with Lady Raffles, here I am, in a house which he took for her residence while here, in preference to being a guest at the Governor's. Could anything be more excellent? In the first place admire the energy of Sir Stamford, then think how comfortable I am, with so agreeable a woman as Lady R., abundant leisure to examine the productions of this Island: in short I am delighted, and the day is not half long enough for all that I have and wish to do. It is needless after what I have related to make any comments on the extraordinary conduct of the

24. Note how in seeking his settlement to the eastward before closing the Acheen business, Raffles deviated from that narrow path of subservience which must be taken to satisfy certain superiors,—a path followed with such faithful subordination to the Board of Directors, and so ineptly, by the Government of Penang throughout these years. To Colonel Bannerman, who himself had been a Director, the "sin" may well have seemed large and heinous, because if Raffles had obeyed the letter of his orders, the instructions from Calcutta ordering him to desist would have overtaken him. Apparently this deviation was one of several acts of competence which caused the Board a little later to order that Raffles should have nothing further to do with Acheen, and to keep him in exile in decaying Bencoolen.

Governor of this Island: could I waste time and paper on details, the picture would astonish you. The fact of the matter is he is a weak man, with violence of temper sufficient to commit any folly or absurdity, and is entirely under the influence of one of the members of council, an artful designing character, utterly devoid of principle, who is the prime mover of all mischief, without appearing as a principal, and who does not care to what extremities he urges the other while he himself remains secure from the consequences. I wish I could convey to you some idea of the reverse of this picture, and contrast the activity and comprehensiveness of Sir Stamford's mind, with the narrow contracted spirit displayed in the other, which is almost too contemptible to be ridiculous. Were it not painful to see a British Governor so unworthy of his situation, I could really be amused, the whole is so perfect a burlesque upon politics. "Du sublime au ridicule n'est qu'un pas" was one of Bonaparte's observations, and really the only difference is often in the scale on which they are performed. That in fact is all that distinguishes an Iliad from a Batrachomyomachia. When a horde of Pindarries commits a few depredations and a Governor-General takes the field with the whole armed force of Hindostan to suppress them, it is grand!²⁵ but if a Governor of Penang endeavours to place a king on the throne of Acheen, the trumpet of fame is silent, and yet neither of them perhaps surpasses in foresight and contrivance a wily school boy forming a scheme for the plunder of an orchard. Enough however upon this subject. I wish you had added to the list of names of Malacca trees and plants, the scientific names of such as you knew, it would rather have been an assistance. There are two or three of the first named, the Rambay and Dookoo²⁶ for instance, whose fruit I have met with, but not the flowers, and have not therefore been able to determine yet. I shall add the Linnean names as I discovered them. Have you in the garden the Bua

25. Jack, like another botanist, Francis Buchanan-Hamilton, felt no strong attachment towards the Marquess of Hastings; and from the way in which he writes to Wallich it appears as if his sentiments were shared; but their cause does not transpire in these letters. Buchanan-Hamilton had been treated at the close of his Indian career, as if he could shut up his interests like a tedious novel, and on a minute by the Marquess of Hastings the materials were clumsily withheld from him that he had gathered together to take to the India House there to elaborate in retirement. That years after, he still held himself unjustly treated is evident from the advice which he gave to Wallich to keep control of his collections. It may have been this: but is likely to have been something complex, which caused the feelings held by Jack.

Jack alludes here to the circumstance that Lord Hastings had called out in 1817, 116,000 infantry and cavalry, with 300 guns, which as Marshman remarks (*History of India*, ii. p. 327) was a force "out of all proportion to the simple object of extinguishing bands of marauders who never stood attack." But events justified Hastings; and Jack's remark is that of a boy in politics.

26. *Baccaurca motleyana*, Hook. f. and *Lansium domesticum*, Jack.

Krass, a species of *Aleurites*?²⁷ I have just examined it, and was at first a little puzzled by it. It appears to have been described under three different genera, *Croton*, *Jatropha*, and *Aleurites*, I have not the least doubt that the *Croton moluccanum* and *Jatropha moluccana*, see Lamk. E.c. are the same thing: it is quite absurd to compare the two descriptions, which are almost word for word the same, and I should suppose Forster's *Aleurites triloba* also to refer to the same plant but for the trifid calyx which he attributes to it. I observe in the catalogue, only this latter mentioned: does Roxburgh make them to be all three the same? The calyx of the male of what I have examined is always bifid. There is here a large tree, at present only in fruit, which is called Bua Jiring. I think it may be Roxburgh's *Mimosa Djiringa*.²⁸ I will send you some of the fruit which is very peculiar, the pod being deeply sinuate or lobed on one side, each lobe or articulation monospermous and the whole spirally contorted.

As this letter has already become of rather an unconscionable length, I will have mercy upon you, and here close it. I shall send it to the Post Office to go by any accidental opportunity, which there sometimes is by native vessels or by the way of Madras—which I may not hear of, and write again when I know of a good opportunity. Specimens of course must wait, as they are mostly too large for the Dak.²⁹ but to show that they are not forgotten, I shall add a few small ones to take their chance, it would be useless to send good ones on a chance opportunity. I am afraid it will be sometime before I hear from you, as your letters will have gone to Bencoolen. As we may leave this about the 20th of Feb., I believe there would hardly be time after the receipt of this, to address me here.

I am very anxious to have accounts.

27. *Aleurites triloba*, Forst. It was a fairly common tree about Calcutta at this time (vide Abbey-Yates, in the *Agricultural Ledger*, 1907, p. 31). *Jatropha moluccana*, Willd. and *Aleurites moluccana*, Willd. are synonyms.

28. *Pithecolobium lobatum*, Benth., is the name which is applied now to Jack's *Mimosa Jiringa*. Jack published his description in the *Malayan Miscellany*, i. No. 1 (1820) p. 14. The fate of the pod which he advises and of the specimens sent with his letter of March 5th is not to be traced, they do not appear to have found a place among the collections which Wallich distributed from 1828 forward, and in this respect are like a great quantity of further material which must have passed into the early Calcutta herbarium but never came out into any other.—Roxburgh's dried plants for instance and more of Jack's material sent later. It may be suspected that such was lost from want of attention during Wallich's lengthy visits to Nepal, Singapore, Ava, and the sal forests of Oudh. And Wallich with such losses on his mind may well have become very anxious to carry through his distribution of the East Indian Company's herbarium in order to save the material.

29. Post.

Give my compliments to " if you see him, and to Col. Hardwicke.³¹

Believe me ever,

Yours most sincerely,

William Jack.

Pulo Penang.

Jan. 2nd, 1819.

P.S. I enclose seeds of a new species of *Sonerila*,³² which I found this morning in the woods. I found also two very splendid plants, the *Alpinia nutica*³³ and *pinnata*³⁴ of Roxb. I shall send the other few trifling specimens in a separate packet with this. I am looking very anxiously for a good opportunity to give you a sample of this Island. If not too much trouble, I should like to have Roxb.'s char: of his *Melaleuca cajuputi*.³⁵ He gives in the list " a *Mangifera gaudaria*, but there is no description of it in the MSS.³⁶ which I have. Whose and what is it? I could wish to

30. Name illegible. A. T. G.

31. Colonel, afterwards Major-General, Thomas Hardwicke (died 1835) a zoologist of great merit, served in the Indian army for many years, using his opportunities there and in Mauritius for collecting specimens, and making drawings. He was Vice-President of the Asiatic Society of Bengal when Lord Hastings was its President. A Major H—is mentioned in the extracts of Jack's letters to his parents which Sir William Hooker printed, as stationed with Jack at Dinapur, and it may be that this was Major General Hardwicke.

32. Probably *Sonerila erecta*, Jack, described in the *Malayan Miscellanees*, i. No. 5 p. 7.

33. *Alpinia nutica* was described by Roxburgh as having been introduced into the Calcutta Botanical Gardens from Penang. It flowered in Calcutta; and it has been in many Gardens since, so that it is well known. But it has not been found in Penang by any one during the last century; and the query is raised whether Roxburgh got it from wild plants, it being extinct now in Penang, or from its known home on the eastern side of the Malay Peninsula via Penang. The allied *Alpinia assimilis*, K. Schum., which occurs freely in Penang might have been mistaken by Jack for the other (vide Ridley, in this *Journal* No. 30, 1899, p. 165).

34. *Alpinia pinnata*, Roxb., *Flora indica*, i. p. 71 is *Hornstedtia pinnata*, K. Schum., a plant not known to occur in Penang. But there is in the island *H. megalochelos*, Ridl. which has "crimson stars of flowers on the surface of the ground" just as Jack describes this in the next letter; and it was probably it that he had obtained.

35. It is worth remark in passing that here we have again one of the Roxburghian adoptions of a Dutch spelling of which Jack complains. *Mimosa Dyrinqua* and *Melaleuca Cajuputi* are equally objectionable, or acceptable. See p. 165.

36. Roxburgh's *Hortus Bengalensis*, which had been printed by Carey in the year after its author left India.

37. Roxburgh with as much generosity as Scotch prudence, left several copies of his *Flora indica* in manuscript in India in the hands of friends, and it appears as if Jack had been able to provide himself with extracts from one of them, but at this date was in need of much more than he had. We find him later paying the wages of a copyist in Calcutta for the obtaining of further copy. See note No. 119, p. 181.

have the characters of Roxb.'s *Scytalia* and *Melastomæ*, of which latter I have found several, one very strange tetrandrous one, with bluish flowers, but I must not make my correspondence and requests a tax upon you.

Will you kindly send the enclosed to Mr. Calder³⁸ when convenient.

Thine

W. J.

P. Penang.

Feb. 12th, 1819.

My dear Wallich,

My last will have given you some idea of how I am employed, and what is going on in this quarter. We have just had accounts from Sir Stamford, who has taken possession of Singapura (the City of the Lion) an ancient Capital of the Malays and situated on the Island of Singapore, opposite to Johor, and at the Eastern extremity of the Peninsula and Straits of Malacca, which is to be our principal settlement of that quarter, and a most important one it will be. We look for his return very soon. So much for affairs.

Now for Botany: I am actually overwhelmed with the treasures that pour in upon me: I have been employed night and day so as not even to leave time for correspondence. I actually wish for a little remission, for my cough has been teasing me, but how is it possible! I cannot even now get through all: my specimens are in piles that are quite alarming, and I have not time to look over them: I must however take a day to make a selection for you. I look forward to getting on board ship to bring up arrears, and get things in some order, and then you shall not be forgotten. I am at this moment engaged upon a drawing of a splendid new *Tacca*³⁹ with entire leaves, diphyllous involucre &c. &c.: of which you shall presently have a full account, and which I mean to dedicate to Lady Raffles. Say Amen! I will send you the drawing

38. This Calder belonged to one of the Agency firms in Calcutta, and appears to have been the James Calder, who supplied a geological paper to the eighteenth volume of the Asiatick Researches and was an energetic member of the Asiatic Society of Bengal two years later than the date of this letter. Dr. Gravely, Hon. Secretary of the Society has ascertained that James Calder was elected member on April 12th, 1817.

39. *Tacca cristata*, Jack in *Malayan Miscellanies*, i. 1820, No. 5, p. 23, a common plant at low elevations in Penang. We find it here as *Tacca rafflesiana*, and in this understand how Wallich came to distribute it in or after 1828 under that name (Wall. Cat. No. 5172); but the cause of Jack's alteration is not recorded.

There is a note in the *Malayan Miscellanies* making reference to Curtis' *Botanical Magazine*, plate 1488 published in 1812, which should not be considered evidence that Jack had access in Malaya to that work: for Jack had an opportunity to work in Calcutta before he published the description.

to be engraved, which I think it will not even require the aid of gallantry to induce you to do.

This is the very land of *Melastomæ*, I cannot tell you how many species I have got, many I think new, though some perhaps Roxburghian.

Have you not established a genus *Cyathospermum*? I have some recollection of you speaking about some Sylhet plants which you had so named; I shall enclose in this, a section of the seed of a Rubiaceous plant I found here only in seed, whose structure is so peculiar, that I think it may be your genus from the name.

I enclose some ripe capsules of a diandrous plant, habitu didynamoid, which has puzzled me a little. I most distinctly recollect your Nepaul Koom Koom, which you referred to *Incarvillea*, but I think the capsules of this plant resemble it. The placentæ are so peculiarly reflected, that they appear to be four celled;⁴⁰ I have met with two or three species. It seems to have an affinity to *Boea*.

I have also a new species of *Cookia* or *Wampi*,⁴¹ differing from the common one in having long tomentose leaves, consisting of 10 or 12 pairs of very inequilateral pinnae, and small greenish flowers whose petals are pellucidly punctate in the same manner as the leaves.

I have found two very splend *Alpinias*, which I believe you have in the gardens, the *A. mutica* and *punica*⁴² of Roxburgh. The latter is particularly beautiful, throwing up its crimson stars at the very surface of the ground, and its noble leafy stems by their sides. I have also a smaller species which may be new.

Feb. 15th—Sir Stamford is returned, and there is a vessel going to Bengal to-night or tomorrow morning. I have prepared with all possible ex. a packet of specimens for you which, though selected and put up in haste, will I think please you, and give you some idea of our Penang flora.

I hope they will keep, for I have put none that are not quite dry. Among them you will find:—

two species of *Sonerila*, one Roxburgh's *moluccana*,⁴³ the other my new one, which from its habit might I think be called *S. erecta*⁴⁴ of which I send you seeds.

40. It is clear that he is referring to a *Didymocarpus*; and it would be to one of the three described by him from Penang viz. *D. crinita*, *D. reptans* and *D. frutescens*.

41. *Clausena excavata*, Burm., probably, which is common on the coast of Penang.

42. *Alpinia mutica*, see note No. 32 and *Alpinia punicea* see note No. 33.

43. *Sonerila moluccana*, Roxb. Flora Indica, i. p. 170.

44. *S. erecta*, Jack. Vide note No. 32.

a *Melastoma* which I shall be glad to know what you say of; it may be *Osbeckia tetrandra*, Roxb.:⁴⁵

a *Volkameria* with beautiful hanging panicles,⁴⁶ which I suspect is one you have in the garden.

two species of *Melaleuca*,⁴⁷ on which I wish to have your opinion.

a species of *Corypha* which I think is new.

a new *Morinda* with terminal umbelled capitula, and corolla villous within and tetrandrous.⁴⁸

a species of *Connarus*⁴⁹ which from the name may perhaps be Roxburgh's *C. paniculata*.

my new *Mangifera quadrifida*⁵⁰ of which I have got a very good drawing.

I have numbered a greater part of them for the facility of reference when you write.

I enclose in this a leaf and some of the fruit of a beautiful shrub whose flowers I have not seen. Is it an acquaintance of yours? The leaf is so remarkable that it cannot be mistaken, it is numbered 96.

Sir Stamford has brought with him a number of specimens which I have not yet gone through: among them however are no less than three new and splendid species of *Nepenthes*.⁵¹ from Singapore, the new settlement. I must name one of them after him, and Lady Raffles. I must keep her *Tacca* also. I shall have

45. Possibly *Dissochaeta pallida*, Blume, which was described by Jack as *Melastoma pallida* in the *Transactions of the Linnean Society of London*, xiv. p. 12.

46. *Clorodendron nutans*, Jack in this place and in the *Malayan Miscellany*, i. (1820) No. 1, p. 17, must have been *C. penduliflorum*, Wall.

47. *Melaleuca Leucadendron*, (M. Cajuputi, Roxb.), is a very variable plant. Benthams wrote of it as follows:—it "varies exceedingly in the size, shape and texture of the leaves, in the young shoots very silky villous or wooly, or the whole quite glabrous; in the short and dense or long and interrupted spikes; in the size of the flowers; in the greenish-yellow, whitish, pink or purple stamens etc., and at first sight it is difficult to believe that all can be forms of one species." There is therefore no reason to think that Jack had found in his second plant a species of this genus now lost from the island.

48. *Morinda umbellata*, Linn., which Jack thinking new described as *M. tetrandra* in the *Malayan Miscellany*, i. part 5, p. 13.

49. *Connarus ferrugineus*, probably, which Jack described in the *Malayan Miscellany*, ii. part 7, p. 37. Wallich distributed Jack's specimens under his number 8536, but without a specific name.

50. *Mangifera quadrifida*. See note No. 4, p. 152.

51. *Nepenthes Rafflesiana*, Jack, *N. ampullaria*, Jack and doubtless *N. gracilis*, Korth.

Raffles mentions them in a letter dated 10th June, 1819 (*Memoir of Life of Sir T. S. Raffles* p. 381.) Sir William Hooker in the *Botanical Magazine* under plate 4285 (1847) suggests that Jack was the actual discoverer of *N. Rafflesiana*, but obviously in error.

drawings made of them and ample descriptions, and will send them to you to be engraved and brought into the world in the way you shall think most proper and satisfactory.

I am anxious to know how our "Contributions" come on? Shall the above plants appear in it or the Society? or how? I am sure you are as much interested as myself to do proper honour to Sir Stamford, who deserves all we can do, and more. He is a second Mr. Gardener⁵² et plus. I have not time at present to enter upon foreign topics, or would give you some account of his proceedings since he went away, but I will at a more leisureed time, and shall only let you know at present that he has established a new settlement at Singapore, which combines so many advantages as must soon make it the most important place in the Eastern Archipelago, and the centre of trade. The style in which the thing has been done will delight you when I have time for it. I enclose a few seeds of one of the new *Nepenthes*.

He has also brought a single specimen of one of your Napaul *Orchidea* whose name I forget, but the sketch annexed will give you an idea, the leaves are purple and beautifully variegated with yellow veins. The specimens and probably this letter, proceed by the Hope.

My best compliments to Mrs. Wallich and believe me, in great haste your ever and sincerely,

William Jack.

Prince of Wales' Island

March 5th, 1819

[Recd Apr 2].

My dear Wallich,

Ever since I wrote you last and Sir Stamford's return, I have been so busy that I have had no time for writing. A vessel is expected to sail for Bengal in a day or two, and I cannot think of allowing it to pass without something from me.

Sir Stamford is about to leave this for Acheen, where his business will probably detain him about three weeks. I remain here.

March 6th—I was interrupted yesterday and have just learnt that the vessel, the "Mercury," sails to-morrow morning. I have therefore in all haste made up a parcel of specimens for you, to the imperfection of which I crave your indulgence. Some will

52. A proposed joint publication which never matured. Wallich's plans were commonly larger than his means of putting them into execution.

73. Without a doubt a reference to the *Asiatic Researches* of the Asiatic Society of Bengal. Jack on 12th Feb. 1819 became a member of the Society; Wallich had been a member since the 5th of December, 1810.

54. E. Gardner, British Resident at the Nepalese court. It was he who arranged for Wallich's visit to the valley of Nepal; and previously he had been a contributor to the collections in the Calcutta gardens.

probably interest you, as they promise to be new. There are specimens of the *Mimosa*⁵⁵ I formerly mentioned to you as likely to be Roxburgh's *M. Djiringa*! barbarous! why not call it *Jiringa*; it is Dutch spelling he has adopted. There is another nearly related species, with small red contorted legumes.⁵⁶ Observe also a *Melia*⁵⁷ which seems new, a species of *Curculigo*!⁵⁸ a *Bauhinia* with red flowers,⁵⁹ a most beautiful climber which displays its blossoms of flame on the summits of the highest trees. Let me know what you think of No. 3 with beautiful red arilled seeds,⁶⁰ which seems related to *Celastrus*, but is monospermous and capsule bivalved. I could not observe any corolla in its flowers. Tell me whether you think Roxburgh's *Phyteuma begoniifolia*⁶¹ really belongs to that genus. I am doubtful. You can probably tell me at once what species of *Elaeocarpus*⁶² is the one I have sent. Let me have also your opinion on No. 124 a very singular and beautiful pentandrous plant with crimson flowers,⁶³ which appears to belong to the family of *Combretaceae*.

I can make nothing of no. 131, but I have described it; is it an acquaintance of yours? It was introduced here from the Eastward. I send you a specimen of that beautiful *Volkameria* or more properly *Clerodendron* (if they are admissible as distinct genera) with long hanging panicles.⁶⁴ I have sent a leaf of the new *Tacca*.⁶⁵ I have only one spec. of the flower and it is not dry. I shall be glad to know what you make of the next to it No. 146,

55. *Pithecolobium lobatum*, Benth., which Jack described as *Mimosa Jiringa* in the *Malayan Miscellanies*, ii. 1820, No. 1, p. 14: and Wallich distributed specimens under his number 5268.

56. *Pithecolobium Clypearia*, Benth. (*Inga Clypearia*, Jack) described by Jack in the *Malayan Miscellanies*, ii. (1822) No. 7, p. 78.

57. *Melia excelsa*, Jack, in *Malayan Miscellanies*, i. part 1, p. 12, specimens of which Wallich distributed under his number 1253.

58. *Curculigo latifolia*, Dryand. (*C. sumatrana*, Roxb., *Flora Indica*, ii. p. 146) described from a plant grown in the Botanic Gardens, Calcutta, and redescribed by Jack in the *Malayan Miscellanies* i. (1820) No. 1 p. 7.

59. *Bauhinia bidentata*, Jack, in *Malayan Miscellanies*, ii. (1822) No. 7 p. 76, a common climber in Penang.

60. *Paracelastrus bivalvis*, Wall., which was described by Jack as *Celastrus? bivalvis* in *Malayan Miscellanies*, i. No. 5 p. 19.

61. *Pentaphragma begoniifolium*, Wall., named as *Phyteuma begoniifolium* in Roxburgh's *Hortus bengalensis*, and described in the *Flora Indica*. Jack described it in the *Malayan Miscellanies* i. (1820) No. 1 p. 5, with the remark that possibly it ought to constitute a new genus.

62. *Elaeocarpus*. There is nothing by which this can be identified. We know that Jack obtained in Penang *E. nitida* and *E. integra*, but these are two only of several which occur in the island.

63. *Lumnitzera coccinea*, W. & A., described by Jack as *Pyrranthus littoreus* in the *Malayan Miscellanies*, ii. No. 7, p. 57. Wallich though using Jack's name does not catalogue plants from him, under his No. 4018.

64. *Clerodendron penduliflorum*, vide note No. 46.

65. *Tacca cristata*, vide note No. 39.

the Gloogor of the Malays.⁶⁶ I am much puzzled by it, and am inclined to fancy it intermediate between *Artocarpus* and *Cecropia*. I must discuss a number of these with you when I have more leisure: however I must add to this a plant I found some days ago,⁶⁷ which I have described and drawn. I enclose impressions of its leaf and enlarged bract with pencil sketch of its inflorescence and flower. It appears to me allied to *Porana*, but it is the bract not the calyx, which expands as the fruit ripens. The ovarium is 4-sporous, the fruit 1-seeded, with the same contortuplicate cotyledons as *Porana*. It is a weak spreading shrub: it is further digynous. Let me know, whether it is an acquaintance, or if you think it new.

Have you any acquaintance of the leaf I enclose, No. 183 and 96, I have not seen its flower or anything but the stem and leaves. I have found here the true Sago,⁶⁸ certainly very different from the *Sagus Rumphia* described as the true one by Lamarek.

I must now turn to another subject, I have lately had some conversation with Sir Stamford on my future plans, a subject we had not before touched on since leaving Bengal. He has in consequence addressed (pro forma) a letter to me requesting me to accompany him on his further voyage to the Eastward, and offering me the appointment of Personal Surgeon to him retrospectively from the 1st of January: to this I of course gave an affirmative reply, which he will forward with his own letter to Bengal and request His Lordship's confirmation of the appointment. For my own part, I would rather the arrangement had been deferred till I heard from you about our other schemes.⁶⁹ Mais le moyen de l'éviter. I put him in mind of those plans and asked his opinion concerning the notice to be taken of them in writing to Bengal. He said they might be left to their own course, to which I said, Amen. Now, my dear Wallich, I leave the conduct of all that may be necessary to you. You know all the circumstances, and you know me as well as yourself. Perhaps I have not been successful, and then there is no more to be said. If I have, I think there is no need that my acceptance of this situation should render vain all the exertions of my friends. It may I think easily be managed so that the one appointment should stand, and any temporary arrangement be made for the duties, either by Mr.

66. The Glugor is this case is obviously the Glugor salah *Cyclostemon longifolius*, Blume: and the genus should be just as new to Wallich as to Jack.

67. *Neuropeltis racemosa*, Wall., obviously; but somehow no botanist has found this plant in Penang subsequently.

68. *Metroxylon Saus.* Rottb. is the sago palm of most of Malaya. Jack described it with great care under the name of *Sagus lœvis* for the *Malayan Miscellanies* and this description, appearing again in Griffith's *Palms* and elsewhere has generally been the foundation of those made later in *Floras*.

69. Apparently a reference to his wish for the post of Surgeon in Champaran.

Renton's⁷⁰ remaining, which doubtless he would be glad to do, or another being sent. I do not think it probable I shall be in any hurry to leave Sir Stamford, for the very society of such a man is worth a sacrifice, if there were any in the case. Besides which between ourselves, he has made me another promise, still more flattering, which is to appoint me his Private Secretary, as soon as the situation becomes vacant, which it will, when the Acheen business is over. There are numbers of plans in embryo, all of which I will enter upon as soon as I can find time. By the bye, a Mr. Gibson, a young man who was one of the officers of the *Nearchus*, is going up to Bengal, and will soon after come down to Bencoolen. He has promised to call to receive your commands, when he is about to proceed, which will be an excellent opportunity. Will you allow me to lay a tax upon your kindness, and request you to send a further supply of paper for specimens, and of wax cloth, which I unfortunately forgot, and there is none procurable here? I have not time to recollect how much I am in your debt, but on the present emergency enclose a draft on Mack & Co.⁷¹ for a 100 rupees. You are not yourself I know, over exact in accounts, therefore request you will beg as a favour to me, of Mrs. Wallich to keep an account of all the expenses you have been at, and may incur in future on my account, and be most particular and exact therein, as on that will depend my doing you the honour of teasing you with my commissions!! Dreadful threat. Seriously however, I am so careless myself in these matters, that it will be a real obligation if Mrs. Wallich will be good enough to relieve me from the burden, and I shall then have less scruple in applying to you.

Give my best regards to Mrs. Wallich, and believe me ever,

Yours very affectionately,

William Jack.

Pulo Penang,

March 6th, 1819.

P.S. How does my young romping friends Master George?⁷²

70. Mr. Renton would appear to have been the retiring surgeon of that district.

71. Mack & Co. Apparently Mackenzie & Co., Agents and bankers in Calcutta.

72. George, Wallich's son. He had a distinguished career in the Indian Medical Service up to 1860, in which year he left and was attached to the S.S. "Bulwark" for a survey of the sea-bottom in the course of laying a cable across the Atlantic. Thence-forward he worked at marine zoology, until his death in 1899.

There is a ship sailing for England and I am writing to Brown;⁷³ I have not yet written to Mr. Colebrooke,⁷⁴ as I have nothing to send. This Island yields no mineral but principally granite.

Lord have mercy upon you in the attempt to decipher this hieroglyphical letter, and thank heaven that there is no time for my doing it myself and so escape the heaviest part of the task.

Penang March 15th, 1819

Received May 25th

per Bengal Merche.

My dear Wallich,

You will ere this have received my last hurried letter and dispatch by the Mercury. With writing to Europe, the bustle of preparation for Sir Stamford's departure, plants coming in, and a variety of trifling interruptions, I had quite enough to do. Now I am quiet and at leisure. Sir Stamford sailed for Acheen on the 8th inst.; he wished to have delayed it till after Lady Raffles' confinement, but under the circumstances of the time, and the open hostility of the Government who appear resolved to indulge it to the utmost by any means, honorable or dis-honorable, he found it impossible to prolong his stay. On the 12th Lady R. was brought to bed of a son, and is now recovering very fast. I have just found means to send the agreeable intelligence to Sir Stamford, who will I am sure be delighted. Their first child was a daughter, and I know his wish was for a son, so he will be doubly gratified.

I believe I promised to give you some account of the settlement at Singapore, but have not yet had time. I think I informed you of the way in which Sir Stamford got away from this, and the extraordinary conduct of the Government on the occasion. You probably know that ever since the restoration of Java, the Dutch have been endeavouring to extend their influence over the

73. Robert Brown (1773-1858) "*facile botanicorum princeps, Britanniae gloria et ornamentum*" in the words of von Humboldt. Jack had made his acquaintance in London at the time when obtaining admittance to the College of Surgeons.

74. Henry Thomas Colebrooke (1765-1837) was one of the many extremely able civilians in the service of the Honourable East India Company at the commencement of the last century, a Sanskrit scholar, a mathematician and a botanist. He was a leader among the men who made the Asiatic Society of Bengal, and its President for ten years. He rose to the position of Chief judge, Bengal, and then accepted the acting post of Superintendent of the Botanic Gardens, Calcutta, in Roxburgh's absence when Buchanan-Hamilton, who had taken over the duties at first, was leaving India. This he did for the sake of his wife's health, it being thought that a stay outside the capital in the quiet of Shilpur might do her good; but losing her he begged leave to retire and left India in February, 1815, taking with him such an active interest in the promotion of Oriental Research as to bring about the foundation in London of the Royal Asiatic Society.

whole of the Eastern Islands, and by establishing a complete monopoly of their trade, and shutting all the native ports against us, to exclude the British entirely from that commerce. The spirit of hostility in which their designs were carried on, was open and avowed: it is astonishing with what supineness we have looked upon their progress. In Bengal the subject seems scarcely to have attracted attention and indeed how could it in the full ardor of a grand Pindaree Hunt. This Government⁷⁵ made one feeble effort, to get a settlement at the mouth of the Straits, but in their usual spirit of inefficiency and incapability, neglected to support it, and blundered the whole business so abominably, it was worse than doing nothing, for the Dutch finding out our object, came with a force, overturned our treaty and made another in their own favor, excluding us and all foreign nations from the port. This Government took the affront very quietly, in truth my own opinion is, that they would be well pleased at the complete success of the Dutch schemes, for so perfectly local are their prejudices and so narrow their views, that I believe they fancy the loss of the British influence to the Eastward, would increase the importance of this settlement, and that the loss of the commerce of the Islands, would make the possession of this paltry bit of a place, which has hitherto been maintained as a kind of intermediate station, appear the more valuable. It would make you laugh to hear the way in which the Governor talks of the vast and increasing prosperity of the *Presidency*, so it is always called. To listen to his account of the extensive cultivation and plantations of spices, nutmegs, cotton, tea, coffee, pepper, &c. &c. one would suppose that he was talking of a place equal to the peninsula of India. He got some time ago a single pod of Pernambuco cotton,⁷⁶ which was sown, and has multiplied. He was so full of the vast superiority of this cotton, of the great importance of his discovery, and the plantations of it which were to drive all other cotton out of the European markets, that I was anxious to see this staple article of the commerce of Penang. It was some time before I could discover it; at last a couple of acres near the jail were pointed out to me, where amid the luxuriance of weeds, I distinguished a few stunted bushes of a *Gossypium*. This field is now figuring in the dispatches of the Government, and the Honorable Court of directors are, perhaps now calculating the profits of this new created commerce. In anticipation of these exhaustless resources, he is laying new duties upon trade, new taxes upon industry, raising new crops for the service of the Island, and declares he will make the Island pay its own expenses. I beseech you now, do not think that I am giving you a chapter from the annals of Laputa, it is plain sober fact, and I am now in the place of wonders.

75. That of Penang.

76. Pernambuco cotton had been introduced into India in the eighteenth century and considerable interest was being taken in it about this time. It has persisted in the damper parts of India, not as a field crop but as a garden plant useful for candle wicks, sacred thread, etc.

To return from this digression, Sir Stamford went down to endeavour to find a place fitted for a station at the mouth of the straits of Malacca, if such could be got unoccupied by the Dutch. Fortunately he found all that could be desired, at Singapore on the Island of the same name, one of the most commanding positions in that quarter. The place was formerly the Capital of the Malays, but had been deserted for many centuries, and its harbour was unknown to Navigators. He also found there the eldest son of the late Sultan of Johore, who had been kept out of his regular succession by the numerous sub-ordinate chiefs, who had seized the opportunity of his absence, at the time of his father's death, to establish themselves independent at his expense. He was now however acknowledged as the chief of Singapore, and with both these authorities the necessary treaties were made by us. Sir Stamford left Major Farquhar there as Resident, and the company of Sepoys he had taken with him, and returned here. His first care was to send a re-inforcement, to ensure the respectability of the station, and applied for the troops which this Government had promised to have in readiness whenever he should call for them. Would you believe that they actually refused them, in defiance of their own written promises, and the orders of the Governor General, and why, because they disapproved of the measures that had been taken, or in plain English, because it did not originate with themselves. There is good reason to believe that they have conveyed intimation of their hostile sentiments to the Dutch, in the hope of its exciting them to exert themselves against the settlement. I should hardly obtain credit for all the extraordinary steps they have taken to affect, if possible, the ruin of the finest settlement in the British possession.

Happily however, they and the Dutch together, will only be able to create some petty obstructions, which a little time will entirely obviate. I hope too, their conduct will sooner or later meet with its due reward, and be exposed as it deserves, for it is impossible to conceive anything more disgraceful from first to last.

On the Island there is but one opinion, both of the Governor and the limb of Satan who guides him, and is the prime mover of all the iniquity and mischief of the place. A government must be had indeed that cannot even command a voice among those most nearly connected with it, and dependent on it.

Enough however on such a subject; I am tired of it, and I dare say so are you.

March 25th. I have just seen some Bengal papers, in one of which I find "Mr. Asst. Surg.—somebody appointed to Patna *vice* Tytler" appointed to the Chumparan." Is it so? Then there is

77. John Tytler wrote papers on the Mathematics of the Arabs—in the Asiatick Researches.

an end of the matter.⁷⁸ I ought under all circumstances to be indifferent to it, as there was so little chance of my returning to take up the situation, but I know not how it comes, the news has actually annoyed me. I hate to be foiled in anything. I believe I should have cared less had any one else carried it against me, but to John Tytler, to such an *Ursa Major*, it is a little provoking to yield. I hope you have congratulated Major Hay on his acquisition: he seemed mightily afraid that Botany and duty would not go on well together, as if the important charge of him, his wife, and his Sepoys was enough to employ all the faculties of any single man. But let him and the bear rub on together as they may, be now Sumatra my field, and it shall go hard if it does not produce something.

I told you in my last, of Sir Stamford's handsome proposal and my acceptance. There is a good beginning: I have much in prospect, which it is too soon yet to enter upon. Perhaps too, we may carry some of *our* further plans yet into effect. I am anxious to get to Bencoolen, to receive your letters, to be at the capital as it were, to see about me and form my plans, which in this unsettled kind of place I cannot so well do.

I am preparing a large dispatch which I think will please you. I have been thinking that the most regular and methodical way would be, to send along with the specimens, a list containing such remarks on the plants as may be useful, which will be more convenient to you than having to refer to a desultory letter. It will also be easier for you to return me your remarks in the same manner, either on the same list, or if you prefer keeping it, on another similarly numbered. I would send you the list in duplicate to save you trouble, if I had anyone to write for me. I will also for the same reason, send you a list of the principal contents of the former dispatches, that we may go on regularly. I find I have several times numbered the same plant twice, when I did not happen to recollect whether I had before sent specimens. This is a mistake which can be easily rectified, and which you will readily excuse. I send many also without numbering, which I have not had time to examine particularly, but which are not the less worthy of being examined. For instance, there are a great number of *Leora* here, which I have not attempted to ascertain, as I have not Roxburgh's descriptions. Have you got yet into *Tetrandria* in his printed *Flora*?⁷⁹ What are the "Contributions" doing? I shall ere long have plenty to contribute.

78. His hopes of the post; see note No. 69.

79. Carey and Wallich were engaged in an attempt to publish Roxburgh's *Flora India*; and Wallich contrived to publish "Descriptions of some rare Indian plants" Calcutta 1818. The first volume of the *Flora* containing the *Tetrandria* came out in 1820 and was not much altered from the original manuscript: but into the second volume which appeared in 1822 so much revision was put by Wallich that the two authors never got beyond it, or say one third of the whole.

April 12th.—No opportunity has occurred of writing till now; a vessel has arrived from China and proceeds to Bengal. I send by her a box of specimens, to which I have added some fruits and seeds, which may not be unacceptable. I enclose a list of the present dispatch, and also, one of the principal contents of the former ones. Some of the things now sent, will I think be interesting.

Sir Stamford has not yet returned, but we are in hourly expectation of him. I think we shall leave this immediately on his return, and I shall not be sorry: new plants begin to get scarce, but on the whole I think the Island has not been unproductive. I have 130 descriptions⁸⁰ about 40 drawings &c: I shall have employment when I get to Bencoolen, in investigating these further than my present means of reference allow, and above all in comparing them with the information I expect from you.

Have the goodness to remember me very kindly to Mrs. Wallich.

Do you see my friend Lindsay⁸¹ occasionally? I must write him if possible before I leave this.

Believe me ever,

My dear Wallich,

Yours very affectionately,

William Jack.

P.S. Write soon.

Pulu Penang

May 7th, 1819

[Received June 23rd].

My dear Wallich,

Sir Stamford did not return from Acheyn till the 29th ult. the business there having proved more difficult and tedious than was anticipated. It will take him some days longer to close the affair altogether, and then we shall bid adieu to this Island of delay and obstruction. You will I am sure be happy to learn, that the cause of honour and justice has been triumphant over that which was in every way the reverse. Every person here rejoices in the result, from regard to the British character, except the

⁸⁰. Jack's published writings contain only 54 descriptions of Penang plants.

⁸¹. Who this Lindsay was, has not been ascertained. Dr. F. G. Gravely, Hon. Secretary of the Asiatic Society of Bengal, has been so good as to search his records in Calcutta, and does not find his name as a member.

Governor and his two coadjutors. Capt. Coombs,⁸² the 2nd Commissioner, one of these, made every possible effort to frustrate and defeat the objects of the Mission, but though he supported the opposite party with incredible obstinacy, he was no match for Sir Stamford's abilities and perseverance. The weight of evidence was such, that he was obliged to give way at last in every material point, and concur in the final resolution of supporting the old and legitimate Sovereign, with the influence of our alliance. A treaty has accordingly been concluded with him, on the usual terms of defensive alliance, but without pledging ourselves to any interference in the internal affairs of the country. The old King appears to be a very superior character, and to possess a much greater share of information than usual among natives. He speaks and writes English, and has some acquaintance with our literature and science, and what is better still, has a great deal of English honesty and plain dealing, no common qualification in this quarter of the world. The investigation has brought to light a great deal of iniquity upon the side so warmly espoused by this Government, and a sense of piracy and plunder on the coasts of Acheen, that is quite disgusting. This Government will use their utmost endeavours to overturn the arrangements, but I do not think it possible the Bengal Government can be so weak as to yield to their clamour. I should like to know the Calcutta opinion on all the affairs of this quarter. Never were there men whose conduct more deserved reprobation than the members of this Government, but it is not unlikely that their remoteness and the little interest excited by affairs in this quarter, will enable them to escape the odium their conduct would otherwise bring upon them.

I now turn to more pleasing subjects. Capt. Fergusson of the Boyne, has agreed to take charge of a box of growing plants, and a parcel of specimens, which I hope will arrive safe. I am sure

82. Captain John Monekton Coombs was the second commissioner under Governor Bannerman. It seems that he owed the position to the interest of Governor Petrie, Colonel Bannerman's predecessor. He had been sent in 1818 to Acheen to enquire into the real state of affairs, having sailed on January 13th, from Penang and reached Acheen on the 17th. Unfortunately he did not understand the Acheinese language, nor did his official interpreter; so he "peacock-ed" about, and thought that he had made an impression. Then he wrote a report which is contradictory in its statements but for the usurper wholly in its conclusions; and he proceeded direct to Bengal to give information there and receive orders. When he arrived, Lord Hastings was up country in Oudh; and it was some months before Coombs could get his ear, during which other reports had come from Acheen, not altogether in accord with the story as told by this "special commissioner"; and moreover Raffles was available for consultation. This fortunate delay led to Raffles and Coombs being sent back to make a new investigation jointly, in the course of which as Jack says Coombs had to give way on every material point. Raffles (*vide* Memoir, p. 397) says in other words that Coombs if opiniated was not dishonest over this affair.

The treaty made with the restored king carries both Raffles' and Coomb's signatures.

he will take the utmost care of them: you will find him a worthy excellent man, and of superior character. I have no doubt if his voyage lies in any direction you are interested in, he will attend to any wishes you may express.

I hope the box of plants will please you: it contains a good many which I have never seen in flower, and can therefore say nothing about. Of those I know, you will be glad to have a healthy plant of *Tacca Rafflesiana*.⁸³ I need not say take care of it: it is the only one I have met with. There are besides two species of *Arum*,⁸⁴ one of *Calla*,⁸⁵ a *Pinus*,⁸⁶ and another nearly allied with distichous leaves,⁸⁷ the *Pancratium amboinense*,⁸⁸ several species of *Amomum*, an *Acerides*,⁸⁹ and several other kinds of air plants, and plants of which the specimens are numbered 183-220-239. These I think are the chief contents, and most are at present *vigorous*.

I also send a supplement to my last dispatch of specimens, containing many duplicates, and new ones down to 263 as per enclosed list. A few of these are from Acheen, brought by Sir Stamford, which I have not had time to look over. He brought very few, as they were but little on shore, and too busy to attend much to them. The principal known ones from thence are the splendid *Barringtonia speciosa*,⁹⁰ the *Nymphaea cyanea*, Roxb.,⁹¹ at least I take it to be so and several of which I have sent specimens from hence as *Volkameria*, *Calophyllum*, *Cardiospermum*, *Gmelina*.

I send you a few seeds of the Pernambuco cotton, which I have mentioned to you; and a few other seeds. Among the plants lately found, of which the specimens are not dry, are the *Guetharda*

83. *Tacca cristata*, see note No. 39.

84. *Arum*. Unless there is some manuscript record of the fate of this at Calcutta, it is impossible to guess what it was, as botanists in the time of Jack put so many different Aroids under the genus *Arum*.

85. *Calla humilis*, *Calla angustifolia*, and *Calla nitida* were all described by Jack from Penang. The first is *Homalomena humile*, Hook. f., the second *Homalomena angustifolium*, Hook. f., and the third *Aglaiomena oblongifolium*, Schott. The first two are plentiful in Penang.

86. *Dacrydium elatum*, Wall. See note No. 101 in the next letter.

87. *Podocarpus imbricatus*, Blume (P. cupressina.)

88. In regard to *Pancratium amboinense*, it is not possible to say how Jack used the name.

89. If Jack sent *Acerides suavisima* to Wallich, he had got an orchid which now occurs very rarely in Penang.

90. *Barringtonia speciosa*, Forst. is a shore tree exceeding likely to occur at Acheen.

91. *Nymphaea cyanea*, Roxb., is a variety of *N. stellata*, Willd., quite likely to occur at Acheen.

speciosa,⁹² *Ardisia umbellata*,⁹³ *Scaevola Taccada*,⁹⁴ *Nymphaea stellata*,⁹⁵ *Bruquiera gymnorrhiza*,⁹⁶ and *Rhizophora mucronata*,⁹⁷ *Barringtonia racemosa*,⁹⁸ &c. &c.

I hope to leave this in a week from this time; I am heartily sick of the place, and most anxious to get to Bencoolen, and receive your letters.

A paper which I saw some little time ago, conveyed to me the first intimation of your late loss,⁹⁹ which I learnt with much concern. I trust ere this reaches you, the time for condolence will have passed, and will therefore forbear the subject, especially as I know how useless are words in those trials which are beyond our control, and for which there is no remedy but resignation.

Present my very best regards to Mrs. Wallich,

and believe me
to be most sincerely yours
William Jack.

P.S. Excuse the haste apparent in the letter.

Penang May 19th, 1819.

My dear Wallich,

I have a favor of a very unusual kind to ask you, of which a little explanation is necessary. I have given you some account of the Acheen affairs, and you know somewhat of its iniquities. The party have spared no means to carry their point; among other things a letter appeared in the Calcutta Journal, the writer of

92. There is considerable interest in this record of *Guettarda speciosa*, if from Penang. It is a common sea-shore tree and is known to occur in Kedah and on the inlands north of Penang, as well as on the coasts well to the south. But Curtis never found it in Penang, nor are there specimens in the Singapore Herbarium thence. Unfortunately there is evidence that Jack visited the Kedah coast, and no evidence here that Jack got the *Guettarda* on Penang island.

93. *Ardisia umbellata*, Roth, is *A. humilis*, Vahl, known to occur in Penang.

94. *Scaevola Taccada* is *S. Koenigii*, Vahl, common on the coast of Penang.

95. *Nymphaea stellata*, Willd. is common in Penang now in ditches about rice fields, etc; but may have been rare in Jack's time.

96. *Bruquiera gymnorhiza*, Lamk., is not recorded by Curtis as a plant of Penang, nor by anyone else; but there is one old specimen in the Singapore herbarium.

97. *Rhizophora mucronata*, Lamk., is not recorded by Curtis as a plant of Penang, nor by anyone else; but there is no unlikelihood of its occurrence. However we find it mentioned here along with several plants which may have been brought by Jack from the mainland.

98. *Barringtonia racemosa*, Roxb., is not recorded by Curtis as a plant of Penang; but a specimen from the islet of Pulau Tikus on the north coast is in the Singapore herbarium.

99. Apparently the death of an infant.

which we very well know,¹⁰⁰ giving a most unfair view of the business, and throwing out some shameful insinuations. A wish was expressed that it should be met and answered, and I have undertaken it. I believe that Buckingham will have no objection to inserting a reply, and I shall be greatly obliged if you will undertake the task of getting him to do it. You may with perfect confidence assure him that every word in it may be depended on. Of course I do not wish to be known as the writer of it, but above all it must never be suspected that Sir S. had any knowledge of it. If Buckingham does not like, any of his rivals will be glad of it. Read it and let me know whether you think it intelligible. I do not think it possible that they can answer it. The writer of the letter is to a certainty Capt. Coombs, a man of whom I believe there is but one opinion, and that is such as need not be put on paper. You may easily believe that what I now send you is a job I would never readily undertake, but I believe you participate in the sentiment that has induced me on this occasion to travel so far out of my usual track. In fact, it is not possible to be an indifferent spectator of what is here passing, to refrain from admiration of the one, or for honest indignation at the others. It has hardly been possible for me to convey to you an idea of the contrast, the one is too disagreeable a subject to be dwelt on, and the other it is not easy to express without seeming partial. I know however what your own early impressions were on this subject, and need only say that every day's experience would have strengthened them.

I have very little time for writing at present, so you will excuse a short letter. I expect to leave this in a few days more, which I shall do with less regret than any place I have ever been in.

If an answer to mine should ever appear, approve me.

I dispatched to you a box of growing plants some time ago, by the Boyne, which I hope will have arrived in good condition. I have little to add at present on our own subject. I have however made a discovery of some importance, that what I sent you as a *Pinus*, is not a *Pinus*. I had long sought in vain for the cones, and at length procured some with a small berry, which proves it to be either a *Taxus* or *Juniperus*, I have not determined

¹⁰⁰ Anderson in his book on "*Acheen*" already quoted, p. 134, says "The papers in Calcutta now began to take up the subject of Acheen affairs very warmly, and the friends and supporters of both parties had an opportunity of conveying their opinions in the shape of extracts of private letters from Penang. Some of the letters addressed to the Calcutta Journal bear the stamp of having been written by the different organs of each party, if not by the Commissioners themselves. The style of the first so much resembles that of the paper of October, 1817, and the reports of the envoy, that if he did not write it himself, he must have entrusted it to a head and hand fully capable of catching at his precise ideas." Jack here says that Captain Coombs, i.e. the Envoy, "certainly" wrote it; and he reveals the fact that he wrote a reply.

which.¹⁰¹ I enclose a sprig with one of these fruits. The cones I formerly found, belonged to the *Pinus Dammara*, which is abundant.¹⁰²

This goes for the Bishop;¹⁰³ he has been with us once or twice, and has seen all that is going on in the various departments of Natural History, at which, between ourselves, he expressed nothing more than common vulgar wonder, and we certainly did give him enough for that, however as you will probably meet him at the Society, you will probably hear his account of Penang and its wonders. What attracted most his attention was two natives of the Andamans, who were brought here some time ago, whom he pronounced to be in the lowest state of civilization in which he had yet seen human nature, and certainly there could not well be conceived a greater contrast than was exhibited between the portly figure of the Bishop himself, and the two poor wretches he was examining. I should have liked to have asked him whether he really believed himself to have sprung from the same common stock with them: and whether Adam resembled these Aborigines.

I made a memorandum of the peculiarities of form of these men, which I will send you when I have time to copy it. The most striking peculiarity, is their diminutive stature, the taller of the two being 4 ft. 7 in.

My best regards to Mrs. Wallich, and believe me,

Yours very sincerely

William Jack.

SERIES 2—SINGAPORE LETTERS.

Singapore, June 8th, 1819.

[Received July 27th].

My dear Wallich,

We got clear of Penang on the 22nd ult., and arrived here on the 31st. It is impossible to conceive any thing more beautiful¹⁰⁴ than the approach to this place through the Archipelago of

101. *Dacrydium elatum*, Wall. Jack had mentioned this as a fir and as a *Pinus* in his earlier letters. The finding of the fruit put him on the right track.

102. *Agathis loranthifolia*, Salisb. otherwise known as *Agathis alba*, Foxworthy, or *Dammara alba*, Lamk.

103. The Right Rev. Thomas Fanshaw Middleton (1769-1822), first Bishop of Calcutta under the East India Company, a competent organiser, but narrow towards dissenters. We know that there were several baptist missionaries in association with Raffles, so that the Bishop might not have felt inclined to be very friendly.

Raffles (Memoir of the life of Sir T. S. Raffles, p. 400) mentions Dr. Middleton's visit to Penang, in a long letter there printed.

104. Jack in a letter to his family which is printed in the *Botanical Magazine* (1847) under plate 4285, uses these same words and then goes on to a more detailed description than that above.

Islands that lie at the Eastern extremity of the Straits of Malacca. The place itself is advancing rapidly, and will soon become one of the most populous settlements to the Eastwards. The forests that now form my delight will gradually give place to man and his habitations, but they are more interesting to me in the present state. Flora here luxuriates in endless varieties, where she finds soil, climate and everything congenial.

I find many, or most of my Penang acquaintances with others surpassing them in magnificence. Witness two most splendid species of *Nepenthes*.¹⁰⁵ of which I have procured perfect specimens, male and female, and have completed two drawings, to which I flatter myself it will not be easy to bring a parallel. I am sure they will glad your eyes, when they shall be submitted to them.

Quale portentum neque militaris

Napalia in latis alit esculetis.

Nec India tellus generat, *notarum*

Stirpium nutrix.

I have found here another specimen of the new *Tacca*,¹⁰⁶ in fruit which I had not before seen. The Gambir, *Uncaria Gambir* is here extremely cultivated; I did not meet with a single plant of it at Penang. Among the new plants I have ascertained are the *Lythrum Pemphis*,¹⁰⁷ *Xyris indica*,¹⁰⁸ a *Fagraa* which I think may be new,¹⁰⁹ with large splendid flowers. It has led me to the discovery that No. 131 of your specimens, is the *Fagraa fragrans* of Roxburgh at least as far as I can decide from the abbreviated character, which is all I have. Pray is Roxburgh's *Ardisia umbellata* truly distinct from Swartz's *A. coriacea*?¹¹⁰ I find here that

105. *Nepenthes Rafflesiana*, and *N. ampullaria*,—both described by Jack, and the descriptions put into proof which was reprinted by Sir William Hooker in 1835 (vide note No. 51, p. 163).

106. *Tacca cristata*, see note No. 39, p. 161.

107. *Pemphis acidula*, Forst.,—a rather rare plant on the coast of Singapore island.

108. *Xyris indica*, Linn. is a weed of such places as rice-fields, and is found in the north of the Malay Peninsula down as far as Malacca. Through the Peninsula southwards to Singapore, occurs *X. anceps*, Lamk., and it is similar enough to be easily mistaken. Although we have reason to believe that there were rice-fields in Singapore previously, it is more likely that Jack named *X. anceps* as *X. indica*, than that *X. indica* has been lost through the abandonment of the cultivation for rice.

109. Doubtless *Fagraa auriculata*, Jack, the description of which appeared in the *Malayan Miscellanies*, ii. (1822) p. 82.

There are in Wallich's beautiful *Plantæ Asiaticæ Rariores*, certain plates, that of *Fagraa auriculata* being one, bearing no artist's name; and in several cases the reason is to be traced to the circumstance that a friend of Wallich had supplied the plate. The plate of *Jackia ornata* is in the same category. It may be suggested from this, but unfortunately without proof, that Jack had supplied the drawings for these two plates, unsigned, so that the published illustrations passed out from the press without a name on them.

110. Apparently distinct. *Ardisia umbellata*, Roth, is *A. humilis* Vahl. See note 93.

the umbels are often disposed in terminal panicles as well as axillary. I have ascertained another point, which it may be worth while to attend to when you come so far in printing Roxb.'s Flora, which is that *Cordia campanulata* R. is the same with *C. subcordata* Lamarck.¹¹¹

I am afraid the Singapore specimens will scarcely be dry enough for transmission: however I shall send a few that I think will bear it, and you shall have further dispatches from Bencoolen, which I am now very anxious to reach. I shall not be surprised if this should in time become our head-quarters, and by all accounts it will be much preferable to Bencoolen, which is sadly out of the way.

I send this by Dr. Smith of the 20th N.I.—and regret that I have not more to send by so good an opportunity. However I shall have another soon after I arrive at Bencoolen, when I will begin to get things in order, which I cannot do in the way we are living here.

June 15th.—I am in hopes we shall not be detained here much longer. I send half a dozen specimens, just to show that I am doing something. There is one very beautiful species of *Loranthus* among them.¹¹² Pray is the tree I sent you from Penang as a *Pinus*, and afterwards discovered not to be so, the *Juniperus elata*, Roxb.¹¹³ the name and nativity render it highly probable.

The beautiful white-fruited shrub¹¹⁴ No. 183 of your specimens is very abundant here, as also a second and smaller species of the same genus, with red fruit.¹¹⁵ I suspect it to be a new genus, what think you? The generic character will be as follows:—Calyx inferus, 5-phyllus parens. Corolla (alba) 5-petala, petalis reflexopatentibus calyce duplo longioribus. Stamina 5 hypogyna. Filamenta brevissima. Antheræ longæ in conum conniventes, apice acuminatæ poro dehiscentes. Stylus longitudine staminum. Bacca supera, 5-sperma vel 5 pyrena, seminibus arillatis, arillo fibrosa, embryo inverso cylindrico, longitudine seminis, albumine incluso. Folia pulcherrima striata nervis transversis parallelis. In some specimens there were five yellow filaments like abortive anthers alternating with the true stamina, but they were not constant.

111. Later botanists have confirmed this.

112. *Loranthus coccineus*, Jack, apparently. It was described by him in the *Malayan Miscellaneæ*, i. (1820) No. 1, p. 8.

113. Yes; it is; and it is now known as *Dacrydium latum*, Wall.: see note p. 101.

114. *Euthemis leucocarpa*, Jack, which is a plant common locally in Singapore island. The genus *Euthemis* was quite new in Jack's time, and so distinct that later botanists have made of it a distinct tribe of the order Ochnaceæ.

115. *Euthemis minor*, Jack, described by him along with the last in the *Malayan Miscellaneæ*, i. (1820) p. 18. It has only been collected again in the island of Singapore (Choa-Chu-Kang, Ridley) once since Jack's time, and once on the islet of Pulau Battam to the south.

I found a day or two ago, a singular Decandrous Leguminous shrub, of which I can make nothing.¹¹⁶ The marginal scratch¹¹⁷ may give an idea of it. The calyx tubular with a flat 4-parted limb, the two opposite divisions larger: one single petal, erect ungulate with a subrotund lamina. Three long fertile stamina, seven short abortive. Germen pedicellate, pedicel of the length of the calyx and concrete with it. Style as long as stamina. Legume large, flat, few-seeded. Flowers in terminal corymbs. Leaves pinnate with two pairs without an odd one. Folioles subrotund marginate.

I have a favor to ask of Mrs. Wallich which I hope she will be able to grant without much trouble. I have promised to procure for Lady Raffles a copy of the music of the Persian air "Tareh ba tareh" I believe Mrs. Wallich plays it. And if she would be so good as to take the trouble to copy it I will be greatly obliged. Perhaps she would increase the favor by adding any other good Hindostanee Airs.

Lady R. is a superlative performer, and I should like to hear some of these tunes with the advantage of her execution.

Both Sir S. and Lady R. frequently desire to be remembered to you, oftener than I remember to record it, so you must always take it for granted to be understood if not expressed in like manner as the affectionate regard with which I am always, My dear Wallich.

Yours very truly,

William Jack.

P.S. I have written up the country to order down some things I left behind me, to your address and care. I will be much obliged if you will take the trouble to receive and forward them.

My dear Wallich,

Singapore, June 18th, 1819.

Since I closed my letter I have got one of Thetis's drinking cups to send you, a huge crateriform Spongioid Zoophyte. They have been brought of various sizes, some larger than the present one. If it should not particularly interest you, perhaps Col. Hardwicke would like it,¹¹⁸ and as I have not yet sent him anything it will just serve to show that I am not quite unmindful. I have found it convenient to occupy myself very little with Zoology, as it seems to be expected that every thing in that department should go to the Frenchmen, and I perceive a kind of jealous feeling on their part. I shall probably be more at liberty when I get to Bencoolen. They have been very industrious, but I shall take another opportunity of telling you more about them. You know them pretty well. They are not deficient in vanity but it does not meet with much consideration among us.

116. *Afzcha retusa*, Kurz, or perhaps the doubtfully distinct *Afzcha bijuga*, A. Gray.

117. Not reproduced.

118. This specimen was described by Colonel Hardwicke in the fourteenth volume of the *Asiatick Researches*, p. 180, under the title A description of a Zoophyte commonly found about the Coasts of Singapore Island.

We have just had a dissection of a Dugong, a very singular herbivorous Cetaceous animal hitherto very imperfectly known. Some account perhaps would be interesting to Col. Hardwicke, which I shall send you when I have another opportunity.

Adieu,

Yours in Haste,

William Jack.

SERIES 3—BENCOOLEN LETTERS.

No. 9.

Bencoolen.

Aug. 19th. 1819.

My dear Wallich,

At length after all my wanderings here I am at the ultima Thule, and indeed it seems to deserve the appellation well enough, for it is grievously out of the way. Of your letters I have received those of the 18th Feb., of the 10th of April, of the 27th and a note of the 14th June, but several alluded to, particularly per "Tagus," and "Isabella Robertson" are yet to make their appearance. I have further received from Mr. Halked the writer's labours down to Polygonum,¹¹⁹ and (mihi gratissima) two vols. of Enc. Botanique¹²⁰ for all which, my best thanks. I am most anxious to receive your other dispatches, which I hope will not be long delayed. As they seem to be a little irregular in their transit, it might be a good plan, and save also a little valuable ink and paper, *to number our letters*, by which means it will be easy to know whether they all arrive safely without constant quotation. To commence therefore I mark this No. 9, which appears by my Dák Book¹²¹ to be the number already sent from Penang and Singapore, exclusive of parcels etc. I need not trouble you with much account of my voyage which was long and tedious. We left Singapore on the 28th of June, and two days after got aground on a shoal in the Straits of Rhio, where we were obliged to start all our water overboard before we got off again. This obliged us to run into the Dutch Port of Rhio, and gave me an opportunity of landing and seeing it. It is a paltry miserable place since the Dutch took possession of it. The only new thing I found there was the *Hypericum alternifolium*, Vahl.¹²² From there we pro-

119. This remark shows that Jack was employing a writer (clerk) under Wallich's supervision to make for him a copy of Roxburgh's *Flora indica*. See note 37.

120. *Encyclopédie Méthodique*. The botanical part by Lamarek, continued by Poiret, Paris, 1783-1817.

121. Post despatch book. This is the eighth preserved letter.

122. *Archytus Fahlh*, Choisy. Wallich distributed specimens of this plant collected by Jack labelled Penang, under his number 4806; and because the plant is found at Batu Feringhi in the island of Penang, the locality has never been questioned. But we find Jack stating here that *A. Fahlh* was a new thing to him; and so well did he know his plants that it is impossible to think that he overlooked getting it in Penang if it were so. He got it at Rhio.

ceeded to the Straits of Banca, where our progress was very slow, the monsoon being against us. I had not once an opportunity of landing again till we arrived here, although we were always in sight of and often very near the land. From the Straits of Sunda our passage was good, the same wind which had before opposed us, being then in our favour. The track we pursued was a very unusual one at this season, and one that many people would have pronounced impracticable. I have been as you may suppose, very busy since I arrived, and am hardly yet quite settled and got into regular train. Unfortunately I was far from well during the latter part of the voyage and for a fortnight after my arrival, which rather retarded my labours. I have not yet got through the arrangement of the piles of specimens I brought with me. I am very anxious to have your letters with observations on the specimens sent you. Those I have already received are invaluable, and have given me much new light on several points, on which I shall enter presently. A new field seems to open here, for of all that has yet been brought in, very few indeed are acquaintances. *Optime amice mihi*, what do you think of specimens of the flowers of the *Camphor*?¹²³ from which I have made an excellent drawing? Is not that an admirable beginning!! It belongs to *Monadelphina polyantha*: calyce 5-partito: cor. 5-petala: ovario triloculare 6-sporo, stylo filiformi stam. longiore: antheræ longæ circa stylum conniventes.

As there is not at present any direct opportunity to Bengal, (this goes via Penang) I cannot send any parcels, but I cannot deny myself the pleasure of enclosing a sprig of that great desideratum, which has so long bloomed in vain and "wasted its fragrance on the desert air."

By the bye I should have mentioned that the box of paper and wax cloth is as good as arrived, for though not yet in my possession Capt. Bowman has told me of it, and promises to land it in a day or two. You mention that it is blotting paper, I am sorry therefore, as I prefer the country paper, on a comparative trial of the two; I ought to have mentioned this to you before, and do it now for your information in future. The dry coarse rather stiff paper appears to answer best, such as, what I shall make the cover of this letter of. Allow me to make my acknowledgements for your and Mrs. Wallich's kindness in so readily agreeing to incur the

123. On page 149 of Marsden's *History of Sumatra* (third edition, London, 1811), there is given the then-existing information in regard to the Malayan Camphor-tree. The leaf is described and the habit of the tree: Gartner's figure of the fruit, and an engraving of the foliage made for Lambert are referred to: but the flower had "not yet been brought to England." In the twelfth volume of the *Asiatick Researches* Colebrooke described the fruit, together with an excellent figure of leaves, fruit and seed (1816, p. 539 and appendix p. 3).

With attention directed to the need, in 1819 Mr. Prince, whose name occurs in these letters, sent flowers to Raffles from Tappanoully.

trouble of my commissions, of which I shall now avail myself without mercy.

You will by this have considerably exceeded the amount of my former remittance, therefore I now enclose a draft on the Treasury for Sa R 300. On receiving the cash will you be good enough to desire Messrs. Gibson & Co, Tailors, to send you a small bill which I owe them for a suit of clothes which I had just before leaving Calcutta, and at same time order a genteel blue coat, of no nonsensical *dandy fashion*, but such as a gentleman may put on? Pray send it at convenient opportunity, together with the books and atlas, which you were so good as to take charge of. As I may consider myself fixed here for some time, I may as well collect my rattle traps about me.

Pray is any acknowledgement of the honour necessary to the Asiatic Society to which your good offices have procured me admission. I find from my account "Curr." that Mr. Calder has done the needful in regard to payment which I suppose is the most essential part of the acknowledgement. Now in regard to your wish for a paper, pray tell me when they are likely to bring forth a vol.¹²⁴ Something or other they must have, but *what*, may be regulated by the probable delays. If they are not likely to publish soon, something of minor interest will do, for instance elucidations of some imperfectly known Rumphian or Malay trees and fruits, as the Bachang, Rambutan, Rambek, etc. etc. A perfect *Clavis Rumphianus* is rather a desideratum. Do you know anything of the *Rasamala* of Rumph?¹²⁵ His description makes it a *Pinus*. Here they have a *Rasamala*, which is different and is more like a *Guttifera*. There are here a great many kinds of wild nutmegs, which will be interesting and which I must investigate. I think I mentioned to you at Penang my having observed the true Nutmeg to be polygamus. I find the observation confirmed here, in so much that the planters trouble themselves

124. The Asiatic Society produced the thirteenth volume of the *Asiatic Researches* in 1820, and the fourteenth in 1822: but Jack was not among the contributors. The fifteenth volume appeared in 1825. In a later letter he writes to Wallich "I think you told me that there were two volumes in hand or in the press." Possibly he thought the manuscript eluded, which cannot have been the case as Hardwicke's paper on the Singapore zoophyte went into the fourteenth.

125. *Rasamala* to Rumpf was a wood—"Caju *Rasamala*"—which was brought to Amboyna from New Guinea, from a country of barbarians, and its origin was only to be investigated by hearsay. At a much later date, the botanists who worked in Java, *e.g.* Blume who was Jack's contemporary, Noronha, Hasskarl, and Junghuhn, showed that one kind of *Rasamala* is the resin of the forest-tree, *Altingia excelsa*, Noronha,—not one of the *Guttifera* as Jack suggests, but of the *Hamamelidaceæ*. However apparently not all *rasamala* is from this tree. *Rasamala* in commerce has been much confused with *Rosanallas* or Liquid storax from the Levant.

very little about preserving male trees, as there are generally a sufficiency of monoecious trees to answer the purpose.¹²⁶

I delivered your letter to Dr. Lumsdaine,¹²⁷ with whom I am very good friends, and out of whom I mean to extract all the information that is in him. He is a peculiar character, as I shall have occasion to explain to you more at length hereafter, suspicious and tenacious, but not difficult to be managed by a little skill. If you see Dr. Smith who carried up my Singapore despatches, he can give you his character at length, having been with him many years. I was not aware that the Dammar would be so interesting or I could have sent larger supplies from Penang: however I doubt not to procure it here also.¹²⁸ The *Alpinia* also I expect to find, but did not send them from Penang as from their being in the list of the garden, I supposed they were abundant. I take it there will be found here many new Scitamineae. I have one which appears to belong to *Hellenia*, Br.¹²⁹

On looking over Roxburgh's Coromandel plants a few days ago, I observed the figure of *Getonia floribunda*¹³⁰ which appears to be my plant Nos. 55 and 92. Smith in Rees' Cyc. refers it to *Elaeagni*, can this be correct? I considered it *Combretaceae*; it wants however the corolla. The figure in the same work of *Symphoricarpos involucrata* resembles in habit my No. 233,¹³¹ but cannot be the same as it has serrate leaves. Can No. 232 be a *Fagraea*? I yesterday got a fruit of it, which is a superior berry of two cells and many seeds. If so *anne nova*? I found the *Uncaria Gambir* at Singapore and different from all the Penang ones. Is my *Bauhinia* Nos. 230 and 244 Roxb.'s *integrifolia*?¹³² A memorandum that has fallen in my way makes me think it may. I began a few days ago an examination of the genus *Memezyton*, which appears to be in a sad confusion, beyond my power to unravel. Are not *Memezyton edule*, Roxb. and *M. capitellatum* one

126. Confer Ridley, *Spices*, (London, 1912), p. 109 where the custom of Chinese owners of uprooting male trees is referred to.

127. Dr. James Lumsdaine was Assistant Surgeon of Bencoolen. We find his name in the Proceedings of the Agricultural Society, and as a contributor on the Healthiness of Fort Marlborough. We find him with Raffles in Singapore after Jack's death, as a member of a Committee appointed to consider the suitability of the south bank of the Singapore River for occupation (vide this Journal, No. 65, p. 41), and on a Land-Allotment Committee in 1823 (vide Buckley's *Anecdotal History*, i. p. 79). He retired from Government Service in 1825. What is of most interest in connection with him is that he was one of the first "natives of India" to be admitted to the service (vide Crawford, *History of the Indian Medical Service*, 1914, i. p. 502).

128. *Anathus lananthifolia*; see note No. 102, p. 177.

129. i.e. *Alpinia*.

130. *Getonia floribunda*, Roxb., is *Calocryptis floribunda*, Lamk., of the Combretaceae. Its number suggests that Jack had obtained it in Penang, where it occurs.

131. Jack's 233 might be *Sphaerodesme pentandra*, Jack.

132. Probably.

and the same?¹³³ *M. grande, cordatum*, Lam. and *amplexicaule*, Roxb. are very badly defined, and not one of them agrees well with my amplexicaul species, sent from Penang No. 223.¹³⁴ The other No. 240, subagrees with *capitellatum, edule, oratum* and another of Smith's in Rees. Non nostra tantas componere lites.

I must now close this long rambling letter. I hope to have ere long some direct opportunity and to be able to send you some things. I shall have now means, more than I had, of sending hence plants, seeds, and everything for the increase for the garden.

My very best and kindest regards to Mrs. Wallich and believe me,

My dear Wallich,

Thine ever,

William Jack,

No. 10,

Bencoolen.

Aug. 26th, 1819.

[Received 29th, October,
per Geo. Cruttenden].

My dear Wallich,

A second opportunity offers of writing to you via Madras, of which I avail myself to forward the duplicate of the Draft contained in my last. I also sent you a few flowers of the Camphor tree of Sumatra, which I am sure will delight you. I have found means to send to Tappanooly for further and ample supplies, together with whatever other interesting plants can be procured. This month has been the feast of *Puassir* among the natives during which no business of any kind is done. In a few days more it will be at an end, and all the chiefs come in a body to pay their compliments to the Govr., after which business returns to its old train. We have formed extensive plans for obtaining the productions of all parts of the country which will then be commenced, and mean to have occasionally councils of the chiefs for the purpose of inquiries into all subjects of Natural History, on which information can be obtained from them.

I have taken a look over Sir Stamford's specimens of plants found on the Menang Kaboo trip,¹³⁵ almost all of which are new to me, and they have very much of an Alpine character. I observed among them, a *Rhopala*, perhaps the *serrata*,¹³⁶ and two

133. Yes

134. Certainly *Momcydon corculum*, which Jack described in the *Malayan Miscellany*, i. (1820) No. 5 p. 26.

135. Raffles had left Bencoolen early in July, 1818, for Padang; and from there had marched into the interior, starting on September 16th. The naturalist Thomas Horsfield was of the party and went ahead carried on the shoulders of four men in order that by arriving at the camping places early he might gain time for botanising. The journey lasted fourteen days, and covered 250 miles (vide *Memoir of Sir Thomas Stamford Raffles* first edition, pp. 314-368, or second edition, i, pp. 388-434).

136. *Holcus serrata*, Blume, which may occur in the mountains behind Bencoolen.

new *Sonerila*.¹³⁷ I find here a species of *Nepenthes* different from all the Singapore ones, and evidently the *N. phyllamphora*, Lour.,¹³⁸ which is also the *cantharifera*, Rumph., differing from the *N. distillatoria* in having petiolate leaves, urns ventricose at the lower part, and the striated margin depressed or flattened. Sir Stamford proposes that we should send the *Nepenthes* with a few more of the most interesting of our discoveries home to be published in a small fascicle, in the most splendid style that they can be executed in, colored figures of the full natural size. I think it would be a good thing to attract attention to the subject. It may or may not be continued, according to circumstances. Give me your idea on the subject. You know that Sir S. has brought a printing press with him: he proposes keeping it constantly employed in printing papers on Natural History, and on a variety of other subjects of local information. He has himself a mass of papers on the Eastern Islands, which in their present MSS. form, are but little available, and of course liable to accidents and destruction; these he proposes printing, in order to preserve them and to afford the means of distributing them to a certain extent. He proposes to go on for some time printing without publishing, but after a little to make selections from among the materials thus collected, of which to form a volume which may be published quarterly or as matter sufficient may accumulate. In this way a great deal will be preserved of considerable interest: but perhaps not finished enough for the established channels of information as the Asiatic Researches &c.¹³⁹ For instance we think of printing descriptions of plants, whether new or not, which can then be distributed to a few, better than in MSS. I would send to you, Mr. Brown &c. for your observations, after which what was really valuable might be made public or not, and in such way or channel as would appear afterwards eligible. By the bye, in what state are the vols. of the Asiatic Society, is there any likely soon to appear?¹⁴⁰ Sir S.

137. These *Sonerilas* were not described by Jack.

138. *Nepenthes phyllamphora*, Willd., was described in print by Jack in proofsheets for the Malayan Miscellanies which were reprinted in Hooker's Companion to the Botanical Magazine i. (1835) p. 271 with the remark "abundant in moist places and ravines in the neighbourhood of Benecoolen." Later botanists have collected it on the same coasts.

139. Rajendra Lala Mitra in his part of the *Centennial Review of the Asiatic Society of Bengal* (1883) p. 50, referring to the *Asiatic Researches* says "a heavy quarto volume necessarily suggested elaborate and finished essays, and in the selection of papers for it, short notes describing new discoveries or new ideas, however interesting were frequently rejected." And he continues by recording that many members of the Society were dissatisfied at the slowness of publication and its insufficiency. A motion was even brought forward for improvement but though it passed, it effected little.

Possibly, had the Society felt itself able to provide the outlet, its prestige being so great, Wilson's *Quarterly Oriental Journal*, the *Transactions of the Medical and Physical Society of Calcutta*, and the *Malayan Miscellanies* would not have sprung up as small octavos for notes rather than essays, and for early publication.

140. See note 124 on p. 183.

says he would wish to go hand in hand with it, if the delays are not too great. I think you told me there were two vols. in hand or in the press: are they filled up, and when is another likely to come forth? There are description of some animals, for instance the Dugong, which would be worthy of a place there. Diard told Sir S. that he heard that a description of the Tapir of Malacca from Major Farquhar was to appear in one of the present vols.¹⁴¹ That description is not only imperfect but inaccurate, and as we have a better account of the same animal belonging to Sumatra, it would be a pity that a less accurate paper should occupy the pages of the Asiatic Researches. Sir S. I believe would be glad to know how the case actually stands, and whether the Secretary would like to insert his account in preference. He will probably write on this subject to you or Mr. Wilson.¹⁴²

It is intended also to have all the Frenchmen's descriptions of animals &c. printed, in order to prevent being inundated with flummery. I believe, they are to be engaged to put them all into latin, by which they will become, not only more concise, but more generally available. I have said very little to you, I believe, about the Frenchmen, and as they are good friends of yours, you will perhaps wish to know something about them, the estimation in which they stand, and what they are doing *Between ourselves then*, I believe they are estimated "a peu près a leur propre valeur" and you know pretty well what that amounts to. They have been the source of not a little amusement to us during our voyages, when there was not much to occupy us.....

You may easily conceive how they fared against a long head like Sir S., and a hard one like Crossly, who to good abilities joins a bluntness more than usual even among Englishmen. I must however give them a great deal of credit of having preserved a good deal of temper throughout, probably they knew well enough that the contrary would be to no purpose. In regard to their labours, they have unquestionably been very industrious in making their collections, nor do they spare their personal fatigue. The number of birds and animals that they have prepared is very great.—I must let you know the footing on which Sir S. supports them, which will explain to you the reasons for my taking no part in the Zoological affairs.

I believe his plan is to employ them in making the collections on the public account, that is to say, that they engage to give the whole fruits of their labours without reservation to be at Sir S's. disposal, in return for which he is to defray their expenses. They are glad to make this bargain, as their own funds

141. This appeared in the *Asiatick Researches*, XIII, 1820, p. 417.

142. Dr. Horace Hayman Wilson (1784-1860), Secretary of the Asiatic Society 1815-1832, the Sanskrit Scholar, and historian.

were nearly exhausted in Bengal without having done much, and the credit of the collection they now make, will of course be theirs, though the property of it be British. This I believe from some private conversation I had with Sir S. on the subject of deriving the most advantage from their labours, to be nearly his plan, and certainly they may be very useful, as the subjects are by no means such as are generally cultivated, particularly in this country. They also regard less than most people the trifling inconveniences of bad smells, putrescency &c. &c. and are therefore well fitted for anatomists. What I have now mentioned, as I have not heard Sir S. speak openly on the subject, is of course private between us. It will explain however, why I do not like to make any private collection for myself, or to do anything that could look like interfering, especially as they might feel a kind of jealousy, and I do not suppose they entertain any affection for me; that of course I care very little about, and they are liberal enough of politesses, but as Sir S. evidently endeavours to keep them in good humour by little attentions, I do the same, or at least nothing to the contrary. If I wished anything, particularly anything of that description, I would ask Sir S. for it. You see therefore it will be very little in my power to send to Col. Hardwicke, as he is himself a correspondent of Sir S. who will probably send from himself. If I should ever be separate, the case would alter.

A species of *Quercus* was brought in to me a day or two ago, Nat. name Punning.¹⁴³ Roxb. I see has several Penangian. I have been thinking how it would do to employ a man with you to sketch off rapidly on thin paper, the outlines of such of Roxb.'s drawn species as I am likely to meet with here, which would be of considerable use to me and would there be any objection to such copies being taken? yes, one suggests itself this moment, the putting the vols. in the hands of natives to finger, by which they have already suffered; however you will judge, and whether it would be worth the trouble. I have found also the *Casalpinia? sumatrana* Roxb.,¹⁴⁴ and the *Bruecia sumatrana*,¹⁴⁵ the latter figured in Rumph.

143. Apparently *Quercus racemosa*, Jack, in *Malayan Miscellaneus*, ii. (1822), No. 7, p. 86, which is found to be the same as *Quercus spreata*, Smith (= *Pasania spreata*, *Oerst.*) a widely distributed species.

144. Roxburgh had described in MS. *Casalpinia sumatrana* from a plant introduced into the Calcutta gardens from Senatra. It is found to be a *Miconia* and becomes *M. sumatranum*, W. & A. It has been collected since Jack's time on the Bencoolen coast.

145. *Bruecia sumatrana*, Roxb., had been introduced into the Calcutta Gardens similarly and described by Roxburgh, in the manuscript of his *Flora indica*. It is a common Malayan plant recorded for the Bencoolen coast in other places than this. One interest which attaches to it, is that Wallich collected it in Singapore island, where it had ceased to grow towards the end of the last century, probably in consequence of clearing (vide Ridley in the *Agricultural Bulletin of the Straits and Federated Malay States*, i, 1902, p. 343).

I have met with a great misfortune, in losing the services of my watch; it got a fall which has I believe dislocated the balance wheel. I am the more annoyed as it cannot be repaired here, and I have a value for it. I will send it up to you, and will you have the kindness to send it to the best watch-maker in Calcutta to be repaired. I know not whether I shall be able to send you anything by this occasion, but will if I can, and if not per next.

My best regards to Mrs. Wallich, and Believe me,

My dear Wallich,

Thine ever,

William Jack.

No. 11.

Bencoolen.

Sept. 1st, 1819.

[Received Oct. 23rd].

My dear Wallich,

The vessel has not sailed so soon as was expected, which gives me the opportunity of giving you a supplement to my last, and adding a small sample of Sumatran novelties. I have not yet got into the thick of them, to use a vulgar phrase, not however from idleness, for I have been bringing up a good deal of arrears; among these there are some things worth giving you. The specimen No. 5 I have now ascertained to be as I supposed Roxb.'s *Grewia paniculata*,¹⁴⁶ which however is superseded by *Microcos lomentosa* of Sir J. E. Smith, Rees' *Cyclop.* *in loco*, which agrees most exactly. It is singular to find it so well described from a specimen, which he says was imperfect and without even an indication of its native country. I perceive that Sir J. E. has availed himself of specimens brought home by Mr. C. Smith,¹⁴⁷ who will have anticipated me in many things. I have further been investigating the *Kamuning*,¹⁴⁸ concerning which there has been sad confusion which I think I can now clear up, being acquainted now with the *three of Rumpf*.

146. Jack's No. 5 would probably be a Penang plant. *Grewia paniculata*, Roxb., occurs there.

147. Christopher Smith, was sent to Tahiti in H. M. S. Providence in 1791, then as botanist to the Honourable East India Company to the Moluccas (see note No. 1), and about 1805 was made Superintendent of the Botanic Gardens there; but he died in Penang either in the next year, or immediately afterwards. His drawings and specimens may be found in the British Museum of Natural History, South Kensington.

148. Jack wrote in the *Malacca Miscellany*, i. (1820) p. 31, an account of the Kamuning. Rumpf as Jack says had figured three plants, first what he calls Camunum or Camuneng, which is the *Chalcas paniculata* of Loureiro, and the *Murraya paniculata* of Jack, and *Murraya crotava* (2) the camunum sinense, which is *Adina odorata* of Loureiro, and (3) the camunum japonense which is again *Murraya crotava*. Jack here explains to Wallich that the first is the true Kamuning; and in his note he calls it *Murraya paniculata*; the second is *Adina odorata*, and the third is to be distinguished from the first as *Murraya crotava*. Unfortunately for Jack's conclusions we have come back to Lamarek's position that the Camunum of Rumpf and his Camunum japonense are both *Murraya crotava*.

The two figured in plate 18 vol. 5, are plain enough and well known, fig. 1, the *Canninum Chinense*, Roxb. quite distinct from the others, fig. 2, the *Murraya exotica*. All the confusion has been with reference to the true Kamooning, t. 11, which has most unaccountably by Lamarck and others been supposed the same with *Murraya*, in the face of Rumphius's figure and of Loureiro's description, who distinguishes the two very well. I am not pleased with any of the names they have borne. *Murraya exotica* is an absurd appellation, and *Chalcas paniculata* is a false name as it happens not to be panded, which is abundantly evident from the fig. of Rumphius. They belong to the same genus, and are distinguished by the one being a tree, furnishing the wood most highly valued by the Malays for making the handles of Kreeses, having ovate acuminate leaves, and the flowers 1-3 from the axils of the superior leaves. The other the *exotica* having blunt thick leaves and panded flowers (in fallor) and not exceeding a shrub. I suspect Loureiro's other distinction of *Bacca* 2 and 1-spermea will not be found sufficiently constant.

What is known about the two species of *Sagus* put down in the garden, viz. *mermis* and *spanosa*?¹⁴⁹ Had Roxb. any description of them, and what is the *S. Rumphii* in the appendix? Sir J. E. Smith does not attempt to clear up the matter. Do you know what Rottboll says of them? he is quoted in the *Act. Dan.* I think I have two of Rumph's species, the one armed the other unarmed. I have the fruit only of the latter but both are planted here. The specimen 213 is I find, the *Aequiceras fragrans* Komg. *Am. Bot.* and figured in Rheede vol. 6.¹⁵⁰ How could it possibly have ever been placed under *Rhizophora*? I see Roxburgh calls *Volkameria mermis* Linn. *Clerodendron littoraleum*; is that sanctioned by any other authority? it is a much better name than *inermis*, and I feel much inclined to adopt it; I think two species have been confounded under it, specimens of which have been sent you, one, 201, *fol. ovatis, pedunc. axillar. trichotomis*. The other *fol. lanceolatis, ped. axill. trifloris*.¹⁵¹

Mr. Nicolson, a gentleman who has purchased a nutmeg plantation here, goes up by this opportunity. I have therefore requested him to take charge of the few specimens I have ready, and

149. It is thought that Roxburgh had only got races or conditions of the common Sago palm which he distinguished under these two names, *S. Rumphii* which is named next is according to some the Sago palm of Eastern Malaya; but others do not distinguish it from the Western or common Sago palm.

150. *Aequiceras fragrans* is *A. majus*, Gaertn., a common coast plant of Malaya. The number indicates that it was obtained by Jack in Penang, where it is common.

151. Some regard these as varieties of *Clerodendron inermis*, Benth. whereunder is then included *C. nerifolium*, Wall.; others separate them. Rumpf had *C. nerifolium* as *Jasminum littoraleum*, whence Roxburgh's *Clerodendron littoraleum*.

also send by him my watch, about which I spoke in my last: will you do the needful concerning it? Mr. Nicolson will return here soon again, and will probably take charge of anything you may wish to send. He brings down his family to settle on his estate, which he purchased for a mere song. I thought at first he would be rather an acquisition to the place, but he has shown a bad litigious spirit, which has made me less satisfied with him. He has a pushing insinuating manner: should you see him and he tell you any long stories about Bencoolen and the favor he stands in, you will know the degree of credit to attach to them. I mention this that you may know the sort of man, in the event of his seeking your acquaintance, which is not improbable.

I have purchased *Rheed*,¹⁵² and *Rees Cyclop.*,¹⁵³ cum aliis. The latter comes down to *Fol. Fum.* Part 71: have you got any later?

What steps have you taken for procuring the last volumes as they appear, that I may adopt the same.

I am going tomorrow for a week to Rat Island¹⁵⁴ so must close this letter, which I wish you may be able to read. My best compts. to Mrs. Wallich. And believe me yours very truly.

William Jack.

P.S. I wish it were possible to procure in Calcutta such paper for specimens, as that which forms the cover of those now sent nothing ever injures it.

If you can, procure some pairs of hyper-robust shoes, size within a trifle of 10½ inches.

No. 12.

Bencoolen, Sept. 28th, 1819.

My dear Wallich,

A vessel has just called with dispatches, and is off again for Calcutta immediately. I shall only be able to send you a few lines. The intelligence she has brought is most unexpected and important. An extraordinary mortality¹⁵⁵ at Penang has swept

152. Rheede tot Draakenstein, *Hortus malabaricus*, 12 vols. 1686-1703.

153. Rees' *Cyclopaedia, or universal Dictionary of Arts, Sciences and Literature*, in 39 vols., 1802-1820.

154. Rat island is opposite Bencoolen.

155. Cholera broke out widely throughout the East in this year, and very severely in Penang, (vide *Memoir of Sir Thomas Stamford Raffles* p. 431 in a letter dated Feb. 27, 1820), 1131 deaths occurring (vide Crawford's *Journal of an embassy to Siam* (London, 1828, p. 20).

away the Governor.¹⁵⁶ Mr. Phillips¹⁵⁷ and another;¹⁵⁸ the Government thus becoming vacant by the disappearance of both the heads of it, it will of course rest with the Bengal Govt. to make the necessary provisional arrangements. We shall of course be anxious to hear what these are; and the most probable is that it will be united with this under Sir Stamford. The plan has already been recommended by Lord Hastings to the Court of Directors, for adoption on the retirement of Col. Bannerman, so that I think that there can be little doubt of his embracing this unlooked for opportunity of carrying it into effect;¹⁵⁹ I shall rejoice at it on Sir Stamford's account, though I confess after so much moving about as we have had lately, I would rather remain quietly here for some time, especially as I have so much in hand. Sir S. himself would like to remain here too for some time; however we must take things as they come.

I am extremely busy at present. I was in hopes ere this to have had some printed sheets of descriptions to send you, but Mr. Ward¹⁶⁰ is so slow and dilatory, that I fear he will be of little use to us. A first paper (not mine) which was given him on trial, has not been got out of his hands yet. My botanical time is a

156. Colonel Bannerman

157. The Honourable W. E. Phillips for a long time a servant of the East India Company in Penang, acted as Governor thrice before Colonel Bannerman came out, and became confirmed as Governor in 1819. He lived in great state having a park full of deer round his residence, and was most hospitable. He did not die of cholera in this year; so, either Jack's information was wrong, or we must look for another Phillips. The first alternative is none than probable.

Succeeding to the Governorship, W. E. Phillips by his prompt and firm action in the end of 1819, snuffed out a renewed attempt on the part of Saïf-ul-aham to disturb the peace, at the time when Raffles was in Calcutta, on his very mission for the subordination of the Penang Governorship; and which it seems, he undertook thinking this apparently capable officer dead.

158. Whoever was dead, it further was not Captain Coombs for he remained in Penang after this date, and died much later in Scotland.

159. After the receipt of this news Raffles proceeded to Calcutta to urge personally the amalgamation of the Straits Settlements into one government as already half-promised (vide *Memoir of Sir Stamford Raffles*, p. 396). He arrived there on or about November 12th, 1819, taking Jack with him, and Jack taking his collections. In Calcutta, Raffles became ill; and the stay was prolonged, giving Jack facilities for working over his plants with Wallich. Because of this interruption of the correspondence by personal contact, it has been thought best to divide the Bencoolen letters at this break into two series.

160. The Rev. N. M. Ward, one of Raffles' missionaries, doubtless the one mentioned by him in his letter to the Duchess of Somerset already quoted p. 147. He subsequently penetrated into the interior of Sumatra. Was it not he who in 1815 was with Carey and Marshman at Serampore? (Vide *Private Journal of the Marquess of Hastings*, London 1858, in, p. 93). Jack did not think much of him.

little diminished at present, by Sir S. having put me on a committee¹⁶¹ to inquire into the state of society among the natives under this establishment; a tremendous subject, and unfortunately the greater part of the burden of it falls on me.

The marine plant¹⁶² No. 271 which I sent you in my last dispatch, I again found on the Coral Reefs at Rat Island, and having got better specimens, discover that it is the *Stratiotes acoroides*, figured in one of the last vols. of Rumphius. Have you any idea what the plant is that is figured in Rumph. vol. 3, t. 26, and very well described at page 47, by the name of *Lignum Emanum*? I do not find it quoted anywhere, and am extremely puzzled what to make of it: can it have any relationship to *Taxus*? I found the plant at Singapore, and am not sure whether you have had specimens of it: in case you should not I enclose one in this.¹⁶³ If it has separate male flowers, I have never met with them, and Rumph. seems to have been equally ignorant of them.

I have again met with the Sago, in still more perfect condition, and hope soon to be able to give you a full account of it. I find that it is a *solutely hermatrodite*; it seems to be Rumphius's *Sagus lavis*. There is also here a spinous species, whose fruit I have not yet procured.¹⁶⁴

The *Morinda* with umbellate flowers (spec. 77)¹⁶⁵ which you in one of your letters observe to be new, seems to agree very exactly with the Pada-vara, Pheed. H. Mal. 1 p. 51, t. 27, and as it does not appear that the said figure has ever been quoted, I think there can be little question of its novelty. If it is to remain a *Morinda*, it may be called *M. tetrandra* "pe hunculis umbellatis terminalibus, corollis 4-fidis, intus hirsutis, foliis lanceolatis."

161. Raffles thus writes to William Wiberforce under the date of September 1819. "In our chaplain, the Rev. Charles Winter, I found every disposition to extend the sphere of usefulness, and by associating him in a Committee of gentlemen... I found the means of effective superintendence. The enclosed printed copy of the proceedings of this committee will place you in full possession of the principles in which we have proceeded, and of the particulars of what has been done towards the establishment of schools at Benecolen. In the last report of the Committee with which this paper concludes, you will perceive some interesting observation on the condition of society, the character and usages of the people, and the facilities generally extending the plan of educating the whole of the native population" (*Memoir of Sir Thomas Stamford Raffles*, p. 47). And again (on p. 49), "I am in a particular manner indebted to a member of my family, Mr. Jack, for the ardour and ability which he has infused into the researches of the Committee."

162. *Eubatus Koonian*, Rich. Miquel in his "*Sumatra, zume Plantenwereld*," Amsterdam, 1862, only records this for Tapanuli; but it must be common all down the coast.

163. *Podocarpus Rumphii*, Blore, differing in small points from *P. neriifolia*, Don, which Jack had found in Singapore. See note No. 172.

164. Probably not a distinct species.

165. A Penang specimen. It was *Morinda tetrandra*, described by Jack in the *Malayan Miscellanies*, i. (1820 p. 13), now united to *M. umbellata*, Linn.; and Wallich distributed specimens collected by Jack.

At Singapore I got a still more extraordinary species of the same genus, to all the peculiarities of the former adding the singularity of polyspermous berries!! It may be called *M. polysperma*¹⁶⁶ and characterised as follows, "tetrandra, pedunculis axillaribus et terminalibus, corollis 4-fidis intus hirsutis, foliis ovatis acuminatis, baccis bilocularibus polyspermis!". Both these species are very like each other in appearance and general habit; their flowers agree, but the fruit is quite inexplicable. They must I think come into one genus, the alliance is so close, but whether they can unite with *Morinda* is another question, what think you?. My spec. of this last have almost gone to wreck, and I only got one or two: I must however send you a leaf and fruit, that your eyes may be convinced.

I look very impatiently for the letters of yours still due, which have not made their appearance. I am at this moment plagued with a sharp attack of rheumatism, consequent on a slight touch of fever I got by a trip in the sun. It comes very mal a propos, for I really have not time to attend to it, although it actually lames me, and utterly banishes Mr. Somnus. What I would give for full and perfect health just now!

Give my best regards to Mrs. Wallich and believe me,

My dear Wallich,

Ever thine,

William Jack.

Series 4—Bencoolen Letters

After the Visit to Calcutta in 1819.

On board the Indiana off

Tappanooly

Feb. 27th, 1820.

My dear Wallich,

There is a small vessel in company with us which goes soon to Madras, I shall therefore commence an account of our proceedings to go by her: we had a delightful breeze and a most excellent passage down the bay till we approached the coast of Sumatra. There and particularly about Hog Island, we were delayed by calms. We reached Tappanooly on the 23rd and left it again

¹⁶⁶. *Lucina Morinda*, DC. which Jack described as *Morinda polysperma* in the Malayian Miscellany, i. part 5, (1820) p. 14.

yesterday.¹⁶⁷ If I had anticipated so long a passage, during which I have had very little to do, I would have carried down with me a part of the specimens to work at on the way. One mischanter befel me, the box which contained my description book happened to be in a cabin below, which was set afloat one night by a sea through an open port, and it got most thoroughly and completely soaked: I have been obliged to make a copy of the greater part of it, but one good effect has resulted, that in doing so I have perfected the descriptions and put them in shape to be immediately printed, and shall commence thereon as soon as I arrive at Ben-coolen.¹⁶⁸ I hope when I arrive there I shall receive letters from you by the Coromandel, which will probably arrive almost as soon as we ourselves; and also by Watson. I hope in dispatching the specimens, you have taken care to preserve for yourself a complete set. We may wish to refer to some of them. I wish we had not done away with the arrangement, of those of which there were duplicates from those which are the only specimens, which is the case with a great many, and certainly with all of which you had not previously received specimens. There were several of these that I should have liked to have ascertained and made descriptions of along with you. You will however distinguish in going over them, as well as I could, such as are of interest, and when necessary we can refer to them afterwards. I shall be anxious to hear what discoveries you make among them. There are several particular points and queries I want from you: the best way will be to put them down in order, that you may have them before you at once, and comply with them when convenient and at leisure. In the first place I wish to have copies of the descriptions you made of several plants, some before, and some as we went along. These are principally your descriptions of:—

1. *Fagraea obovata*. Sylhet etiam Singapore.¹⁶⁹

2. *Strophanthus*.....Penang.¹⁷⁰

167. Raffles wrote to the Duchess of Somerset under date "off Sumatra, Feb. 12th, 1820" saying that he had just left Tappanooly. On the 27th, he was off Natal, and in a letter to Marsden states that Jack was with him. Thus we get two dates for visits to Tappanooly, one just previous to Feb. 12th, and Jack's i.e. 23rd to 26th. As there are many slight printing errors in the *Memoir of the life of Raffles* suspicion falls less on Jack's than on Raffles' dates.

168. This is a reference to the first series of descriptions of Malayan Plants, *Malayan Miscellanies*, vol. i., 1820. Naturally the greater number of the plants described came from Penang.

169. Wallich described this plant in his and Carey's revision of Roxburgh's *Flora Indica*, ii, p. 33. It seems that it was familiar to him from Sylhet before Jack found it in Singapore. Specimens were distributed by Wallich under his No. 1595 which Jack had communicated to him.

170. *Strophanthus Jackianus*, Wallich in his Catalogue No. 1643, being specimens which Jack had sent to him. But the plant is now transferred from *Strophanthus* and becomes *Wrightia dubia*, Spreng. It grows near the coast of Penang.

- 3 *Celtis attenuata*. Frequent at Tappanooly.¹⁷¹
- 4 *Taxus*—*Myrica neriifolia*? Wall. Rumph.: 3, t. 26. Nepaul and Singapore.¹⁷²
- 5 *Uncaria lanosa*.¹⁷³
- 6 *Posoqueria anisophylla*, described during examination.¹⁷⁴
- 7 of the two *Patisnæ*.¹⁷⁵
- 8 of *Ardisia paniculata* affinis.¹⁷⁶
- 9 of your *Myrica Kayphul*.¹⁷⁷
- 10 My description of *Limonia*? *leptostachya*.¹⁷⁸ accompanying the specimens: I have no other.

Roxb.'s short character of *Urtica nanchiflora*, numero staminum.¹⁷⁹

What species was that which grew from seed from Penang C. folium? also its spec. char.:—

171. It is impossible to ascertain what this may have been, except by search for a species common at Tappanooly.

172. *Podocarpus cerat* Jac. Don.

173. *Uncaria lanosa*, Wallich in his and Carey's revision of Roxburgh's *Flora Indica*, ii, p. 131, is described from these specimens of Jack's.

174. *Posoqueria anisophylla* must be a synonym for *Randia anisophylla*, Jack, described in Wallich and Carey's revision of Roxburgh's *Flora Indica*, ii, p. 561. It is a common Penang tree, and Jack's specimens were distributed by Wallich when breaking up the East India Company's herbarium, as No. 8399.

175. The genus *Patisnæ* was never published. The only genus which it can have been is *Urophallum*. Wallich had Jack's descriptions for publication at his discretion, and appears to have substituted this name of his own for Jack's. That is why, in publishing *Urophallum*, Wallich wrote his own name after the genus, but Jack's after the two species. Griffith (*Calcutta Journal of Natural History* iv, 1844, p. 17) pointing this out thought that Wallich had inadvertently written his own for Jack's name. The two species are *U. callosum* and *U. alabastrum*.

176. *Ardisia decurves* was described in Carey's and Wallich's revision of Roxburgh's *Flora Indica* ii, p. 275, and is placed by Wallich next after *A. paniculata*, Roxb. in his Catalogue No. 2269, Jack's association with the species being recorded by the citation of "*paniculata*" as a synonym. The species seems to have been unknown to Roxburgh, as it does not appear in the 1832 edition of the Flora which was printed from the original manuscript.

177. *Myrica descalata*, Buch-Ham., a common plant on the coasts of Malaya, and very widely distributed in Asia.

178. *Limonia leptostachya*, Jack, MS., is *Galearia Jackiana*, R. Br., and remote from *Limonia*. It is to be noted that in this letter Jack questions the genus, and as the only specimen which he had gathered was not in his hands, but had been left with Wallich, probably it is not exactly accurate to assert that Jack called it a *Limonia*, as it seems to have been Wallich who dropped the query.

179. Roxburgh's *Urtica nanchiflora* is *Conocephalus smarcolens*. This enquiry shows that Jack's clerk in Calcutta, was yet far from getting to the end of the work of copying the *Flora Indica*.

If Roxburgh has a figure of *Uvaria pilosa*, R. what the color of its flowers. I think I have it described with 'red.' It is also among the specs.¹⁸⁰

Querv are the berries of *Uvaria grandiflora*¹⁸¹ angled, as in the fig. in your Tentamen, or round as described by Roxb.

Pray send me a pencil outline of *Ternstroemia trilocularis* R.¹⁸² if there is a fig. Can No. 235 of your specimens be a *Ternstroemia*?

What is Brown's remark on *Memecylon* in Tuckey's Congo. Also what his char: of *Ameyridea* in Do.?

I found at Tappanooly the flowers of what from the fruit alone we called *Cnestis longifolia* (Singapore):¹⁸³ but what say you, it is only pentandrous: there are two little villous processes between each of the stamina. I found also two more species of *Connarus*,¹⁸⁴ the examined 5—all new. One from Penang *C. ferrugineus*, of which I have the description, three from Singapore¹⁸⁵ of which I have none, and I fear no duplicate specimens. If you have made any memoranda of them let me have them, for these *Connarioideae* must be attended to. I have been looking over Roemer.¹⁸⁶ That and De Candolle¹⁸⁷ (try to get it for me) will be invaluable when completed. What does Roemer mean by saying that *Mangifera Indica* has fol. venenatissima. True? I happened also to have observed that he gives *Holcia Cochinchinensis* in one place, and then in the next under *Rhopala Cochinchinensis* quotes it: somewhat tautological?

When do you begin on Roxburgh's *Flora Indica* vol. II, and in the event of your proceeding to Nepaul what will be the arrangement? I hope it will not stop. I forgot to ask whether you have got a genus yet under your patronage, if not, how would you like that your critical acumen should be commemorated by

180. *Uvaria pilosa*, one of the species described by Roxburgh as from "the Moluccas" is Jack's *Uvaria hirsuta*, from Penang.

181. *Uvaria grandiflora* of Roxburgh is *Uvaria purpurea*, Blume; but *Uvaria grandiflora*, Wallich is *Uvaria Hamiltoni*, Hook. f. Wallich had made a mistake, and Jack was apparently upon the track of it.

182. *Ternstroemia trilocularis*, Roxburgh, is *Saurauja tristyla*, DC.

183. *Cnestis longifolia* cannot be identified.

184. *Connarus ferrugineus* was described by Jack from Penang in the *Malayan Miscellany*, ii. (1828) p. 372.

185. Wallich's catalogue shows that two of these were *Aquila vestita* Hook. f., No. 8555, and *Connarus semidecandrus*, Jack, which Wallich called *C. gibbosus*, No. 8541.

186. Roemer and Schultes, *Systema vegetabilium*, 1817-1830.

187. A. P. de Candolle's *Revue vegetabilis systema naturale*, Paris 1818-1821, two volumes.

taking those acuminate gentry the Patisne under your wing.¹⁸⁸ Wallichia? glabra is a Tappanoolian. I am not however decided that it shall be so. I shall perhaps have something more splendid to name, only I should like it to be Pentandrian that it may come out soon.

During the two days we stayed at Tappanooly, I scrambled over not a few hill and forest tracts, but the season is not the best. The night we came in, we had a narrow escape. We went ashore on Mansilar Island in the evening, the vessel continuing under sail, night came on, the ship outsailed us, we lost sight of her, and had to row about 20 miles in the dark without compass and no stars visible. Ten minutes after we did get on board, (which was at one o'clock at night) there came on a most furious squall which nearly drove us from our anchors, and would have sent us and the boat, had we been out in it, to the D-1 in double quick time. However we were born under lucky stars. On Mansilar, we found what I take to be *Schreberia Swietenoides* Roxb.,¹⁸⁹ a delightfully fragrant tree. The Camphor trees were not in flower,¹⁹⁰ but we cut down one and got some Camphor out of it a piece of good fortune, as one in a hundred is only found to contain it. They are indeed the monarchs of the forest. The one cut down measured 90 ft. to the first branch, diameter in proportion, and perfectly straight. I have got young plants, and also of the *Styrax Benzoin*,¹⁹¹ *Dryobalanops* is a confounded herbaceous name, and is *nonsensie nimis affinis*! What think you of a fourth species of *Didymocarpus*,¹⁹² which I have a great mind to call *D. ornithopus*, for the capsules are arranged in such a way as to look very like crow's feet. I am almost at a loss how to

188. Jack proposed Wallichia as an alternative for his Patisne—but Wallich called it *Urophyllum*, see note No. 175. However Blume in his catalogue of the Buitenzorg gardens published Wallichia as Reinwardt's name for the genus. Now Reinwardt was in charge of these famous Gardens when Jack went to Java in the hope of recuperating his health: (See p. 239 towards) so that it is probable that Reinwardt got the name Wallichia from Jack then, used it there, and when Blume succeeded Reinwardt without knowing the history of the name, it was ascribed to Reinwardt. Note the connection of the name *Urophyllum*, or tail-leaf, with Jack's expression "acuminate gentry."

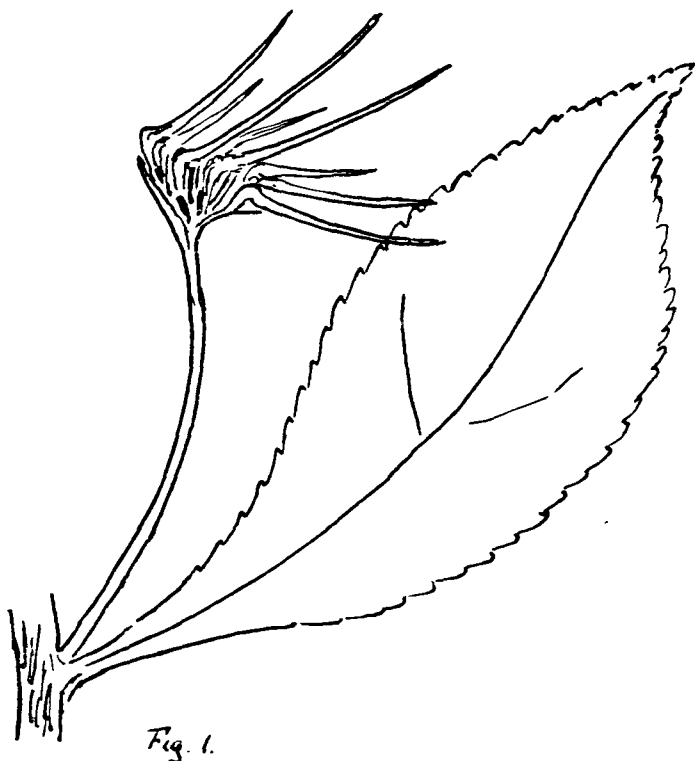
189. This plant is not recorded as Sumatran by Miquel in his account of the Flora of Sumatra.

190. See note No. 123.

191. *Styrax Benzoin*, Dryand., was considerably cultivated in Sumatra at this time, but rather in the interior and the plant was scarcely familiar to botanists.

192. *Didymocarpus corniculata*, Jack in *Malayan Miscellanea*, i. part 5, p. 4 (1820).

describe the inflorescence: the scrawl on the margin will give an



idea. The pedicels are irregularly fascicled on the summit of the peduncle, and all the flowers turn one way and are bent at an angle to the pedicel. Would "pedunc: axillaribus floribus cristato fasciculatis secundis" do? Are your *Didymocarpi alternifolius* or *oppositifolius*? I have species both ways. I have a great mind to bring this genus into my grand fascicle, with a drawing of *D. frutescens*¹⁹ and characters of the others. *Fagraea racemosa* would also deserve a place.

The people in the interior of Tappanooly are Battus, and we were curious to ascertain whether they were really cannibals as has been represented: our inquiries have placed the fact beyond a doubt, and the circumstances attending the practice are such as I am almost afraid to mention, as they are scarcely to be credited. It appears that by the Battu laws, the capital punishment ordained for certain crimes is to be eaten, and the execution of the sentence is the occasion of a grand feast. But the most horrible part of the story is, that the prisoner is actually eaten alive, and has the

193. Described in the *Malayan Miscellany*, i. part 5 (1820) p. 5.

pleasure of seeing his own flesh devoured before his eyes. Cutting off his head is the conclusion of the ceremony. Will you give credit to this tale? however incredible, I bear it is a fact. However it is our intention sometime or other to pay them a visit, and have the evidence of our eyes to the matter. We are resolved to witness a human feast. Shall I send you a tit bit preserved in pyro-ligneous acid? The palms of the hands are epicurean morsels, or will you have a great toe? More of this however at another time.

I enclose to you two letters for Mr. Colebrooke and Mr. Lambert,¹⁹⁴ which I pray forward. Read them and tell me if you approve: I wrote them in hopes of being able to send them per Carnatic, but was too late: I wrote Brown¹⁹⁵ by her. Pray how goes on the report, has it gone in? I wish we could have finished it together, but it will be just as good otherwise. I shall be anxious to hear what it produces. We must keep in view the bringing about a connection between us in the Dept.

I shall also enclose letters for Calder¹⁹⁶ and Lindsay;¹⁹⁷ you see I do not spare you in any way. There are enough of requests and commissions in this for one letter at least.

Sir Stamford has completely recovered on the way down, and is now as well as ever. By the bye, he wishes to ask you some day that you happen to be in Calcutta, to take a look at the specimen of the Bintooron;¹⁹⁸ an animal sent up from Malacca by Major Farquhar to the Asiatic Society and in the Museum, and ascertain the number of its teeth: is a desideratum; also if you can, whether it is what Cuvier calls a plantigrade, i.e., whether the whole length of the foot is applied to the ground.

194. Aylmer Bourke Lambert (1761-1842), a great collector of plants. He inherited a considerable patrimony which he used freely for the furtherance of science, chiefly by getting together large collections which were at the service of savants. David Don was his curator, the author of the *Prodromus flora nepalensis*, which was based on material obtained by Lambert from Wallich. Raffles and Jack sent to him Sumatran plants. And at his sale in 1842 lot No. 111 was catalogued as probably from Jack and lot 255 as from Raffles, and others. According to information most kindly supplied by Sir David Prain, Director of the Royal Botanic Gardens, Kew, the first was bought by the dealer William Pamplin for £1, the second by someone named Rich for £3: their subsequent fate is not known to the writer. Lambert was one of the original members of the Linnean Society and for nearly fifty years a Vice-President.

195. Robert Brown, see note No. 73 p. 168.

196. See note No. 38 p. 161.

197. See note No. 81 p. 172.

198. *Artictis Binturong*—the Cat-bear which occurs from Assam to Java; and the habits of which are still but incompletely known. The word missed out is illegible.

Sir Stamford desires to be remembered.

My very best regards to Mrs. Wallich, and believe me ever,

My dear Wallich,

Yours very sincerely,

William Jack.

No. 2 Bencoolen,

March 15th, 1820.

My dear Wallich,

An event has just taken place which you may have in some measure anticipated. Our Frenchmen¹⁹⁹ you know were taken up and brought forward by Sir S. Raffles in Calcutta, at a time when their means were exhausted, and they despaired of being able to effect anything; and you know with what kindness they have been treated, the important aid that has been afforded them, the opportunities that have been opened to them, in short the manner in which they have been patronised by that princely man, as never men were patronised before. They have been allowed 1000 rupees a month ever since they have been with him, to defray all their expenses of establishments &c. &c.—besides being provided with passage, table, and here with a house free of all expence. In return for all this, the only stipulation made was, that their collections should be on account of the Company, and that the account of the discoveries they might make, should not appear in France until they had been noticed in England. It was Sir S's intention, and indeed still is, to have ultimately presented to them a complete set of duplicates in further acknowledgement of their services. To those conditions they gave their full agreement in writing, and in words professed the utmost gratitude for the liberal terms allowed them, and their extreme desire to give everything into the absolute disposal of Sir S. At the same time they were given to understand, that the arrangement was made subject to the approbation of the Supreme Govt., and that the period of their employment would be regulated by that authority. The reply of the supreme Govt. was received in Calcutta, disapproving of the arrangement, sanctioning the expence already incurred, but directing it to cease for the future. On our arrival here we found that they had been very industrious, and had got a considerable number of animals of one kind and another. As therefore they had exerted themselves, Sir Stamford, with all the reason which you know he had to be discontented with them before, felt unwilling to disappoint them in any way, and resolved to make an exertion in their favor rather than at once put a stop to their labours. He accordingly offered them an allowance of 600 rupees a month out of his own pocket, on the chance of its eventually being approved by the Company;

199. Dard and Duvaueel.

explaining to them at the same time, that as a sufficient number of the principal specimens had already been obtained, the expense might easily be kept within the limits by avoiding an unnecessary number of duplicates. Now what do you think was the reply to this noble proposal?—no words but those of the letter itself can convey to you the full idea, or measure of the ingratitude of it; I shall ask Sir S. to let you have a copy of the correspondence, The fact is they think they have nearly exhausted Sumatra; and now meditate their retreat with as much as they can carry off, They say they were solicited to come here, and in compliance therewith abandoned the researches they had so successfully commenced in Bengal, with many similar lies.

As they seemed determined not to recede in their pretensions, it became necessary to appoint a committee to take charge of the whole of the collections, which has accordingly been done. They express themselves very indignant, and talk of going to Bengal to protest; Let Gen. Hardwicke (to whom I beg my compliments on his late accession of honors) know the story, and see the correspondence. It possible prevent Lord Hastings from being humbugged by them, humbug, (I like the word and so do you) not being one of the things that his Lordship is quite proof against. There is a vessel here at present that will take a great part of the collections at once to England, which will be so much secured. Our return perhaps was fortunate, as it appears that they had actually been preparing to steal a march and to be off with the whole. So much was this expected that the acting Resident had actually his eye upon them, to place a guard over the house and property, if they should make the attempt.

Enough however of such a subject: I have commenced with it as being the uppermost at the moment, before even acquainting you with our safe arrival here. I wrote you by a vessel that parted with us at Padang, and was proceeding from thence to Madras.

In that I gave you some account of Tappanooly, and the discoveries in that quarter. We arrived here²⁰⁰ on the 3rd of March, but the weather was so bad, and the surf so great in consequence, that we were unable to land till next day. Rather tantalising this, particularly to Sir S. However we are now once more quietly settled and beginning to resume our old routine. This business of the Frenchmen will give me some additional occupation and disturbances, as all their collections come in here, and there will be the plague of stowing and arranging them, cum stinkibus, et filthibus, et ceteris et ceteris.

I found here some of your former dispatches which had not appeared on my leaving this, particularly the valuable one by Mr. Stuart. Only one of the series appears to be totally missing, that of March 1819, per Brig Tagus, of which not a trace, and what is provoking, it probably contained a portion of Roxburgh's mss, as I find the part from "*Polygonum laetum*" to "*Cassia inermis*" wanting.²⁰¹ Pray make some inquiry respecting its probable fate, and if lost—the writer may as well supply it. I wanted to have referred to it lately in examining a species of *Laurus*, called by the Malays Kavu Gadis, or the virgin tree,²⁰² which name I find subjoined in the catalogue to Roxb.'s *L. porrecta*. Why the devil did you give it that specific name; I can hardly think of letting it stand, when a much more elegant one might be given in allusion to the native appellation. Let it henceforth be called *Laurus virgo*, or *Laurus Parthenoxylon*, alias the Virgin Laurel. Which do you approve? It yields an oil much valued by the natives, and having a balsamic smell somewhat resembling Capivi.

Watson arrived not long after us, but, prop. dolor! brought nothing from you. I hear however that another vessel is to follow, by which I may have your dispatches.

Now I have a grand affair to inform you of, nothing less than specimens of the gigantic flower of Sumatra. *Rafflesia Titan*:²⁰³ Quid dicis? Marsden²⁰⁴ in a letter to Sir Stamford, proposes *Rafflesia elephantina*, Query, which? I must send you a pencil outline of its fructification, in which respect it appears to be as singular and unique as in size. It is no *Asclepiad*, as was at first guessed; nor does it appear to belong to any known Natural family. It is Polyandrous or rather Gynandrous. The anthers are large spherical bodies, sessile and lodged in hollows under and covered by the lower and projecting edge of the stigma. They are of a

201. See notes No. 37 and 119.

202. *Cinnamomum Parthenoxylon*, Meissn. The wood at all stages has a strong smell as of citronella oil, not of Camphor, though Kurz called it Martaban Camphor-wood. The seed yields an oil used for rheumatism. Marsden, *History of Sumatra*, at p. 162 of the third edition, mentions it as having wood smelling of Sassafras. The tree is found in the Malay islands and Peninsula and as far north as the Yang-tze-Kiang valley in China.

203. *Rafflesia Arnoldi*. Flowers of this strange parasite were obtained in 1818, and a figure from one of them may be seen in the Memoir of Sir T. S. Raffles, opposite p. 316. In a letter later (vide p. 208) Jack says that it had proved to be not uncommon. He described it in detail for publication in the *Malayan Miscellanies*, under the name of *Rafflesia Titan*, but held up his description pending news from Europe. Sir William Hooker in 1835 published that description.

204. William Marsden (1754-1836), for eight years (1771-1779) resident in Bencoolen; after which in 1783 he published his *History of Sumatra*, wherein the care and fidelity exhibited made his reputation. The *History* went through editions in 1784 (second), and 1811 (third), each of which received the author's careful attention.

Marsden and Raffles had been in correspondence from 1805.

spongy porous texture internally, and having on the summit, an umbilicate spot of a lighter color, in the centre of which is a pore or foramen. The specimen I examined was a yet unopened bud, of the size of a good cabbage. I have information of others, and as soon as I hear of their being blown, mean to take a journey to see them in their native spot.

March 22nd.—The business with the Frenchmen is drawing to a close. The correspondence has become so long, and Sir S. is anxious to send a copy home by the ship which sails tomorrow, that I fear that I shall not be able to enclose it in this, but it shall follow.²⁰⁵ The committee have done their duty in taking charge of all the specimens, in the course of which the Frenchmen showed further their mean jealous spirit in refusing to give scientific names to the subjects, and taking off all the distinguishing tickets that they had previously appended to them. The specimens being received, the committee were directed to inform them, that by the terms of their agreement, they were bound to deliver up the observations, and that if they assented to this, and gave their word of honor that the whole of the collections were made over without reservation, they were authorised to make them an offer which was, that if they would agree not to publish in France till the expiration of a year, their descriptions should all be returned to them, and a complete set of duplicates still given to France.

Duvaucel I understand is going to Batavia, thence to Bengal; and Diard talks of going to Padang to prosecute further researches. The sooner they go the better and a good riddance. Let me know what they say or do in Calcutta.

I send by this ship, the "Mary,"²⁰⁶ Indian ink drawings of the two *Nepenthes*, the gigantic flower,²⁰⁷ the Camphor, and of that beautiful pentandrian with finely veined and serrated leaves and white fruit. I have named it *Euthemis*,²⁰⁸ ab "euthēmōn"—concinus, quid *dicis*? The two species are *E. leucocarpa* and *E. minor*. I have also sent descriptions of these and of the true Sago. They go to Mr. Marsden with instructions to take such notice of them as may prevent anticipation, at the same time that he is apprised of the intention of publishing them afterwards in a fascicle. It would not I think be easy to select other five as interesting. I must soon send you a copy of my account of these. I shall ere long have lots of descriptions for you.

205. Jack succeeded in sending to Wallich by the same boat copies of that part of the correspondence which is in English, but not that in French; Raffles, however sent the whole to London. It is useless to reproduce here the part, not only because it is imperfect, but because the whole, reprinted from Raffles' despatch, may be read in the *Memoir* of his Life, 1st Edition pp. 702-723.

206. The same boat was to take to Marsden the whole of Raffles' geological collections, as stated in a letter contained in the *Memoir* of Sir T. S. Raffles, 2nd edition, n. p. 103.

207. *Rafflesia Arnoldi*, R. Br.

208. *Euthemis* was defined by Jack in the *Malayan Miscellaneus*, i. (1820) part 5, p. 15, with two species. See not No. 114 on p. 179.

The singular *Combretacea*²⁰⁹ with crimson flowers and thick fleshy leaves, I found here on the banks of the Sillibar River mounted to the size of a good tree. The native name is Api Api. (fire) I propose therefore in allusion to that to call it *Pyrrhanthus flammea*?

I have now intelligence of the great flower within thirty miles, not yet blown, but will be within a month, and then!!! If once these ships and Frenchmen were off, I shall set to tooth and nail, and you shall see. I found among the convicts a fellow who was employed (he says) in your seed house Engl. Here is a tremendous letter, and yet if I could settle myself to work, I have fifty hundred more things to say. A harum scarum chap of artillery, Lieut. Hele, is going up to Calcutta to get married and returns here with his wife. He asked to take any commissions for me, and I told him to let you know when he was coming down, and take charge of anything you might have.

I trouble you with a letter for our friend Mr. Gillman, as I know not whether to address it to Calcutta or Monghyr.

I am anxious to hear your plans in relation to Nepaul &c. &c. Have you any accounts of George²¹⁰ since the "Nepal" sailed. My very best regards to Mrs. Wallich, and believe me ever,

My dear Wallich,

Yours very sincerely,

William Jack.

P.S. Sir S. and Lady Raffles always desire to be remembered to you both. The sweet briar arrived in excellent condition, and was most acceptable, as also the other things in the two boxes.

W. J.

No. 3 Bencoolen 29th March, 1820.

My dear Wallich,

I avail myself of a vessel proceeding to Batavia, to send you the conclusion of the correspondence, of which part was forwarded by the Coromandel. When I wrote you last the Committee had just closed their proceedings, and the Frenchmen had given their word of honor that they had given up everything. On that Sir S. wrote to them, that as they had concluded everything with the committee, the question of right being no longer in dispute, he was enabled to offer them the same consideration that he always intended; and to do this in the most gratifying manner, desired them to send in a list of such duplicates as they esteemed most valuable, which he would be happy to present to them. They sent in a list accordingly which was complied with. The day the Committee concluded the business of receiving charge of the collections, Diard

209. *Lumetzeria coccinea*, W. & A.

210. George, Wallich's son. See notes 72 and 221.

and Duvaucel reported that a robbery had taken place the night before, by which they had lost all their papers. A robbery of nothing but papers looked a little suspicious, but no comment was made. Yesterday however a man came in and reported that a box had been seen among the grass near the house where the Frenchmen had been living, but that he was afraid to touch it for fear of being accused of having stolen it. It was then sent for and brought in to Sir S. while in Court, where he happened to be sitting that day. It was a box securely nailed up, and well tarred outside and at the joints. On opening it there appeared first a quantity of tow, and then a quantity of papers rolled up and laid in as if hastily packed: these proved to be the Frenchmen's papers, who were informed of the circumstance, and were somewhat surprised at the coming to light of the precious deposit. The box was handed over to the Committee, to receive from the Frenchmen such part of the contents as related to Natural History. They gave a few scraps, and sketches, and gave their word of honor that all the rest were private papers. Unfortunately for the value of their word, some of the rolls of paper had been looked at, and known to be descriptions and sketches, but these were not delivered up, so that they have given their word of honor to what the whole Court know to be untrue. So much for that part of it. As to the finding of the box, from the place where it lay, untouched and unopened, the way in which the papers were stowed, not laid in order as if it had been their usual depository, but rolled up hastily as they came to hand; the way in which the box itself was secured with nails and hammer, and further the box having been recognised to have been made only the very day before it was said to be missing, there seems little doubt that it was lost where it could readily be found, and that its discovery was a disappointment to those who had been bewailing its loss. But I am sick of the subject: thank Heaven, Sir S. is done with them. Diard I understand is going to Batavia; and Duvaucel talks of going to Padang, to make, he says, in three months, a better collection than that of Sir S. in a year. Diard says he goes from Batavia to Calcutta. I think there is little to apprehend from anything two such (what shall I call them) can do. I have already told you to be prepared to meet any misstatements they may spread, for which purpose I have wasted so many words on them.

They having given over the collection without names or observations, or at least with very few, it becomes necessary to supply the deficiency and prepare an account of it for England. This task of course falls on me, and is no trifling one. As the object is to have it out soon, I am obliged to devote myself to it, and must therefore let my own pursuits stand still for a little.

I have been at work for some days, and have got pretty well through the Mammalia. It is a devil of a job, but there is no help-

ing it, it must be got through. I have not time for more at present, so I conclude, with best regards to you and Mrs. W.

And I am ever,

My dear Wallich,

Yours very truly,

William Jack.

Bencoolen,

1st June, 1820.

My dear Wallich,

I have been much disappointed at not having a single opportunity of writing you for a long period, and now I have nothing better than the circuitous route of Batavia. I must therefore content myself with a few lines, and trust that ere long I shall have some direct opportunity. I am very anxious to hear from you and learn your plans for the ensuing season. The time of your purposed voyage²¹¹ is fast approaching, and I am desirous of learning your arrangements regarding it. I do hope on your own account that you will put it in execution, it will relieve you from a great deal of tiresome worrying business; and a year passed in amusement and pleasure in an alpine region like Nepaul, will be as good as a voyage to Europe, and be an epoch from which to date the commencement of a new lease of life. If you could have made a voyage here in place of the Nepaul trip, it would have been to me still more delightful, but we are seldom fated to have all we wish in this world, and happy is he who looks at the brightest side of the present, whatever it be, and takes the honey of every flower he finds, without repining that it is not the wished for rose. I think there are few people who have more the means of being independent of circumstances than ourselves, and such as like us can turn from any prospect, however dark to that of nature which is always the same, fresh and bright. But stop, good Mr. pen, not so fast, as Fielding says, we have got on the top of a hill, how we are to get down again is the question. I believe he does it, by ringing the bell for breakfast, and though I have not that resource at hand just now, I must somehow contrive to descend to matters of fact.

And first for domestic news; I have a new character to introduce on the stage in the person of Lady Raffles' second son, who made his debut about a week ago with great applause. Captain Watson's lady also presented him with a girl a few days before. In short, increase of the population is the order of the day in more ways than one. Sir Stamford's indefatigable mind is now turned to the improvement of this place, and to drawing forth its

211. Journey to Nepal. Wallich resided at or near Khatmandu from 21st Dec., 1820 to November 8th or 9th, 1821.

resources whatever they may be. It would be too long to give you here a detail of all he has done, and all he is doing, suffice it to say the very aspect of the place is changed, and in spite of all its natural disadvantages, there are good hopes of its rising. Natives and Europeans all seem to awake to the new impulse they receive, and I really think the former more readily and fully than the latter. It is hardly possible to conceive the apathy and *vis inertia* of the Europeans who have been trained up and imbibed the spirit of the old school of this place.

The last twenty years of Bencoolen have been its age of Gothic darkness. It was far better before in the time of its old government, but has declined ever since it fell under Bengal. Num-redi ad pristinam dignitatem, yea, it revives in more than pristine splendour.

I have just concluded the second and longest part of the Zoological Paper—The Birds.²¹² The remainder will not be given so much in detail, and will I hope be soon finished; then for Botany anew. It has been almost suspended by these and other occupations. I have got numbers of the great flower²¹³ and have at length satisfied myself upon every point, and have corrected many of the first ideas of it. I mean to send you a few specimens. How to send it living is more puzzling. I find it is parasitic on a species of *Cissus* with quinate and ternate leaves, which I cannot ascertain as yet²¹⁴ for want of Roxb.—these leaves are serrate and smooth. From the stems of this woody *Cissus* which run either on, or under the ground, spring these gigantic flowers. At first a round knob, enveloped in a number of calycine or bracteal leaves, which open as the flower enlarges, and mostly drop off as it gets ripe. The flowers are unisexual? ergo Dioecious. The male has the globular anthers disposed round the margin of the central column, as I have already described. The female wants them, but is otherwise similar; and the centre of the column is occupied by the minute seeds which are not exactly nidulant but disposed on the surfaces of a number of fissures, which traverse the substance of the column without any order or regularity. We get them [the flowers] in numbers from all parts of the country, so that they do not appear to be rare. Strange that they never before should have been heard of. They are called by the natives *Pelinum Sekuddi*, or the devil's sribox, or as you would call it in Bengal Paun box. I like the name—*Poculum Jovis* prece: dub:

I had a story to tell you of the Frenchmen, but will let it alone just now. Here break we off at that unhallowed name like lards of old when words ill omened came.

Believe me my dear Wallich, thine in secula seculorum.

William Jack.

212. Editing of the work of Diard and Duvaucel.

213. *Rafflesia Arnoldi*, R. Br.

214. *Vitis angustifolia*, Wall. (*Cissus angustifolia*, Roxb.), according to Jack in the *Malayan Miscellanies*.

Bencoolen.

28th June, 1820.

My dear Wallich,

We are still without any arrivals from Bengal, and consequently not a line of advice from you. The time must be approaching for your trip up the country, and I am not even certain whether this will find you in Calcutta. The London, a large China ship, arrived here some time ago direct for England, and we have taken advantage of that opportunity to send home the greater part of the Zoological collections.²¹⁵ The second part of the description of them is finished and goes home now via Bengal. Sir S. is very desirous to get the drawings home at the same time, as it will give the people at home the means of examining and comparing the whole, and making any corrections in the paper that may be necessary before publication. As there is no likelihood of any direct opportunities from home, we have determined to send them via Bengal. They are put in charge of young O'Brien, one of the officers of Watson's corps, who is going up on duty, and his directions *are* to take them direct to you, if you are in Calcutta; and if you should have left it, to entrust them to Calder. They will be put up ready and fit for transmission to England, and it is therefore an object to avoid their being opened at the Custom House, or in any way overhauled until they arrive at their destination. We were thinking at first of addressing them to you, in case you might wish to look at them, but considering the chance of your being away, and moreover that they are not of main interest to you, and that your time is too fully occupied otherwise, we thought it best to save you all trouble but that of despatching them. This I am sure you will readily undertake to do, and get them off by the very first opportunity. It is of great consequence their arriving early, as if they are much delayed the paper will be out without the advantage of reference, the "pieces justificatives" as the French would say. They ought to go I think regularly manifested, and with a letter of advice to enable Sir Jos.²¹⁶ to get a Treasury order for their landing. There is lots of trouble for you, and I cannot think of giving you so much without taking example in some degree by the native custom, of not making solicitations empty handed. As they conclude their letters with, "I have nothing to offer my friend but—which I request him to accept," so I shall conclude the above request with specimens in spirits, of our gigantic flower.

Quale portentum neque militaris
India in latis alit esculetis
 Nec Jubaæ tellus generat leonum
 Arida nutrix.

215. Arrived safely.

216. Sir Joseph Banks.

I have dispatched a cask of them to England, and here are some for you. You cannot imagine what abundance we have procured of them, and I have thereby been enabled to ascertain every point respecting them. I think I gave you in my last the particulars, that it is parasitic on a species of *Cissus*, that it is dioecious, and that the seeds are minute and nidulant in the centre of the column of fructification.

Botany I am sorry to say, has been most grievously at a stand, but I hope soon to resume it and make up for leeway.

Among our other plans and schemes here, is an agricultural Society which we have established, and of which I am Secretary. Our objects are more practical than to make a figure on paper, and the people will feel the benefits of it most. It however I frame any report on the subject, which I have some idea of doing on the state of the country generally with reference to it, you shall see our lucubrations.

We have no intelligence from home on the points of immediate interest to ourselves, and there is so much else to occupy people at home, that I do not think anything will be speedily decided. Perhaps it is all the better, the longer they are about it, the better it probably will be done.

As the vessel will be soon off, and I have a good deal to do to get everything ready, I must make this a short letter. I hope to hear soon from you, and then you shall have more.

Remember me to Mrs. Wallich.

And believe me always, my dear Wallich,

Yours most sincerely,

William Jack.

P.S. The box of drawings will be addressed to Sir Joseph Banks and Mr. Marsden jointly. A letter containing a list of the contents will be written to them, and sent to Calder to forward. You can therefore communicate with him.

By the bye, a late letter from Sir Joseph to Sir Stamford acknowledges the receipt of seeds of my *Nepenthes* through you.

The specimens of the Titan, are large buds, the opened flowers are difficult to preserve, and buds exhibit everything essential. I advise you to prepare your largest microscope against the arrival of these diminutive fellows.

Bencoolen,

19th Aug., 1820

My dear Wallich,

It is not long since I received your letter No. 2, from Mr. Hail, but No. 1 has not yet made its appearance. I hope it will soon, for I am anxious to have replies from you on many points.

Your Straits Branch

I rejoice to hear that the Nepal expedition has been so happily brought about: both as regards yourself and as regards science it is most glorious. You will spend a year or more most delightfully in a Hyperborean climate, with no vile Calcutta cares and vexations to disturb you, restore your health "to its pristine dignity" (that phrase is a favorite of yours and mine) and descend again into the plains like a new fledged eagle from his mountain eyrie. But what is this to the harvest before you, to the glorious discoveries that await you, you are about to revel among the living sweets, whose dead anatomies have been exciting our admiration during past years.²¹⁷ Agreeably as I am situated here, I could wish to transport myself in a twinkling to your side in a ramble over some pine covered hill, or enormous snow crowned mountains. What exclamations, what triple marks of admiration!!! verily and truly, friend of mine, we lose a positive pleasure in surveying all our wonders with solitary eyes.

I wish in place of your present trip, we could have carried you with us to this island of wonders. But we cannot have everything we wish.

I enclose for your edification, two copies²¹⁸ of the firstfruits from our Sumatran Press, it is my part of the first volume of the Malayan Miscellanies, (so we have entitled our collections). The first volume is not particularly interesting, consisting chiefly of papers that Sir S. left to keep the press at work during our absence, and taken at random out of a mass of materials, without undergoing examination or revision. As however when we returned we found enough to make a small volume, forth they come, as they are, and to help it out I have given a few descriptions of minor interest. We have also put one or two of the Frenchmen's papers, which will show what they really are, and enable us if they attempt anything, to judge them out of their own mouths. Let me have the benefit of any remarks that suggest themselves to you upon the plants here mentioned.

Our second volume will be more interesting, it is proposed to contain the proceedings of the Agricultural Society,²¹⁹ the first Report of which I have just completed. It is in fact rather a statistical than Agricultural paper, and forms a kind of supplement to my former Report on the State of Society. I am now cogitating on my projected fascicle, and plan a considerable extension of the original idea. It strikes me, that such splendid plates as they are intended to be, ought to be accompanied with more than the few sheets of letter press that the mere scientific

217. E. Gardner, the Resident in Nepal has been sending down specimens dried.

218. Not one copy of part No. 1 and one of part No. 5 of volume I. but two copies of part No. 1; for part No. 5 was not printed at this date.

219. It did not. The *Proceedings* were printed under their own title, and made a volume of about 200 pages.

descriptions would occupy. I am therefore thinking of a general view of the Natural History of the Eastern Islands, to which the descriptions will be an appendix. It will take me some time to execute this up to the plan I have in view, but I think I shall be able to get sufficient materials, and it will be a pity not to make use of them. I am very glad you had an opportunity of mentioning the circumstances about the Frenchmen to Lord Hastings. I have heard very little about them lately; they will probably sink into merited insignificance and there let them rest.

I read your letter on the subject of timber plantations with much interest. I wish however, to have from you some of the collateral history of it, that is to say, of the circumstances which called for it etc.

The teak forests in Java were a very important object of attention, and I believe there were some able Reports made on them. I mean to see if I can rummage them out among Sir Stamford's papers, and if I find anything in them likely to be interesting to you, I will let you know.

I send this up by Capt. MacKenzie, a brother of Holt MacKenzie;²²⁰ he is appointed resident of Singapore, and goes up to Calcutta previous to taking charge. I imagine he has no chance of seeing you in Calcutta, but if it should so happen, I should wish you to see him, and he is equally desirous of paying you a visit.

This vessel goes round by the Straits of Sunda, and we expect another here soon on its way to Calcutta direct, so I shall write again and more at length by that occasion, and may perhaps in the interim receive some more of your letters.

Lady Hastings has requested me to send a *Hortus Siccus* for the Edinburgh Museum, which of course I must do, and I shall take care that at least the things be neatly put up and in good paper, which perhaps are points that are better understood than the value of the specimens. Were it not that it would be as well on Sir Stamford's account to keep her in good humour, I should hardly be induced to take even that trouble for any attention I have ever received, or good I am ever likely to get from her.

I shall conclude with best regards to Mrs. Wallich and yourself and am always,

My dear Wallich,

Yours very truly,

William Jack.

²²⁰ Buckley says (*Anecdotal History*, i. p. 64) that in September, 1820, there was sent to Calcutta "by the hand of Captain Holt M'Kenzie, the Secretary to Government at Bencoolen, then on his way to Bengal" a petition against the dreaded abandonment of Singapore. Jack's statement above is divergent in showing that it was the Captain MacKenzie—a brother of the Secretary to Government in Calcutta Mr. Holt MacKenzie—who proceeded to Bengal.

Bencoolen.

9th September, 1820.

My dear Wallich,

I have just received your letter of the 7th of June No. 3, but have no tidings of No. 1. I begin to fear it may be lost in some of the dreadful gales that occurred in March and April. As your two last letters have been brief, I conclude that it must have been long and full, if so, it will be most melancholy to find that it has gone to the bottom where "All its hidden treasures" sleep known but to the genii of the deep who (d-n their eyes) will be none the wiser. Pray recapitulate the contents thereof, and mention whether it had any accompaniments. I am without information from you on a number of interesting points, such as the particulars of your arrangements for your trip, and during your absence, your notes and observations on the specimens *e multis etceteris*.—I see you have been able to make some use of them in the second vol. of Roxburgh. I will presently give you a few remarks on some of these and as you are going on so briskly, I must make haste to send you such further remarks, as may eventually be useful to you in this chapter.

I sent you a few printed descriptions by the "Frolic," which left this some time ago.

The concluding paragraph of your letter respecting George,²²¹ depend upon it shall be fully complied with. I am glad you have written yourself to my father, and be assured I shall follow it up.

I am sadly out of spirits with some late news from home, the most grievous however of which I, as yet, have only from the public papers, I mean, the death of my valued friend Sir Vicary Gibbs.²² I have at this moment on my table a letter from Lady Gibbs which I must answer: hers is long antecedent to this event, and in what terms to reply I know not. It is terrible to think how my circle of friends has been narrowed in the short time that has elapsed since I left home, and the fatality has fallen more among those which my personal connection was the most intimate with, than among relations, whom from less personal intercourse, I cannot be warmly attached to.

²²¹. George Charles Wallich, born in 1816, Jack's "rumping young friend" of the letter printed on p. 167. He was now being sent to school. It is evident from a later letter that Wallich, through Jack, sought the advice of Jack's father, in regard to the boy's schooling. He was educated in Scotland, taking an M.D. in Edinburgh.

²²². Sir Vicary Gibbs, (1751-1820), who in a large measure obtained for Jack his appointment under the East India Company. Sir Vicary was a judge of the most solid eminence, a native of Devon, and not attached to Jack by other ties than friendship. His life may be gathered from the Dictionary of National Biography vol. xxi.

It is not fair however to vent on you my lamentations, but I know not how it is when a subject is uppermost in my mind, it must come out before I can go on, and I mention it to account for a disjointed letter, as I foresee this will be.

In a late advertisement respecting the *Edinburgh Journal*, I think I saw an article announced under your name, "Progress of Botany in India" I think. Is it correct?

I am glad to find the Patons²²³ favorites of yours: they are very much so of mine. I received by young Hule the first volume of Roxburgh²²⁴ and duly presented the copy to Sir Stamford. I returned to Dr. Carey the portion of a copy still remaining here, which had previously been received.²²⁵

By the bye, I hope you do not mean to make my copy a gift, in place of being my subscription to the work. Between you and me such is by no means necessary. I wish further, that you would order on my account a copy to be sent to my father. I think he would like to see it and Calder will forward it.

Did I ever tell you of an idea that we started here some time ago regarding your discovery of the *Daphne cannabina*?²²⁶ A gentleman whose name I forget, but who seems to be a scheming sort of character wrote to Sir S. making a variety of requests, such as, for the different kinds of grain, pulse etc. of this country, and among other things, whether there was any material for paper peculiar to the East, as an idea had been started, that it bank notes could be made on paper of some foreign and difficultly procurable material possessed of qualities different from the common Europe paper, that the difficulty of forging them would be materially increased. I suggested the Nepal paper as answering the required conditions, and further being capable of being monopolised and, Sir S. sent in consequence a copy of your account in the *Asiatic Researches* and the specimens of the paper which I gave him out of the same. The idea seems to me feasible enough, and who knows but your name may soon figure in the annals of the Bank of England, not in their books I fear, which would be much better, but as a contributor to their securities. If they adopt it, I think they should make you a present of the amount of their former losses by forgery, or at least make you their contractor for the supply of paper, which would perhaps be better. At all events the discovery may be the means of saving a considerable number of lives.

223. A Paton from 1814 to 1817 was district judge at Krishnagar, Bengal, one day's journey by water from Calcutta. But there is nothing in these letters by which these Patons can be identified.

224. Wallich and Carey's revision of Roxburgh's *Flora Indica*.

225. Apparently advanced proofs of volume i. of the *Flora Indica*.

226. The material from which paper is made in Nepal and South-western China.

In one of my late letters from Lindsay, he communicates a request from the Marchioness, that I would send her a *Hortus Siccus* for her Edinburgh Museum;²²⁷ I comply with it by this occasion, but mean to humbug her in the matter. My best specimens have all gone home, as you know, I have therefore put up a parcel of second rate ones, with plenty of good paper, which is of more consequence (Kaleidoscopically!) and sent her such a flaming list, as will make her think she has the most precious and learned collection ever sent from India. I trust to her indulgence never to look into them; indeed if she did, I don't suppose she would know a Mangosteen from an apple, and then as for the *most learned* body to which they are to go, the name of the Marchioness will humbug them, and I daresay the sapient Professor of Botany will in reply, extol her Ladyship's skill and discernment in the selection, and sound the praises of that of which he knows nothing about.

Now for remarks on sheets A to H. *Fagraea fragrans*, I think Roxburgh is wrong in saying it was brought from China. I found it also in the same garden alluded to, where nobody knew where it had come from,²²⁸ but afterwards got abundance of it from the Kedah shore, where it is a timber tree and well known to the natives.

F. auriculata,²²⁹ I ought to have given you my mems on this. It is arborescent; I had also very fine fruits as large as an egg, of which the following is my note. Fructus baccatus ovoideus, glaber, parte styli persistente acuminatus, bilocularis, seminibus pumetosis, pulpa nidulantibus.

I have great doubts as to diversity of *F. racemosa*²³⁰ and *volubilis*. In the first place I question the latter being voluble; it is straggling and often with twisted branches, but I think I have seen it grow to a stout but small tree. I always considered them the same; however I will make a more vigorous examination and report to you accordingly.

227. Sir T. Carlaw Martin, Director of the Royal Scottish Museum, Edinburgh, has been so good as to turn up his records seeking information upon this *Hortus Siccus*; but he is unable to find any, and adds that no specimens are in the Museum.

228. The tembusu,—*Fagraea fragrans*, Roxb., is not common in Penang doubtless because suitable sandy land does not exist in quantity; and this is perhaps the reason why those in correspondence with Roxburgh who visited Penang had not told him that the tree is Malayan. It is to be noted that Jack records it also for Kedah. This mention of the Kedah shore is most important as it is the only indication that Jack landed on the mainland, and makes it possible that some of his "Penang" plants, thought to be extinct now, were not actually obtained by him in the island.

229. *Fagraea auriculata*, Jack, had been obtained from Singapore, and later at Tappanoully.

230. *Fagraea racemosa*, Jack, had been obtained in Sumatra and described in Wallich and Carey's revision of Roxburgh's *Flora*. As hunted here *F. volubilis*, which was described at the same time, does not differ.

Your name of *Neuropeltis*?¹ I like much, and prefer it to the one I was thinking of *Neuropteris*, which is too like the fam. of *Irsecta*. My account of the fruit is as follows:— *Capsula* 2-valvis, monosperma, semen globosum, albumine parce mucilaginoso cotyledonibus contortuplicatis, radicula “umbilico obversa” infera.

I believe I mentioned to you having found what I took to be a new *Macrobolium*,² I happend afterwards accidentally to refer to *Jonesia* and Rheede's *Asiologam*, when the similarity with my *Macrobolium* struck me, and on further comparison I was convinced of their identity in genus, not in species, mine being tetrandrous. On analysing however Roxburgh's description, which is ineffably bad, for who would call the bracts a diphyllous calyx, and give a leguminous plant a tubular monotetalous corolla, bearing not only the stamina but the pistillum, a thing *hactenus inauditum*, I have arrived at the conclusion that *Jonesia* is nothing else than *Macrobolium* disguised under a blundering description. The only single point of difference is that *Jonesia* wants the petal which *Macrobolium* has. They are both equally variable in the No. of stamina, and I think it questionable whether the want of petal is a difference of generic value. Both ought certainly to be placed in *Decandria* in place of their present absurd situations, and with as good right as *Bauhinia* and many other genera.

As I hence, so far, altered my plan of a fascicle, that it will be a work of some time to complete it, I begin to think of getting out all my plants of any consequence in other ways, which I may at any time resume again in the fascicle, with the addition of figures. You shall have whatever I can give in *Pentandrias* and the other classes as you go on, and in the mean time I think of giving some to the Linnæan or other Societies at home. Do the Asiatic deserve any *i.e.* will they bring them out in any decent time? I think for home, the best way will be to group them; for instance, I think of making one vaser on the Leguminosæ that I may have, in which the *Macrobolia* may come. I thought of another on the *Mangifera*, but my materials are not yet complete. I shall send you what I have as it comes into print: I have lately got two new ones besides my former *M. quadrifida*, and have information of several others. One of these I have described as *M. casta*? (at least I think that shall be the name) which is a very remarkable species.

231. *Neuropeltis* is one of the *Convolvulaceæ*, and it seems probable that Jack had found *N. racemosa* in Penang, whence Wallich also brought it a few years later. But it seems extinct on the island now.

232. *Sarcoca declynata*, Mba (*Jonesia declinata*, Jack in Malay Misc., ii. (1820) No. 7, p. 74). Miquel gives no other locality for it than Bencoolen.

233. The description of *Manantra carisa* was sent to Wallich and inserted by him in his and Carey's revision of Roxburgh's *Flora Indica*, ii. p. 441.

I perceive you quote Roemer, *Systema Vegetabilium* vol. IV.²⁴ I hope you have taken measures to have a copy of that work for me. DeCandolle²⁵ is another desideratum. We are busy making a final clearing of all zoological subjects, when I think all arrears may be considered brought up, and we may make a fresh start. I have been long intending a trip into the interior, but the number of things that have occurred to keep me employed, has prevented it as yet, and the season is now so far advanced, that a very short one will be all that can be attempted. However, I am in no want of materials, so it does not signify. Let me know how your letters had best be addressed.

My best regards to Mrs. Wallich; Sir S. and Lady Raffles join in the same to you both.

Thine ever,

William Jack.

P.S. Lady Gibbs tells me that they have made a discovery in England that all tropical bulbs will thrive in the open air if sunk in a pond, near the surface in summer, and deeper in winter, so as to be out of the reach of the frost, and with greater luxuriance than in hot houses. She therefore begs me to send her bulbs and handy seeds; may I request you to remember her in this way at the dispatching season. The bulbs of course, dry in a box. I am glad we sent her some last year, they will be acceptable.

The stones you mention may remain with you.

There are some large Mangosteen plants going up to Lady Hastings, who I hope will send them to the garden, as I think they are large enough to thrive. I mean also to send to the garden, a few plants of our noble *Datura arborea*.²⁶

W. J.

No. 9 Bencoolen.

19th September, 1820.

My dear Wallich,

My last two letters went by the Venus; I now send the remainder of my Pentandrian descriptions. Since I wrote them I have somewhat altered my plan in regard to my descriptions, and have determined on forthwith printing here everything that I have worth it. That once done, it is secured and the number of copies being very small I can make use of any of them again when neces-

234. J. J. Roemer and J. A. Schultes, *Systema vegetabilium*, Stuttgart, 1817-1830, seven volumes.

235. A. P. De Candolle, *Regni vegetabilis systema naturale*, Paris, 1818-1821, two volumes.

236. *Datura arborea*, Linn., is a native of the Andes; but it has long been in cultivation in the East.

sary in any other work. They can also be circulated and I can better have the advantage of remarks upon them. In a country like this where new things, and new subjects are perpetually occurring, the old ones lose their interest unless taken at the moment, and what is once printed may be considered as finished and disposed of, whereas if you go on accumulating, the mass becomes too great and you are prevented by arrears from advancing. We are now at leisure to attend to these things with the means at hand: how can we promise that we shall have the same a year hence? On all these accounts I have determined to print. Some that I now send you will be contained in mine too, but that is of no consequence: if mine is first out, you can quote, and if not, your bringing it out is no prejudice to the other. The *Mangifera*, *Rauwolfia sumatrana*, *Euthemis*, *Styphelia*, *Celastrus bivalvis*, and *Morinda* will probably be in this number.²³⁷ Some I shall not for fear of cross purposes about names. *Patisma*²³⁸ not in case you should adopt *Wallichia* which I left at your option. I have not found another Pentandrous genus to which to give that worthy name. *Euthemis* unluckily has gone home and may come out under that appellation, and I cannot here adopt it to any plant of another class till I know whether you have approved the *Patisma* or not. I once thought *Rauwolfia* new, and had fixed on it, but it turned out otherwise. What savest thou to *Strophanthus plicata* from the plaited, not squamous faux?²³⁹ Mind, not your original proposal of my name, which I do not wish to see figure in that way at all at all.²⁴⁰ It is no object of my ambition, and the cacophony must not be suffered by such admirers of the classical graces of Euphony as you and I. To memory, put down that!! My *Dolymocarpus* and *Sonerila* are now in the press. Do you recollect a Singapore tetrandrus Rubiaceae which we examined together

237. There is a postscript to this letter which is to be read in conjunction with the paragraph above. The postscript shows that before the letter left Jack's hands, the mission press had actually sent to him proof (some of it revised proof) towards the contemplated number. This proof Jack sent on to Wallich asking for criticism, and waited. In a later letter Jack says that he had had no letter from Wallich since a date previous to this; and so it is evident that the looked for criticism never came. Meanwhile the time for publication came, and Jack issued the number as No. 5 of volume 1 of the *Malayan Miscellanies* having withdrawn from it a part *e.g.* the *Mangifera*s. It would be most interesting if the unpublished proof could be traced among the records of the Royal Botanic Gardens, Calcutta.

238. *Patisma* of Jack *med.* otherwise *Wallichia* of Jack in these letters and of Reinwardt in the Buntenzorg Gardens, published by Blume in his catalogue, is *Urophyllum* of Wallich, vide note No. 188 on p. 198.

239. It is evident that this is Wallich's *Strophanthus Jackianus* published in the Catalogue, No. 1643, which is *Wrightia dubia* Spreng. Jack collected it in Penang where it grows.

240. What Jack collected and sent to Wallich, became No. 1643 in Wallich's Catalogue.

and determined to be a new genus. I have called it *Epithinia* (*i.e.* littorea from its habitat).²⁴¹ How often when making a name when you think you have hit on a highly classical one, which you flatter yourself is unoccupied, turn to Brown and lo! you are anticipated. For this I thought I had made a capital innovation of *Aegialites*, but on turning to the *Prodromus*²⁴² behold it gracing the shores of New Holland, instead of Singapore. So I must reduce to a vile *Epithinia*. Of the enclosed descriptions the *Euthemides*²⁴³ have gone home. The *Euchelia*²⁴⁴ and *Ardisia*²⁴⁵ are copies of our common *Mems.* *Styphelia*²⁴⁶ you will see I have completed, we were interrupted in the middle of it. I have ascertained in other specimens that the anthers do burst in the middle, so as to be only one celled as so admirably described by Brown; we did not find any anthers spontaneously burst, and therefore put a "*vix non ut in Brown Prod. H.*" which need not now be so ceremoniously stated.

For the three valved capsular plant which follows *Patisna*.²⁴⁷ I have not thought of a name yet. It comes near to *Vareca*, but is valved not baccate. You have had specimens of it. What may it be, or what shall it be called. On second thought it must belong to *Pittosporae*, Br., *vix opinor ejusdem generis*, the seeds having no pitch on them!

What do you make of my *Hypsogyne*²⁴⁸ sent in my last? I think it is new. It is a great bore the huge distance that separates us. One is so long of getting an answer to a question, and I have hundreds that I would ask if we were nearer. Recollect the list of queries and descriptions that I gave you in one of my early letters. The fair Monsoon is approaching for vessels to come here, so fail not to write fully, now that you have fewer vexations and interruptions. Let me know all your arrangements, how the editing of Roxburgh is to go on. How do you manage for books for reference? you cannot carry all with you.

241. Described in the *Malayan Miscellanies*, i. 1820, part 5, p. 12. Jack however was forestalled by Gaertner who had called it *Scyphyphora hydrophyllacea*. It is common round the coasts of Malaya.

242. Robert Brown's *Prodromus Florae Nova-Hollandiae*.

243. See notes No. 114 and 115.

244. *Euchelia* is not to be identified.

245. *Ardisia punctata*, Jack, possibly. No description of this appeared in the *Malayan Miscellanies* and it would appear as if it had been withdrawn along with those of the *Mangiferae* for publication by Carey and Wallich. *A. punctata*, Jack, is *A. dorracens*, Roxb.

246. A reference to *Leucopogon malayanum*, Jack in *Malayan Miscellanies*, i. (1820) part 5, p. 20.

247. *Abodea* perhaps.

248. *Hypsogyne* is *Salacia*. See note No. 257 forward.

I find Roxburgh's *Murraya sumatrana* is nothing more than Loureiro's *Chalcas paniculata*, Rumphius's *Camunum*,²⁴⁹ unjustly degraded from the rank of a species and confounded with *Murraya exotica*: I mean to restore it as *M. paniculata*, a bad name by the bye, because *not* panicled. I think you would do well to alter Roxburgh's *Camunum*, which is improperly applied. The *Murraya* is the true *Camunum* (I find it is *Aglaia* of Loureiro, so pray adopt that name, which is good. I mean to do so in the present number of my descriptions).

What is Roxburgh's *Petaloma* in reality, it has nothing to do with *Petaloma*, and I suspect it of being congener of a coccineous *Combretaceæ* which I was thinking of calling *Pyrranthus*,²⁵⁰ An affinis *Lagunculariæ*, Gærtn.?

Pray is *Avicenna resinifera*, distinct from *A. tomentosa*.²⁵¹ The former is perhaps Rumph.'s *Mangium album* which I have here, and is a good figure. I do not precisely remember the *Avicenna* of the *Sunderbunds*, but I think this is different. The fruit of mine is much smaller, being less than an inch long. The leaves are lanceolate, pointed, white but not tomentose below.

My very best regards to Mrs. Wallich, and believe me always

Thine Affectionately,

William Jack.

P.S. The press has been more active than I expected, and enables me to send you the 3 first sheets of my second paper, the last are uncorrected proofs. They include all *Pentandria* and I therefore withdraw²⁵² the MSS. of those that appear in it. Pray give me what remarks occur to you.

I think you have now all the *Pers*²⁵³ that I have made descriptions of. You have some which on that account I did not take up myself, such as *Posoqueria? anisophylla* &c.²⁵⁴

Thine in haste,

W. Jack.

249. See note No. 148 p. 189.

250. Yes; Jack is right.

251. Jack evidently asks if the *Avicenna resinifera* described by Forster, and the *Avicenna tomentosa*, ascribed by Robert Brown in his *Prodromus Floræ Novæ Hollandiæ* to Jacquin, differ. Under *Pyrranthus* in the *Malayan Miscellaneæ*, ii (1822) No. 7, p. 57, he records the finding in Sumatra of what he took to be the first.

252. What Jack withdrew can only be ascertained from such proof as he sent to Wallich if still preserved in the Royal Botanic Gardens, Calcutta.

253. *Pentandria*. The *Pentandria* of the *Flora Indica* were under revision by Wallich at the time.

254. *Randia anisophylla*. See note No. 174, on p. 196.

On board the Natal Schooner off Padang,

11th October, 1820.

My dear Wallich,

When I last wrote you I little thought to be so soon on the move; but so it is. Sir S. and I had some conversation one morning at breakfast about Pulo Nias²⁵⁵ which ended in his proposing to me to go there on a special mission, and so in two days thereafter, I put myself on board a native vessel for Natal the point of appui for Nias, and am thus far on my way. Of the objects &c. of this trip I shall hereafter write more fully. I only sit down at present to be prepared for any chance opportunity that may occur to give you a few of my botanical discoveries that may be in time for Roxburgh's second vol. It is more than doubtful whether I shall be able to send this before my return to Bencoolen, so it would be idle to say much on other subjects. For the last few days I have been bothered with calms, but (to speak in that case like an Irishman) "it's an ill wind that blows nobody good," so instead of fretting for a wind that would not come, I ordered out the boat, and proceeded to ransack the hundred beautiful little islands that stud this part of the Sumatran coast. Pulo Kumbang, Pulo Bintangor, Pulo Pegang, Pulo Shytan! &c. &c. have thus been explored, and their plants rescued from oblivion. You can hardly imagine anything more beautiful than these little islands, rising in little hills out of the blue waters, and covered either with forests, or planted with cocoanut trees. The access to them is not however always easy, their shores being generally guarded by coral reefs, on which the heavy surf is always beating,—a good roll in which is often the price of landing.

I am now up with you in *Didymocarpus*, having found my fifth in one of these excursions, a didynamous species, which I mean to call *D. elongata*, from having the lower lip of the corolla and its tube unusually elongated, also long second spikes.²⁵⁶

I found also fresh specimens of what in my last despatches I called *Hypsagyne*, and on referring to Roxb. (which I had not with me when I first found it at Tappanooly) find that it is neither more nor less than his *Johnia*, but a new species,—*Sumatrana* (*si velis, mihi*).²⁵⁷ With all due deference, I think it is a great pity Roxburgh discovered it first, for I like my own name best. I found at the same time a *Hippocratea*, which agrees with Roxb. *H. obtusifolia* in having 4-seeded capsules, but has serrated leaves, ergo I think new.²⁵⁸ Have you not often remarked what singular

255. A large island off the west coast of Sumatra.

256. *Didymocarpus elongata*, Jack in the Transactions of the Linnean Society of London, xiv (1825) p. 37, = *Didissandra elongata*, C. B. Clarke.

257. *Salacia* sp. Jack in the Malayan Miscellanies, ii. (1822) No. 7, p. 92, reduced *Johnia* to *Salacia*, and remarked that he had found two species in Sumatra, but he did not give them names.

258. This *Hippocratea* was not described.

want of precision is in all Roxb's descriptions, and particularly in his specific characters? He does not seem to have understood the true intention of them, and generally is very much out in the selection of essentialities. Compare in this respect that wonderful man Brown, I must send you herewith a Pentandrian species of his, which perhaps you would not expect from hence, and which if in time, may enter into Roxburgh: it is *Sersalsia obovata*, Br. Prodr. N. H. p. 530²⁵⁹ and would be a *Sideroxylon* of Linnean nomenclature.

I have one other very interesting pentandrian for you. *Hoya grandiflora*, Br.²⁶⁰ a most splendid personage; flowers 2 inches in diameter, red shading into white, corolla thick and polished like a Japan tea tray. The whole plant hirsute!! *Hoya viridiflora*²⁶¹ I have also found in considerable abundance.

I have also found a new *Begonia*. Do you remember a *Myrtoidea* from Acheen among the specimens we examined together, with 3-nerved leaves? I have again found it, and another nearly related species,²⁶² which I think I must make a genus of, as it has a 1-celled ovary, many ovula attached to parietal receptacles. Berry few seeded. Now if the general character of the *Myrtoideae* are more dependent on their ovaries than fruit, this will not come under any of the present genera.

Pray what are the affinities of *Hippocratea* and *Johnea*? Their flowers are so exactly alike, that without the fruit they would pass for the same genus, and a 3-celled berry and a 3-capsuled fruit are not incompatible with a junction. I doubt however their affinity to *Aceres*. Their resemblance is strong to *Rhamnaceae* in habit, but an exalbuminous fruit is against, an *Hippocratea* vere exalbuminosa? They seem to be somewhat intermediate betwixt *Terebinthaceae* and *Rhamnaceae*, at least as much as between *Aceres* and *Malpighiaceae*. I confess I do not very well understand the distinction between a calycine nectarial disk and a hypogynous one.

Natal, 15 Oct. 1820. I arrived here last night and find a boat going off for Padang, of which I avail myself, as it is the most likely way of this reaching you. I intended to have put up a

259. *Sersalsia obovata*, R. Br. is *Sideroxylon Brownii*, F. Muell. --- a plant of Queensland. It is probable that Jack had not this very plant before him, but some ally.

260. This *Hoya grandiflora* cannot be *Tylophora grandiflora* which is Brown's *H. grandiflora*, as Jack thought it.

261. *Hoya viridiflora*, R. Br. is *Dicraea volubilis*, Benth.

262. *Rhodanthea tinctoria*, Blume, would be the first the second *R. cuneata*, Jack, but really is a variety of the first.

specimen of *Sersalisia*, but my traps have not come ashore, and the boat is going off, so I must content myself with the description.

My best regards to Mrs. Wallich.

And believe me always,

Yours very sincerely in haste,

William Jack.

On board the *Sophia*.

Jan. 2nd. 1821.

My dear Wallich,

I know not whether any of the letters I have fired off at you since leaving Bencoolen have reached their destination,²⁶³ but I will suppose so, and think you know that I have been on my perigrinations to Pulo Nias &c. I am now on my return and as there will probably be lots of business awaiting me at my head quarters, I shall take the opportunity of ship leisure to give you some account of my operations.—I learn from Sir S. that there is a huge despatch of yours waiting my return on which I long to feast, and after the long privation of all such food it will be doubly delightful. What would I not have given for you to have been with me on this trip, what exclamations, what treble marks of admiration, how many of those evanescent figaries and freaks of the imagination which constitute the very essence of the pleasure of such exploration, alas! all lost for want of a congenial spirit. Only imagine my situation, condemned to the solitary enjoyment of all these wonders in company with a freezing mass of ice,²⁶⁴ out of which all my fire failed to elicit one single spark, on whom all the wonders of nature were as much thrown to waste as the flies and insects were on Pharaoh and who could see more beauties in a well kept ledger and Day book, than in all that ever occupied the thoughts and heads of a Linnaeus or a Brown.

Verily there is a benumbing influence surrounding such inert masses of vitality, and it will require a little time of more genial intercourse and more enlivening atmosphere to restore to me the caloric I have wasted without effect.

I believe I told you that I was sent to form a settlement on Pulo Nias and for this purpose joined in a commission with Mr. Prince of Nattal. After several delays and difficulties I reached

263. As there is only one in the correspondence preserved, it appears as if some have been lost.

264. Mr. John Prince, a precise anatomist, who was of not a little service to the botanists of India at this time, see for instance p. 182. He furnished to Roxburgh information from Sumatra as well as living plants; and he furnished later plants from Sumatra and Singapore to Wallich. He is mentioned by Raffles as a witness to his assertions regarding the cannibalism of the Bataks (*Memoirs of the Life of Raffles*, 1st edition, p. 432, or 2nd Edition, ii. (1835) p. 90).

Nias on the 14th of Nov. and commenced the business. The object was to get the cession of the whole island to the Company in full sovereignty, and as it is held by a great number of independent chiefs, the necessary negotiations occupied a long time. We visited every port on the Eastern and Southern sides of the Island, and succeeded in effecting almost every point. Tello Dalam, a fine harbour to the Southward has been selected as our station, and the whole Island is a British possession. It is altogether one of the richest, finest countries I have ever seen, cultivated almost too highly for a botanist, and populous as many parts of India. It has long been a great mart of slaves, furnishing not less than 1500 a year. The abolition of this trade formed one of our great objects, and it too is in the best train possible. The people are pagans, and a very original race differing from all their neighbours, and display a mixture of barbarism and civilization that makes them very interesting. On seeing a parcel of half naked savages, armed with spears and wooden shields, their physiognomies rendered horrible by helmets and artificial beards of long black Ijau,²⁶⁵ striking up a war dance, with violent howling and gesticulations, you could fancy yourself transported to the Otaheiti, or some such South sea Island, while on the other hand on seeing their villages, their houses, the style of comfort, and I might say elegance in which they live, one is tempted to give them a superiority over almost every other Eastern race. Their houses are so substantial and well constructed, that a European might live in them with comfort; their villages are built in most picturesque situations upon the pinnacles of the hills for defence, but the ascent is facilitated by noble flights of stone steps, and paved roads are sometimes carried on to the distance of some miles, shaded too on each side by rows of fruit trees. The surface of the country is very uneven, but this only makes it more beautiful to the eye, as the sides of the hills are cultivated up to the very summits and there is a sufficiency of wood to give a picturesque variety, without passing into the dull uniformity which unbroken and primeval forests always produce.

The principal export of the country is rice, an article of which there is a woeful deficiency in all our Sumatran territories, and which makes the possession of a granary like Pulo Nias an object of importance. Notwithstanding all these advantages and temptations to an intercourse with this island, I believe it is less known in all respects than Otaheiti. Its Geography is almost a blank further than that an island called Pulo Nias exists in such a latitude, and the people have only been known by the great value set upon them as slaves, in which capacity they are highly esteemed throughout the Archipelago. But as to the population, the nature and resources of the island, nothing is known; Marsden devotes, I think, a page to it.—I have as you may suppose, besides the official

265. Ijau is Ijok = fibre of *Arenga saccharifera*.

business, been busy collecting all the information respecting it that was to be procured, and as we continued visiting the different parts of the island till the 31st Dec., a month and a half, it is pretty complete upon all points. It is not improbable that Sir Stamford may wish me to draw up some account of it for our *Miscellanies*, so I need not trouble you with much of its history now, as I may have that opportunity of sending you the whole in shape, if you feel any curiosity on the subject.

In the botanical department, although its over cultivation was greatly to be abused, it has been by no means unproductive. The first thing I met with was a new *Alpinia*²⁶⁶ of the division with radical inflorescence, but which threw up its spikes to the height of two feet hactenus, I think, *mauditum*. I have roots of it which are thriving, and which shall go up to you by the first good opportunity. In what possible way can you make a specific name of Nias, Niasana or Niasensis, in no way can I arrive at euphony? I believe it cannot be admitted into the Botanical temple of fame. *Alpinia longiscapa* will perhaps answer.—I found also a very extraordinary *Zingiber* of which the fellow neglected to bring the roots. The spike was larger than a pineapple, and the edges of the bracts involute in such a manner as to give the whole the appearance of a carved capital of the Corinthian or some nondescript order. The *Callicarpa arborea* Roxb.²⁶⁷ is very abundant; you mention having it from Nepal: here we come again in contact. I sent you in one of my late letters the description of my *Hoya grandiflora*, I have now discovered what I take to be another species on Pulo Nias. It has in every respect the habit and character of *Hoya*, except that the column and nectaries are not so flat, but are more conical than in the other. The position of the masses is the same and the inner angle of the nectarial leaflets is acute and incumbent on the membrane of the anther. Can you understand this?—the other species are depressed in the centre, this rises. It is a delicate slender species and may be called *H. gracilis*,²⁶⁸ the leaves about the size and shape of this:—



Fig 2.

the margin thick and fleshy. I shall send you my description when I get to Bencoolen, if I think it is likely to be in time for Roxburgh's *Flora*.

²⁶⁶. *Alpinia clatior*, Jack in the *Malayan Miscellanies*, ii. (1822) No. 7, p. 2.

BFG. *Callicarpa arborea*, Roxb., is a widely distributed plant, not at all unlikely to be Sumatran.

²⁶⁸. *Hoya gracilis* was never described under this name.

No. 1 must I fear have fed the fishes. I know not whether my letters have been more fortunate: those from P. Nias &c. have probably made a very circuitous passage.

I now send you No. 2 and 3 of Malayan plants.²⁷ and I am

273. Just as part 2 of Jack's *Descriptions of Malayan Plants* was put into print and held up for revision on criticism from Wallich (vide note No. 237 on p. 218) so this above-named "No. 3" was prepared and held up. Under the date of May 1st, 1821 the part was sent to Wallich. But there is an earlier letter printed in the *Memoir of the Life of Sir Stamford Raffles*, at p. of the first edition, under which Raffles sent this "No. three" to Marsden with the following lines "I have now the pleasure to send you the third paper on our Malayan plants. These are only to be considered notices of the moment, where we have not the advantage of reference to late publications, or communications with scientific friends. The paper contains an account of the nepenthes, sago, camphor, several new mangifera, many ligna-vita, the melastomas, etc." The letter continues "You will recognise many of your old friends particularly the kayu gadis, or virgin tree. Under Styphelia you will find an interesting observation respecting Singapore."

The date at the head of this letter in Lady Raffles' Memoir of her husband is October 9th, 1820. Now on September 19th, 1820, Jack wrote to Wallich that he had decided to put everything into print for preservation and was making up a "number" containing Styphelia. This he actually did; and it is the second of his papers instead of the third. Moreover this second paper contains the description of the kayu gadis. So that we have in Raffles' letter to Marsden two plants mentioned as if described in the "third paper" which we know were described in the second. The date of the letter *cc.* October 9th, 1820, is certainly a reasonable one for the forwarding to Marsden of the second paper; and fortunately it is easy also to explain how Raffles could have had then the third paper also, whereas Jack only sent it to Wallich under date of May 1st, 1821, for we must recollect that immediately after September 19th, 1820, Raffles sent Jack with Princee to effect an agreement with the chiefs of Pulau Nias; and that it was January 1821 before he returned, whereafter, as he explains himself, four months passed without any communication with Bengal.

Jack would take the very first opportunity of sending these descriptions to Wallich which the scant shipping afforded. And he sent at the same time a clean copy of the second paper which was not out of the press at the time of his departure for Pulau Nias. Raffles' allusion of Styphelia and Kayu Gadis is to be explained by his sending also part 2 along with "No. 3."

The so-called "No. three" bore as a title *Appendix to the Malayan Miscellanies*. We find that it was printed in 1820, and we have the testimony of Raffles and Jack that there was no intention of publication at the actual time of printing. It is therefore correctly quoted as "ined." in our dictionaries of plant-names, but the date should be 1820 and not 1823. A copy fell into the hands of Sir William Hooker who printed from it in his Companion to the Botanical Magazine, vol. 1, in 1835. As Sir William was able to draw on private letters from Jack to his family, it appears probable that he got the copy from which he printed also from the family.

This *Appendix to the Malayan Miscellanies* is quite distinct from Jack's third series of descriptions of Malayan Plants, which appeared as part 7 of the second volume of the *Malayan Miscellanies*; but in Singapore there are not the books wherefrom to ascertain how much Jack may have taken out of the Appendix for this other paper. He sent the descriptions of the Melastomas from the appendix to Lambert in a paper which was published after his death in the Transactions of the Linnean Society of London, and in that same periodical by the help of Jack's friends another series of his descriptions appeared.

in hopes before this vessel sails of being able to send you a volume of Agricultural proceedings from the Sumatran press. I do not know that you will find much to interest you in it, but it will give you an idea of what we are about here, and will show you the flourishing condition of our spice cultivation, which we find to be now equal to the supply of Great Britain. There is a paper on it by Lumsdaine²⁷⁴ where you will find some curious remarks on the "rapturous impulses" of these hot blooded trees! Lumsdaine generally writes very much to the point, but is often very quaint in his expressions.—The first Report is perhaps the most readable part of the Vol. but you will perhaps wonder what the D—I it has to do with Agriculture. In fact our Agricultural Society allows itself great latitude, and it has read, for the agriculture (strictly speaking) of Bencoolen might be discussed in a few words.

Of the fascicle No. 2. I sent you the first three sheets before my departure for Nias; I now send the whole corrected and with additions from further observation. The part printed after my departure is full of errors.

Of *Didymocarpus* I have since discovered three additional species *D. racemosa*, *D. elongata*, and *D. barbata*.²⁷⁵ I thought I had other two, but on lately finding their fruit I find it *baccate*, they must therefore belong to *Cyrtandra*. In *D. barbata* I have fully ascertained the seeds to be pendulous.

I have also discovered here *Incarvillea parasitica* Roxb.,²⁷⁶ but without the fully ripe fruit. The seeds however do not seem to be winged and Roxb. does not say that they are. An ergo *Nicarvillea*? It differs too much in habit to be a true *Didymocarpus*; what then is it to be, an novum genus ob stamina sub-exserta?

To *Ixora pendula*, I have now to add *Ixora neritoides*, a very marked species.²⁷⁷

I have very lately found a new and very distinct *Tacca* with palmate leaves.²⁷⁸

I found *Acrotrema* which you may recollect pronouncing a *Saxifragoideaster*,²⁷⁹ at Tappanooly with fruit further advanced

274. James Lumsdaine, See note No. 127 on p. 184.

275. All these were described by Jack in his paper published posthumously, in the *Transactions of the Linnean Society of London*. The first stands; the second is now transferred to the genus *Dubautia* as *D. elongata* (vide note No. 256 p. 221 above), and the third is transferred to the genus *Choisya* becoming *C. Hoispolderi*, R. Br.

276. *Aeschmannanthus grandior*, Spreng. But Jack probably misidentified his plant.

277. *Ixora neritoides* was described by Jack in the *Malayan Miscellanea*, n. (1822) No. 7, p. 82. *I. pendula*, from Penang, had been described in vol. i. (1821), No. 5, p. 11.

278. This *Tacca* was never described.

279. Poetaster—a poor sort of poet; Saxifragoideaster—a poor Saxifrage-like thing. Jack evidently found it first in Penang.

but not ripe. The seeds are enveloped in an umbilical aril, and the capsules burst internally, but are not quite distinct. An affiner Rutaceis? I also found the stamina twenty in number.

Of *Ternstroemia* I have two more species.²⁸⁰ Roxburgh's *T. trilocularis* might be any or all of them and must I think be dropped. Query might not the trilocular *Ternstroemia* be separated from those with two cells and few seeds? They appear to me to differ very widely, see a figure of the fruit in Mirbel's *Eléments de Bot.*

In *Tetracera arborescens*,²⁸¹ I fell into a mistake: the only one I had then seen was an old sturdy individual that had choked its support, and was then standing alone as an independent tree, whereupon I called it "arborescens," but on seeing a greater number since, I find it to be a real climber, though a very strong one. Ought therefore the specific name "arborescens" to be retained, or should it be changed? Had I known its real character at first, I certainly would not have so called it. It comes near to *T. euryandra*: the corolla is really three-petalled and the calyx five-sepalled! for the calyx is persistent and has ciliate leaflets, which is not the case with the corolla.

No. 3, will I think please you, but you must observe that though called an appendix to the Malayan Miscellanies it has been kept back till we hear what is done at home about the great flower. If it is brought forward in England, then this is to be suppressed and not published; if not, then this may be used in the event of the French getting hold of it, as a proof of priority of publication. So you understand that it is at present "inedita,"²⁸² dost thou comprehend.

Rafflesia, *Dryobalanops*, *Sagus*, and *Nepenthes* are subjects of no small interest. Tell me what you think of *Stagmara*:²⁸³

²⁸⁰. These *Ternstroemias* would be *T. serrata* from Pulau Nias, and *T. acuminata* from Tappanooly.

²⁸¹. *Tetracera arborescens*, Jack in Malayan Miscellanies, i. (1820) part 5, p. 244.

²⁸². The appendix to the Malayan Miscellanies never became a publication.

²⁸³. Jack wrote a very full account of his *Stagmara venosiflua* and put it into print, for the third part of his Descriptions of Malayan Plants. Then apparently he withdrew it; for as he tells us after the description had been printed in 1821 and when he was sending to Wallich a copy in what we must recognise as proof, a suspicion crossed his mind that *Stagmara* instead of being new, was but *Gluta Benghas*; and it is quite evident that he had no intention of publishing unless he could make sure that *Stagmara* and *Gluta* are distinct. With one or more copies out in print the description was reprinted in Hooker's Companion to the Botanical Magazine, i. (1835) p. 267, and so stands in books as it was issued by Jack. Wallich later mis-identified *Melanorrhoea Wallichii*, which he had collected in Singapore, as this *Stagmara* of Jack. It is now accepted that *Stagmara venosiflua* is *Gluta Benghas*, the well-known Renghas tree of Malaya.

The date of this pamphlet of Jack's cited as Descriptions of Malayan Plants, iii, has not been known with certainty; and now it appears that we must consider the date of the publication of *Stagmara* not as 1823 but as 1835, and the place Hooker's Companion to the Botanical Magazine.

being a Pentandria Trigynia vel Monogynia it will be of use to you in Roxburgh, and you can introduce it either from Mal. Misc. generally or as my communication direct to you. Since printing it an idea has come into my head whether this may not be Linnaeus's *Gluta Benghas*, erroneously for *Renghas*, which has been discovered by no one since Linnaeus, see Lin. Rees, Cycl. The point can only be ascertained by a comparison with the specimen in the Linnean Herbarium, and I have a great mind to send a specimen to Sir J. E. Smith for the purpose.

From the character of our Sago which must be admitted to be a true one I am inclined to suspect that *S. Ruffia* is not a true *Sagus*,²⁸⁴ though its fruit is similarly imbricated. I observe in the catalogue that Roxb. has two species of *Sagus*, but I have not his description. Does he give a full account or had he ever their fructification?

I am at present at a country residence of Sir Stamford's in the midst of forests and jungles, from which I am daily receiving treasures. Materials are accumulating so fast upon me that I should like to clear off arrears by getting out descriptions. When a thing is printed, it is in a manner done with, and you go on unincumbered. I have prepared a Monograph on East Insular Melastomae containing 15 species, all new except two, one of which is Roxburgh's?—*M. decemloba*, which is as good as new. I am thinking of sending it home for the Linnean or some such periodical publication,²⁸⁵ but I wish first to hear something from the folks in England, particularly Brown. Has the Asiatic Society adopted the plan of printing their papers as they come in; if they have, I would not care to give them one. Do they deserve it?

I am anxious to learn how Roxb. Vol. II comes on, that I may know what to send you for it.

I am making an abstract of Rumphius, for the purpose of inquiring for his plants by their native names, and in the course of it, have ascertained several of his hitherto unnamed species, such as his

Machilus medius, m. t. 41. = *Laurus incrassata miki*;

Arbor spicularum, m. t. 106, quæ *Euphorbiacea*;²⁸⁷

Clypearia rubra, iii. t. 112;²⁸⁸

284. *Sagus Ruffia* is not a *Sagus*. See note No. 149 on p. 190.

285. This paper on Melastomaceæ appeared posthumously in the Transactions of the Linnean Society, vol. xiv. (1823).

286. Jack published his *Laurus incrassata* in the Malayan Miscellanies, ii. (1822) No. 7, p. 33. It is referred to *Dehaasia microcarpa*, Blume, with a query, on the authority of Wallich in his Catalogue under No. 2589.

287. Described by Jack as *Enchodium verticillatum* in the Malayan Miscellanies, ii. (1822) No. 7, p. 89, and now identified with *Triphonostemon andrus*, Muell. Arg.

288. Described by Jack in the Malayan Miscellanies, ii. (1822) No. 7, p. 78 as *Loda Cluparia*; and now called *Pithecolobium Cluparia*, Benth.

Nidus germinans formicarum rubr. vi. t. 55, f. 2, quæ *Rubiacæ tetrandra*.²⁸⁹

I look anxiously for the first arrival from Bengal, that I may know what you have been able to do for me towards procuring my Librarial desiderata.²⁹⁰ particularly Roemer, Decandolle and the last of the *Encyclopædia Smith*: supp: I am not sure that I could not get some of these foreign works but by the way of Batavia, but I do not care to send the commission till I hear from you. I have advice of the dispatch from England of the later vols. of Rees Cycl. but they are not yet arrived. I see by some English advertisements that the work is brought to a close.

Have you heard yet of George's arrival in Copenhagen.²⁹¹ and received an answer from my father? I have not yet heard, none of my letters coming down so late. My best compliments to Mrs. Wallich and believe me always,

Yours sincerely,

William Jack.

Bencoolen, July 3rd, 1821.

My dear Wallich,

The Roberts and John Bull arrived here some time ago, but neither of them brought a line from you. Since that the *Repulse* has arrived direct from England and brought me a letter from Lambert in answer to mine forwarded by you. Strange that I should have later accounts by six months from home than from you in Bengal. He says, he looks for the specimens which you had promised to send, by which I infer that you had not been able to send them early. I fear that in leaving them for you to arrange and dispatch, I threw a greater labour on you than either of us reckoned on.²⁹² and I shall not be sorry to learn that they are still in your possession, without your having been able to command time to arrange them. I reckon that this letter is not unlikely to find you in Calcutta, and if my supposition in regard to the specimens is correct, I would, (when you have leisure, to look over them) wish to make an alteration in the original plan of dispatch, and put you in mind of a few former requests. I must in the first place tell you of some of my new plants and ideas. I believe you know that I had some idea of bringing out a fascicle of plants &c. at home with observations on Malayan Botany: in considering the subject, however I have greatly changed and enlarged my original plan until it has swelled to the design of a work for which I shall go on collecting materials in this country and not, publish

289. Described by Jack in the Transactions of the Linnean Society of London xiv. (1823) p. 123 as *Myrmecodia tuberosa*.

290. See notes No. 234 and 235 p. 217.

291. Wallich's son, who was being sent to school. Apparently he was sent first to see Wallich's family in Denmark.

292. See note 194 recording that plants from Jack were in Lambert's sale. As there stated these plants passed from Lambert's executors to the dealer Pamplin. Whither they went from Pamplin's shop is unknown: and it is quite impossible to tell if they were specimens sent direct by Jack or specimens left with Wallich for forwarding.

till I go home. Such is the present whim, whether ever to be executed is another question: but the result of the change of plan is, that I shall confine myself at present to detached papers as opportunities of printing them occur, and make my botanical collections and observations as extensive as I can, with the ultimate view of combining the whole into a *Catalogue Raisonné* of Malayan Flora secundum ordines naturales with stupendous elucidations and illustrations!! I have gone through all my collections here, and arranged them in the most beautiful order, and mean to go through the whole again genus by genus, putting together all I know and have upon each, by which means every future acquisition will at once find its proper place. Now I find that I carried up and left with you many specimens of which I have no duplicates, and that several genera are in consequence less complete than they might have been. What I would therefore propose, in the event of your still having my collection, would be, instead of sending the whole home, to make the first and most perfect set for me, with all your own annotations and remarks, and to send home only duplicates. Thus I shall be enabled to complete my arrangement of all I ever collected, have the advantage of your observations, and in the case of those of which I may have kept duplicates, they can form part of the first dispatch I send from hence, and there is every probability of some direct occasions. It will also enable me to name a great many that I have since described or ascertained, before sending them away.

I hope you have not forgotten a request I formerly made for the Menang Kabau specimens²⁹³ to be all returned: they were put up separately in a different kind of paper from the rest. I have held my tongue to Sir S. about their being left behind.

Let me also refer you to a list of desiderata given you in my letter of Feb. 1820, from on board ship.

There is another thing I must mention. I received the work of the writer²⁹⁴ to Gynandria, but you must know that he did the whole of Gynandria for me before I left Calcutta, therefore when you set him to work again he must not begin where he left off, but at Ficus (F. comosa is the last written), where his previous copy stops. I could wish however that he would copy first Brown's remarks in the appendix to Tuckey's Narrative, which I am anxious to have. You see there is no end of my requests, but I must let you breathe before I come with more.

By the Repulse I also received a very kind letter from Mr. Colebrooke in which he says he has proposed me a member of the Geological Society, and given them something about Malay geology

293. Raffles' own collecting. See note 135 on p. 185.

294. Writer = clerk

out of my letter. I do not recollect exactly what I wrote, but it must have been very short and slight. I wrote some time ago by a vessel that went home direct from Mr. Colebrooke and sent him a copy of the Agricultural Volume and of the two Botanical fascicles. In replying to his present letter I mean to make up a selection of Sumatran rocks, and shall give him some notes on Sumatran Geology, which if he likes he may give to the Society.

I see there is a paper of his in the Linnean Society, on what I think of demonstrating the Cyrtandraceæ. In my last I think I told of my suspicion of the affinity of Cyrtandra and Didymocarpus; since that I have made an expedition to the top of the Sugar loaf,²⁹⁵ a remarkable mountain in the interior of Bencoolen, in the course of which I found no less than 8 species of Cyrtandra in addition to those I had before, and two species of a new genus, of the same family which I call Loxonia. With these materials I have ventured to construct a new order²⁹⁶ (Cyrtandraceæ from the oldest genus) an account of which I shall send to Lambert and get him to submit to Brown before presenting it, to see if it will stand muster. The order stands thus, Cyrtandra 11 species, Didymocarpus, 1, and Loxonia 2, exclusive of your Didymi. I shall send you (if I can get it copied) my characters of the order and genera, on which let me have your opinion. Note, Forster's figure of the fruit of Cyrtandra is utterly wrong.

I have huge suspicions concerning Incarvillea, but I cannot find its carpology any where. I have not yet got the fruit of Roxb.'s Incarvillea parasitica,²⁹⁷ but as far as I can make out from the dried ovaries the septum appears to be complete and to separate at the sides from the valves, a character which would make it agree with Bignonie, but not with Didymocarpus.

In the course of my excursion to Sugar loaf, I made several interesting discoveries. Two new species of Melastoma which I shall send home²⁹⁸ to be added to my former paper as *M. erimia*²⁹⁹

295. Jack's journey to the Sugar Loaf Mountain was described in the Malayian Miscellany, ii. (1822) No. 1, pp. 1-22 and was reprinted in the Society's Papers relating to Indo-China, series 2, vol. ii, pp. 57-69. Raffles in a letter to Marsden under date July 12th, 1821, says "Dr. Jack and a few friends have just ascended the Sugar-loaf and were the first Europeans who reached the summit."

296. The paper containing Jack's account of the Cyrtandraceæ is to be found in the Transactions of the Linnean Society of London, vol. xiv. (1825). The number of species there described is exactly as given here.

297. *Incarvillea parasitica*, Wall. is *Aeschynanthus grandiflora*, Spreng. But see note No. 276.

298. The Melastomaceæ were also published in the Transactions of the Linnean Society of London, xiv. (1825).

299. *Melastoma caumum*, Jack, is *Medinilla cauma*, Blume.

and *M. alpestris*,³⁰⁰ being from the very summit. I believe I told you of my having sent Brown a Monograph on *E. Insular Melastome* with an attempt at a new subdivision found on the similitude or dissimilitude of the alternate anthers It contains now 17 species all new except *M. malabathrica* and *M. decemfida* of Roxb., and *Osbeckia tetrandra* Roxb.,³⁰¹ which is my *Melastoma glauca* (certissime no *Osbeckia*). My other Alpine discoveries are a species of *Rhododendron*,³⁰² one of *Vaccinium*,³⁰³ lots of *Begoniae*,³⁰⁴ an *Impatiens*,³⁰⁵ a *Lobelia*,³⁰⁶ a new *Alpinia*,³⁰⁷ and a second species of a pentandrous genus I sent you with 3-valved, 1-celled capsules, related to the *Pittosporae*.³⁰⁸ I am anxious to know what progress you are making in Roxburgh's Flora: the second volume ought to be nearly complete. I hope the next arrival will bring me the remaining part of it, or a copy complete.

You will probably ere this have received an answer from my father to your letter. Some fatality seems to have lately attended my correspondence, for I have not a line from home by any of the late opportunities. I am utterly at a loss to account for having none by the way of Bengal, tho' I suspect it to be some mistake of Calder's as to the sailing of the vessel.

My best regards to Mrs. Wallich and believe me always,

My dear Wallich,

Yours very truly,

William Jack.

July 18—Since I began this letter distresses have accumulated upon us and thrown a gloom over everything. The first visitation was the death of Sir S.'s eldest boy, one of the finest and loveliest children I ever saw. Scarcely had Sir S. and Lady R. begun to recover some degree of composure after such an affliction, than Capt. Auber fell ill, and was carried off after a few days by an apoplectic stroke. This has been a severe blow, not merely from

300. *Melastoma alpestre*, Jack is *Medinilla alpestris*, Blume.

301. *Osbeckia tetrandra*, Roxb. is no *Melastoma*; but in the subdivision of that genus it has become *Anplectium glaucum*, Triana.

302. *Rhododendron malayanum*, Jack in Malayan Miscellanies, ii. (1822) No. 7, p. 17.

303. *Vaccinium sumatranum*, Jack in Malayan Miscellanies, ii. (1822) No. 7, p. 18.

304. *Begonia*. Eight species of *Begonia* are described together by Jack in the Malayan Miscellanies, ii. (1822); and one among them is said to come from the foot of Gunung Bengkoh, the Sugar Loaf Mountain. Some others are said to have come from the interior of Bencoolen and were possibly got on this journey.

305. The *Impatiens* was not described by Jack.

306. The *Lobelia* was not described by Jack.

307. An *Alpinia capitellata*, was described by Jack in the Malayan Miscellanies, ii. (1822) No. 7, p. 4 from the interior of Bencoolen, which is probably this.

308. *Celastrus paniculatus*, Wall. For this plant see p. 246.

his relationship to Lady R., but from the great regard and esteem in which he was personally held. He was a man of most engaging manners and superior mind, and had embarked on an extensive speculation with every prospect of success, which is now destroyed by his premature death. He had been my companion on the trip to the Sugar loat, and bore the fatigues of it much better than I did. It was a singular circumstance that the natives strongly dissuaded us from attempting the ascent as they said it would provoke the anger of the Dewas whose sanctum is on the summit. We of course laughed at such a reason, but they tried everything at the difficult parts of the ascent to induce us to turn back by representing it was impossible to get further. Our party consisted of four, three of us persevered in reaching the summit and one gave up half way. On our return the people declared one of the three, Auber, Salmond³⁰⁹ and myself would be sure to die for having profaned the sacred spot; and now they are of course firmly persuaded of the special interposition of the offended spirit of the Mountain. The coincidence is certainly singular and the more so as Auber to all appearance was the least likely to have suffered of any of us. His death however does not appear to have had any connection with the trip or exposure in the course of it.

These unfortunate events have depressed all our spirits: Sir Stamford himself has not been well, and the fatigue and anxiety of looking after so many invalids has almost knocked me up. I wish all was quiet again that I might take my ease for a few days and get well by indulging the luxury of doing nothing. Sir S. as you may recollect in Calcutta, is a very bad patient, for there is no keeping up his spirits when he is ill.

I have employed some odd hours in overhauling my Hexandrous plants for you, and send you herewith for entry in Roxburgh, three species of *Tradescantia*,³¹⁰ three of *Cuculigo*, four of *Loranthus*,³¹¹ and a new genus, which pray tell me what you think of. If I find time before this vessel sails, I shall add some more, but I am much at a loss how far back or forward to go until I learn something of your progress in Roxburgh.

21st July.—Another arrival from Calcutta, and not a line from you, or from Calder to whom I look for my Europe dispatches. This is very inexplicable and very provoking: other letters that I care not for three straws, arrive with perfect regularity, while the

309. Captain Francis Salmond was harbour master of Bencoolen and afterwards in Singapore (vide this Journal No. 65, 1913 p. 43). On one occasion having been sent to Palembang by Raffles, the Dutch carried him a prisoner to Batavia (Memoir of Sir Stamford Raffles, p. 394).

310. Wallich apparently was unable to make use of Jack's descriptions of *Tradescantia* and *Cuculigo*.

311. *Loranthus culudicus*, *L. patulus*, and perhaps *L. ferrugineus*, all of which Wallich inserted into his and Carey's revision of Roxburgh's Flora, together with another which cannot be identified even approximately.

only ones that can be of real interest come *not*. There is still one chance, that Mackenzie may bring some, though they might as well have been put under a wild goose wing as given to him. I begin to abominate this place very grievously, however it is a nasty gloomy day, I am out of humour on many accounts, and there is no saying how I may alter my mind when the weather clears up and matters begin to go smoother. A man should never sit down to write a letter in the temperament I am now in, so I will have mercy on you, and spare you a jeremiad.

I add descriptions of three more *Arabis*¹² and my new genus of the same family.

W. Jack.

Bencoolen.

October 6th, 1821.

My dear Wallich,

I wrote you pretty fully in August by my cousin Andrew Henderson, but I cannot allow this opportunity which may be the last for some time to pass without sending you a few lines. I am still without any account from you, nor do I know whether this will find you in Calcutta, though I think it most probable it will. Mackenzie arrived here some time ago but brought no letters at all, so that I cannot help thinking there must be some strange mistake which prevents my hearing by the direct arrivals from Bengal. The monsoon is now about to change, and I hope abundance of communications this season will recompense the disappointments of the last. Mr. Palmer¹³ is here on his way up from Java, with which he seems to be highly delighted. We are going on in our usual quiet way: plants and stones, the order of the day. I have drawn up a short paper for Mr. Colebrooke on the Geology of Sumatra, giving him an outline of our present information on the subject. This may serve as an inaugural dissertation to the Society as they have dubbed me a Member. By the bye, will you

312 These cannot be identified.

313 Mr. John Palmer, a merchant of Calcutta, called "the prince of merchants" (vide MacDonald's "Narrative" p. 128) of the firm of Palmer and Co., active in many enterprises. Mr. Palmer's firm were agents to Sir Stamford Raffles, and to Said Husein, father of the pretender to the throne of Acheen, as well as to the Dutch and therefore came into opposition with Raffles. Mr. Palmer was influential enough to get for the Acheen pretender a pension after the trouble had been dispersed: he was also influential enough to get a merchant sent as the Company's agent to Siam, whereby the Company was put to great expense and their possible trade diverted to the agent. In partnership with Sir William Rumbold he was in those unscrupulous banking transactions in the Nizam's dominions which brought down the Court of Directors upon the government in India and drove Lord Hastings into retirement. In 1828 the firm unable to reap in the exorbitant interest that they had counted on, went bankrupt. (Vide Anderson's Acheen, London, 1840 p. 78 and Marshman's History of India London, 1871, i. p. 371).

undertake a trifling commission for me, which is, to find out the amount of subscription to the Geological Society, and get a remittance for the sum from Calder, which you can forward to Mr. Colebrooke on my account the first time you write him. I believe it is usual for Members of these societies abroad to pay at once a certain sum in lieu of all future payments, which is far the best mode for us in India, and saves all after trouble. So pray let the remittance be to that amount and effect. I would sooner have been proposed for the Linnean, as being more in my way, but that may come in good time. I told you of my having sent Lambert a paper on the Cyrtandraceæ, I have since found a new plant of that family which will form a new genus sub nomine, *Aeschynanthus*,²¹⁴ and to which I think *Incarvillea parasitica*, Roxb. will be properly referable. Mine has axillary crimson flowers, exsert stamina, four with the rudiment of a fifth. Capsule strictly pseudo 4 locular *more* *Didymocarpi*, but the seeds with an arista or long hair at each end, and having something like an apophysis above. I shall send the account of this additional gentleman to Lambert to complete his paper.²¹⁵ I am putting together some of the most interesting of my new genera, and I think I shall send them to Mr. Colebrooke through you, so that they may have the benefit of your corrections and remarks. They cannot be ready in time for this occasion, but I shall try and have them ready in case of another offering. Proposals are circulating here for a second volume of the Malayan Miscellanies to be published by the missionaries if they get a sufficiency of subscriptions; if they do, I shall give them some plants to help them out. When it will be finished is a matter of great doubt in Mr. Ward's²¹⁶ hands, for he is the laziest animal I ever met with, and one of the stupidest. If such are the people we are to meet in heaven, Lord help me out of it. Did you know our junior surgeon here Lancaster, who died lately; he was an odd and in some things not a very agreeable man, but is a great loss to the settlement. A good for nothing chap (a friend of Calder's by the bye) Mr. MacCalman has been put in temporarily but there is no wish to keep him here for good. If you know any person, a married man in particular, who would like a quiet settled situation of 650 rupees a month it might be worth applying for. I should wish him to be junior to me. MacCalman is a true highlander, with all the captious jealousy and tenaciousness of his countrymen, among whom such qualities are sometimes to be found, and has not contrived to make himself agreeable here. He brought a letter to me from Calder, in conse-

214. *Aeschynanthus* was described by Jack with two species—*A. radicans* and *A. volubilis*. It would be the second to which he refers here.

215. Lambert did as desired; after incorporating the new genus, he communicated Jack's paper on Cyrtandraceæ to the Linnean Society. Brown had that on Melastomaceæ; and Jack sent as he here proposes the third paper to Colebrooke.

216. See note No. 160, p. 192.

quence of which I shewed such attention as was in my power, but it does not appear to have come up to his expectations. I wonder whether Calder is particularly interested about him, or whether he is merely a Scotch consignment to the house. I mention this that you may not accidentally commit me with Calder, in case the subject happens to come between you.

I have not time for more so shall only add my best regards to Mrs. Wallich and ever my dear Wallich.

Yours very truly,

William Jack.

P.S. Don't forget the remittance to Mr. Colebrooke.

Bencoolen.

October 26th, 1821.

My dear Wallich.

I write a few lines by this opportunity, which is a very circuitous one, merely to say that there will be no occasion for your troubling yourself further about the request I made in my last as to the subscription for the Geological Society, to be remitted to Mr. Colebrooke. I have since received a letter from the secretary of the Society announcing my election and requiring the payment of ten guineas admission fee, and have in consequence written to my father to settle the account. A remittance from Bengal will therefore be unnecessary. So if you have spoken to Calder on the subject, countermand it. Two vessels have arrived from Bengal without bringing a line from you, but Hardwicke mentions that you are not expected down³¹⁷ till December.

He has been making some sad piece of humbug to the Asiatic Society³¹⁸ on presenting the proceedings of the Agricultural Society, which would have been better spared, tho' no doubt well intended. Writing and eloge are not his forte.

At present I am literally doing nothing, being neither very well³¹⁹ nor in very good spirits, so excuse a brief scrawl.

And believe me always,

My dear Wallich,

Yours very truly,

William Jack.

317. From Nepal. Wallich left the Nepal valley on November 7th, 1821, and reached Patna on the 22nd.

318. Asiatic Society in Calcutta, later Asiatic Society of Bengal.

319. The Proceedings of the Agricultural Society of Bencoolen, see note No. 219 p. 211.

Jack's letters to Wallich thus end eight months before his death with an admission that he was ill. He apparently had not complained before to Wallich, but in a letter home dated April 8th, 1821, he told his parents that he had recovered from another attack of lung trouble. His illnesses added to the sadness of that year when Raffles' three children died. Jack himself seems to have been ill from this date continuously, the lung trouble recurring; but according to Raffles acute Malaria carried him off which was contracted on a trip to Mocomoco. He took a voyage to Java in the hope that it might place him on the road to recovery; but it did not; and he returned to Bencoolen worse. As a last resort he was put on board another vessel for the Cape. From what Raffles wrote it appears that he was landed again dying, and was buried in the Settlement.

This is how Raffles wrote (i.) on September 4th, 1822, "My inestimable friend, Jack, still remains in a very dangerous state, and is obliged to embark in the *Layton* for the Cape. In him I lose my right hand," and again (ii.) September 14th. "I have very little hope for him: I shall feel his loss most severely, both as a private friend and as an able assistant," and yet again (iii.) September 15th. "We were to have embarked this morning for Singapore, but the wind has proved foul; and it was ordained that we should remain another day, to bury our dear and invaluable friend, William Jack. Poor fellow! a finer head or heart there never was; and whether as a bosom friend, or as a scientific assistant, he was to me invaluable; he had been long ill and returned from Java about a fortnight ago, after an unsuccessful visit for change of air: we embarked him yesterday in the *Layton* for the Cape; and he died this morning before the ship weighed her anchor."

In a letter to Wallich telling him of the loss Raffles says that he died at Government House: if so he was landed again to die. He was but twenty-seven.

He was unmarried; and Buckley's one-time speculation that Jack's was among the children taken home in 1824 by Sir Stamford, is without foundation (vide *Anecdotal History* i. p. 10).

Wallich received the news of his death at Singapore on October 10th, 1822, where he had arrived on a voyage for his health. His letter of condolence to the parents is reprinted in the companions to the *Botanical Magazine*. It appears that he had had no premonition of the approaching end: and that Jack's last letter to Wallich here printed was in reality the last written.

The following lines written by Raffles under the date of February 4th, 1824, give rather histrionically the fate of Jack's collections:—

"We (that is Sir Stamford's party) embarked on the 2nd instant in the *Fame*, and sailed at daylight for England with a fair wind, and every prospect of a quick and comfortable passage.

The ship was everything that we could wish: and having closed my charge here (Bencoolen) much to my satisfaction, it was one of the happiest days of my life. We were, perhaps, too happy: for in the evening came a sad reverse. Sophia (Lady Raffles) had just gone to bed and I had thrown off half my clothes, when a cry of fire! fire! roused us from our calm content, and in five minutes the whole ship was in flames. I ran to examine whence the flames principally issued, and found that the fire had its origin immediately under our cabin. Down with the boats. Where is Sophia? Here. A rope to the side. Lower Lady Raffles. Give her to me, says one. I'll take her, says the Captain. Throw the gunpowder overboard. It cannot be got at: it is in the magazine close to the fire. Stand clear of the powder. Skuttle the water casks. Water! water! Where's Sir Stamford? Come into the boat, Nilson! Nilson, come into the boat. Push off push off. Stand clear of the after part of the ship.

All this passed much quicker than I can write it: we pushed off, and as we did so the flames burst out of our cabin-window, and the whole of the after part of the ship was in flames: the masts and sails now taking fire, we moved to a distance sufficient to avoid the immediate explosion: but the flames were now coming out of the main hatchway; and seeing the rest of the crew, with the Captain, still on board we pulled back to her under the bows, so as to be more distant from the powder. As we approached we perceived that the people on board were getting into a boat on the opposite side. She pushed off: we hailed her: Have you all on board? Yes, all, save one. Who is he? Johnson sick in his cot. Can we save him?—No, impossible. The flames were issuing from the hatchway: at this moment the poor fellow, scorched, I imagine, by the flames, roared out most lustily, having run upon the deck. I will go for him, says the Captain he then pulled under the bowsprit of the ship and picked the poor fellow up. The Captain fortunately had a compass and to make the best of our misfortune we availed ourselves of the light from the ship to steer a tolerably good course towards the shore. She continued to burn till about midnight, when the saltpetre which she had on board (the powder had blown up towards nine o'clock) took fire, illuminating the horizon in every direction to the extent of not less than fifty miles. She burnt and continued to flame in this style for about an hour or two, when we lost sight of the object in a cloud of smoke. At daylight we recognised the coast and Rat Island. About eight or nine we saw a ship standing to us from the Roads: they had seen the flames on shore, and sent out vessels to our relief. They gave us a bucket of water, and we took the Captain on board as a pilot. The wind however, was adverse, and we could not reach the shore, and took to the ship where we got some refreshment and shelter from the sun. About two o'clock we landed safe and sound.

The loss, I have to regret, beyond all, is my papers and drawings,—all my notes and observations, with memoirs and collections, sufficient for a full and ample history, not only of Sumatra, but of Borneo and almost every other island of note in these seas:—my intended account of the establishment of Singapore, the history of my own administration: eastern grammars, dictionaries and vocabularies;—and last, not least, a grand map of Sumatra, on which I had been employed since my arrival here This however was not all; all my collections in natural history—all my splendid collection of drawings, upwards of two thousand in number, with all the valuable papers and notes of my friends, Arnold and Jack: and to conclude I will merely notice, that there was scarce an unknown animal, bird, beast, or fish, or an interesting plant, which we had not on board: a living tapir, a new species of tiger, splendid pheasants, etc., domesticated for the voyage: we were in short, in this respect, a perfect Noah's Ark. All, all has perished; but thank God, our lives have been spared.

The fire had its origin in the store room, and was occasioned by the shameful carelessness of the steward going with a naked light to draw off brandy from a cask which took fire.²

JACK'S HERBARIUM, as far as recorded in various places.

Sources of information:—

- i. the above letters to Wallich:
- ii. Descriptions of Malayan plants, in the *Malayan Miscellanies*, Vol. 1 (1820), number, 1, pp. 1-26.* reprinted in the *Companion to the Botanical Magazine*, 1 (1835),* and again with rearrangement by Griffith in the *Calcutta Journal of Natural History*, Vol. IV, pp. 1-62, 159-231, 305-374, and without rearrangement in the *Miscellaneous Papers relating to Indo-China and the Indian Archipelago*, Second series Vol. 2 (1887) pp. 269-222. See letters dated 27th Feb., 1820 (p. 195) and 19th Aug., 1820 (p. 211).
- iii. Descriptions of Malayan Plants, in the *Malayan Miscellanies*, Vol. 1 (1820) No. 5 pp. 1-48: reprinted in the *Companion to the Botanical Magazine* and the *Calcutta Journal of Natural History*: and also without rearrangement in the *Miscellaneous Papers relating to Indo-China and the Indian Archipelago*, pp. 223-228. See letters dated 19th Sept. 1820 and 1st May, 1821 (pp. 220 and 221).

* Not available for consultation in Singapore.

- iv. Descriptions of Malayan Plants, in the Malayan Miscellanies, Vol. 2, (1822) number 7, pp. 1-96, with four supplementary pages affixed in front: reprinted along with the above two in the Companion to the Botanical Magazine and the Calcutta Journal of Natural History: and without rearrangement in the Miscellaneous Papers relating to Indo-China and the Indian Archipelago pp. 246-295. See letter dated 1st May, 1821 (p. 227).
- v. Descriptions of plants communicated to Wallich for his and Carey's Revision of Roxburgh's Flora Indica, published 1820-1824. Jack seems to have had proof sheets of part submitted or lent to him (letter dated 9th Sept. 1820). The descriptions were extracted by Griffith and printed in the Calcutta Journal of Natural History along with the above.
- vi. Suppressed or unpublished descriptions, recovered by Sir William Hooker from printed advanced sheets entitled like the three above, Descriptions of Malayan Plants, Appendix to the Malayan Miscellanies, and reprinted in the Companion to the Botanical Magazine, Vol. (1835).
- vii. Wallich's Catalogue of the Plants in the Honourable East India Company's Herbarium, lithographed from 1828 to 1832 and Sir Joseph Hooker's Flora of British India (1872-1897) containing the elaboration of these.
- viii.-x. Jack's three papers published by the Linnean Society of London in the fourteenth volume of their Transactions, (1823), viz.

On the Malayan Species of Melastoma, pp. 1-22.

On Cyrtandraceæ, a new Natural Order of Plants, pp. 23-45.

Account of Lansium and some other Genera of Malayan Plants, pp. 114-130.

DILLENIACEAE.

Acrotrema costatum, Jack. A common plant in the Waterfall Valley, Penang, where Jack found it. He described it in the Malay. Misc. i. No. 5, p. 36. Later it was found by him at Tapanuli, Sumatra (letters p. 228). *Acrotrema* was at the time a new genus,—a herb in an otherwise woody order: and Jack did not recognise its affinity. After consulting Wallich, he left it open.

Tetracera arborescens, Jack, was found near the shores of the Bay of Tapanuli, Sumatra, and described in Malay. Misc. i. No. 5, p. 145. It seems (letters p. 229) to have been obtained again, probably at Tapanuli.

Wormia pulchella, Jack, found at Natal, Sumatra, and described in Malay. Misc. ii. No. 7, p. 76.

Wormia excelsa, Jack, found at Bencoolen, Sumatra, and described in Malay. Misc. ii. No. 7, p. 69.

ANONACEAE.

Uvaria purpurea, Blume, was collected by Jack in Penang, whence he sent specimens to Wallich (Wall. Cat., No. 6485). It is a coast plant of Penang.

Uvaria hirsuta, Jack, was found in Penang, and described in Malay. Misc. i. No. 5, p. 46. We find (letters p. 197) an enquiry addressed to Wallich for the characters of *U. pilosa*, Roxb., which proves to be the same species.

NYMPHAEACEAE.

Nymphaea stellata, Willd., the common water-lily of Penang was obtained by Jack there in April or May, 1819, and its variety *cyanea* was recognised by him among a few (letters p. 175); and its variety *cyanea* was recognised by him among a few plants brought from Acheen by Raffles (letters p. 174).

Nelumbium speciosum, Willd., was found by Jack in Penang (letters p. 152).

VIOLACEAE.

Alsodeia sp. may perhaps be what Jack refers to in a letter of 19th Sept. 1820 (letters p. 219) as a Penang plant.

BIXACEAE.

Flacourtia inermis, Roxb. (*F. Rukam*, Zoll. & Moritz), was described by Jack from Penang, where it is cultivated, and also from Sumatra in Malay. Misc. i. No. 1, p. 25.

HYPERICACEAE.

Cratoxylon formosum, Benth. and Hook. f., was described by Jack from Sumatra as *Elodea formosa* (Malay. Misc. ii. No. 7, p. 24).

Cratoxylon sumatranum, Blume, was described by Jack from Telok Dalam in Pulau Nias as *Elodea sumatrana* (Malay. Misc. ii. No. 7, p. 22). He mentions it in a letter to Wallich (letters p. 226).

GUTTIFERAE.

Garcinia Mangostana, Linn., is mentioned in Jack's letters as cultivated in Penang (letters p. 152) and was sent by him alive to Calcutta from Bencoolen (letters p. 217).

Calophyllum sp. from Acheen, brought thence by Raffles (letters p. 174).

TERNSTROEMIACEAE.

Adinandra dumosa, Jack, was described from Sumatra as "abundant in thickets" and in various parts of the Malay Islands (Malay. Misc. ii. No. 7, p. 50).

Adinandra sylvestris, Jack is named in the Malay. Misc. ii. No. 7, affixed sheet iii) as having been obtained in Moco-moco, Sumatra.

Saurauja tristyla, DC., was described by Jack from Penang as *Ternstroemia pentapetala* (Malay. Misc. i. No. 5, p. 40).

Saurauja sp. was described from Salumah, Sumatra, as *Ternstroemia cuspidata* (Malay. Misc. ii. No. 7, p. 28).

Ternstroemia serrata, Jack, was obtained on Pulau Nias and described in Malay. Misc. ii. No. 7, p. 27. It would seem to be one of the *Ternstroemias* referred to in his letters (p. 229).

Ternstroemia acuminata, Jack, was described from Tapanuli in Malay. Misc. ii. No. 7, p. 26, and would seem to be referred to in his letters (p. 229).

Cleyera rubiginosa, was described by Jack from Sumatra as *Ternstroemia rubiginosa* (Malay. Misc. i. No. 5, p. 39).

Archytaea VahlII, Choisy, was collected by Jack at Rhio (letters p. 181); but Wallich distributed specimens as Jack's from Penang, possibly erroneously (Wall. Cat. No. 4866).

DIPTEROCARPACEAE.

Dryobalanops Camphora, Gaertn., grows freely near Tapanuli, Sumatra, and thence Mr. Prince, the Resident, had supplied information about it to Roxburgh, together with the foliage. Living plants and seeds from the same source were sent to Colebrooke, and served for a description with a plate published by the Asiatic Society in 1816 (*Asiatick Researches* xii., p. 538). In 1819 Mr. Prince got the flowers and sent them to Raffles, who put them in Jack's hands (letters p. 182). Jack there-upon drew up a description which went into print in the suppressed part of his *Descriptions* (see above, item No. vi, of the sources).

MALVACEAE.

Gossypium brasiliense, Macf., the Pernambuco cotton, is reported as cultivated experimentally in Penang in a letter (p. 169).

STERCULIACEAE.

Sterculia laevis, Wall., is recorded by Jack as having been found in Penang, but under the wrong name of *S. coccinea*, Roxb. (Malay. Misc. i. No. 1, p. 20).

Sterculia rubiginosa, Vent., is recorded by Jack as having been found in Penang, but under the wrong name of *S. angustifolia*, Roxb. (Malay. Misc. i. No. 1, p. 21). It is not a common tree in Penang; and Curtis' only locality is Penara Bukit.

Pterospermum Jackianum, Wall., is founded on specimens collected by Jack in Penang (Wall. Cat. No. 1164).

TILIACEAE.

Grewia paniculata, Roxb., was found by Jack in Penang, who adhering to Smith's name of *Microcos tomentosa* described it under this in Malay. Misc. i. No. 1, p. 13. He refers to the plant in his letters (p. 189).

Grewia Microcos, Linn., was obtained by Jack from Car Nicobar, and briefly diagnosed as a new species under the name of *Microcos glabra* in Malay. Misc. i. No. 1, p. 14.

Elaeocarpus nitidus, Jack, which occurs in the Waterfall valley, Penang, was found and described by Jack (Malay. Misc. i. No. 5, p. 41). Under one of his early letters he sent specimens of an *Elaeocarp* to Wallich (p. 165) but it is impossible to say which.

Elaeocarpus Jackianus, Wall., is a not-uncommon Singapore plant, of which Jack sent specimens to Wallich (Wall. Cat. No. 2679), and which Jack described as *Monocera ferruginea* (Malay. Misc. i. No. 5, p. 44).

Elaeocarpus petiolatus, Wall., is described by Jack from Penang as *Monocera petiolata* in the Malay. Misc. i. No. 5, p. 43.

LINACEAE.

Ixonanthes icosandra, Jack, was found in the interior of Sumatra behind Bencoolen, and described in the Malay. Misc. ii. No. 7, p. 53. Writing of it in 1872, Sir Joseph Hooker pointed out that there are differences between Jack's description and the tree as we know it in Malaya (Flora of British India i. p. 416). It is therefore desirable that someone should search in the region from which Jack got his plant for something which would explain the divergence.

Ixonanthes reticulata, Jack, was found at Tapanuli, Sumatra, and described in Malay. Misc. ii. No. 7, p. 51.

GERANIACEAE.

Impatiens sp. An *Impatiens* was found by Jack on his journey to Gunong Bengkok, behind Bencoolen, (letters p. 234).

RUTACEAE.

Glycosmis pentaphylla, Correa, var. ***macrophylla***, was found by Jack in Penang and described under the name of *Chionotria rigida* in the Malay. Misc. ii. No. 7, p. 54.

Micromelum hirsutum, Oliv., was sent to Wallich from Penang, and distributed by him without a name in Wall. Cat. No. 8516.

Murraya exotica, Linn., type, and the variety *paniculata* were both described by Jack, who held them specifically distinct: he wrote as if he had found the type himself, but not quite definitely about the variety, though familiar with its usefulness to the kris-maker (Malay. Misc. i. No. 5, p. 31). In his letters (p. 189) he refers to the species without adding to what he published later. At a later date (letters p. 220) he explains that *Murraya sumatrana*, Roxb., is the same as the variety *paniculata*.

Clausena excavata, Burm., appears to be the plant which Jack names in his letters (p. 162) as having been found in Penang. It is common near the coast there.

SIMARUBACEAE.

Brucea sumatrana, Roxb., is mentioned in Jack's letters as having been found at Bencoolen (p. 188).

Eurycoma longifolia, Jack, was found in Singapore and in Sumatra at Tapanuli and Bencoolen. It was described in the Malay. Misc. ii. No. 7, p. 45. Jack placed it in Connaraceae.

OCHNACEAE.

Gomphia sumatrana, Jack, was described from Sumatra no locality being named (Malay. Misc. i. No. 5, p. 29).

Euthemis leucocarpa, Jack, a shrub common on the sandy parts of the Singapore coast, was found by Jack and described in the Malay. Misc. i. No. 5, p. 16. In his letters to Wallich (pp. 179 and 204) he mentions it. And his recognition of it at once as belonging to a new genus shows his great perspicacity.

Euthemis minor, Jack, was found along with the last in Singapore, and described with it (Malay. Misc. i. No. 5, p. 18). Though common on Pulau Battam, south of Singapore, it has only once been found in recent years on Singapore island.

MELIACEAE.

Melia excelsa, Jack, was obtained in Penang (letters p. 165) and described in the Malay. Misc. i. No. 5, p. 12. Wallich received specimens which became No. 1253 in his Catalogue. No *Melia* answering the description has been found recently; and everything considered, it is impossible that Jack's plant belonged to the genus.

Sandoricum indicum, Cav., was got by Jack in Penang, and distributed by Wallich as No. 1249 of his Catalogue. It is the cultivated Sentol.

Aglaia odorata, Lour., is a common tree of cultivation in Malaya, as Jack records (Malay. Misc. i. No. 5, p. 32).

***Aglaia* sp.** is the *Lansium montanum* of Jack found in the forests near Bencoolen (Trans. Linn. Soc., xiv. p. 117). Rumpf had used the combination: and Jack believed that he had got Rumpf's plant. The name *Lansium montanum* is sometimes referred to Steudel.

Lansium domesticum, Jack, is the cultivated Langsat which Jack described in the Trans. Linn. Soc. xiv. p. 115. He defined a variety *aqueum* (*L. aqueum*), a superior race. In his letters (p. 158) he names it as the "Dookoo."

CELASTRACEAE.

Paracelastrus bivalvis, Miq. (*Microtropis bivalvis*, Wall.), was obtained by Jack in Penang and described as *Celastrus bivalvis* (Malay. Misc. i. No. 5, p. 19). He mentions it in his letters (pp. 165 and 218), first as related to *Celastrus* and then as *Celastrus bivalvis*.

Celastrus pauciflora, Wall., is the Pittospora? serrulata of Jack from Penang which Griffith named *Pittosporum? serrulatum* in the Calcutta Journal of Natural History, iv., 1844, p. 195.

Celastrus lucida, Wall., is a plant, not a *Celastrus*, collected by Jack in Penang and distributed under this name by Wallich (Cat. No. 4318).

Hippocratea, sp. near *H. obtusifolia*, Roxb. is mentioned in Jack's letters (p. 221) as having been found in Pulau Nias.

***Salacia* sp.** Jack found on Pulau Nias a *Salacia* which in his letters is called *Johnia sumatrana*, and would be one of the two species referred to, without name, in the Malay. Misc. ii. No. 7, p. 92.

***Salacia* sp.** Jack had sent to Wallich a species of *Salacia* under the name of *Hypsagyne* (letters 219 and 221) which was obtained at Tapanuli earlier than the *Salacia* just named. It may have been the second *Salacia* mentioned in the Malay. Misc. ii. No. 7, p. 92. Of these two species the one, he wrote, agrees very well both with *S. chinensis* and with *Johnia salacioides* (which is *Salacia Roxburghii*, Wall.); and the other is nearly related to *Johnia coromandeliana*, Roxb. (which is *Salacia prinoides*, DC.)

AMPELIDACEAE.

Vitis racemifera, Jack, was described from Sumatra in the Malay. Misc. ii. No. 7, p. 94.

Vitis angustifolia, Wall. is recorded by Jack from Bencoolen (letters p. 208) under Roxburgh's name of *Cissus angustifolia*.

SAPINDACEAE.

Cardiospermum sp. is mentioned as occurring at Acheen (letters p. 114).

Erioglossum edule, Blume, is the *Sapindus rubiginosus* of Roxburgh under which name Jack records its cultivation in Penang (Malay. Misc. i. No. 1. p. 11).

Lepidopetalum Jackianum, Radlk. (*Cupania Jackiana*, Hiern in Flora Brit. India, i. p. 678) is a Car Nicobar plant which Wallich distributed as *Connarus? Jackianus* (Wall. Cat., No. 8552).

Nephelium lappacem, Linn., the Rambutan, was described by Jack from Penang and elsewhere (Malay. Misc. i. No. 1. p. 16). He mentions it in his letters (p. 154).

ANACARDIACEAE.

Mangifera quadrifida, Jack, was found in Penang, and diagnosed in a letter to Wallich (p. 152). Afterwards it was described from Jack's MS. in Carey and Wallich's revision of Roxburgh's Flora Indica ii. p. 440.

Mangifera foetida, Lour., was found by Jack in Penang (letters p. 152) and described along with the last from Penang and Sumatra, etc. Specimens collected by Jack were distributed by Wallich (Cat. No. 8488).

Mangifera caesia, Jack, was found by Jack in Sumatra, perhaps at Bencoolen (letters p. 216), and described along with the above two (p. 441).

Gluta Benghas, Linn., was found by Jack at Natal and Moco-moco in Sumatra, etc. He described it in print as *Stagmaria verniciiflua*, but withdrew the description from publication, for as pointed out in his letters (p. 229) he found out the identity. Sir William Hooker published Jack's name-Stagmaria—and the description in the Companion to the Botanical magazine, i. (1835) p. 267.

SABIACEAE.

Meliosma nitida, Blume, is the *Millingtonia sumatrana* described by Jack from Pulau Nias (Malay. Misc. ii. No. 7. p. 36).

CONNARACEAE.

Agelaea vestita, Hook. f. Wallich distributed this plant from Jack's collecting in Singapore as No. 8535; and on p. 197 of his letters he mentions having got three species of its order,—the Connaraceae,—calling them Connarus, in Singapore, the specimens of which were left with Wallich.

Rourea concolor, Blume, is thought to be the *Cnestis mimosoides* described by Jack from Tapanuli, Sumatra, (Malay. Misc. ii. No. 7. p. 44).

Connarus ferrugineus, Jack, was found in Penang. It was to it probably that Jack applied the name *Connarus paniculata*, Roxb., in his letters (p. 163). But after visiting Calcutta in 1826 he used the name *Connarus ferrugineus* (letters p. 197) and described it in the Malay. Misc. ii. No. 7, p. 37.

Connarus semidecandrus, Jack, occurs in Penang; but Jack did not detect it there. He described it from the west coast of Sumatra (Malay. Misc. ii. No. 7, p. 39). It would further seem to be one of the species obtained in Singapore, which are referred to in his letters (p. 197): for Wallich's Catalogue No. 8538 in part is it.

Connarus grandis, Jack, was described from Tapanuli, Sumatra, in the Malay. Misc. ii. No. 7, p. 40.

Connarus villosus, Jack, was described from Sumatra in the Malay. Misc. ii. No. 7, p. 38.

Connarus lucidus, Jack, was described from Sumatra in the Malay. Misc. ii. No. 7, p. 41.

Cnestis longifolia, is a name used by Jack in his letters (p. 197) for something that he got in Singapore and at Tapanuli.

Cnestis emarginata, Jack, is a plant described from Bencoolen in Malay. Misc. ii. No. 7, p. 43.

Cnestis florida, Jack, is a plant from Pulau Nias and Sumatra described in the Malay. Misc. ii. No. 7, p. 43.

LEGUMINOSAE.

Millettia atropurpurea, Benth. This common tree was collected by Jack in Penang, and Wallich distributed the specimens under the name of *Pongamia atropurpurea* (Wall. Cat. No. 5910).

Mezoneuron sumatranum, W. & A., was found by Jack at Bencoolen, and is referred to under Roxburgh's name of *Caesalpinia sumatrana*. From the way in which Jack puts a question mark after the word *Caesalpinia*, it seems that he suspected Roxburgh to have got the genus wrong (letter p. 188).

Cassia alata, Linn., is quite likely to have been the plant to which Jack refers in his first letter from Penang (p. 155).

Saraca declinata, Miq., was described as *Jonesia declinata* by Jack from Sumatra in the Malay. Misc. ii. No. 7, p. 74. A reference in his letters (p. 216) indicates Bencoolen as probably the locality where it was found.

Afzelia retusa, Kurz, appears to be the Singapore plant referred to in Jack's letters (p. 180).

Bauhinia emarginata, Jack, is described in the Malay. Misc. ii. No. 7, p. 75 from Sumatra.

Bauhinia bidentata, Jack, is described in the Malay. Misc. ii. No. 7, p. 76 as from the forests of Malaya. In his letters (p. 165) he refers to it as occurring in Penang.

Pithecolobium lobatum, Benth., was described by Jack under the name of *Mimosa Jiringa* in the Malay. Misc. i. No. 1, p. 14. He collected it in Penang, and records Malacca as an additional locality, perhaps from Farquhar's collection of drawings. He discusses it in his letters to Wallich (pp. 159 and 165).

Pithecolobium Clypearia, Benth., was described by Jack in Malay. Misc. ii. No. 7, p. 78 as *Inga Clypearia*, from Bencoolen. It is mentioned in his letters as found also in Penang (p. 165) and recognised by him as one of Rumph's plants (p. 230).

Pithecolobium bubalinum, Benth., is described by Jack in the Malay. Misc. ii. No. 7, p. 77, as *Inga bubalina*.

ROSACEAE.

Rubus alceaefolius, Poir., is mentioned in Jack's letters (p. 152) as a Penang plant.

Parinarium costatum, Blume, was described by Jack from Sumatra but without any locality in the Malay. Misc. ii. No. 7, p. 67, under the name of *Petrocarya sumatrana*.

Parinarium Jackianum, Benth., was described by Jack without locality in the Malay. Misc. ii. No. 7, p. 66, under the name of *Petrocarya excelsa*.

RHIZOPHORACEAE.

Rhizophora mucronata, Lamk., is mentioned in Jack's letters (p. 175) as a Penang plant.

Bruguiera gymnorhiza, Lamk., is mentioned in Jack's letters (p. 175) as a Penang plant.

Bruguiera caryophylloides, Blume, is described as *Rhizophora caryophylloides* in the Malay. Misc. 8. No. 5, p. 34, from Penang and Singapore. It is also mentioned in his letters (p. 151) as a Penang plant.

Anisophyllaea trapezoidalis, Baill., is described from Singapore, Sumatra and elsewhere under the name of *Haloragis disticha* in the Malay. Misc. ii. No. 7, p. 19.

COMBRETACEAE.

Lumnitzera coccinea, W. & A., is described by Jack in the Malay. Misc. ii. No. 7, p. 57 as *Pyrreanthus littoreus*

occurring in the Malayan Peninsula and Sumatra. In his letters he writes of finding it in Penang (p. 165) and on the Silebar river, Sumatra (p. 205).

Calycopteris floribunda, Lamk., is mentioned as a Penang plant in his letters (p. 184).

Quisqualis densiflora, Wall., was described by Jack under the name of *Sphalanthus confertus* in the Malay. Misc. ii. No. 7, p. 55, no locality being given.

MYRTACEAE.

Leptospermum sp. is the identification given of Jack's *Glaphyria sericea* from Pulau Pinang on the west coast of Sumatra (not the British Penang). Jack described it in Trans. Linn. Soc., xiv. p. 129. By an oversight it was included in the Flora of British India.

Leptospermum sp. would be the identification of his *Glaphyria nitida* from Gunong Bengkok, described in the same place p. 128 and in the Malay. Misc. ii. No. 7, p. 6.

Melaleuca leucadendron, Linn., is named by Jack in his letters (p. 160) as obtained in Penang; he uses Roxburgh's name *M. Cajuputi*.

Rhodamia trinervia, Blume. It appears that Jack had obtained from Sumatra this plant and also its variety *spectabilis*. He refers to them in his letters (p. 222) and in the Malay. Misc. ii. No. 7 p. 48.

Eugenia Jambos, Linn., was collected by Jack in Penang; and Wallich distributed the specimens as No. 3615 of his Catalogue.

Eugenia caryophyllata, Thunbg., was mentioned by Jack as cultivated in Penang (letters p. 152).

Barringtonia speciosa, Forst., is mentioned in Jack's letters (p. 174) as a plant of Acheen.

Barringtonia racemosa, Roxb., is mentioned in Jack's letters p. 175) as a plant of Penang.

Barringtonia macrostachya, Kurz., was described by Jack (Malay. Misc. i. No. 1, p. 41) as *Careya macrostachya*, from Penang.

MELASTOMACEAE.

Melastoma malabathricum, Linn., attracted Jack's attention in Penang during his first days there (letters p. 152); and afterwards he paid great attention to the order to which it belongs. In describing it in the Trans. Linn. Soc. xiv. p. 4, he gives the localities as "Sumatra and the Malay islands." Under *M. malabathricum* he included the very closely allied *M. polyanthum*, and appears to have described the latter rather than *M. malabathricum* under the name of "malabathricum."

Melastoma polyanthum, Blume, appears to be the Sumatran part of Jack's *M. malabathricum*.

Melastoma obvolutum, Jack, described in Trans. Linn. Soc. xiv. p. 3, is sometimes referred to *M. malabathricum*: sometimes mentioned apart. Jack got it at Tapanuli, Sumatra.

Melastoma erectum, Jack, was described in the Trans. Linn. Soc. xiv. p. 5 from Tapanuli, Sumatra: but is doubtfully distinct from the above three.

Melastoma sanguineum, Sims, was described by Jack in the Trans. Linn. Soc. xiv. p. 6 from Penang, under Roxburgh's name of *M. decemfidum*.

Medinilla alpestris, Blume, was described by Jack from Gunong Bengkok, Sumatra, in the Trans. Linn. Soc. xiv. p. 28 under the name of *Melastoma alpestre*. In his letters (p. 234) he mentions it.

Medinilla rubicunda, Blume, was described by Jack from Singapore (Trans. Linn. Soc. xiv. p. 18) as *Melastoma rubicundum*.

Medinilla eximia, Blume, was described by Jack from Gunong Bengkok, Sumatra (Trans. Linn. Soc. xiv. p. 17) as *Melastoma crinum*. In his letters (p. 233) he mentions it.

Allomorpha exigua, Blume, was described in the Trans. Linn. Soc. xiv. p. 16 from Penang as *Melastoma exiguum*.

Sonerila erecta, Jack, was found in Penang (letters pp. 160, 162) and described in the Malay. Misc. i. No. 5, p. 1.

Sonerila paradoxa, Naud., was found by Jack in Penang (letters p. 162) and described in the Malay. Misc. i. No. 5, p. 9, as *Sonerila moluccana*, Roxb.

Sonerila heterophylla, Jack, was obtained at Tapanuli and at other places on the west coast of Sumatra: and it was described in the Malay. Misc. ii. No. 7, p. 16.

***Sonerila* spp.** Two species are named (letters p. 186) as having been obtained by Raffles on his Menangkabau trip: but for some reason Jack did not refer to them again in his later writings, probably because they were left with Wallich (vide p. 232).

Phyllagathis retundifolia, Blume, was collected by Jack in the Musi country which is behind Bencoolen and was described by him under the name of *Melastoma rotundifolium* in Trans. Linn. Soc. xiv. p. 12.

Marumia stellulata, Blume, was described by Jack in the Trans. Linn. Soc. xiv. p. 6 from the west coast of Sumatra under the name of *Melastoma stellulatum*.

Marumia nemorosa, was collected by Jack in Sumatra and on Pulau Nias, and was described under the name of *Melastoma nemorosum* in Trans. Linn. Soc. xiv. p. 8.

Dissochaeta bracteata, Blume, was described by Jack from Penang in the Trans. Linn. Soc. xiv. p. 9 as *Melastoma bracteatum*.

Dissochaeta pallida, Blume, was obtained first in Penang (letter p. 163) but was described after he had got it elsewhere (Trans. Linn. Soc. xiv. p. 12), under the name of *Melastoma pallidum*. Wallich distributed specimens under No. 4049 collected by Jack in Penang.

Dissochaeta celebica, Blume, is very probably Jack's *Melastoma fallax* from Sumatra (Trans. Linn. Soc. xiv. p. 13).

Dissochaeta gracilis, Blume, is Jack's *Melastoma gracile* from Sumatra (Trans. Linn. Soc. xiv. p. 14).

Anplectrum divaricatum, Triana, is Jack's *Melastoma glauca* from Penang (Trans. Linn. Soc. xiv. p. 14). In his letters (p. 234) he writes of it.

Pogonanthera pulverulenta, Blume, is Jack's *Melastoma rubicundum* and *pulcrulentum* from Singapore and Sumatra, as well as the islands off the west coast (Trans. Linn. Soc. xiv. p. 19).

Anplectrum viminale, Triana, is Jack's *Melastoma viminale* from Sumatra (Trans. Linn. Soc. xiv. p. 16).

Pternandra coerulescens, Jack, was found in Penang and described in the Malay. Misc. ii. No. 7, p. 61.

Pternandra capitellata, Jack, was named and very briefly diagnosed in the addenda prefixed to Malay. Misc. ii. No. 7 (p. iii). He had found it at Moco-moco, Sumatra. In the Flora of British India ii. p. 537 it is said to have been found by Jack in Penang; but the authority for this is unknown to me. However it is a common species of Penang, which Sir George King regarded as but a variety of the last.

Kibessa simplex, Korth., appeared as *Pternandra echinata* in Wallich's Catalogue No. 4078, and is named in the Malay. Misc. ii. No. 7, p. iii, the locality being recorded as Kataun. Griffith on p. 310 of the Calcutta Journal of Natural History, iv. says Kataun in Malacca; but it is without doubt Pasar Katahun, a days journey northward up the coast from Bencoolen.

Memecylon caeruleum, Jack, was found in Penang (letters p. 184) and described in the Malay. Misc. i. No. 5, p. 26.

Memecylon paniculatum, Jack, was described from the island of Pulau Bintangor and the Sumatran coast at Tapanuli in the Malay. Misc. ii. No. 7, p. 62.

LYTHRACEAE.

Pemphis acidula, Forst. A sea-shore plant of the tropics of the Old World found by Jack in Singapore (letters p. 178).

Lagerstroemia floribunda, Jack, was described from Penang in the Malay, Misc. i. No. 5, p. 38.

BEGONIACEAE.

Begonia caespitosa, Jack, described from Bencoolen in the Malay, Misc. ii. No. 7, p. 8.

Begonia bracteata, Jack, described from the foot of Gunong Bengkok in the Malay, Misc. ii. No. 7, p. 13. In his letters (p. 234) he names *Bengomias* as found on this trip.

Begonia fasciculata, Jack, described from Tapanuli, Sumatra, in the Malay, Misc. ii. No. 7, p. 12.

Begonia isoptera, Dryand., was described by Jack from Sumatra under the name of *Begonia geniculata* (Malay, Misc. ii. No. 7, p. 15).

Begonia orbiculata, Jack, described from Bencoolen in the Malay, Misc. ii. No. 7, p. 9.

Begonia pilosa, Jack, was described from the country behind Bencoolen in the Malay, Misc. ii. No. 7, p. 13.

Begonia racemosa, Jack, was described from Bencoolen in the Malay, Misc. ii. No. 7, p. 14.

Begonia sublobata, Jack, was described from Pulau Penang, West Sumatra, in the Malay, Misc. ii. No. 7, p. 16.

UMBELLIFERAE.

Hydrocotyle asiatica, Linn., was sent by Jack to Wallich from Penang and appears under No. 566 on Wallich's Catalogue.

ARALIACEAE.

Jack in his letters (p. 236) mentions Araliaceae from Sumatra.

RUBIACEAE.

Uncaria Gambier, Roxb., is mentioned by Jack as freely cultivated in Singapore, but not seen in Penang (letters p. 178).

Uncara lanosa, Wall., may well be the Penang plant mentioned in Jack's letters (p. 196).

Greenea Jackii W. & A., is the *Rondeletia corymbosa*, described by Jack in the Malay, Misc. i. No. 1, p. 4 from Penang.

Ophiorrhiza heterophylla, Jack, was described in the Malay Misc. ii (1822), No. 7, p. 85, from the neighbourhood of Bencoolen.

Argostemma humile, Benn., was obtained by Jack in Penang and sent to Wallich. Wallich described the plant in Bennett's *Plantae Javanicae Rariores* p. 94, and distributed Jack's specimens under his number 8391.

Mussaenda glabra, Vahl, is probably the Penang plant which Jack calls *M. frondosa* (letters p. 155).

Lucinaea Morinda, DC., is Jack's *Morinda polysperma* (Malay. Misc. i. No. 5, p. 14) from Singapore. He mentions it in his letters (p. 194).

Timonius Koenigii, Blume, is the *Helospora flavescent* of Jack described in the Trans. Linn. Soc. xiv. p. 127, from Sumatra.

Urophyllum glabrum, Wall., is a name which Wallich gave to a plant described in MS. by Jack for him, Jack had proposed to call it *Patisna glabra* or *Wallichia glabra* (letters pp. 196 and 218), and Wallich published the description in Carey's and his revision of Roxburgh's *Flora Indica*, ii. p. 186 altering the generic name. *Urophyllum glabrum* was obtained by Jack in Penang, and found again later at Tapanuli, Sumatra.

Urophyllum villosum, Wall., was found by Jack in Penang and described along with the last. It is mentioned incidentally in Jack's letters (p. 196).

Lecananthus erubescens, Jack, was described in the Malay. Misc. ii. No. 7, p. 83 from the country behind Bencoolen.

Randia anisophylla, Hook. f., was described by Jack in Carey and Wallich's revision of Roxburgh's *Flora Indica* ii. p. 461 from Penang as *Gardenia anisophylla*. In Wallich's Catalogue it appears as *Gardenia? anisophylla* No. 8399. It is a common tree in Penang. It is mentioned in his letters (p. 220).

Scyphophora hydrophyllacea, Gaertn., was referred to in one of Jack's letters (p. 219) as found in Singapore; and in the Malay. Misc. i. No. 5, p. 12 he described it as *Epithinia malayana*.

Guettarda speciosa, Linn., is mentioned in Jack's letters (p. 175) as a Penang plant.

Ixora pendula, Jack, was described in the Malay. Misc. i. No. 5, p. 11 from Penang; and it is probably one of the species referred to in his letters (p. 171). See also p. 228.

Ixora neriifolia, Jack, was described in the Malay. Misc. ii. No. 7, p. 82 from the west coast of Sumatra. It is mentioned in his letters (p. 228).

Morinda umbellata, Linn., Jack found in Penang (p. 153), and not understanding the sexual differences in the flowers, he described the form with exerted anthers under the name of *M. tetrandra* in Malay. Misc. i. No. 5, p. 13. He refers to the plant again in his letters at pp. 163 and 193.

Psychotria malayana, Jack was described from Penang in the Malay. Misc. i. No. 1, p. 3. Jack's specimens were later distributed by Wallich as *P. aurantiaca*, Catalogue No. 8355.

Psychotria viridiflora, Reinw. (*Psychotria Jackii*, Hook. f., in the Flora of British India iii. p. 161), is Jack's plant from Penang distributed by Wallich under his Catalogue number 8343.

Psychotria stipulacea, Wall., in Carey's and Wallich's revision of Roxburgh's Flora Indica ii. p. 164, is founded on specimens obtained by Jack in Penang, which were distributed by Wallich under his Catalogue number 8329.

Lasianthus attenuatus, Jack, is a plant found in the country at the back of Bencoolen, and described in the Trans. Linn. Soc., xiv. p. 126.

Lasianthus cyanocarpus, Jack, is a plant found at Tapanuli, Sumatra, and described in the Trans. Linn. Soc., xiv. p. 125.

Psilobium nutans, Jack described in the Malay. Misc. ii. No. 1, p. 85, was found in the country behind Bencoolen.

Psilobium tomentosum, Jack, was diagnosed in the sheets affixed to the Malay. Misc. ii. No. 1, p. iii, and said to have come from Kataun, north of Bencoolen.

Hydnophytum formicarum, Jack, was found in Sumatra and described in the Trans. Linn. Soc. xiv. p. 124.

Myrmecodia tuberosa, Jack, was found on Pulau Nias and described in the Trans. Linn. Soc. xiv. p. 123. It is referred to in Jack's letters (p. 231).

COMPOSITAE.

Sphaeranthus africanus, Linn., was collected by Jack in Penang and found its way into Wallich's Catalogue as No. 3179.

GOODENOVIACEAE.

Scaevola Koenigii, Vahl is named as a Penang plant in Jack's letters (p. 175).

CAMPANULACEAE.

Lobelia sp. is mentioned in Jack's letters (p. 156), as having been found on Gunong Bengkok.

Pentaphragma begoniaefolium, Wall., was obtained by Jack in Penang, and described in the Malay. Misc. i. No. 1, p. 5 as *Phytanma begoniaefolium*. It is mentioned in his letters (p. 165).

VACCINIACEAE.

Vaccinium sumatranum, Jack, described in the Malay. Misc. ii. No. 7, p. 18 was obtained from the summit of Gunong Bengkok. It is mentioned in his letters (p. 234).

ERICACEAE.

Rhododendron malayanum, Jack was described in the Malay. Misc. ii. No. 7, p. 17, from the summit of Gunong Bengkok and is mentioned in his letters (p. 234).

EPACRIDACEAE.

Leucopogon malayanus, Jack, was described in the Malay. Misc. i. No. 5, p. 26, from Singapore: and it is mentioned under the name of *Styphelia* in his letters (pp. 218 and 219).

MYRSINACEAE.

Embelia canescens, Jack, was described in Carey's and Wallich's revision of Roxburgh's Flora Indica ii. p. 292 from Penang and the specimens became No. 2311 of Wallich's Catalogue.

Ardisia divergens, Roxb., is mentioned as a Penang plant in Jack's letters (196) and is the *A. punctata* of Jack in Carey and Wallich's revision of Roxburgh's Flora Indica ii. p. 275.

Ardisia javanica, A.DC., (*A. humilis*, Vahl) is mentioned in Jack's letters as a Penang plant (p. 175) under the name of *Ardisia umbellata* of Roxb., and on p. 178 as a Singapore plant.

Aegiceras majus, Gaertn., is mentioned as a Penang plant in Jack's letters (p. 190).

SAPOTACEAE.

Sideroxylon sp. Jack informed Wallich (letters p. 222) that he had found the Australian *Sersalisia obovata* on the west coast of Sumatra: but this must have been a mistake, some Malayan *Sideroxylon* deceiving him.

Mimusops sp. Under the name of *M. Kauki*, Jack recorded the finding of a *Mimusops* in Penang (letters p. 153).

STYRACEAE.

Styrax Benzoin, Dryand., the source of Gum Benjamin, is mentioned in Jack's letters (p. 198) as a plant of the country behind Tapanuli, Sumatra.

Styrax serrulatum, Roxb., was collected in Penang by Jack whose specimens were distributed under No. 4401 of Wallich's Catalogue with the name *S. Porterianum*.

OLEACEAE.

Schrebera swietenoides, Roxb., is mentioned as thought to be a plant of Mansilar, towards Tapanuli, Sumatra, in Jack's letters (p. 198).

Linoceira purpurea, Vahl., is the *L. odorata* which Jack described in the Malay. Misc. ii. No. 7, p. 96 from Natal and Pulau Mosella.

APOCYNACEAE.

Leuconotis anceps, Jack, was described in the Trans. Linn. Soc. xiv. p. 121 from Sumatra.

Rauwolfia sumatrana, Jack, was described in the Malay. Misc. i. No. 5, p. 22 from Bencoolen, and finds a passing mention in his letters (p. 218).

Tabernaemontana macrocarpa, Jack, was described in the Malay. Misc. ii. No. 7, p. 80, from the country behind Bencoolen.

Wrightia dubia, Spring., was found by Jack in Penang (letters 195) and apparently again at Bencoolen (letters p. 218). Wallich distributed Jack's specimens from Penang under the number 1643 of his Catalogue and with the name *Strophanthus Jackianus*.

Marsdenia volubilis, T. Cooke (*Dregea volubilis*, Benth.), is mentioned in Jack's letters (p. 222) as a Sumatran plant under the name of *Hoya viridiflora*, R. Br.

***Hoya* spp.** Two Sumatran species of "Hoya" are mentioned in Jack's letters (pp. 222 and 225) as *Hoya grandiflora* and *Hoya gracilis*. It cannot be that the first named is *Tylophora grandiflora* R. Br., for Jack's description does not fit that Australian plant, although Jack seems to have thought that it did.

LOGANIACEAE.

Fagraea auriculata, Jack, considerably interested Jack on account of the great size of its flowers: he described it in Malay. Misc. ii. No. 7, p. 82, from Singapore and Tapanuli, Sumatra: and in his letters he mentioned it several times, firstly (p. 178) its discovery, then the despatch of notes on it to Wallich (p. 215) and lastly (p. 226) its occurrence at Tapanuli.

Fagraea carnosae, Jack, was described in the Malaya. Misc. ii. No. 7, p. 81, from Bencoolen.

Fagraea fragrans, Roxb., was found in an old garden at Penang, and on the Kedah shore (letters pp. 178 and 215).

Fagraea obovata, Wall., was found at Singapore (letters p. 195).

Fagraea racemosa, Jack, must have been found on the Sumatran coast (letters p. 215) already when he got it on Pulau Nias (letters p. 226). It was described in Carey's and Wallich's revision of Roxburgh's *Flora Indica*, ii. p. 35. As Jack states in the *Malav. Misc.* ii. No. 7, that his total of species of *Fagraea* was five, the other references to the genus in his letters must refer to some of the above.

CONVOLVULACEAE.

Neuropeltis racemosa, Wall., is mentioned as a Penang plant in Jack's letters (pp. 166 and 216).

BORAGINACEAE.

Cordia subcordata, Lamk., is mentioned as a Singapore plant in Jack's letters (p. 179).

SOLANACEAE.

Datura arborea, Linn., a South American plant is mentioned in Jack's letters as at Bencoolen, where doubtless it was in cultivation (letters p. 217).

GESNERACEAE.

Aeschynanthus grandiflora, Spreng. Jack (letters p. 228) says that he obtained *Incarvillea parasitica*, Roxb. at Bencoolen: but in his published writings he does not refer to it; and consequently it may be assumed that he had realised some difference between his plant and Roxburgh's.

Aeschynanthus volubilis, Jack, was described as a plant of Bencoolen in the *Trans. Linn. Soc.* xiv. p. 42. Perhaps it is the plant mentioned in his letters (p. 237).

Aeschynanthus radicans, Jack, was described as a plant found in the interior of Sumatra, *Trans. Linn. Soc.* xiv. p. 43.

Didymocarpus reptans, Jack, was described from Penang in the *Malav. Misc.* i. No. 5, p. 3, and in *Trans. Linn. Soc.* xiv. p. 35. It may be the plant referred to in letters (p. 162). In the *Trans. Linn. Soc.* xiv. p. 35 the locality given, is "with the proceeding," which is *D. racemosa* from Tapanuli; but this Tapanuli plant is an intercalation, and the "proceeding" intended is *D. crinita*, which is a Penang plant.

Didymocarpus crinita, Jack, was described from Penang in Malay. Misc. i. No. 5, p. 4, and in Trans. Linn. Soc. xiv, p. 33.

Didymocarpus racemosa, Jack, was described from Tapanuli in the Trans. Linn. Soc. xiv, p. 34. It is mentioned in his letters (p. 228).

Didymocarpus corniculata, Jack, was described from Tapanuli, Sumatra, in the Malay. Misc. i. No. 5, p. 5 and the Trans. Linn. Soc. xiv, p. 36. It is mentioned in his letters (p. 199).

Chirita Horsfieldii, R. Br., was described by Jack from Sumatra in the Trans. Linn. Soc. xiv, p. 38 as *Didymocarpus barbata*. It is mentioned in his letters (p. 228) in such a way as to show that he got it about the time of his visit to Pulau Nias and probably he had found it at more than one of the Sumatran ports at which he touched on his journey thither.

Didissandra frutescens, C. B. Clarke, was described from Penang in the Malay. Misc. i. No. 5, p. 5 and the Trans. Linn. Soc. xiv, p. 39 as *Didymocarpus frutescens*. He mentions it in his letters (p. 199) but only in reference to a drawing which he wished to publish.

Didissandra elongata, C. B. Clarke, was described as *Didymocarpus elongata* in the Trans. Linn. Soc. xiv, p. 37 from Pulau Buntang off the west coast of Sumatra. He mentions it in his letters (pp. 221 and 228).

Loxonia acuminata, R. Br., is the *Loxonia hirsuta* of Jack described in the Trans. Linn. Soc. xiv, p. 41 as well as the *L. discolor* of the same publication p. 40, both from the interior of Bencoolen.

Cyrtandra aurea, Jack, was described from Gunong Bengkok in the Trans. Linn. Soc. xiv, p. 29.

Cyrtandra frutescens, Jack, was described from Malaya without nearer locality in the Trans. Linn. Soc. xiv, p. 31.

Cyrtandra rubiginosa, Jack, was described from Malaya without nearer locality in the Trans. Linn. Soc. xiv, p. 32.

Cyrtandra bicolor, Jack, was described from Sumatra in the Trans. Linn. Soc. xiv, p. 27.

Cyrtandra incompta, Jack, was described from Sumatra in the Trans. Linn. Soc. xiv, p. 29.

Cyrtandra maculata, Jack, was described from Sumatra in the Trans. Linn. Soc. xiv, p. 26.

Cyrtandra peltata, Jack, was described from Sumatra in Trans. Linn. Soc. xiv, p. 36.

Cyrtandra carnososa, Jack, was described in the Trans. Linn. Soc. xiv, p. 30, without indication of its locality.

Cyrtandra hirsuta, Jack, was described from Sumatra in Trans. Linn. Soc. xiv, p. 27.

Cyrtandra glabra, Jack, was described from Bencoolen in Trans. Linn. Soc. xiv, p. 28.

Cyrtandra macrophylla, Jack, was described from the interior of Sumatra in Trans. Linn. Soc. xiv, p. 25.

ACANTHACEAE.

Acanthus ilicifolius, Linn., is mentioned as a Penang plant in Jack's letters (p. 155).

Acanthus ebracteatus, Vahl, is mentioned along with the last as a Penang plant (letters p. 155).

VERBENACEAE.

Callicarpa longifolia, Lamk., was distributed by Wallich under No. 1835 of his Catalogue as from Jack collected in Acheen.

Callicarpa arborea, Roxb., is mentioned by Jack in his letters (p. 225) as a plant found on Pulau Nias.

Gmelina villosa, Roxb., was described by Jack as a Sumatran plant in Malay. Misc. i. No. 1, p. 18.

Gmelina sp. is mentioned in Jack's letters as a plant of Acheen (p. 174).

Vitex pubescens, Vahl (*V. arborea*, Roxb.), was described by Jack as a Sumatran plant in Malay. Misc. i. No. 1, p. 18.

Clerodendron penduliflorum, Wall., is the plant of Penang and Acheen which Jack in the Malay. Misc. i. No. 1, p. 17, called *C. nutans*. It is mentioned in his letters (pp. 163, 165, and 174).

Clerodendron villosum, Blume, was described by Jack from Penang and Sumatra as *C. molle*, in Malay. Misc. i. No. 1, p. 15.

Clerodendron neriifolium, Wall., is mentioned in Jack's letters (p. 190) as a plant of Penang.

Clerodendron serratum, Spreng., was described in the Malay. Misc. i. No. 5, p. 48, as *C. divaricatum*, a plant obtained at Lave and elsewhere in western Sumatra.

Clerodendron paniculatum, Linn., was described by Jack as *C. pyramidale*, a plant of Acheen and elsewhere in Sumatra, (Malay. Misc. i. No. 1, p. 16).

Peronema canescens, Jack, was described in Malay. Misc. ii. No. 7, p. 46 from Sumatra.

Sphenodesme pentandra, Jack was described from Penang in Malay. Misc. i. No. 1, p. 19; and it seems that this is the plant referred to in one of Jack's letters (p. 184). On

Jack's specimens Wallich founded *Congea Jackiana*, a name to be found in his Catalogue No. 1735.

***Avicennia* sp.** An *Avicennia* is mentioned under the name of *A. resinifera*, in Jack's letters (p. 220) as occurring at Bencoolen; and mentioned again under his description of *Pyrranthus*.

LABIATAE.

***Ocimum Basilicum*, Linn.,** was recorded as collected by Jack at Penang in Wallich's *Plantae Asiaticae Rariores* ii. p. 13, and occurs in Wallich's Catalogue as No. 2713. Sir David Prain's remarks (Journ. Asiatic Soc. Bengal, lxxiv. p. 702) may be referred to as showing that Wallich's 2713, is something unusual.

NEPENTHACEAE.

***Nepenthes ampullaria*, Jack,** was brought to Jack from Singapore by Raffles (letters p. 163), and then was found by Jack himself in the same place (letters p. 178) and also at Rhio. Jack put a description into print but did not publish it: it would have formed part of his third paper in the Malayan Miscellanies, had he not withdrawn it. Sir William Hooker in 1835 reprinted and published this description in the Companion to the Botanical Magazine, i. p. 271.

***Nepenthes Rafflesiana*, Jack,** was likewise collected in Singapore first by Raffles (letters p. 163), and then again by Jack (letters p. 178). Jack's description was similarly put into print but withdrawn from his third paper in the Malayan Miscellanies; and similarly also published by Sir William Hooker in 1835 in the Companion to the Botanical Magazine, i. p. 270.

***Nepenthes phyllamphora*, Willd.,** was obtained by Jack, in Bencoolen, and other parts of western Sumatra: he mentions finding it at Bencoolen in his letters (p. 186). He described it in print for the third paper of his Descriptions of Malayan Plants and the reprinting and publishing were done in 1835 by Sir William Hooker in the Companion to the Botanical Magazine i. p. 271.

***Nepenthes gracilis*, Korth,** is assuredly the *N. distillatoria* of Jack, described very briefly along with the last from Singapore and Malacca. It is possible that Raffles first got it in Singapore (letters p. 163). Macfarlane, in *Das Pflanzenreich*, iv. No. 111, p. 59, quotes a specimen collected by Jack.

CYTINACEAE.

***Rafflesia Arnoldi*, R. Br.,** was found first by Raffles and Arnold, before Jack joined the service at Bencoolen. Jack, later found it to be by no means rare in the country behind

(letters pp. 203, 204, 208 and 209). He drew up a very careful description of it under the name of *Rafflesia Titan*, and put it into print along with other material for the third of his Descriptions of Malayan Plants, but withdrew it as Robert Brown had prepared a description under the name of *Rafflesia Arnoldi*. Jack's description was published by Sir William Hooker in the companion to the Botanical Magazine in 1835, vol. i.

ARISTOLOCHIACEAE.

Aristolochia hastata, Jack, was described from Natal, Sumatra, in the Malay. Misc. ii. No. 7, p. 6.

MYRISTICACEAE.

Myristica fragrans, Houtt., the nutmeg, is mentioned in Jack's letters, both its cultivation in Penang (p. 152) and in Bencoolen (p. 183).

Knema glaucescens, Jack, was described in the Malay. Misc. ii. No. 7, p. 35.

LAURACEAE.

Dehaasia microcarpa, Blume, probably is the *Laurus incrassata* mentioned in Jack's letters (p. 230) and described in the Malay. Misc. ii. No. 7, p. 33, as from Natal, Sumatra. The reduction depends on Wallich's authority in his Catalogue under No. 2589.

Dehaasia sp.? Another "Laurus" is mentioned by Jack as a Bencoolen plant under his description of the last.

Cinnamomum Parthenoxylon, Meissn., was described by Jack under the name of *Laurus Parthenoxylon* in Malay. Misc. i. No. 5, p. 28, from Sumatra, and is mentioned in his letters (p. 203).

Tetracera arborescens, Jack, was described from Tapanuli, Sumatra, in the Malay. Misc. i. No. 5, p. 45.

Litsea cordata, Hook. f., was described by Jack from Sumatra under the name of *Tetranthera cordata* in the Malay. Misc. ii. No. 7, p. 34.

PROTEACEAE.

Helicia attenuata, Blume, was described as *Rhopala attenuata* in the Malay. Misc. i. No. 5, p. 10 from Penang and the specimens were distributed as No. 1040 of Wallich's Catalogue.

Helicia petiolaris, Benn., was described in the Malay. Misc. i. No. 5, p. 10 as *Rhopala moloecana*, and the specimens were distributed as No. 1041 of Wallich's Catalogue.

Helicia serrata, Blume, (*Rhopala serrata*, R. Br.) is thought to have been the plant collected by Raffles on his journey to Menangkabau, which is mentioned in Jack's letters (p. 185).

Helicia ovata, Benn., was described by Jack in the Malay. Misc. ii. No. 7, p. 95 as *Rhopala ovata* from Tapanuli, Sumatra.

***Helicia* spp.** Jack in his letters (p. 226) mentions the finding of two species of *Rhopala* on Pulau Nias.

THYMELAEACEAE.

Phaleria capitata, Jack, was described in the Malay. Misc. ii. No. 7, p. 59 from Sumatra.

LORANTHACEAE.

Loranthus ferrugineus, Roxb., was found by Jack in Penang (letters p. 153), and again in Sumatra (letters p. 235). He described it in Malay. Misc. i. No. 1, p. 9 from Sumatra, and also for Wallich (vide Carey's and Wallich's revision of Roxburgh's Flora Indica, ii. p. 267).

Loranthus retusus, Jack (*Elytranthe retusa*, G. Don.) was described in Carey's and Wallich's revision of Roxburgh's Flora Indica, ii. p. 212, from Singapore.

Loranthus coccineus, Jack, was found in Singapore, (letters p. 119) and described in the Malay. Misc. i. No. 1, p. 8.

Loranthus cylindricus, Jack, was described in Carey's and Wallich's revision of Roxburgh's Flora Indica ii. p. 213, from Sumatra. It is mentioned in the letters (p. 235).

Loranthus patulus, Jack, was described along with the last (p. 214), and appears to be mentioned in his letters (p. 235).

Loranthus incarnatus, Jack, was described from Pulau Nias along with the last two (p. 213).

EUPHOBIACEAE.

Cyclostemon longifolius, Blume, is mentioned as a Penang plant in Jack's letters (p. 166).

Antidesma frutescens, Jack, was described from Bencoolen in the Malay. Misc. ii. No. 7, p. 91.

Baccaurea bracteata, Muell.-Arg., is the *Picardaria dulci*, described by Jack in the Trans. Linn. Soc. xiv. p. 120 from Sumatra.

Baccaurea Motleyana, Muell.-Arg., the Rambai, is mentioned in Jack's letters as a Penang plant (p. 158).

Baccaurea malayana, Hook. f., is the *Hedyocarpus malayanus* described by Jack in the Trans. Linn. Soc. xiv. p. 118 from Sumatra.

Galearia Jackiana, R. Br., was obtained by Jack in Penang, and distributed by Wallich as No. 8585 of his Catalogue, under the name of *Limonia leptostachya*, Jack.

Aleurites triloba, Forst., is mentioned in Jack's letters (p. 159) as a Penang plant.

Trigonostemon indicus, Muell.-Arg., was described by Jack under the name of *Enchidium verticillatum* in the Malay. Misc. ii. No. 7, p. 89 from Sumatra, and is mentioned at p. 230 of the letters.

Mallotus albus, Muell.-Arg. (*Rottlera alba*, Roxb.) was described as a plant of Penang and Singapore in Malay. Misc. i. No. 1, p. 26.

URTICACEAE.

Conocephalus suaveolens, Blume, appears to be a plant mentioned in Jack's letters (p. 196) without locality—the natural inference of the reference is that he had collected it.

Ficus diversifolia, Blume, was described by Jack in Malay. Misc. ii. No. 7, p. 71 as *F. ovoides* from Singapore and from Sumatra, and also as *F. deltoides* from Sumatra.

Ficus rigida, Jack, was described in the Malay. Misc. ii. No. 7, p. 72 from Sumatra.

MYRICACEAE.

Myrica aesculenta, Buch.-Ham., is mentioned in Jack's letters (p. 196). It is a very widely distributed plant and doubtless had been obtained in Malaya by him.

CUPULIFERAE.

Pasania spicata, Oerst. (*Quercus spicata*, Smith), was described by Jack in the Malay. Misc. ii. No. 7, p. 86, as *Q. racemosa*, from Sumatra; and it is mentioned in his letters (p. 188) in a way which shows that he had got it at Bencoolen.

Quercus urceolaris, Jack, was described in the Malay. Misc. ii. No. 7, p. 87, from Sumatra.

CONIFERAE.

Dacrydium elatum, Wall., was found by Jack in Penang. It is referred to in his letters, pp. 153, 174, 177, and 179. He sent it alive to Wallich.

Podocarpus neriifolia, D. Don, was found by Jack in Singapore and is referred to in his letters (pp. 193 and 196).

Podocarpus imbricatus, Blume, was found by Jack in Penang and is referred to in his letters (p. 177).

Agathis loranthifolia, Salisb. was found by Jack in Penang, and is mentioned in his letters (p. 177).

HYDROCHARIDACEAE.

Enhalus Koenigii, Rich., was found by Jack near Bencoolen and is mentioned in his letters (p. 193).

ORCHIDACEAE.

Aerides suayissima, Lindl., may have been the plant of Penang referred to in Jack's letters (p. 174).

Anoectochilus sp.? is mentioned as a Singapore plant in Jack's letters (p. 164).

SCITAMINEAE.

Globba ciliata, Jack, was described as common in Sumatra (Malay. Misc. ii. No. 7, p. 5).

Hedychium sumatranum, Jack, was described from Salumah, west Sumatra, in the Malay. Misc. ii. No. 7, p. 1.

Amomum biflorum, Jack, was described from Penang in Malay. Misc. i. No. 1, p. 2.

Hornstedtia megalocheilos, Ridl., is probably the Penang plant to which Jack refers in his letters (p. 160) as an *Anomum*.

Zingiber gracile, Jack, was described from Penang in the Malay. Misc. i. No. 1, p. 1.

Alpinia capitellata, Jack, was described in the Malay. Misc. ii. No. 7, p. 4, from the interior behind Bencoolen. His letters (p. 234) show that he got it on his journey to Gunong Bengkok.

Alpinia elatior, Jack, was described from Pulau Nias and Ayer Bangi on the west coast of Sumatra, in the Malay. Misc. ii. No. 7, p. 2. He mentions it in his letters (p. 225).

Alpinia assimilis, K. Schum., may perhaps be the plant of Penang called by Jack in his letters (p. 160) *A. nutica*.

Alpinia sp. Jack mentions a *Hellenia* as occurring at Bencoolen (letters p. 184).

BROMELIACEAE.

Ananas sativa, Schultes f., var. *variegata*, was found by Jack to exist in Penang (letters p. 152) and it is still freely cultivated there.

AMARYLLIDACEAE.

Curculigo latifolia, Bryand., was described by Jack from Penang and Sumatra under Roxburgh's name of *C. sumatrana*, in the Malay. Misc. i. No. 1, p. 7, and it is mentioned as a

Penang plant in his letters (p. 165) as well as being beyond doubt the species with hirsute leaves found in Singapore.

Curculigo sp. Three species are mentioned in Jack's letters (p. 235) as having been found by him, but he give no value.

Pancratium amboinense, Jack (letters p. 174) cannot be precisely identified.

TACCACEAE.

Tacca cristata, Jack, was found in Penang and is mentioned in his letters as *Tacca Rafflesia* (pp. 161, 165, and 174); and later it was got in Singapore (letters p. 178). He changed the name before publishing his description so that it appears in the Malay. Misc. i. No. 5, p. 3 as *Tacca cristata*.

Tacca sp. Jack mentions in his letters (p. 228) the obtaining of another species in Sumatra.

DIOSCOREACEAE.

Dioscorea pyrifolia, Kunth, was got by Jack in Singapore and distributed by Wallich as *D. glabra*, No. 5105 of his Catalogue.

LILIACEAE.

Dracaena Jackiana, Wall., was collected by Jack in Penang and distributed by Wallich as No. 5145 of his Catalogue.

Cordyline terminalis, Kunth, was collected by Jack in Penang, and was distributed by Wallich as No. 5140 of his Catalogue.

XYRIDACEAE.

Xyris indica, Linn., is mentioned as a Singapore plant by Jack (letters p. 178); but as *X. indica* is not known to occur in Singapore whereas the very similar *X. anceps*, Lamk., does, it seems probably that Jack had the latter.

FLAGELLARIACEAE.

Susum anthelminticum, Blume, was described by Jack under the name of *Veratrum? malayanum* in Malay. Misc. i. No. 5, p. 25. He had got in Penang.

COMMELYNACEAE.

Tradescantia spp. Jack in his letters (p. 235) says that he had obtained three species.

Floscopa scandens, Lour., was collected by Jack in Penang and distributed by Wallich under his Catalogue number 5204.

PALMAE.

Corypha sp.? may perhaps be the Penang palm mentioned in his letters (p. 163).

Oncosperma filamentosum, Blume, was described by Jack under the name of *Areca bicillaria* from Sumatra and the Malay islands in Malay. Misc. ii. No. 7, p. 88.

Metroxylon Sagu, Rottb., the sago palm, interested Jack, and the description which he gave had furnished the basis for most of those of subsequent authors. Jack first found the sago palm in Penang (letters p. 166) and subsequently examined it in detail at Bencoolen (letters pp. 190 and 193). He records as localities for the tree "Sak and the Pagi islands." His description was prepared for the Malayian Miscellany, put into proof, but only published by Sir William Hooker in his Companion to the Botanical Magazine vol. 7. (1835) p. 256.

ARACEAE.

Aglaonema marantifolium, Blume, was described in the Malay. Misc. i. No. 1, p. 24, from Penang under the name of *Calla nitida*. It is mentioned in Jack's letters (p. 174).

Homalonema angustifolium, Hook. f., was described by Jack from Penang in the Malay. Misc. i. No. 1, p. 24 under the name of *Calla angustifolia*. It was mentioned in his letters (p. 174).

Homalonema humile, Hook. f., was described from Penang in the Malay. Misc. i. No. 1, p. 22 under the name of *Calla humilis*. Jack in his letters (p. 174) perhaps refers to it.

Arum sp. Jack obtained in Penang an Aroid (letters p. 174) which he refers to the genus *Arum*, not then split up as now.

Lasia aculeata, Lour., is almost certainly the plant of Penang which Jack calls in his letters (p. 154) *Pothos pinnatifida*.

VERY IMPERFECTLY KNOWN.

Cyclopyrum coriaceum, Jack in Malay. Misc. ii. No. 7, p. 65, from Bencoolen.

Ocetea spicata, Jack, in Malay. Misc. ii. No. 7, from Tapanuli, Sumatra.

**Preliminary Diagnoses of some New Species and
Subspecies of Mammals and Birds
Obtained in Korinchi, West Sumatra, Feb.—June 1914**

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The following brief diagnoses, which are merely sufficient to establish the species and subspecies, are published in advance of the detailed report on our expedition to Korinchi Peak to be issued by this society, which may possibly be somewhat delayed. In it will be found the narrative of the expedition, detailed descriptions of all new forms and a complete account of the zoological and botanical results.

MAMMALS.

ERINACEIDAE.

Hylomys parvus, sp. nov. *Type*:—Adult female (skin and skull). Federated Malay States Museums No. 576, 14, collected on Korinchi Peak, 10,000', West Sumatra, on 9th May 1914, by H. C. Robinson and C. Boden Kloss.

Characters:—Like *H. suillus*¹ but smaller, though with tail actually longer and bicolored; fur longer and less harsh and the grey of the underparts rather more pronounced. Skull more lightly built, teeth strikingly smaller.

Measurements:—Head and body, [105 av.]; tail, 25; hindfoot, 23.5 mm. Skull: greatest length, 31.2; basal length, 27.8; palatal length, 17.0; upper tooth row, 15.8; pm^1-m^1 , 6.9; breadth of palate behind canine, 4.1; zygomatic breadth, 15.6; length of mandible, 22.4 mm.

Specimens examined:—Twenty.

SCIURIDAE.

Sciurus tenuis altitudinis, subsp. nov. *Type*:—Adult male (skin and skull). Federated Malay States Museums No. 471, 14, collected at Sungei Kring, Korinchi Peak, 7,300'.

1. Mueller and Schlegel, *Verhandlungen. Naturh. Gesch. Ind. Zool.* p. 153; pl. 25, figs. 4-7; pl. 26, fig. 1 (1839-44).

West Sumatra, on 28th April 1914, by H. C. Robinson and C. Boden Kloss.

Characters:—A form of *Sc. tenuis* about the size of *Sc. t. gunong*² from the mountains of the Siamese Malay States but with much longer fur and longer and narrower nasals.

Measurements:—Head and body, 150; tail, 115; hindfoot, 36 mm. (taken in the flesh). Skull: greatest length, 40.8; condylo-basilar length, 33.2; palatilar length, 15.3; diastema, 9.1; upper molar row inclusive of *pm*¹, 7.4; median nasal length, 12.3; interorbital breadth, 12.9; zygomatic breadth, 23.5 mm.

Specimens examined:—Thirteen.

Sciurus vanakeni, sp. nov. *Type*:—Adult male (skin and skull). Federated Malay States Museums No. 650.14, collected at Barong Bharu, West side Barisan Range, Korinchi, 4,000', West Sumatra, on 4th June 1914, by H. C. Robinson and C. Boden Kloss.

Characters:—A small dark-backed member of the *Sc. lowi*³ group, with the pale colour of the under-surface reduced in extent and indistinctly margined. Skull and teeth smaller than the Bornean and allied Malay Peninsula forms.

Measurements:—Head and body, 122; tail, 57 (imperfect) normally 80-90; hind foot, 30 mm. (measured in flesh). Skull: greatest length, 34.9; condylo-basilar length, 28.1; palatilar length, 14.9; diastema, 7.8; upper molar row including *pm*¹, 5.7; median length nasals, 9.7; interorbital breadth, 10.5; zygomatic breadth, 19.2 mm.

Specimens examined:—Thirteen.

MURIDAE.

Oromys, gen. nov.

External form as in *Epinomys*, tail not shorter than head and body. Fur dense and long, interspersed with longer very slender spines. Hindfoot with fifth toe reaching beyond the middle of the basal phalanx of the fourth; six distinct elevated plantar pads. Seven palatal ridges, the last four divided mesially.

Skull slender, narrow and tapering; zygomata much compressed anteriorly; no masseteric knob present at the base as in *Mus*; lateral profile of rostrum straight; posterior terminations of premaxillae very oblique; interorbital breadth great; no supraorbital or parietal ridges; interparietal transversely long and narrow, front and back edges almost parallel.

2. Robinson and Kloss, *Journ. Fed. Malay States Mus.* v, p. 119 (1914).

3. Thomas, *Ann. and Mag. Nat. Hist.* (6) ix, p. 253 (1892).

Palatal foramina long and narrow: interpterygoid space narrow, with almost parallel sides, not wider anteriorly. Bullae moderately dilated (as in the *Epimys whiteheadi* group). Ascending ramus of mandible very low, coronal process much reduced.

Bevelled edge of incisors notched and proportions of molars as in *Mus*, but the structure more nearly as in *Epimys*, though the transverse laminae are slightly more curved and the anterior cusp of the first lower molar situated more on the inner side of the tooth. Combined length of the second and third upper molars about three-fourths that of the first. Upper incisors scarcely curved, lower very long and slender.

Type:—*Oromys crociduroides*, sp. nov.

Oromys crociduroides, sp. nov. *Type*:—Adult female (skin and skull), Federated Malay States Museums, No. 511/14, collected on Korinchi Peak, 10,000'. West Sumatra, on the 8th April 1914, by H. C. Robinson and C. Boden Kloss.

Characters:—A small, thickly-furred, dark-coloured rat, belly slightly paler than, and not sharply differentiated from, the sides. Tail longer than head and body.

Measurements:—Head and body, 103; tail, 133; hindfoot, 22 mm. (measured in flesh). Skull: greatest length, 27.7; condylo-basilar length, 25.7; diastema, 9.8; upper molar row, 4.1; length of palatal foramina, 5.0; median nasal length 11.7; breadth of nasals, 2.7; zygomatic breadth, 12.9 mm.

Specimens examined:—Thirty-five.

Epimys setiger, sp. nov. *Type*:—Adult female (skin and skull) Federated Malay States Museums, No. 626/14, collected at Barong Bharu, West side Barisan Range, Korinchi, 4,000'. West Sumatra, on 11th June 1914, by H. C. Robinson and C. Boden Kloss.

Characters:—Like *E. ciliata* (Bonhote)⁴ but with underparts chalk-white instead of ivory-white; tail and feet longer. Skull with shorter nasals, larger teeth and longer palatal foramina.

Measurements:—Head and body, 290; tail, 352; hindfoot, 56 mm. (measured in flesh). Skull: greatest length, 60.6; condylo-basilar length, 52.0; diastema, 15.9; upper molar row, 11.3; length of palatal foramina, 9.7; median length of nasals, 22.0; breadth of nasals, 7.0; zygomatic breadth, 26.8 mm.

Specimens examined:—Two.

4. *Mus ciliata*, Bonhote, P. Z. S. 1900, p. 879, pl. LVI.

Epimys ululans, sp. nov. *Type*:—Adult male (skin and skull), Federated Malay States Museums, No. 233 14, collected at Siolak Dras, Korinchi Valley, 3,100', West Sumatra, on 17th March 1914, by H. C. Robinson and C. Boden Kloss.

Characters:—Externally closely resembling *Epimys vociferans* (Miller)⁵ with bicolor tail; but skull with interpterygoid space narrower and parallel-sided, the pterygoids less prominent and projecting and the palatal foramina narrower, the upper tooth row shorter and not diverging posteriorly to the same extent.

Measurements:—Head and body, 237; tail, 253; hindfoot, 45 mm. (measured in flesh). Skull: greatest length, 53.5; condylo-basilar length, 46.1; diastema, 14.1; upper molar row, 9.8; length of palatal foramina, 7.7; median nasal length, 20.5; breadth of nasals, 6.1; zygomatic breadth, 24.7 mm.

Specimens examined:—The type.

Epimys similis, sp. nov. *Type*:—Adult female with worn teeth (skin and skull), Federated Malay States Museums, No. 285 14, collected at Siolak Dras, Korinchi Valley, 3,100', West Sumatra, on 27th March 1914, by H. C. Robinson and C. Boden Kloss.

Characters:—Resembles *E. pellar* (Miller)⁶ of the Malay Peninsula but has the colour of the upper parts extending over the inner side of the fore-limbs and thighs, cutting off the white of the abdomen from the extremities. Skull narrower and less robust.

Measurements:—Head and body, 186; tail, 183; hindfoot, 37.5 mm. (measured in flesh). Skull: greatest length, 43.3; condylo-basilar length, 36.5; diastema, 12.3; upper molar row, 6.9; length of palatal foramina, 6.0; median nasal length, 17.2; breadth of nasals, 4.0; zygomatic breadth, 18.0 mm.

Specimens examined:—Five.

Epimys ravus, sp. nov. *Type*:—Adult (aged) male (skin and skull) Federated Malay States Museums, No. 422 15, collected at Sungei Kumbang, Korinchi, 4,700', West Sumatra, on 20th April 1914, by H. C. Robinson and C. Boden Kloss.

Characters:—Like *E. catellifer* (Miller)⁷ with comparatively slender dorsal spines but tail more markedly bicolor; tail and feet longer; no buffy abdominal markings.

5. *Mus vociferans*, Miller, *Proc. Biol. Soc. Washington*, xiii, p. 138, pls. 3, 4, fig. 3 (1900).

6. *Mus pellar*, Miller, *Proc. Biol. Soc. Washington*, xii, p. 147 (1900).

7. *Mus catellifer*, Miller, *Proc. U. S. Nat. Mus.*, xxvi, p. 464 (1903).

Measurements:—Head and body, 192; tail, 202; hindfoot, 43 mm. (measured in flesh). Skull: greatest length, 48.0; condylo-basilar length, 39.5; diastema, 13.0; upper molar row, 6.8; length of palatal foramina, 6.5; median length of nasals, 18.6; breadth of nasals, 4.9; zygomatic breadth, 21.0 mm.

Specimens examined:—Twenty-four.

Epimys inflatus, sp. nov. *Type*:—Adult female (skin and skull) Federated Malay States Museums, No. 323 14, collected at Sungei Kumbang, Korinchi, 4,700', West Sumatra, on 2nd April 1914, by H. C. Robinson and C. Boden Kloss.

Characters:—A tawny spinous-backed rat with a bicolored tail and sullied under-surface, having a superficial resemblance to the rats of the *rajah-surifer* group; skull closely resembling these but with a pronounced swelling on the sides of the rostrum immediately in front of the infraorbital plate.

Measurements:—Head and body, 200; tail, 155; hindfoot, 40 mm. (measured in flesh). Skull: greatest length, 46.6; condylo-basilar length, 39.3; diastema, 13.4; upper molar row, 6.5; length of palatal foramina, 8.2; median nasal length, 19.1; breadth of nasals, 5.3; zygomatic breadth, 20.3; breadth of rostrum across swellings, 11.0 (in a specimen of *E. surifer* of equal size, 8.0 mm.).

Specimens examined:—Twenty.

Epimys fraternus, sp. nov. *Type*:—Adult male (skin and skull), Federated Malay States Museums, No. 387 14, collected at Sungei Kumbang, Korinchi, 4,700', West Sumatra on 13th April 1914, by H. C. Robinson and C. Boden Kloss.

Characters:—Rather darker above than *E. orbis*, Robinson and Kloss,⁸ of the Siamese Malay States with the dark tips of the spines more exposed and having below an ochraceous-tawny patch on the chest, which is always lacking in Malayan animals.

Measurements:—Head and body, 162; tail, 231; hindfoot, 32.5 mm. Skull: greatest length, 40.6; condylo-basilar length, 33.5; diastema, 10.2; upper molar series, 6.9; length of palatal foramina, 6.4; median nasal length, 16.4; breadth of nasals, 4.6; zygomatic breadth, 11.2 mm.

Specimens examined:—Thirty-four.

Epimys hylomyoides, sp. nov. *Type*:—Aged male (skin and skull), Federated Malay States Museums, No. 440 14, collected at Sungei Kring, Korinchi Peak, 7,300', West Sumatra, on 26th April 1914, by H. C. Robinson and C. Boden Kloss.

8. *Ann. and Mag. Nat. Hist.* (8) xiii, p. 228 (1914).

Characters:—A small concolorous rat with a bicolored tail; base of pelage throughout dark neutral grey, the fur long and soft, thickly beset on the back with long, slender, pliable spines. Tail almost the same length as the head and body.

Measurements:—Head and body 126; tail, 126; hind-foot, 27 mm. (measured in the flesh). Skull: greatest length, 34.4; condylo-basilar length, 28.8; diastema, 8.3; upper molar row, 6.9; length of palatal foramina, 4.5; median nasal length, 12.9; breadth of nasals, 3.2; zygomatic breadth, 14.9 mm.

Specimens examined:—Fifteen.

Epimys stragulum, sp. nov. *Type*:—Adult male (skin and skull), Federated Malay States Museums, No. 482 14, collected at Sungai Kring, Kornehi Peak, 1300', West Sumatra, on 30th April 1914, by H. C. Robinson and C. Boden Kloss.

Characters:—A species of the *concolor-ephippium* group but with the pelage long and soft, beset with a number of slender, long, hardly distinguishable spines, with dark tips and whitish centres. Skull and teeth like those of *E. ephippium* but with the bullae smaller and the posterior termination of the nasals a little narrower.

Measurements:—Head and body, 109; tail, 136; hind-foot, 23 (measured in flesh). Skull: greatest length, 30.0; condylo-basilar length, 25.0; diastema, 7.1; upper molar row, 5.0; length of palatal foramina, 5.2; median nasal length, 10.7; breadth of nasals, 3.0; zygomatic breadth, 14.3 mm.

Specimens examined:—Ten.

Epimys rattus argentiventer subsp. nov. *Type*:—Adult male with worn teeth (skin and skull), Federated Malay States Museums, No. 602 14, collected at Pasir Gantung, coast of West Sumatra, Lat. 2° 1' S., on 20th June 1914, by H. C. Robinson and C. Boden Kloss.

Characters:—Like *E. r. neglectus* (Jent.)¹⁰ but with the annulations of the fur of the upper parts coarser and less ochraceous and with the underparts silver-grey throughout. Tail shorter than head and body. Skull with larger bullae, palatal foramina and teeth.

Measurements:—Head and body, 181; tail, 173; hind-foot, 32 mm. Skull: greatest length, 41.0; condylo-basilar length, 36.2; diastema, 11.0; upper molar row, 7.9; length of palatal foramina, 8.5; median nasal length, 14.7; breadth of nasals, 4.2; zygomatic breadth, 19.8 mm.

Specimens examined:—One, the type.

9. *Mus ephippium*, *Jentink, Notes London Museum*, ii, p. 15 (1880).

10. *Mus neglectus*, *Jentink, Notes London Museum*, ii, p. 14 (1880).

Epimys korinchi, sp. nov. *Type*:—Adult female (skin and skull), Federated Malay States Museums, No. 442 14, collected at Sungei Kring, Korinchi Peak, 7,300', West Sumatra, on 26th April 1914, by H. C. Robinson and C. Boden Kloss.

Characters:—Like *E. bahnensis* (Thomas)¹¹ with long, soft and spineless fur, beset on the upper surface with numerous longer piles; but with longer tail and paler underparts; nasals broader, but bullae much smaller; teeth considerably larger.

Measurements:—Head and body, 166; tail, 224; hindfoot, 34; ear, 23 mm. (measured in flesh). Skull: greatest length, 41.9; conylo-basilar length, 35.5; diastema, 10.9; upper molar series, 7.9; length of palatal foramina, 8.2; median nasal length, 15.3; breadth of nasals, 4.9; zygomatic breadth, 19.0 mm.

Specimens examined:—The type and an immature female.

Epimys muelleri campus, subsp. nov. *Type*:—Adult female (skin and skull) Federated Malay States Museums No. 586 14, collected at Pasir Ganting, coast of West Sumatra, Lat. 2° 1' S., on 18th June 1914, by H. C. Robinson and C. Boden Kloss.

Characters:—Like the typical *E. muelleri*,¹² but with the buff element in the upper pelage a little richer in tone; rostrum decidedly broader, zygomatic width greater and the bullae a little larger.

Measurements:—Head and body, 214; tail, 256; hindfoot, 44 mm. (measured in flesh). Skull: greatest length, 53.1; condylo-basilar length, 46.0; diastema, 14.2; upper molar row, 9.2; length of palatal foramina, 8.6; median nasal length, 22.0; breadth of nasals, 6.0; zygomatic breadth, 26.6 mm.

Specimens examined:—Three.

BIRDS.

STRIGIDAE.

Pisorhina vandewateri, sp. nov. A small species of owl, with the bill clear yellow, tarsi partially bare for one third their length in front, post-cervical collar strongly marked. A member of the group in which is included *Heteroscops luciae*¹³ of Borneo, *Heteroscops vulpes*¹⁴ of the Malay Peninsula and

11. *Mus bahnensis*, Thomas, *Ann. and Mag. Nat. Hist.* (6) xiv, p. 458 (1894).

12. *Mus muelleri*, Jentink, *Notes Leyden Museum*, ii, p. 16 (1880).

13. *Scops luciae*, Sharpe, *Ibis*, 1888, p. 478; *id. op. cit.* 1889, p. 77, Pl. III.

14. *Heteroscops vulpes*, Ogilby Grant, *Bull. Brit. Orn. Club*, xix, p. 11 (1906).

*Scops rufescens*¹⁵ from the same general region. From the latter it can be separated by its strongly mottled undersurface and from the two former by its strongly marked collar and much darker general tone. The characters of the facial plumes are similar to those of *H. luciae*.

Type:—Adult female, No. 1697, collected on Korinchi Peak, at 7,300 feet, West Sumatra, on April 23rd 1914, by H. C. Robinson and C. Boden Kloss.

Specimens examined:—One, the type.

EURYLAEMIDAE.

Serilophus lunatus intensus, subsp. nov. Differs from the Malay Peninsula form *Serilophus lunatus rothschildi*, in the same way as that does from the typical race from Tenasserim. General colour of the mantle and the chestnut of the inner secondaries and rump very much richer in tone, and under surface a darker grey. Greyish white of the crown, stopping somewhat abruptly at the level of the eyes and the ear-coverts washed with clay brown as in the typical race and not so grey as in *S. l. rothschildi*.¹⁶

Dimensions:—6 ♂. Total length, 167-177; wing, 80-86; tail, 66-70; tarsus, 17.5-19; bill from gape, 20.5-22.5 mm. (measured in the flesh). 4 ♀. Total length, 165-178; wing, 78-87; tail, 67-69; tarsus, 18.5-20.5; bill from gape, 20.5-22.5 mm. (measured in flesh).

Types:—Male No. 256; female No. 36; collected at Siolak Dras, Korinchi Valley, 3,100 feet, West Sumatra, on 19th and 24th March 1914, by H. C. Robinson and C. Boden Kloss.

Specimens examined:—Ten.

TIMELIIDAE.

Turdinulus epilepidotus dilutus, subsp. nov. Differs from *T. epilepidotus*¹⁷ from Java in being considerably lighter (less blackish) above and in having the feathers of the throat more decidedly tipped with black, those of the Javan form being almost immaculate in the centre of the throat. Dimensions slightly different from those of the Javan bird, the tail and tarsus being slightly longer and the bill decidedly shorter.

Dimensions:—Of type: Total length, 110; wing, 57; tail, 36; tarsus, 23; bill from gape, 19 mm. Range of eight adult males. Total length, 108-120; wing, 55-58; tail 36-40; bill from gape, 17-19; tarsus 22.5-27 mm. Range of six Javan specimens. Total length, 116-125; wing, 52-59; tail, 31-35;

15. *Strix rufescens*, *Horsfield, Trans. Linn. Soc.*, xiii, p. 140 (1820).

16. *Serilophus rothschildi*, *Hartest, Bull. Brit. Orn. Club*, vii, p. 50 (1908).

17. *Myiothera epilepidota*, *Temminck, Pl. Col.* ii, pl. 448, fig. 2 (1827).

bill from gape, 19.5-21; tarsus, 21-24 mm. All measurements taken in the flesh.

Type:—Adult male, collected at Sungei Kumbang, Korinchi, 4,500', West Sumatra, on 13th April 1914, by H. C. Robinson and C. Boden Kloss.

Specimens examined:—Twenty-one.

TURDIDAE.

Turdus indrapuræ, sp. nov. Very closely allied to *Turdus fumidus*¹⁸ from the Gedeh Volcano, West Java, but distinguished by having the general colour of the upper parts and of the throat and upper breast dark earthy brown, distinctly paler on the cap; whereas in *T. fumidus*, the mantle is dark bronzy grey, tinged with olivaceous, with the cap blackish, distinctly darker than the rest of the upper parts. Belly and flanks earthy chestnut richer in tint than the corresponding parts of *T. fumidus*, centre of belly and anal patch whitish, under tail coverts blackish brown with narrow shaft stripes, white, tinged with buff, these shaft stripes being narrower than in *T. fumidus* but broadening to the tip.

Dimensions —Male: Total length, 242; wing, 122; tail, 110; tarsus, 32; bill from gape 25 mm. (measured in flesh). Female: Total length, 212; wing, 122; tail, 103; tarsus, 30; bill from gape, 21 mm. (measured in flesh).

Types:—Male, No. 1196; female, No. 1214; collected on Korinchi Peak, at 10,000 feet, West Sumatra, on April 21st and April 29th 1914, by H. C. Robinson and C. Boden Kloss.

Specimens examined:—Twenty seven.

MUSCICAPIDAE.

Cryptolopha sumatrensis, sp. nov. Closely allied to *Cryptolopha grammiceps* (Strickl.)¹⁹ of Java, from which it differs in having the mantle and back clear grey, not light ashv brown and in the absence of the white on rump, which is uniform with the lower back.

Dimensions:—Male: Total length, 101; wing, 54; tail, 48; tarsus, 17.5; bill from gape, 12.5 mm. Female: Total length, 101; wing, 52; tail, 43; tarsus, 18; bill from gape, 12.5 mm. (taken in the flesh).

Types:—Male, No. 538; Female, No. 529; collected at Sungei Kumbang, Korinchi, at 4,500 feet, on 31st March and 1st April 1914, by H. C. Robinson and C. Boden Kloss.

Specimens examined:—Seventeen.

18. S. Muller, *Verh. Nat. Gesch. Ned. Ind.* p. 201 (1839).

19. *Pycnosphys grammiceps*, *Verraux, Mss.; Strickl. Contrib. Orn.* 1849 p.—, *Jardine, Memoir of Hugh Strickland*, p. 323 (1858).

Cryptolopha muelleri, sp. nov. In general appearance resembling the preceding species but differing in having the rump, sides of the body and under tail coverts bright sulphur yellow, the scapulars and lower back olive green and the outer tail feathers edged and tipped with white. In these particulars it resembles *C. castaneiceps* (Hodgs.)²⁰ of the Himalayas, from which it is separated by the cinnamon chestnut of the lores, sides of the head and ear coverts, which are white or grey in that species.

Dimensions:—Total length, 98; wing, 53; tail, 41; tarsus, 18; bill from gape, 13 mm. (in dried skin).

Type:—Adult male, No. 2088, collected at Barong Bharu, Barisan Range, 4,000 feet, West Sumatra, on June 8th 1914, by H. C. Robinson and C. Boden Kloss.

Specimens examined:—One, the type.

DICAEIDAE.

Dicaeum beccarii, sp. nov. Allied to *D. ignipectus*²¹ from the Himalayas and the Malay Peninsula, but differing in the entire absence of red in the plumage and in the reduction of the black abdominal patch, which is without gloss.

Dimensions:—Male, total length, 92; wing, 50; tail, 34; tarsus, 14; bill from gape, 10 mm. (measured in flesh).

Type:—Adult male, No. 1171, collected on Korinchi Peak, at 7,300 feet, West Sumatra, on 26th April 1914, by H. C. Robinson and C. Boden Kloss.

Specimens examined:—Three.

20. *Abornis castaneiceps*, Hodgs, in *Gray's Zool. Misc.* p. 82 (1844).

21. *Myzanthus ignipectus*, Hodgson, *Journ. Asiatic Soc. Bengal*, xx, p. 983 (1843).