

FINLAYSON GEORGE

THE MISSION TO SIAM,
AND HUÉ THE CAPITAL
OF COCHIN CHINA, IN
THE YEARS 1821-2

George Finlayson

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INTRODUCTION

In the year 1821, a mission was sent by the Governor-General of Bengal to the courts of Siam and Cochin-China, having for its object the opening of a friendly intercourse between those countries and the British possessions, and the establishment of free trade on both sides.

This mission it is well known was not attended with the success expected; little or no positive advantage was gained to our trade, but the foundation of a friendly intercourse was laid by the visit, and the knowledge procured may prepare the way for a future attempt under more favourable circumstances.

It at any rate afforded an opportunity for our obtaining much valuable information respecting countries and people, hitherto almost unknown to us, and in this respect the particulars contained in the following pages may be deemed of sufficient interest to justify their publication: they are transcribed nearly verbatim from the private journal of the late Mr. George Finlayson, who was attached to the Mission as Surgeon and naturalist, but who, unfortunately for his friends and the cause of science, fell a sacrifice to his unwearied exertions in the performance of the service intrusted to him, and did not live to revise and arrange them himself, having died on his passage to England.

The Journal in its unfinished and rough state, with the whole of the valuable collections in natural history made by Mr. Finlayson during the course of the Mission, having been deposited in the museum of the East India company, and by the liberal arrangements of the court of directors, laid open to the inspection of those who were interested in the subject, it is now published, with the permission of Dr. Somerville, and in the simplest form practicable, it being considered that such a work can have no better recommendation than the certainty of its genuineness and authenticity.

It does not profess to afford any account of the official proceedings or conduct of the Mission, further than met the author's observation as a spectator in common with others who were present on the occasion; its object is to throw light on the country, and on the character, institutions, and habits of the people generally.

It would have been easy to have enlarged the work by the addition of notes and explanatory remarks, and at one time it was proposed to have annexed an appendix with plates, illustrative of the subjects in natural history collected during the voyage, for which the materials are considerable; but the publisher having objected to the increased expense that would in this case have been incurred, the plan was abandoned.

Partly also on this account, but more especially in consequence of its being understood that Mr. Crawford, to whom the charge of the Mission was intrusted, himself meditates a work on the subject, and as it would be treading on ground more peculiarly belonging to that gentleman, it has been deemed advisable not to enlarge, in this place, on the public objects and results of the Mission, or to enter into any general review of the state of the countries visited, or of the various interests involved, which might otherwise have been expected.

It is necessary however to say a few words respecting the lamented author.

George Finlayson was a native of Thurso, in Scotland, descended from parents in a very humble sphere of life, but most respectable in their station. He had two brothers who, like himself, died early in the career of prosperity. The circumstances under which Donald, the eldest, and subsequently George, were brought forward, were as follows: —

During the late war, when the charge of the medical department of the army in Scotland was committed to Dr. Somerville, he had occasion for the assistance of a clerk, the nature of whose duties made it desirable that he should have some knowledge of medicine, and it occurred to him that the salary of the office might furnish the means to some meritorious person of prosecuting his studies at the same time. In order to find such a person he addressed himself to Dr. Thomson, professor of surgery in the University of Edinburgh, well knowing the competence of his judgment, and his disinterested zeal in advancing modest merit; Dr. Thomson immediately named a young man who fulfilled every condition, and whose slender means arose from hours of private tuition. Donald Finlayson was accordingly sent and appointed. Assiduity in the discharge of every duty, blended with an earnest desire to please, were striking parts of his character. He was a good Greek, Latin, and French scholar, and an excellent botanist, besides being a good anatomist, and well versed in other branches of medical science. He showed an ardour in acquiring information on every subject which excited an interest in those from whom he sought it. He had enjoyed fewer opportunities of acquiring a knowledge of the world than of most subjects, and was conscious of the awkwardness resulting from this deficiency, and most anxious to remove the cause of it, in which his success was only to be explained by the thankfulness with which he received a hint upon the subject.

On completing the course of his academical studies, Dr. Somerville thought him equal to a higher situation, and advised him to go into the army, assuring him that he had been so satisfied with his services, that he should be glad if he had a brother that he might appoint to be his successor. He said his brother George, whom he had taken great pains to educate, was in every respect a more able man than he was, and therefore strongly recommended him.

George was accordingly appointed to the situation. He in every respect verified the account of his partial friend; and became so great a favourite, that he was a constant inmate in Dr. Somerville's family, and beloved by all who knew him. When his studies were finished, Dr. Somerville sent him also into the army, and it was no less gratifying to the generous feelings of that gentleman, than creditable to his discernment, to learn, that both brothers distinguished themselves by their attention to their duty and their humanity to the sick and wounded. Donald had been actively employed in the harassing engagements that preceded the battle of Waterloo, as assistant-surgeon of the 33d regiment, and also on that memorable day. On the march to Paris with his regiment, he disappeared, and it seems probable that he fell a victim to marauders then abounding in the country, from the disorganized state of the retreating army. George got leave of absence to endeavour to learn the fate of his unfortunate brother, but his efforts were unavailing as he could only hear that he had been seen exploring a cave near St. Quinten. He was so affected by this severe loss of a brother to whom he owed so much, that it was an act of humanity to get him removed from the scene of his sorrows. Sir James Macgregor, who is never wanting on such occasions, kindly and promptly acceded to Dr. Somerville's request to attach George Finlayson to the medical-staff about to proceed to Ceylon, under the direction of Dr. Farrel, than whom no one was more capable of discerning and appreciating his worth and talents.

In Ceylon Mr. Finlayson was indefatigable in the pursuit of botany and other branches of natural history, to which he devoted all the time that his laborious professional duties allowed. After a residence of some years in this island, he was removed to Bengal, having been appointed assistant-surgeon of His Majesty's 8th regiment of Light Dragoons, by the kindness of Sir James. He rejoiced to find that his regiment was doing duty near the Himalayan Mountains, as his journey would afford him an opportunity of exploring such an extent of new ground; while his residence there held out every temptation that could fascinate a mind ardent in the pursuit of natural history.

The following extract from a letter written by him to his friend and patron. Dr. Somerville, on his quitting Ceylon, explains his circumstances and prospects at that period, and throws some light on his general character and feeling.

Kandy, 6th July, 1819.

I have heard of my being appointed assistant-surgeon to the 8th Dragoons... I have received a very polite note from the director-general on the subject, to whom I am very grateful for the appointment. I could not help entertaining apprehensions lest I should revert to the rank of hospital assistant, and if I have not done so, I am persuaded it is through the representations and intercessions of yourself and Mr. Reid. I have had much reason to be satisfied with my situation in this island, and it is not without regret that I shall leave it. Through the kindness of Dr. Favell, my situation and duties have always been such as to render me perfectly contented. I have not been inattentive to your advice on a former occasion, and already, through the good management of my friends, I find myself possessed of several hundred pounds, a sum much beyond my expectations. I doubt, therefore, if my circumstances will be benefited by removing to India, where, though the pay is much greater, the mode of living is more expensive, and as second assistant I cannot expect to have the charge of the sick. However, there are other circumstances attending the change, which are of a pleasing nature. My regiment is stationed at Merut, on the frontier of the upper provinces of the Bengal Government, so that from Calcutta I shall have a journey of several thousand miles to perform, a circumstance which of itself would outweigh a host of difficulties. I am delighted with the prospect of seeing so large a portion of the globe; the journey cannot but prove interesting and, I hope, useful to me.

On the return of his regiment to Europe, he was detained for the purpose of attending the Mission to Siam and Cochin China, as medical officer and naturalist, during which his health was sacrificed at an early period by the active and severe exertions which his zeal in the pursuit of natural history induced him to make, and he lived but to reach Bengal, and embark for Europe with little or no hope of recovery. It has been already mentioned that he died on the passage home.

The following extracts from some of his later letters to Dr. Somerville will not be read without interest.

Siam, 15th June 1822.

Nearly three months have elapsed since we arrived at this place, Bangkok, the capital of Siam, and being unable to get our ship over the bar of the river, we shall probably remain as much longer. I have had but little opportunity to do any thing in any branch of natural history. The people have kept a strict watch over our actions, and their jealousy opposes an insuperable barrier to researches of that nature. We have gained some information respecting the manners of the people, their religion, &c., which may one day afford you some amusement. * * * By-the-by, what do you think of my furnishing a rapid and popular sketch of our voyage to this place and to Cochin China? Is a production of this sort calculated to excite any interest at the present time? Probably not, after all you have had of late respecting the embassy to China and the shipwreck of the *Alceste*. * * * I am not at all ambitious of becoming author, and my reason for saying this much is to know your inclinations, by which I would be guided rather than by my own.

I do not know that the political or commercial objects of our mission are of that importance to attract any share of your attention or curiosity. One might with justice say of the king of Siam, what Voltaire says of a certain king of Babylon. "Il se croit le plus grand roi de la terre, parceque tout le monde le lui dit." The celestial empire itself is but a small matter compared to his kingdom. Judge then of the notions such a personage is likely to entertain of our nation.

Our Mission, there seems great reason to fear, is destined to share the fate of the numerous attempts which have already been made to establish a friendly and

commercial intercourse with the ultra-Gangetic nations. It does not appear likely that it will effect any thing for the benefit of our commerce. When we arrived in the country we were quite ignorant of many matters, a knowledge of which would have been of the first importance in conducting affairs with such a people. Peace, for which they are more indebted to the weakness and pusillanimity of their enemies than to their own strength, had left the king, and one or two of his ministers, leisure to embark in commercial speculations. You are aware that the king is here the merchant, and almost the only one.

The success of their first attempts exceeded their expectations, and led them to think of increasing the produce of the country. Chinese emigrants were, with this view, encouraged, beyond all former example, and at this moment, they are thought to equal the natives of the country, in number. The effect was instantaneous. The produce of sugar alone, which was before totally neglected, has increased to an astonishing extent, in the course of the last ten years. It is the same with other articles of commerce, as pepper, cardamums, &c.

Not content with trading to China, the Government now wishes to see the ships of Europeans within its ports; one party in the state (that which conducts the commerce of the country) would willingly favour the trade with the latter; but another, and by far the most respectable among the King's advisers, are averse to making any alterations in established usages, though not displeased to see their country visited by European ships. As they stand at present, the regulations relating to commerce with Europeans are almost prohibitory.

It were perhaps useless to say through what causes our Mission has failed, for indeed it may be said to have done so already: I do not know that we can expect a much better reception at the court of Cochin China, to which we proceed as soon as we can leave this. As diplomatic matters have hitherto gone in this part of the world, it will perhaps be well if we come off without insult or something worse.

Off the Hooghly, Dec. 25th, 1822.

We are thus far on our return to Bengal, after an absence of more than thirteen months. I return with collections in natural history which will not, I think, disappoint the Supreme Government. I have seen much, and many interesting tribes of people; I have been much gratified; but my health is destroyed, I fear, for ever. Both my lungs and liver are in fault; I have exposed myself too much to the weather; but for my health, I had been the happiest man alive. The next two months will decide whether I shall recover or not; our cold weather is just set in, and may do me good. This is the first time I have put pen to paper for months, therefore do not expect much. I cannot say that we have gained much by negotiation; the Siamese and Cochin Chinese are a very proud people. The King of Siam gave the Mission an audience, but the King of Cochin China, contrary to the custom of his predecessors, would not receive the Envoy of the Governor-General of Bengal. It was the practice of his court, he observed, to grant audiences to the ambassadors of kings only, and that the Governor-General must address himself to his Minister. The business of the Mission was transacted with the latter. Cochin China offers to the traveller a most extraordinary spectacle; the capital, Hué, is surrounded by fortifications that would do credit to the first fortress in Europe. I have kept a journal of events, and it is of some extent; I hope it will serve to amuse my friends for an idle hour or two. If the public have any curiosity respecting the countries we have lately visited, I should not care to lay it before that awful tribunal, provided, however, that the work would gain me some little credit. In this, however, I should be guided by your opinion,

and that of your friends. I have a great horror of appearing before the public, but something not altogether uninteresting in the form of a book would be of service to me in this country, where if I get forward, it must be by my own exertions. I should be very happy to hear from you on this subject, if you think it deserves the least consideration.

Mr. Crawford means to write a book. * * * His opinion of things differs considerably from mine, for I was in fact but a mere spectator.

I have discovered some splendid new plants. What would Mr. Brown say to a plant of the Orchideous tribe, an ærides, as far as I have yet discovered, that should have a flowering spike six feet high, covered with upwards of one hundred flowers, each some inches across¹? There is not a more splendid object in vegetable nature; if less singular, it is perhaps equally deserving of admiration with the *Rafflesia*, which he has described in his usual classical style. I shall have a good many plants to send home, as well as birds and quadrupeds.

Calcutta, June 15th, 1823.

Dr. F. advises me strongly to continue in India; I see no plan so good, if my health will admit, yet I will not continue a useless burden on a Government which I have found so liberal, and if a few months' experience do not bring me about, I will give up all prospects and wait the too tedious issue of such complaints.

I have reason to fear that I have got confirmed phthisis; if I recover, my prospects will brighten: even under the worst circumstances, we may prepare for better times. If I remain, it will be greatly to my advantage to be transferred to the Company's medical service. It is nothing entering the lists with boys again.

Calcutta, June 16th.

My health has not improved since my arrival, and as if ill health were not of itself sufficient grievance, it is, I fear, destined to entail upon me the disappointment of very fair hopes. Notwithstanding the frequent interruption to my labours by ill health, the present Governor-General, Mr. Adam, has expressed himself very favourably of my exertions, and very willing to do something for me. Indeed, I am assured on very good authority, that he would immediately put me in possession of a most eligible appointment, just vacated by a friend of mine, if my health would admit of my entering upon its duties. It would be preposterous in me to expect that Government would keep this open for me. In this employment I should have been placed under the immediate control of Government, and should have no less a field than the Himalaya range for my research.

I fear I have been rather troublesome to you with my letters of late, this being the third within a very short time.

My object in writing this is to inform you that in the course of a month or so I shall be on my way to England. I have come to this resolution in consequence of my bad state of health, in which no improvement has taken place since my arrival here: if I have not yet got a confirmed phthisis, the voyage may set me up, but if I have, I shall wait my fate in some retired corner or other at home. I shall leave

¹ Ærides. Scapo simplici, foliis a radice arcte imbricatis, distichis tripedalibus, frondi similibus; foliolis ensiformibus, longissimis: floribus spicatis, alternis punctatis, magnis, speciosis; labello subcylindrico, tripartito, laminâ inferiore patente, trifida, acuminata integra, laminis superioribus in arcum supra pistillum conniventibus. The flowers diffuse the richest fragrance, the petals are waved on the margin, of a fleshy consistence, of a dark yellow colour, interspersed with iron-brown spots. The pistillum is similarly dotted; the labellum internally striated, trifid, and villous at the apex. The spike of the plant discovered contained more than one hundred flowers, the greater number of them fully expanded, each several inches in length, and as much in breadth. —*Extract from Mr. Finlayson's Botanical Journal.*

behind me some very worthy friends who have always been forward in promoting my interest, and although my regiment has gone home, I could at this moment get an appointment from Government, if my health would allow me to accept it. I have, however, determined to sacrifice every thing for the recovery of my health, feeling pretty well assured that with that I shall get through the world some how or other.

My kindest and affectionate regards to you all.

It is due to Lord Amherst to mention that on his Lordship's appointment to the Government of India, Dr. Somerville made known to him the acquirements of Mr. Finlayson, distinctly explaining that his object was not to solicit favour, but to mention that it might be a subject of regret that a person so eminently qualified by his knowledge in natural history should return to Europe with his regiment, while his abilities might be so usefully exerted in India. Lord Amherst said that it was the only application of the kind that had been made to him; he saw it in its true light, and immediately made a memorandum of the circumstance, with an assurance that he should not fail to take care of so deserving a person; and it is certain that his Lordship would have done justice to his merits, had his life been spared. But his constitution was worn out by his indefatigable exertions in those ungenial climates in which it was his lot to serve. Even before the arrival of Lord Amherst, a lucrative and honourable employment well suited to his habits and studies was offered to him by Mr. Adam, but the disease which terminated his life had already made too much progress to admit of his availing himself of the proffered patronage.

In speaking of the character of the two brothers, Dr. Somerville thus expresses himself: —

“I have seldom met with any young men more strongly impressed with the sense of rectitude than Donald and George Finlayson; their conduct was in every case regulated by a feeling of duty, and a desire to be useful to all around them, to which it would be superfluous to add how much they were esteemed, and how sincerely their premature death has been regretted.”

In reflecting on this short biographical sketch, the mind cannot fail to dwell on the bright example which it affords, that knowledge and independence are within the reach of all who will labour for them, whatever be their condition or rank in life, and that the best and only solid foundation of prosperity and esteem, is a steady adherence to the principle of rectitude.

Nothing can be more creditable than the exertions made by the father to gratify the thirst for education and knowledge evinced by his sons, unless it be exceeded by the generous and disinterested friendship of the patron. But both would have been unavailing had not the young men themselves been indefatigable in their exertions, and religiously upright and steady in their principles, conduct, and views.

Though Finlayson may not rank with a Burns, or a Leyden, in point of talent, still it is hoped there is enough in his story and writings to excite interest and attention; and that while his name may be enrolled in the long and melancholy list of those who have in early life fallen a sacrifice to their zeal and exertions in the cause of science, it may add another link to the chain which binds our affections and attachment to a land where the avenues to it are open to all, and the patronage and encouragement to worth and talent are daily advancing with the facilities of education and improvement. Let it, however, be recollected that the foundation of the education of the Finlaysons (for they were in other respects nearly self-taught) was laid at home, under the parent's eye, not in schools, nor in the knowledge of the world, but on the broad and obvious principles of religion and morality, — as simple as they are sacred, — instilled into their youthful minds with their earliest recollections, and confirmed by the pastor's authority and blessing, according to the practice in Scotland. This foundation was equal to any superstructure, and on it, as on a rock of adamant, they built their hopes, their fortunes, and their happiness, — and their reward was a feeling of content and gratitude for the unexpected benefits they enjoyed, and the esteem and respect of all who knew them.

The following observations collected from the author's loose memoranda were probably intended by him as the outline of an introduction to the publication which he projected, and may be

advantageously introduced in this place as a preface to the Journal. They will shew his turn of mind, and the objects he had in view.

In a greater or less degree, there is, perhaps, inherent in the minds of most men, a desire to visit foreign countries, – desire which neither storms nor tempests, deserts, wilds, nor precipices, with all their appalling fears, have been able to counteract or to check. Cast naked and helpless on this earth, man has aspired to scan its limits, to ascertain its bounds, and even to scrutinize its nature: he has risen superior to the contending elements, which might seem to have opposed an insuperable barrier to his restless ambition, to his ever-active, never-satisfied curiosity; and even the great globe itself no longer seems to offer a theatre too great or too extensive for the exertion of his activity.

Insatiable ambition, boundless curiosity, are to be reckoned among the more prominent of the attributes with which man is endowed. To what mighty ends have they not led? If they have brought upon him, and upon the race, unnumbered evils, they have also had their attendant good. His share of peace, perhaps of happiness, had been greater had he indulged these propensities less; but it is not in his power to resist the unalterable impulse, conferred upon him, doubtless, for the best of purposes. The *curiosity* that is gratified with inquiring into the laws implanted in organized beings, or into the general phenomena which characterize the material world at large, admits of, and is usually attended by gratification as permanent as it is unmixed; every step is attended with unalloyed pleasure, every new acquisition leads and stimulates to further discovery.

This disposition of the mind is particularly observable in those who have made nature and natural objects their study. Hence the eagerness with which men engage in them: no one capable of reflection but has at one time or other experienced this laudable curiosity, and wished for the power to gratify it. To this source we must refer the encouragement held forth in the present day to voyagers and travellers, and in general to every one engaged in matters of discovery. It is not extraordinary, therefore, that persons should readily be found eager to enter upon the investigation of new and distant countries, and of the various objects of knowledge which they contain. It is the lot of few to indulge their inclinations this way; and of these few, how scanty is the proportion of individuals qualified for the important task, either by original endowment, by previous pursuits and habits, or by the necessary education, or by a proper train and temper of mind! Fortunately, however, the objects of pursuit are as numerous as the taste of man is various, and something is left even to the most humble intentions. A proper consideration of this matter would lead to the most important acquirements both on the part of the most humbly endowed, and for the benefit of science and knowledge in general. The principle need not be enforced by argument: let us follow it, if possible, with alacrity, and make the most of the opportunities which fall in our way. Let us devote to the task those abilities, however moderate, with which the Almighty has endowed us, and we shall rarely fail altogether of deriving benefit from our exertions. We may rest secure that the labours so bestowed will seldom fail to be duly appreciated; that our observations will be received with candour, and our alignments, if urged with modesty, will rarely fail to be listened to by the circle of our friends and acquaintances, to the approbation of whom no one can be altogether indifferent. It is in this temper of mind that we may hope to avoid a two-fold evil; that of exaggerating the importance of the feeble exertions of an individual on the one hand, and of thinking too meanly of his

capacity on the other, – since both are alike hurtful, and alike oppose the acquisition of useful knowledge.

CHAPTER I

Voyage from Calcutta to Prince of Wales' Island. – Islands of Preparis, Narcondam, Seyer, and Prince of Wales.

On the 21st November we embarked on the John Adam, nearly opposite to Fort William, and dropped gradually down the river to the sand-heads. We had but one opportunity of going on shore, and this was at some distance above Sauger Island. The land was here eight or ten feet above high-water mark; soil, a very deep, black, light mould, and densely covered with low jungle. Numerous traces of deer, and one very conspicuous track of a tiger, which appeared to have been of enormous size. Carried off a species of *Boletus*, a species of *Laurus*, and one of *Calamus*.

The pilot left us, in smooth water, near to a moored ship allotted for the reception of pilots, and out of sight of land. On the following morning we sailed, with a fair and tolerably strong wind, attended with a sea sufficiently rough to occasion sickness in persons so little accustomed to this dread element. In this manner we arrived off Cape Negrais. While off this point, but still far from being within sight, our ship was visited by two or three birds, one a species of dove, the next another of the Linnæan Passeres, and a third a species of *Sterna*. The latter, as usually happens with others of the same family, either from natural stupidity or from exhaustion, allowed itself to be taken without difficulty.

December 3.— Early in the morning, the island of Preparis, the first land we had yet seen since we left the pilot, was in sight. We stood towards it with the view of landing upon it, and examining its structure; but the wind unfortunately increasing, and the windward coast being only navigable with safety with the ship, it was deemed too hazardous a task to land.

From the distance at which we viewed these islands, it was difficult to form an accurate judgment respecting their structure. The two small ones, called the Cow and Calf, at one time appeared as if they were of basaltic formation; and again as if they were merely banks of coral. Against the latter supposition, their altitude above the sea (not less perhaps than two hundred feet) might seem to militate; but this is not conclusive, especially if there be any truth in the observation, that the great basin which composes this ocean has lost much of its original altitude. It is possible that they may be composed both of basalt and coral; it is highly probable that one or other of these materials constitute their mass, and most probably the latter. The principal island is of a gently undulating shape, rising gradually from the sea, to a slight elevation, and is thickly covered with wood, and apparently tall and wide-spreading trees.

We had the more reason to regret the circumstance of our not being able to land on these islands, from their being the first in the great chain which composes the archipelago.

On the following morning at sun-rise we were within sight of Narcondam, an island apparently several miles in diameter, in form and shape a perfect specimen of the volcanic cone, which we calculated to be about two thousand five hundred feet above the sea. We were at too great a distance to entertain a hope of landing on it. This island, from its height, its solitary existence in a wide sea, and its singular and beautiful form, constitutes a very striking object.

On this occasion we endeavoured to construct an instrument for ascertaining the temperature of the sea at considerable depths, but from the imperfection of our materials, our success was but indifferent. In the only experiment that we performed, the temperature at two hundred and forty feet was $2\frac{1}{2}^{\circ}$ less than at the surface.

The variations on the barometric column we observed to be very regular, being at its greatest height about seven a.m., and lowest towards four p.m.

The weather continued agreeable; the wind steady and moderate, the N.E. monsoon having now set in steadily. Several of the natives on board had been ailing; and one, a sepoy, had a dangerous attack of cholera, but all were now sufficiently in health.

Our course now lay towards the coast, of which we soon came within sight. As we approached the western coast of this peninsula, we could not fail to be struck with the singular appearance of numerous islands, varying in dimensions, situation, and height; an appearance very different from what is observable on the opposite side of this bay, where scarce an island rises a few feet above the water, but which here being strewed over so great a space, seem to form a bulwark, or chain of protection to the continental land.

The bold and elevated ridge in the centre, with the abrupt and rugged points on their flanks, were no less striking, and appeared, even at a distance, to afford ample evidence of their primitive structure. The more elevated mountain ridges on the continent were not less bold or striking in their appearance. The general direction of these ridges, both in the islands and on the continent, is nearly north and south, inclining a little from west to east. Vegetation appears everywhere abundant; the forms principally arborescent.

On the 7th of December, being near to the Seyer Islands, in latitude $8^{\circ} 43'$ N., and longitude $97^{\circ} 48'$ E., we prepared to land on them. These islands are within sight of the continent, and distant from it about twenty-eight miles. The principal one appears to be about five miles in length, and perhaps one in breadth. It was on this that we proposed to land. As we approached in the boat, we were struck with the general silence which seemed to pervade it, a circumstance which appeared to us the more singular, as it was everywhere covered with dense woods, which might be supposed to afford nourishment and safe shelter to numerous land birds, while its rocky coast might have been alike favourable to the existence of water fowl. Scarce a bird, however, was seen to hover over the place. Neither the varied forms of an exuberant vegetation, nor the safe asylum under its peaceful shade, seemed sufficient to attract even a scanty portion of animated nature to this apparently favourable, and certainly very beautiful, spot. Is the proximity of man necessary to give to rude nature an aspect or an impulse favourable for the support of animated creation in its various forms? On this desert island, the tall trees seemed to wave their tops in vain; the more humble shrub and herb flowered unseen, their sweets apparently unappreciated. The useful and friendly palm, the luscious plantain-tree, the scented jasmine, the elegant bamboo, the nutritious yam, were here the spontaneous production of the soil; beautiful at least, and interesting in appearance, though not highly possessed of those valuable qualities, which in a domestic state man has conferred upon them by his care and industry.

As we approached the shore, we were enabled to notice the elevated and nearly perpendicular direction of the rocky mass, which, on more close inspection, was found to be composed of coarse-grained granite, for the most part of a reddish colour; but occasionally of a flesh red, and more often of a gray colour. A well defined, broad, and very white stripe, extending along the whole length of the island, a few feet above the sea, appeared to form the high-water mark. This white appearance was occasioned by a shelly incrustation.

The appearance of the rocks was, in general, very uniform. They were, as already observed, altogether granitic. The inclination of the strata was from N.E. to S.W. Though the character of this granite was extremely well defined and prominent, it yet appeared a difficult task to pronounce an opinion respecting its stratification. In one part might be seen large, perfectly homogeneous masses, fifty or sixty feet in thickness, without rent, fissure, or division, without the slightest appearance of stratification; with the solitary exception of the occasional occurrence of a seam or narrow vein of quartz, or of finer-grained granite, crossing its surface. But by far the most common appearance in this granite, was that of a tolerably uniform stratification, the strata of unequal thickness, and crossing the direction of the mountain ridge at an acute angle. These strata were again irregularly divided in most parts, so that the whole seemed to have a double stratification, or to be divided into irregular trapeziums. The granite was almost universally coarse-grained, containing chiefly quartz and feldspar, with but little mica; the crystals of feldspar varied in size from a grain to nearly an inch. This coarse-grained granite occasionally passed into one of very fine structure, and here and there into gneiss, though the latter was always of small extent. The rock was for the most part divided

into numerous sharp and needle-shaped points. Though on a lee shore, there was here a considerable surf and swell, to impede our landing. A solitary water-fowl was seen to wander from rock to rock, collecting food from the pools, which abounded with small fish. After a little care, we landed in safety on the rocks. We observed a considerable variety of corals, crabs, and shells. Of the genus *Patella*, some species were uncommonly large. Distracted with the multitude of different objects before us, rocks, crustacea, vegetables, &c., we turned from the sea-shore, and entered the forest. We had now reached the region most favourable for the production of palms, the most interesting, the most useful, the most singular of vegetable forms. We required no better proof of an intertropical climate. Three different species were already within our view; and the plants having an affinity to this family were not less numerous. The former were *Borassus flabelliformis*, *Caryota urens*, *Phoenix farinifera*. Of the latter, two species of *Pandanus*, (*odorat.* and *lævis*,) and of *Calamus* two species, were abundant. The number of plants which we observed within a small space was indeed uncommonly great. The ascent from the sea was everywhere remarkably steep and rugged; disintegrated granite, on the slope of the hills, readily yielded to the pressure of the foot; the forest was, besides, so close, as to be scarce penetrable. After we had proceeded some way through it, our notice was attracted by the chirping of numerous animals. We discovered this to proceed from a multitude of large bats, *Pteropus edulis*, suspended from a flowering specimen of *Borassus*. We brought down four of them.

Our exertions in penetrating the woods were necessarily great; the heat was excessive. In a few hours we became somewhat tired, and returned to our boat, highly gratified at the result of our excursion. To have fully investigated the botany of this little island alone, would have required not less than the period of a week. From the difficulty we experienced in getting into our boat again, the plants we had collected were nearly altogether lost; they were unfortunately tossed about in the sea for some time, and thus rendered almost useless.

On returning to the ship, we found that the captain had visited the small island opposite to us during our absence. He had not been less entertained. The confinement of a ship necessarily renders the approach of land agreeable; hence we are always delighted to set foot on shore after having been some time at sea. He landed on a sandy beach; the rocks were of similar structure to those of the larger island, but the vegetable forms were considerably different, a circumstance to be accounted for, perhaps, by his having landed on an opposite and less exposed coast. In intertropical climates, the effect of the different monsoons, even within a very narrow and circumscribed space, is very remarkable, particularly where, as in this instance, there is, as it were, a natural bulwark thrown up to shelter the respective aspects.

We continued to sail during the night with a gentle wind along the coast of Siam. In the morning, a native of Siam and a Malay were brought on board with fish from a canoe. The coast was still bold, and in many parts rocky, with very deep water. Ridges of hills, with intervening valleys and ravines, stretch in the direction of the peninsula. Vegetation appeared everywhere unbounded. A few miles to the north of the Straits of Papra, a somewhat flat table-land, many miles in extent, divides the mountains from the coast; at this place we again landed, at a rocky point, in the middle of an extensive sandy beach.

Here, as on the island, granite was alike abundant, forming mountain masses and rocky eminences: structure very similar to the former; strata more inclined from west to east; red variety of granite less frequent; now gray predominant. Here and there veins of sienite? but of small extent; also small veins of perhaps primitive trap, masses of quartz, with schorl and talc imbedded.

Palms here also of spontaneous growth. *Elate silvestris* and *Borassus caudata* of Loureiro were here common. *Bambus verticillata*, *Scævola lobelia*, a large, herbaceous plant, with fleshy leaves, not milky and singular from the lateral form of its flower; also *Euphorbia*, *Melastoma*, a Syngenesious, and a singular Papilionaceous plant, common on the shore; *Convolvulus pes capræ*, *Jasminum*, and *Justicia*. Thick, dense forest, without any trace of contiguous cultivation. A tall, slender tree, growing to the height of forty feet and upwards, possessing much of the habit and general appearance of a pine,

is found lining the sea-beach, disposed in a continued line, with the greatest regularity, and nearly at equal intervals. It here thrives well, and, from its extreme regularity, gives to the scene the appearance of a plantation. It affords shelter and protection from the sea-air to the other vegetable forms. We discovered in this forest a solitary bird of the genus *Motacilla*. Tracts of the wild elephant were not uncommon, and the recent footsteps of a tiger were imprinted in the sand. Some natives who, from a distance, observed us to land, kept hovering near, but would not come within speaking distance. We now returned to the ship, and a strong breeze springing up, we were soon carried beyond the Straits of Papra and the island of Junkseylon or Salong. The wind soon increased to a strong breeze, which compelled us to keep some distance from the islands. On the 9th and 10th, we observed from time to time the bold mountains of this coast. These mountains were still distributed into ridges, and still loftier than those we had hitherto seen. The hill, or rather mountain of Queda, was observed at a very great distance. The hill of Penang came next into view; we slowly approached this island, pleased with the great beauty of its undulating scenery. The approach to it, through a narrow channel of deep water, is somewhat tedious, and the tides are, for the most part, strong. The moon shone bright, and our ship was thereby enabled to proceed during the night without a pilot.

11th.— In the morning of this day we anchored in the harbour, about 300 yards from the beach. We found here a considerable number of ships of various descriptions and nations: English, American, Chinese junks, Siamese and Arab. We received a polite invitation from the governor, W. E. Phillips, Esq., to reside with him during our stay on the island. We landed in the course of the day, and proceeded to the governor's country-seat, three or four miles from the town, and were received in the most hospitable manner by him and his family. The population of this island consists chiefly of foreigners from almost all parts of the east. A considerable proportion of the motley group collected on the beach, consisted of Malabar Mahomedans, called Chuliahs, who here, as in their own country, were readily to be recognised by their manner, partaking as much of idleness as of expectant curiosity. They seemed industrious only in prying into the appearance and countenances of strangers as they arrive; an occupation which doubtless they turn to their advantage in some way or other. Silly as at first sight it seemed to be, it is far more congenial to the habits of man, than the cold, apathetic air of the natives of Bengal. We had not proceeded far, before a more interesting and more gratifying scene was expanded to our observation. Industry, active, useful, manly, and independent, seemed here to have found a congenial soil and fostering care. The indolent air of the Asiatic was thrown aside. Every arm laboured to produce some useful object, and every countenance teeming with animation, seemed, as it were, directed to a set task. With the air, they had lost even the slender frame of the Asiatic; and the limbs, and muscularity, and symmetry were those of another and more energetic race. These were Chinese, a people highly valuable as settlers, by reason of their industrious and very regular habits, who had established on this spot the mechanical arts, on a scale which might even vie with that of European artists, but which we should look for in vain in any other part of India. It was a pleasing and gratifying spectacle, so much are we in India accustomed to the opposite, to see a numerous, very muscular, and apparently hardy race of people, labouring with a degree of energy and acuteness, which gave to their physical character a peculiar stamp, and placed them in a highly favourable point of view, when compared with the habits of the nations around them. Their manner of using their instruments, so different from the puerile style of Indian artists, had in it much of the dexterity of Europeans: while their condition bespoke them a flourishing and wealthy tribe. All the principal shops, all important and useful employments, and almost all the commerce of the island, was in their hands. Under the patronage of the British Government, they soon acquire riches; they meet with entire protection of property and person, and are cherished by the government, which, in return, derives benefit from their industry, and from the commercial and profitable speculations in which they usually engage.

The town, in this our first visit, appeared to be of considerable extent, very neat, clean, and handsome, and populous to a very unusual degree, that of the whole of the island, which is stated

to amount to 30,000, being chiefly collected together in this place. The style of their houses is particularly neat, very light and striking. They are composed almost exclusively of wood, and in a great proportion of leaves of the palm, as in those of the poorer inhabitants. They are raised from the ground from four to six feet or more on pillars, and a ladder leads to the apartments. The thatch is made of the light leaves of the palm, and forms an elegant roof, less subject to conflagration than we should have expected from materials of this sort. Flame instantly excites rapid combustion, but it is said to resist fire in the form of spark; when once on fire, however, there is no subduing the mischief. Mr. E. compares this combustion to that of Slop's wig, which was no sooner lighted than it was consumed. The huts are laid out in right lines, and of convenient breadth; the houses are in different compartments, and are tolerably uniform, clean, and well-lighted. The parts occupied by the Malabar inhabitants have but little to recommend them, either in point of cleanliness or of neatness. Profiting by the mildness of the climate, they look not beyond shelter from the elements, and seclusion from the public eye: a mean and sordid house afford both to their satisfaction. Ornament is never dreamt of, and even comfort is but little considered. Unlike to these, the Chinaman aims at neatness and even elegance in his dwelling, after having satisfied the more important objects of comfort and utility; hence the latter is rarely to be seen idling or sauntering about the streets: more numerous wants, more energetic occupations, more generous diet, demand more constant attention, and their gratification encroaches on his leisure hours. The Indian rarely passes an European of any rank without making an obeisance to him; and is in general abundantly submissive. The Chinaman will not submit to this distinction, whether from national pride and becoming independence of mind, or from assumed insolence, unauthorised, perhaps, in his native country, does not appear. However this may be, the latter is certainly the most becoming custom. The object of the Chinese in banishing themselves thus voluntarily from their native country, is doubtless to gain a more comfortable subsistence, and to accumulate money sufficient to maintain themselves at home. Yet they do not appear to hoard with mean avidity; they are, on the contrary, considered as rather an extravagant people, whose principal care is to procure good fare, though of a coarse description, according to our European ideas. All the best meat and fish, more particularly pork and ducks, the favourite food of the grave disciples of Confucius, are at this place the portion of the Chinese. It is alleged, however, that they are at times contented with morsels of less delicacy; and that the canine tribe suffer occasionally from their rapacious disposition, and carnivorous appetites. The good condition in which their dogs are usually seen has probably had some share in giving rise to the opinion of their feeding on them, for scarcity of food cannot be urged in extenuation of the practice, if indeed it require extenuation.

In proceeding to the governor's country-house, we were much delighted with the great profusion of vegetable productions that was every where observable. As might be expected, we found here the more common species of Palm, Cocoa and Areca, growing in great luxuriance. Numerous species of Convolvuli and Parasitical Plants lined the hedges, and covered the extreme branches of the trees. The low ground abounded with herbaceous plants, and the whole resembled a beautiful and picturesque garden. In the hedges, and in the waste lands, swamps and low grounds, which form a tolerably broad belt between the hills and the sea coast, the botanist finds a rich and highly interesting harvest. The neighbouring forests, vallies, ravines, and hills, are still more interesting. At every step he will discover new plants; and in this comparatively small island, he will find a variety of vegetation well calculated to delight and to astonish him. It would seem as if nature had taken a peculiar pleasure in establishing her more delightful domain in these islands. Nothing can exceed the extreme luxuriance, vigour, and variety of the vegetable products. The more grand features of mountain, precipice, and valley, are dispensed with unsparing hand. Reckless of the comfort, and disregarding the convenience of man, here nature has, as it were, placed her rich gifts beyond the reach of his modulating hand. From luxuriance so lavishly bestowed scarce can he extract a scanty subsistence, scarce can he render it subservient to his wants or his pleasures; and he who maintains that this world was made alone for man, might, amid such scenes, find room to doubt. The *cui bono* must at every step occur to his mind;

he will soon discover that the tenants of so much luxuriance are reduced to a very scanty number, and these of the lowest order of animated creatures; birds, lizards, reptiles, insects, and a very few predaceous quadrupeds. The poet may select such scenes for the abodes of bliss, of happiness, and of mortal felicity; but the philosophic inquirer will look to countries of less flattering aspect for the more favourable existence and development, in the social state, of the mental faculties of the human race.

We were now at liberty to employ our time agreeably to our respective inclinations. The surrounding forests and hills afforded endless enjoyment to those attached to natural history. They therefore claimed no ordinary share of my regard. Every day continued to add something to my little stock; while such is the salubrity of the climate, that no danger seemed to be apprehended from the most free and continual exposure even to the heat of a meridian sun, under circumstances of fatigue, exhaustion, and the greatest exertion; and to penetrate to any distance into the woods, or to ascend the steep and rugged sides of the hills, necessarily exposes one to such conditions. Compared with the botanical objects, the zoological are but scanty. Yet in this department we were able to effect the commencement of a collection. The most singular animal we as yet procured was the *Galeopithecus variegatus*, an animal covered with the softest fur; furnished with a broad expansion of the skin, extending from the head along the neck to the fore-feet, which are palmated; from thence to the hind-feet, also palmated, and from this to the extremity of the tail. By means of this membrane it is able, for a short distance, to support itself in the air. In the night-time it is active and lively; in the day, dull, lazy, sleepy, and annoyed at being disturbed. It has two pectoral mammæ. Those of the female are of considerable size. The voice is harsh, sharp, screaming, and disagreeable. It feeds on fruit, and would seem to be easily domesticated.

In some points this singular animal has a strong affinity to the genus *Lemur*; but its elongated head, and comparatively small eyes, and more especially the want of incisorial teeth in the upper jaw, shew that it has been with propriety removed to a different genus.

We procured also, during the first few days of our stay, a species of *Felis*, said to be common in the woods. It has much the appearance of a species of *Viverra*. The body is very long, though in other respects it is nearly of the size of a cat. It is remarkably fierce, and flies at every thing that approaches; body black, with gray stripes, tail very long, breast whitish.

A handsome species of *Sciurus*. The head large and globular; body and tail dark gray; belly brown; top of the tail brown.

A species of *Vespertilio*.

The number of birds that we saw was inconsiderable. The principal are the *Buceros*, Pelican, (in Mr. Philips's grounds several are domesticated,) several species of *Alcedo*, a solitary *Adjutant*, a fishing *Vulture*, five species of *Certhia*, and several other *Passeres*; of *Corvus* two species; *Fulica*; and *Columba* two species.

To describe or to enumerate the numerous vegetable productions which are to be found in this island, is but little compatible with the plan of a journal such as this. For an account of what has been done in this way, I refer to the catalogues, descriptions, and drawings. Several circumstances have conspired to render these less extensive and less complete than was desirable. The mechanical labour and personal fatigue, incurred in collecting materials, were necessarily very great; that of preserving them afterwards considerable; and the aid to be derived from persons of the labouring classes was not always at my disposal. Neither was the present season the most favourable for botanical pursuits. The brumal distance of the sun is felt, even in the intertropical regions. In these islands more particularly, this distance is rendered sensible, by unusual vicissitudes in the atmosphere, not only in point of temperature, but as regards the state of the winds, their capacity for retaining or depositing moisture; the greater prevalence of electric phenomena; the remarkable variations in the appearance of the clouds. Rains at this time are prevalent. Towards evening the clouds accumulate in thick masses, the winds often blowing with tempestuous fury, and the face of day is darkened; the effect of these circumstances on the vegetable world is very sensible, and yet the thermometer at this period of the

year rarely descends under 70° near to the equator. But even this indicates a degree of cold, which in these climates acts more sensibly on the human body than would be easily credited by an inhabitant of a cold region. The effect is, doubtless, the more powerful from the presence of universal moisture in the air, amounting very commonly to saturation. A degree of brumal influence is therefore extended to the vegetable world; the greater number of plants have ceased to flower; many trees cast a large proportion of their leaves, and have a degree of nakedness not common to them at other times. This influence is still more sensibly felt on vegetation at various elevations above the sea. On the hills it is most observable in arborescent botany. On the highest, very few plants, and those chiefly herbaceous, are now to be found in flower. In the plains, however, and in the sheltered acclivities of mountains, this circumstance is less observable. Besides, with a considerable number of the plants which grow in such places, the present is the proper and natural period of flowering; and the number is not inconsiderable of such as are to be found in flower, or in fruit, at all seasons of the year.

The altitude of the mountain ridges in Penang is not so great as to produce a very marked difference in the geographic distribution of its vegetable productions. The highest point of land is that on which the flag-staff is placed; and this, by barometric measurement, gives an altitude of two thousand two hundred and twenty-three feet, above the governor's house, which may be reckoned about twenty-five feet above the level of the sea; so that the greatest altitude will be two thousand two hundred and forty-eight feet. Within this space, however, the more experienced botanist, will detect a sensible difference in the distribution of the vegetable forms. In the low grounds which extend from the sea coast to the base of the hills, and for some distance up their flanks, he will recognise the favoured region of the Palms, and of the greater number of the Scitamineæ, vying with the former in utility, whilst they even excel them in the beauty of their general appearance.

Of the intertropical plants, the most superficial observer will have remarked, that a considerable proportion are influenced scarcely less in their geographical distribution by longitudinal than by latitudinal position; and, if we divide the globe into hemispheres, we shall find that the plants of an eastern differ from those of a western hemisphere scarcely less than those of the northern from the southern. We may thus observe a constant tendency to confine plants to a particular spot, to isolate, and to increase their number; and that though, like man, some are capable of existing in a great variety of climates, yet that these are to be considered as exceptions to a great and general rule. Within the tropics this limited distribution of plants is more remarkable than in the other zones. It is especially observable in the distribution of Palms, Scitamineæ, and the more valuable spices and aromatics. Heat alone is not sufficient for their production, or we should find them more general throughout the torrid zone, while, in fact, they are respectively confined to very narrow limits. Within the tropics, from the equator to nearly 20° N., and on the level of the ocean, or but slightly elevated above it, we distinguish a belt, within which are contained almost all the Palms with which we are acquainted. They constitute the most remarkable vegetable production within this space. As to distribution, we notice various points at which, without apparent alteration of temperature, they are respectively limited.

Of the Cocoa-nut we may remark, that it grows with the greatest luxuriance and perfection in the Maldive and Laccadine Islands, on the south and west coasts of Ceylon, on the coasts of Malabar and Coromandel, and west as far as Bombay. At Penang this Palm is evidently less productive, and therefore less extensively cultivated. It is replaced by the *Areca catechu*; by *Nipa fruticans*, *Cycas circinalis*, and a few others. The Sea Cocoa-nut, as it is called, is still more limited in its distribution; and the *Borassus gomutus* is almost equally so. Here, too, it is rare to see a single specimen of the *Borassus flabelliformis*, a palm so common in other parts of India. Peculiarity of soil does not appear to be the sole cause of the occurrence of some, or of the want of other species of the Palm tree. The soil of Penang and of the opposite coast is of various descriptions and qualities, and probably suited to the production of the whole tribe, being in some parts sandy, hard and poor; in others, of a stiff, iron-coloured clay; in others, soft and spongy, constituting extensive morasses; in others, thick, black, and rich, containing a large proportion of vegetable matter.

It has been remarked, that the mountain ranges are but of moderate altitude, and that, therefore, we must not look for very great or striking differences in the distribution of vegetable forms, as connected with this circumstance. Arborescent vegetation here exists in its fullest vigour, to within two or three hundred feet of the summit of the loftiest peaks; and it may be observed, that the forests generally abound in wood of uncommon altitude. At the elevation of nearly one thousand feet, a considerable number of diminutive, but elegant herbaceous plants are to be found, which do not occur at a less elevation, and we meet with several species of Ferns in the same situation. The gigantic Grasses of the plains here cease to grow: Parasites, Epidendra, and Contortæ increase in number. Within a few hundred feet of the summit we find an arborescent Fern of great magnitude, and a species of Yew is said to occupy a similar range on a contiguous hill. On the summit of the two highest peaks, arborescent vegetation is evidently stunted, and the trees are of shrubby forms, yet the productions of the plains will here thrive, with the assistance of cultivation. We found *Canna indica*, *Carica*, *Mussænda frondosa*, and various other plants growing around the Bungalows built upon the summit of the principal peak. This elevation must certainly afford a fine prospect from its summit, but as we were unfortunate in the state of the weather at the time of our visit, I am not enabled to speak duly in its favour.

The agricultural produce of this island is but inconsiderable; and although much care is at the present time bestowed in clearing the hills, for the purpose of introducing the cultivation of Coffee, Spices, &c., the success of the experiment must as yet be left for the ascertainment of futurity. The labour and expense of clearing steep hills of exuberant woods must necessarily be very great; and where arborescent vegetation exists in such vigour, it will always be a matter of much difficulty to prevent the ground becoming again rapidly covered with forest. It is to be feared, too, that the sloping sides of granitic hills will not long continue favourable to the growth of plants requiring a peculiar soil, and modified by the care bestowed upon them by man. It is known that the more valuable productions of the botanical world require the richest soil, and most assiduous and unremitting care on the part of the cultivator. They have, in fact, become, in a great measure, the work of his own hand; in their perfect condition frequently incapable of maintaining their existence independent of his care. When abandoned, they soon revert to their original meagre condition, with difficulty to be identified with the cherished product of cultivation, whilst of some plants, as of the more valuable of the Cerealia, we look in vain for the parent stock. Hence it is, that disregarding or forgetting this fact, we are apt to consider the soil as excellent which supports that astonishing quantity of vegetation we observe throughout these islands. To enumerate the useful and curious plants this island produces, either spontaneously or by culture, is a task too extensive. Pepper is the principal article. It is produced principally on the southern parts of the island, on the slopes of low hills, and on the narrow level belt which intervenes between them and the sea-shore. The cultivation is almost exclusively in the hands of the Chinese, who conduct it with a degree of art and neatness, unknown in any other part of the East. For an account of the cultivation of pepper, see *Marsden's History of Sumatra*. The plants are supported on the stems of the *Erythrina indica*, and occasionally on those of the *Morinda citrifolia*, which are planted with them for this purpose. The Nutmeg may be considered as the next in importance of the agricultural products. Its cultivation is, on the whole, attended with considerable success; the trees are large, vigorous, and produce a great quantity of fruit, yet it has required upwards of twenty years to give earnest of success; and it is stated, that as yet no exportation of this article has taken place. The number of trees, at present on the island, is rated at one hundred and fifty thousand, of which one-third only are in a condition to bear fruit. Mr. Brown states the produce of a single tree at one thousand nuts annually, and this number is at present sold in the market for five Spanish dollars, and the mace, which amounts to about one-fourth of the weight of the nuts, is sold for something more than the above-mentioned sum. The first fruit is reaped after the seventh year.

The Clove is also cultivated with success. Some trees which I have seen growing at the base of the hills, and on the skirts of the forest, where they were planted under the shade of other trees, seemed to flourish with great vigour.

Mr. Brown states the produce of a single Coffee plant at four pounds.

We were too late to enjoy the Mangosteen in its greatest perfection, yet from the few which were still to be procured, we considered it well entitled to the encomium so often bestowed upon it by travellers.

I proceed to mention the more general plants used in the domestic economy of the natives.

Pandanus lævis – the leaves afford a strong cordage, used for making nets and other purposes.

A species of *Urtica* is cultivated for a similar purpose.

Erythrina indica,
Morinda citrifolia, } supporters to the pepper plant.

Nipa fruticans – the leaves are used universally for thatching.

Calamus – various species, applied to endless useful purposes on the island, and exported to China.

Bromelia ananas – the pine-apple, three principal varieties; *a.* long, conical sort, of a red colour, with numerous sprouts from the base.

b. With elegant, variegated leaves; the crown leaves and sprouts at the base of the fruit also variegated.

c. Common species.

The Pine-apple thrives here with unusual luxuriance: some that were shewn to us weighed from four to six pounds. They may be had for a mere trifle in the markets.

Musa paradisiaca, or plantain. These are also produced in great abundance and very cheap.

December 25.— Visited Qualla Muda, on the opposite shore of Queda. The country here, to the distance of seven or eight miles from the sea, is low, flat, and swampy, covered for the most part with almost impenetrable jungle, the secure haunt of tigers, leopards, rhinoceroses, and occasionally of elephants, its vast swamps being unfavourable to the latter. The soil consists of a stiff, blue clay; on the beach, here and there, disposed in beds, very plastic, purely aluminous, and of a red colour; in other parts the soil consists of a tough, black, soft and spongy mould, apparently very closely allied to peat-moss. Where this soil exists, the ground is always boggy; the moss is bound together by tough vegetable fibres; the surrounding water assumes a black colour, of a bitter and peculiar taste, and a strong, disagreeable odour. The appearance is quite peculiar. I have not, in India, seen any thing resembling peat-moss so closely as this soil does². It is apparently in progress to the formation of that substance. During our excursion we passed some rich fields of rice. The ground was so soft, that we sunk to the knee at every step. We had not proceeded far, before we came upon a bullock that had just been killed by a tiger, in all probability of uncommon size, the impression of his paw being equal in breadth to twice that of a man's hand. The bullock, a fine, large, and fat animal, had been killed by a blow on the neck, by which the vertebræ appeared to have been dislocated or broken, while the superficial veins were torn open by the tiger's claws. A small part of the rump only had been eaten. In the following night the tiger returned, and carried off the carcass to the distance of about one hundred yards.

The plants on this coast differ considerably from those of Penang. They also exhibit considerably less variety. The Argus pheasant is common, and a very considerable variety of gallinaceous birds is carried from hence to Penang. The black leopard, and a species of wild goat, probably an antelope, are also found. The resources of the mountains and inland parts are almost

² Dr. Francis Hamilton has noticed several instances of what may be called peat formations. —*Buch. MS.*

entirely unknown, although, perhaps, there exists no better field in the world for the naturalist than is afforded by this peninsula, throughout the whole of its extent.

CHAPTER II

Leave Prince of Wales' Island. – Luminous Appearance of the Sea. – Pulo Dinding. – Malacca. – Deserted Appearance. – Slaves. – Little Carimon. – Islands. – Vegetable Phenomenon. – Singapore. – Mildness and Salubrity of the Climate.

January 1st, 1822. – Visited mount Palmer, on the south coast of the island. The scenery in the pass leading to it is beautiful, the finest in the island. The whole tract abounds with a great variety of plants. A road, practicable for horses, has been made across this pass; and on the south coast, a tank has been constructed for the purpose of affording water for ships that do not choose to enter the harbour.

4. – We returned on board the vessel, carrying with us two boxes of nutmeg plants for the King of Siam.

5. – Sailed out by the south passage; for several days following we were for the most part becalmed within sight of land; the great chain of mountains still appearing bold, and many of the peaks of considerable elevation.

Nothing is more singular in these seas than their phosphorescent appearance by night, the ocean shewing like a vast lake of liquid fire, melted sulphur, or phosphorus. In many of the bays, such as the harbour at Prince of Wales' Island, the bodies which emit this singular light exist in such vast quantity, that a boat may readily be distinguished at the distance of several miles by the brilliant light, resembling that of a torch, proceeding from the water agitated by her bow and oars. We have seen the sea rendered of a green colour and slimy appearance, by day, so that it might have been taken for the green vegetable matter common on stagnant pools. We have taken up a quantity of this green-coloured water, and by keeping it till night, have ascertained that the green colour by day, and the phosphorescent appearance by night, were occasioned by the same substance.

The causes of this luminous appearance of the sea are doubtless various in different parts of the ocean. We know that fish, when dead, afford similar light, and experiments have shewn that dead fish immersed in sea water, after a time, afford it also. The spawn of fishes is said to afford it, and putrefaction is considered as a very common cause of this appearance. In the present instance it appeared unequivocally to proceed from innumerable small granular gelatinous bodies, about the size of a pin's head. These when taken upon the hand moved about with great agility for a second or two, when they ceased to be luminous and remained immovable.

9. – Landed in the evening on Pulo Dinding, a beautiful granitic island, like those we had hitherto seen, covered with thick, almost impenetrable woods, from the margin of the sea to its summits. Its altitude may be two or three hundred feet. Its vegetation is luxuriant and varied. The soil is dense, black, and apparently very rich, held *in situ* by the density of the woods; the proportion of vegetable mould is uncommonly great. Two species of Palm grow luxuriantly in the ravines; and in moist places a species of Crinum, with leaves about three feet long, covers considerable tracts. The hills are too steep ever to afford a prospect of favourable cultivation, even for such plants as Coffee. The arborescent vegetation is of much less altitude than that of Prince of Wales's Island. There is, however, no want of irrigation. Several small rivulets were visible; but similar to many parts of the Queda shore, the water here was rendered of a blackish colour by the peculiar soil through which it percolates. It resembles the water in pits from which peat-moss has been taken; the taste is bitter and disagreeable.

At about half a mile distant north from an old and ruined fort, once occupied by the Dutch, we found an Epidendrum of gigantic size, the most elegant plant perhaps of the numerous tribe to which it belongs. Nothing in the vegetable world could exceed in beauty the appearance of this stately plant as it stood erect on the stem of an aged tree, surrounded by its flowing leaves, rather resembling the frond of a palm than the leaf of an herbaceous plant. The flowering spike alone exceeded six feet

in length, contained nearly one hundred flowers, and was now in full blossom. The flowers exhaled a most grateful but mild odour; they were about two inches and a half across, and upwards of four, including the foot-stalk, in length.

It is only on the sea-coast that we have an opportunity of viewing the materials which constitute the mass of this island, every other part being covered with soil. We here see nothing but granite. This granite, however, as will be seen by the specimens, is of different structure from that of Prince of Wales' Island, and the other varieties we had observed. In many masses it is almost a pure feldspar, finely crystallized and excessively hard. In other parts we find narrow veins of gneiss traversing masses of the granite; and in other parts the granite assumes a porphyritic appearance, containing, imbedded, numerous small nodules of gneiss.

In this vicinity, the great continental chain of mountains gradually diminishes in altitude, occasionally offering considerable interstitial distance between their summits, which now become more rounded as well as of lower elevation, whilst the whole chain bends more towards the south-east, leaving an extensive flat land between its base and the sea. This flat tract, however, is yet somewhat elevated above the sea, and at several points, particularly on its oceanic border, as at Parcelar Hill and Rachado Point, rises into solitary, isolated hills, of a conical shape, rounded at top, but of inconsiderable height. The general features of the country had now altered considerably; the hilly eminences are probably constituted of sandstone or clay slate. The country is everywhere covered with wood to the water's edge.

14th.— Arrived at Malacca.

On examination, we found the small hills about this place, and the substratum of soil generally, to consist of a compact, nodular iron-shot clay, used commonly in building. In its geologic locality it is soft and easily cut into oblong masses like large bricks, which become very hard by exposure to the air. The old and now ruined fort, the Portuguese church, &c., are built of this material. It is very heavy, and appears to contain a large proportion of iron. This substance is common in Ceylon, and on the Malabar coast, it is used for building and for making roads. It is there known by the name of kabouc. No other mineral was here observable. In Ceylon it is found towards the base of the mountains, in the vicinity of granite rocks.

At Malacca, the country is for the most part low, the small hills of iron-shot clay being scarce an exception to this appearance. About a mile inland it is swampy and covered with wood. The soil is a thick and stiff clay, apparently very favourable for the cultivation of rice. There appears to be no want of water; yet with these advantages, the place does not raise rice for its own consumption. The Dutch, who largely expatiate on the capacity of the country, attribute this circumstance to the indolent habits of the Malayan race, who for the most part are cultivators of the soil on the shores of this peninsula. The cause more probably arises from the want of due encouragement to agriculture; from mismanagement; from unfavourable terms in the tenure of land; and in part perhaps from the existence of slavery amongst the Dutch. Wherever this, the true cause, exists, it operates forcibly to check the cultivation of the more valuable of the products of human industry, under circumstances highly favourable to its development. In vegetable products of less value, but that are reared with little labour or care, — as fruit, the place abounds. The Mangosteen is here found in the greatest perfection, a most delicious fruit, and justly the boast of the east. The Plantain, the Durian, the Champada, the Jack, &c., constitute a large proportion of the food of both natives and Dutch, who may be considered as naturalized to the climate, possessing similar tastes, and in some degree even the manners of the native inhabitants. But fruit, however delicious or abundant, when it constitutes the food of a people, must be considered as affording at the best but a wretched subsistence, inferior to even the worst of the Cerealia. For the existence of an abundant supply of excellent fish upon their coasts, the inhabitants are still more indebted, than for the produce of their fruit-trees.

On entering this place, we were forcibly struck with the contrast which it afforded, in point of commercial importance, with the very beautiful and interesting settlement at Prince of Wales's Island.

Here five or six vessels at the utmost lay scattered and straggling in an extensive bay. There hundreds of ships of all descriptions, sizes, and nations, were seen crowded together, the sure indication of maritime prosperity. In Malacca, every third house was shut up and appeared to be abandoned. The streets were solitary and deserted. A lonely inhabitant sauntering in his verandah, or idly lolling or smoking at his door, only served to render the scene more dreary, sad, and melancholy. Even the Chinese, of whom, however, but few now remain, seemed to have forsaken their habits of industry, and afforded the discordant spectacle of reluctant idleness. In Penang all was activity, and bustle, and zeal. The population of the two places will not bear a comparison. Yet Malacca possesses many advantages over the other settlement. In territorial extent, it is unrestricted. The climate is mild, equable, salubrious, and agreeable. Numerous tribes of Malays surround the settlement in every direction, who it is to be supposed might, if encouraged by proper management, be gradually brought to enter upon commercial speculations, and to increase agricultural produce, to the mutual advantage of both parties. The Dutch, however, it is to be feared, have still to learn how to reconcile the native powers to their system of government. A degree of suspicion and distrust is but too obvious in the intercourse they entertain with each other.

Here we had but little opportunity of observing the mode of living and manners of the Dutch people. In Malacca, as at the Cape, almost all private families take lodgers into their houses. We, during our short stay, resided at a house intermediate between an inn and a private house. We here saw but little of that neatness and cleanliness said to be inherent in Dutch people. A room, intended for dining in, and so forth, is kept in tolerable order. The bed-rooms are wretched, small, dirty, and ill-aired. The people generally appear to be very poor. Their mode of life mean; their food coarse and indifferent, except fish, which is excellent. Every necessary of life is extremely dear. A fowl costs about half-a-crown, and other articles are in proportion.

Every family possesses a large number of slaves, who are mostly employed in domestic affairs. There were upwards of thirty of different ages and sexes belonging to the family in which we resided. Their condition did not on the whole appear to be one of peculiar hardship. They, however, may be considered a wretched race, an appearance they derive chiefly from the want of clothing, and the existence of other marks of their mean and abject condition. Of the domestic slaves, however, some are decently and even richly clad. Their owners, in such cases, take a pride in dressing them even in costly ornaments, as of gold, silk, &c. A considerable portion of their property is often laid out in this way, and the slaves themselves are said to lay out their small gains, if such fall to their lot, in the purchase of such articles.

During our short stay at this place, we procured a considerable number of birds. They were chiefly brought for sale by the Malay inhabitants.

Landed on the island of Little Carimon. We had here another proof of the alteration of structure which the country had undergone. In this vicinity, the islands become extremely numerous, forming perhaps the most beautiful, as they do the most extensive, Archipelago in the world. Of these innumerable islands, many, like that under consideration, are of a hilly nature, but differ from those of primitive countries, by exhibiting rather a moderate elevation, rounded at top, and for the most part sloping gradually towards their base.

These numerous islands are as various in form, as in extent and elevation. Some are simple masses of bare rock, scarcely appearing above water; others extend several miles in length and breadth, often forming safe bays and extensive inlets. Some are flat throughout their whole extent, others consist of hilly masses only; of all it may be remarked, that wherever any soil exists, however scanty or however poor, and sometimes even where no soil is observable, they are not found, as might be expected, covered with a scanty, stunted, and impoverished vegetation; but everywhere planted with forests of the loftiest trees, forests in appearance scarce less ancient than the rugged soil on which they stand. The spectacle universally afforded among these islands, is in such respects equally beautiful, interesting, and curious. The singular form which many of the trees assume, is not the

least remarkable feature in the varied phenomena displayed by the vegetable creation. I allude more particularly in the present instance to a remarkable and very obvious disposition in the roots and lower part of the stem of the larger trees, to form winged appendages of great magnitude. These tabular compressed appendages are generally three or four in number. They obviously serve as supports to the weighty incumbent mass of stem and leaves; thus compensating for the want of depth of soil, a few inches into which the roots can penetrate, before they are obstructed by the surface of rock, they are thus forced to extend horizontally. A tree of this description, torn up by its roots, affords a singular spectacle, and one in which the economy of vegetable life is peculiarly remarkable, inasmuch as this economy is obviously exerted in overcoming the difficulties which oppose its development. Every crevice in the rocky base, every chink, has been occupied by the root; a thin, but hardy net work extends along the ground, to a distance often equal to the noble altitude of the tree itself. The thin winged appendages to the tree, or its supporting walls, as they may justly be termed, partake more of the nature of root than of trunk, though altogether out of the earth. They possess generally a smooth, softish, and very thin cuticle, green underneath, abounding in the vegetable juices of the tree, and are remarkably hard. They sometimes extend horizontally, in a straight, but more commonly in a curved, direction, fifteen or twenty feet, their edges being six, eight, or more feet above the ground, gradually decreasing from the stem to the earth. In some instances they are formed into walls, resembling fortifications. Of this sort we saw a very fine specimen on this island.

We had now passed from granite mountains to rocks of the secondary formation, detecting but few of the connecting media which usually accompany these formations, and give indications of the proximity of either the one series or the other. At Malacca we observed extensive beds of iron-shot clay. Here we discovered the masses which compose these islands to be formed of a series of rocks of a different description. Though at first sight they seemed to be of very various structure, a more close inspection shewed them to consist of two principal varieties, intimately associated, and often passing into each other. Of these the principal rock was a horn-stone or flinty slate, disposed in large masses or thick beds, of which perpendicular sections, twenty feet or more in depth, are occasionally exposed to view. The tabular masses are of great thickness, so as to render the stratification somewhat indistinct. They form an angle of nearly 40° with the horizon, and dip towards the east. The rock is extremely indurated, for the most part of a dark red colour, especially externally. It yields with the greatest difficulty to the hammer, but its edges are as brittle almost as glass, and fly into numerous minute splinters with sharp edges – fracture distinctly conchoidal, dull, and rather earthy. In many parts, it bears a near resemblance to flint, and readily emits fire when the hammer is applied to it. It is very uniform in its structure, presents no traces of imbedded minerals, or of organic remains. Is very extensive.

The next rock is a porphyritic horn-stone, and splintery horn-stone. The most common substance imbedded in the former of these, is a white or grayish, or greenish granular limestone. It also contains rounded masses of flinty slate. On the surface it is often cellular, the limestone in its decomposition having dropped, or been washed out. The masses of limestone vary in dimensions from an inch to several feet square.

January 20th.— Arrived at the new settlement of Singapore. The selection of this island, for the purpose of a commercial settlement, has been extremely happy. It is placed in the direct route from Bengal towards China, and the numerous islands in the eastern part of the Archipelago. It is from its situation calculated to become the centre of the trade carried on in the China Seas and neighbouring countries, the kingdoms of Cochin China, Siam, &c., as well as of that of the Malayan Peninsula, and the western parts of India. It affords a safe and convenient anchorage at all seasons of the year; while from its insular situation, and being surrounded on every hand by innumerable islands, it is alike exempted from the destructive typhoons so common in the China Seas, and the scarce less furious tempests that occur on the coasts of India. Here indeed the atmosphere throughout the whole circuit of the year is serene and placid, to a degree unknown perhaps in any other part of our globe. The

smooth expanse of the seas is scarcely ruffled by the wind. We seem, as it were, to be coasting along the banks of a lake. Storms are here felt as it were by reflection. The commotion excited in the China Seas by the tempest, is propagated to this distance, where it is seen to give a peculiar direction and increased velocity to the tides, and even occasions a considerable swell. A similar but less remarkable effect is produced by a tempest in the Bay of Bengal. Subject to the opposite impulses derived from these extensive seas, the tides amongst the islands become extremely irregular. At times they are found to run in one direction for several days successively, with the effect, in embayed places, of raising the water to a considerable height. In the numerous narrow channels which divide the lesser islands, this tide runs with very great rapidity, resembling water issuing through a sluice. The regular and periodical influence of the monsoons is but little, if at all, felt in these islands, the winds partaking more of the nature of what have been called sea and land breezes. Hence proceeds that uniformity of temperature which prevails in the atmosphere throughout the year. Hence also proceeds the more frequent fall of showers, and the absence of a proper, continued, and periodical rainy season. Few days elapse without the occurrence of showers, which thus produce the most agreeable effect in reducing the temperature and cherishing vegetation. Without the continued influence of moisture, these regions would certainly exhibit a far less cheerful picture, and the climate prove much less congenial to the human frame. Heat in the equatorial regions is thus benignly attempered to the constitution of man. It will be found to prove infinitely less pernicious to his system than it does some distance beyond the tropics, particularly in dry and arid climates. It is thus that the hot and dry winds of Upper India, to the extent of more than ten degrees beyond the tropic, exert such powerful and destructive influence on organized beings, and more particularly on the human frame. Its effects are too well known to require description. Inanimate life is not merely at a stand; it is threatened with total destruction, and with difficulty preserves a scanty gleam of future existence. Animated beings retire to the thickest shades, and even there pant for existence. The loose frame and acclimated constitution of the native inhabitant, is not proof against its baneful influence. What then must be its influence on constitutions so highly susceptible of excitement as that of the inhabitant of the North of Europe? The fatality amongst European troops has given too ample testimony. The physiologist, who has not witnessed the effect of high temperature on the human system, will with difficulty believe it capable of extinguishing life, often within the period of a single hour from the commencement of excitement. Its effects are no less rapid than fearful to the spectator; the mind in such cases partaking of the general excitement in a degree amounting even to complete mania. Within the tropics such effects are of rare occurrence.

The sandy shores of the ocean, offering a surface highly favourable for the development of heat by reflection, will often be found of high and oppressive temperature during the day. Yet the temperature during the night is even here agreeable. Moderation, in point of temperature, is further attested by its benign effects on vegetable nature, which obtains a degree of development unknown, perhaps, in any other part of the globe. We see trees encroaching even on the domain of the sea, their roots and branches covered with marine shells, as oysters, &c. The bare rocks, the stems of the smoothest trees, the most scanty portions of soil, are covered with an endless variety of plants. In point of adaptation, we observe situations equally favourable, and generally much more so, for the production of plants in most other parts of the globe. The single circumstance of a peculiarly modified temperature, would alone appear to be wanting. We are often at a loss to discover in what manner many of these vegetables derive nourishment, under circumstances, to appearance, so unfavourable. Moisture alone would seem to many to be their sole source of aliment; the elements of water being separated and assimilated by the organs of the plant. The quantity of simple moisture, or rather of apparently pure water, which some plants raise from the earth, is uncommonly great. This is beautifully exemplified in the organization of some creeping plants, in which the moisture is frequently conveyed the distance of forty, fifty, or a hundred yards, before it reaches the leaves, or fruit, or perhaps the assimilating organs of the vegetable. I have seen a plant of this sort, that had been accidentally cut across, continue to pour out pure, limpid, and tasteless water, in such quantity

as to fill a wine glass in about half an hour. The stem and bark of this plant were quite green; there was no vestige of leaves, and it appeared that the water was proceeding unchanged to the extreme branches of the plant, in order to be assimilated. To other plants, even moisture, at least in any obvious quantity, does not seem to be indispensable. These are to be seen on bare rocks, without any ascertainable source of nutriment. They probably derive it from the air itself, or perhaps they decompose atmospheric air, and assimilate its elements.

This effect of equable though high temperature is not confined to the varied forms of vegetable life. The lower orders of animal existence attest its power no less strongly. The earth, the air, and the ocean, teem with life. Myriads of insects succeed to each other, in their labours at every varying period of the day and night. Some are busied in removing dead animal matter; others prey upon the living; while, to the great majority, the vegetable world affords an inexhaustible source of nourishment. In the great ocean, we observe the economy of nature directed to a similar purpose, in the habits of innumerable Corals, Madrepores, and Molluscæ; here too, as in other departments of nature, we observe the dependence which is established between animals of more perfect organization, and those generally of the very simplest structure, the operations of the latter being exerted in eliciting from inorganic matter substances capable of maintaining the numerous tribes of the former class. It is in this point of view, that a Coral bank affords, perhaps, one of the most interesting spectacles in nature. We scarce know which most to admire, the great beauty and variety of their forms, the singularity and simplicity of their structure, or the magnitude of effect, produced by means apparently so inadequate. The analogy between them and plants is particularly impressive; nor can we overlook the circumstance, that they are destined to perform analogous operations.

Our residence at Singapore made us acquainted with several very curious productions of this sort, among them, a singular species of *Alcyonium* may be mentioned. It passes here, under the fanciful name of Neptunian Goblet. It is in fact of the shape of a goblet, and its substance is intermediate between that of a sponge and a madrepore. Its colour, when fresh, is bright saffron, which becomes brown on drying. The body of the cup, the stalk, &c., are very neatly formed. They vary from two to five feet in height, and the cup is often three feet in diameter.

We obtained here a very singular species of *Asteria*, weighing from six to eight pounds. Its back formed a regular pentagon, with numerous round dots on its surface. The chasms on the lower surface are five in number, narrow, proceeding from the centre, furnished, as in other animals of this sort, with a double row of gelatinous, short, whitish feelers. The teeth not very obvious, but placed at the angular extremity of each flap. Its shell is of the consistence of very stout leather. Its internal structure consists of innumerable series of knotted threads. This was considered, in the place, as extremely rare, and the Malays have no name by which to distinguish it.

Among the more rare animals of the Class Mammalia, to be found at Singapore, we may reckon the following:

Halicora Dugong, called by the Malays, *Duyong*. The descriptions given of this singular animal by systematic writers, though incorrect and imperfect, sufficiently attest that it has been long known to naturalists, and is therefore not to be considered as new in our catalogues. It is found on various islands in the Archipelago, has been seen at Malacca, and several times taken at Singapore. By report, it is extremely inoffensive, grows to the length of ten or twelve feet, and feeds on *Fuci*. Its flesh is esteemed, in flavour and delicacy, not inferior to the best beef. The skin is remarkably thick and tough; dried stripes of it are not to be distinguished from the thongs usually made from the skin of the Hippopotamus. The structure of the stomach is said to correspond in all respects with that of the ruminating animals. In some crania, there are tusks and incisors in both jaws, but in others neither, or the former only. The tusks scarce project beyond the jaw, probably never beyond the lip. The absence of the teeth in some may be owing to age. A single spiraculum opens near the top of the head. The form of this canal is cylindrical. Seen in the skeleton, it suggests the idea of its performing the office

of a spiraculum. In the living animal, however, it may possibly be clothed with skin. The lips are said to be remarkably thick, and scantily covered with stout bristles.

Unlike the Arctic Walrus, this animal appears to delight in solitude. It is occasionally taken by surprise near the lone islands of the Archipelago.

Flying squirrel, *Pteromys Petaurista*. This is of nearly the same size as the *Galeopithecus variegatus*, also common in this place. It is of a bright brown colour. Is seen towards evening flying from the tops of trees, and generally alighting about the middle of other trees, often at a considerable distance. In its flight, it merely expands the membrane extended between its legs, and floats gently through the air. When it has alighted on a tree, it quickly gains its summit, by a succession of leaps.

And lastly, two undescribed animals, of different genera.

The productions of the vegetable world are here scarcely less numerous, than in the beautiful and picturesque Island of Penang. Our *herborisations* in the neighbouring woods have already supplied us with some rare, and a few new plants. There is on the whole, a very obvious and striking difference between the plants of this island and that just mentioned; but there is this important distinction, that the difference refers for the most part to the individuals, and not to the families, or even genera: thus the acotyledonous plants occur in equal, if not greater, variety than in the latitude of the former place, and the species are almost all different. Yet only the fifth order of the acotyledones of Jussieu occurs in numbers; of the Fungi, Algæ, Hepaticæ, and Musci, the individuals are remarkably infrequent. The decayed woods of extensive forests are favourable to the production of the Fungi, yet these are not numerous. We, however, met with some singular plants of this description.

Of the Order Fuci, there is here a remarkable species, usually found growing in isolated patches upon coral banks. It is pinnated, plumose, elegant, about a foot and a half in length, and of a whitish colour. It is endued with the property of stinging like nettles; the sensation produced is more acute, and more penetrating – more instantaneous, but somewhat less permanent. The hand is scarcely brought into contact with it before the wound is inflicted. A small corrugated, granular bag, filled with a transparent fluid, would seem to be the organ by which it produces this effect. These are no sooner touched than they discharge the fluid they contain. The plant soon loses this power, after having been removed from the water. The comparative scantiness of the Cryptogamiæ is amply compensated for by the number, variety, beauty, and utility, of the more interesting order of Phænogamous plants. Of the former, the abundance of a few individuals is considerable, whilst, respecting the latter order, we are less impressed with the extent to which individuals exist, than with the great variety which they offer, a remark still more applicable to the zoology of this region than the botany.

Among the vegetable productions applicable to economical, commercial, and other purposes, is the Gambir; *Nauclea Gambir* and *Aculeata*, Linnæi, or nat. ord. Rubiaceæ of Jussieu.

Gambir, Terra Japonica, or Catechu, is obtained in large quantities from the leaves of this plant. The process is both simple and cheap. The leaves are collected three or four times a year: they are thrown into a large cauldron, the bottom of which is formed of iron, the upper part of bark, and boiled for five or six hours, until a strong decoction is obtained. The leaves are then withdrawn, and allowed to strain over the vessel, which is kept boiling for as many hours more, until the decoction is inspissated. It is then allowed to cool, when the Catechu subsides. The water is drawn off; a soft soapy substance remains, which is cut into large masses. These are further divided by a knife into small cubes about an inch square, or into still smaller pieces, which are laid on frames to dry. This Catechu has more of a granular, uniform appearance than that of Bengal. It is perhaps also less pure. The price in the market is four dollars per pecul, or 133½ lbs. It is exported to Java and the other eastern islands, where it is chiefly used for chewing with the betel leaf. The leaves of the plant when chewed give a very astringent taste, which is soon followed by a sweet, agreeable, and aromatic flavour.

We have already observed, that the most luxuriant vegetation of spontaneous growth affords no certain proof that the soil which has produced it will prove equally favourable for the production of the usual objects of culture. The soil of Singapore, however, would seem to be highly favourable for the

cultivation of those products which are confined to intertropical regions. The Malay race, accustomed to a roving, unsettled life, have paid but little attention to agricultural pursuits. In this respect they are much in the situation of the Nomade tribes of northern Asia, or the more savage banditti of the Arabian deserts. Their labours, therefore, afford no adequate means of forming an estimate of the capacity of the soil. The skill and other resources of Europeans have not yet been directed to this end; neither has the well-proved industry of the Chinese had time to produce any considerable effect. The experiments, however, which have been made by the latter in the cultivation of pepper, and in the manufacture of *Terra japonica*, have given good earnest of what may be expected from agricultural operations of greater magnitude. Judging from the natural appearance of the country, it may be presumed that the whole island is susceptible of a high degree of culture. The soil is gently undulating, here and there rising into low, mammated or rounded hills of inconsiderable altitude; the temperature is favourable; irrigation is abundant, and the soil of the interior parts is composed of sand and stiff clay, mixed up with a large proportion of vegetable matter, which gives it a very black appearance. There is a general tendency to the formation of swamps; but never to the extent of forming lakes. Rivulets and creeks abound in various parts of the island. The former are of the greatest value in a commercial point of view, by the facilities, as well as safety, which they afford for the transport and landing of goods. The rivulets are but of inconsiderable size. Their waters are almost always of a black colour, disagreeable taste, and peculiar odour, properties which they would appear to derive from the peculiar nature of the superficial soil over which they pass, in many parts resembling peat-moss, as has been already observed. The water, however, drawn from wells penetrating through the sandy base, is much less sensibly marked by these disagreeable qualities.

It is at the point where the fresh water of rivers and rivulets intermixes with that of the sea, that we find Mangroves chiefly to abound. The economy of these plants is so strikingly peculiar in character, that they claim great attention from every observer. The species most common on the banks of rivers, in these climates, is the *Rhizophora Gymnorhiza*, a tall, handsome tree, often growing to the height of forty feet, covered with a thick profusion of large, oblong, fleshy leaves, disposed in tufts at the extremities of the branches. The singular form of the fruit in this tree is too well known to require description. The descriptions of botanists are, however, but indifferent.

The stem would seem to perform the usual functions of leaves, being covered with a remarkably thin epidermis. It is frequently submerged to the height of twelve feet or more, on which occasions it doubtless performs different functions. Numerous roots are thrown down from the branches, and in this manner a single tree is often conducted, as it were on props, over a great extent of ground, rendered intricate and impervious to animals.

Another species, the *Rhizophora Mangle*, is more independent of the presence of fresh water; often extending laterally along the sea-beach, or growing entirely in sea-water. Other species are possessed of similar habits.

The shade of these plants is the favoured abode of innumerable tribes of insects, particularly of mosquitoes. Inhospitable, therefore, is the shade or shelter they afford to man³.

³ Much stress has been laid on the apparent insalubrity of marshes of this sort; and it has been maintained that in many parts they are the chief, if not the sole, cause of the most fatal of intertropical diseases, remittent fever. Humboldt, in his *Essay on New Spain*, lays great stress on the effect produced by the growth of *Rhizophora Mangle*, *Pothos*, *Arum*, and of the other plants which flourish in a marshy soil charged with saline particles, in the production of yellow fever. Without calling into question the insalubrity of marshy situations in general, there appears great reason to believe that we are still ignorant of the actual causes of this frightful disease. The settlement of Singapore is possessed in an eminent degree of the circumstances which are thought to be most conducive in producing the disease. Yet here it is as yet unknown. An intertropical climate on the margin of the sea, a continually high temperature, rapid and intense evaporation, a humid and extensive series of saline and fresh water marshes exposed to a burning sun, the vegetative impulse in a degree of activity unequalled perhaps in any other part of the globe, the occasional suspension of herbaceous vegetation by long-continued heat, accompanied by drought, profusion of vegetable matter, as leaves, felled wood, fruits, &c., intermixed with animal matter, forming fomites in every stage of the putrefactive process, are amongst the more conspicuous of the causes to which the occurrence of this disease is usually attributed; and here all the causes enumerated operate with tenfold force.

One great purpose which these plants serve, is that of preventing the encroachment of the sea upon the land. They even overcome this tendency, and produce the opposite effect, as the coasts of Singapore manifestly evince. It may readily be conceived, therefore, how ill judged is the practice of destroying barriers of this sort. In many parts they extend for miles into the country, until the soil on which they grow has been raised above the water, when they gradually give place to trees of another description; and in this manner lands favourable for the cultivation of rice are produced. Of this description extensive tracts exist in the neighbourhood of the settlement. A slight embankment would prevent the ingress of salt water along the banks of the creeks, and retain a supply of fresh water favourable for this species of culture. As yet, however, the pepper-vine, and nauclea, which require a dry and exposed soil, are almost the sole objects of culture. The neatness, the industry, the ingenuity displayed in plantations of this sort, afford a very gratifying spectacle, and attest the great progress which the Chinese nation has made in agricultural science. The Chinese may be considered as the sole cultivators of the soil. The woods are for the most part cut down by the Malays. The Chinese clear away the incumbent wreck, selecting the best woods for domestic purposes, converting the refuse into charcoal, palings, fences, &c., and enriching the soil with the ashes of the remainder. I have not observed the manufacture of the vegetable fixed alkali, potash, to be an object of attention with them. Their plantations, whether of pepper-vines or of gambir, are uncommonly neat, well trimmed, and healthy. Their habitations are slight and temporary, inferior in many respects even to those of the Malays. They are constructed of bamboos, twigs, and rattans, and thatched with leaves of the *Pandanus lævis*, sewed together. They are always surrounded by a few garden shrubs, esculent roots, and vegetables. Several varieties of *Musa* and *Amomum*; several species of *Arum*; sometimes small plantations of *Jatropha manihot*, are of the most common occurrence. There is a manifest air of poverty in the dwelling of the Chinaman, and of negligence, slovenliness, and even meanness in his dress. He has scarce a stool or a bench to sit on. His furniture is scanty, – of the simplest kind, and constructed of the cheapest materials. In his culinary operations alone we observe an air of neatness and of cleanliness. It is here indeed that the Chinaman shines superior to all other Asiatics. Negligent of personal ornament, insensible to the advantages of comfortable lodging, he appears to entertain a just, nay, we may say, an exalted sense of the pleasures of good eating. To this end and aim are directed all his industry and ingenuity. The traveller who would judge of the comforts of the Chinese planter, must see him at his meals. How erroneous his judgment, were he to infer, from the sordid appearance of the labourer's hut, a corresponding degree of penury in all other comforts. The peasant, thus indifferent to the advantages of comfortable lodging, will be found to live on the richest, though not always the most delicate fare. Pork, ducks, geese, the best kinds of fish, the rarest delicacies, are purchased at any price by the Chinese. The proportion of animal food consumed by them would appear to be incomparably greater than that used by any other description of labourers on the face of the globe. They seem to regard the quality of animal food less than the quantity or richness. The only point of consideration is, whether the alimentary mass will afford rich nutriment, or as Cobbett says, whether it will lay fat on their bones.

Hence the flesh of dogs, of rats, of monkeys, of alligators, and other reptiles, afford in their turn, a savoury meal. The marine gelatinous fishes, *Holothuria*, *Sepia*, &c., and bird's nests, are ranked amongst the most delicate of Chinese dishes, for the most part reserved for the luxurious gratification of the epicurean palates of the wealthy. The abomination in which dog's flesh is held by the various tribes of the Archipelago has rendered the eating of it a reproach even amongst the Chinese emigrants, who will not always confess their propensity to feed on this social, but unclean animal.

The most prominent feature in the character of the Chinese emigrant, is industry, – the best and highest endowment which he has attained. He is mechanically uniform and steady in the pursuit of what he conceives to be his immediate and personal interest; in the prosecution of which he exerts a degree of ingenuity and of bodily labour and exertion, which leave all other Asiatics at a distance. He labours with a strong arm, and is capable of great and continued exertion. He is not satisfied to

bestow the quantity of labour necessary for the mere gratification of his immediate wants. Profusion and indulgence claim a share of the produce of his toils.

Next in the catalogue of his virtues, may be reckoned general sobriety, honesty, a quiet, orderly conduct, obedience to the laws of the country in which he resides; and, as is affirmed, a strong and unalterable sense of the important duties which parental affection inculcates. To this we may add a strong attachment to his native country, and the very questionable virtue of blind, undistinguishing admiration of, and submission to, all its laws.

Notwithstanding this fair exterior, we shall find on examination that the Chinese have but little real pretension to moral distinction amongst nations; of the sublime, soothing, and pathetic duties of religion they are as ignorant as they are regardless; a mean, senseless, and unworthy superstition, the offspring of fear alone, has usurped its place amongst the many; while the learned affect a cold-hearted and scarcely intelligible theism. In all that regards the more amiable feelings of our nature, and that tends to unite the great family of the human race in closer union, they are still more deficient. A disgusting and culpable apathy, an involved and concentrated selfishness of gratification, a total disregard of the wants, and necessities, and helplessness of their fellow-creatures, marks the Chinese in their conduct through life. They know not the pleasure of doing good for its own sake. They not only talk of, but witness the misfortunes and distresses of their fellow-men, with an apathy of feeling little short of mockery. They will stipulate for reward with the wretch who is sinking in the water, before they will extend a saving arm. They will talk of the greatest scourges to which the human race is subject, famine, pestilence, war, as catastrophes almost to be wished for, – considering the survivors as benefited by the destruction of so many of their fellow-creatures. Their industry is the result of the quick sense of gratification which they derive from the indulgence of the more grovelling passions and animal appetites, and where these can be indulged without labour, the Chinese will be found to indicate their full share of Asiatic indolence.

It must be confessed however that the Chinese are, in a political point of view at least, by far the most useful class of people to be found in the Indian Seas or Archipelago. Their robust frames, their industrious habits, and their moderate conduct, place them beyond competition. They furnish the best artisans, the most useful labourers, and the most extensive traders. Their commercial speculations are often extensive, often of the most adventurous nature; and we may remark by the way, that they are often immoderately fond of games of chance, as cards, dice, cock-fighting. Inebriety is a vice of which they are but rarely guilty. At their meals they indulge in the use of ardent spirits, undiluted, but never use them to excess.

In point of mental capacity, they would appear to be inferior to many other Asiatic tribes. They are chiefly distinguished by a certain mechanical turn in all they do; and even their mental operations partake of this distinction.

Notwithstanding the prohibitory laws of the Celestial Empire, there would appear to be no other limit to the extent of emigration than the capacity of individuals to procure a passage to the neighbouring countries, modified in some degree by the greater or less demand for industry. It must be recollected however, that this emigration is to be considered as temporary, the majority of the Chinese calculating upon returning after a time to their respective provinces. Their wives, – or females of any description, are not permitted to accompany them abroad, to which circumstance it is perhaps chiefly owing, that the Chinese have formed no colonies or settlements; for the establishment of which their situation is peculiarly favourable. Superior in point of civilization, industry, and physical strength to the nations around them, they neither aim at conquest nor power over their weaker neighbours. They are content to be permitted to follow their respective occupations, and are satisfied with the fair returns of their labour. Yet in many of the commercial settlements of the Archipelago, they constitute the majority of the population; whilst in many of the Malay states, their proportion to the latter is so great as three to one, or even more. This is particularly the case in the mining districts of Borneo, as at Sambas, Pontiana, and more particularly in the surrounding country, where it is said that upwards

of 30,00 °Chinese are occupied in searching for gold dust. Their masters are here little better than savages; than whom none are more cruel or more despotic. Mild and just laws are unknown to people in this state of society, and therefore cannot be urged as the cause of the unpretending conduct of the Chinese. This instance of general submission to a people so greatly inferior to themselves, stands so much in opposition to the ordinary conduct of man under similar circumstances, that we may be permitted to doubt whether it is to be reckoned a virtue or its opposite in the character of the Chinese; whether as affording a proof of their love of peace and horror of aggression, or rather as a demonstration of unparalleled pusillanimity and the total want of military ardour. Certain it is that the Malays hold them in contempt as opponents. The emigrant Chinese are almost exclusively from the provinces of Canton and Fokien, chiefly from the latter. It is this last also which furnishes the principal maritime population of China. They carry on a considerable commerce in junks throughout the China Seas and Archipelago, from Manilla to Penang, the boundaries of their maritime excursions on the east and west. Nothing can be conceived more rude, awkward, and unmanageable, than the vessels they navigate, called junks; except indeed we bring into the comparison their great ignorance of the science of navigation. A Chinese junk gives no bad idea of what one might suppose the ark to have been. She resembles more an oblong substantial wooden house than a ship. In maritime affairs, the Chinese appear to have derived little or rather no benefit from their intercourse with Europeans. The immutable laws of the Celestial Empire forbid alteration: yet these laws could never have checked improvement for so many centuries; and we find that all vessels built by the Chinese, in the dominions of foreign powers, as at Siam, Cambodia, &c., as well as in their own country, are invariably of this form. The Malay race on the contrary, eagerly adopt improvements. We may observe a marked superiority in the naval architecture of the Buggis people for instance, a superiority which is daily increasing, in proportion as they become better acquainted with Europeans.

The junks which visited Singapore during our stay there, were from Canton Amoy, Cochin China, and the islands to the east. The larger vessels carried from two to three hundred tons burden. They had neither chart nor book of any description on board, nor any written document to point out their route. They had no means even of ascertaining the ship's way, neither did it appear that they kept any account of transactions on board. They had a rude compass, set in a wooden frame, and divided into twenty-four points, which they did not appear to put great dependence on, and this was probably the only nautical instrument on board. Their mode of proceeding, is to set out with the favourable monsoon. After reaching a certain point without losing sight of land, they stand across the China Sea, calculating that they will, as they generally do, reach the opposite side in ten or twelve days. They make but one voyage across the China Sea in a year; on their return, they sometimes make a short coasting voyage in addition, after which the junk is hauled up, covered with straw, and laid aside till the following season. The owner generally voyages in his own junk, but does not always navigate it, another individual attending to that duty. The crew have a share in the cargo.

Their provision consists of pork, fowls, rice, and abundant store of pickled greens in large tubs; the latter strongly reminds one of the sour crout of the northern nations of Europe, from which it probably differs but little. Tea is their favourite beverage; they use it at all hours of the day, making it in small quantities at a time; their cups contain little more than two or three drachms.

In a small recess in the poop, there is always to be found a sort of temple, ornamented with shreds of gold-leaf, or painted paper, and containing three or four small images of porcelain or wood, dressed in a tawdry and clumsy manner. These are regarded as tutelary deities, to whom offerings of meat, rice, &c., are daily made. Their attributes, as far as we could comprehend their nature, seemed to be analogous to those of the Grecian deities that directed the winds and the rains.

Similar temples are to be seen in all the houses of the Chinese.

Inferior to these in the knowledge of all the arts of civilized life, as well as in industry, stature, strength, and general appearance; but their superiors in point of courage and military enterprise, and above all in the possession of an ardent mind and exalted imagination, stand the Malays, a

race of people whose origin, still involved in obscurity, would seem to be of no remote date. The most favoured of their tribes, have as yet made but little progress in civilization, whilst the majority would appear to be enthusiastically attached to the unrestrained condition of savage life. The Malays constitute the principal maritime population of the Archipelago and neighbouring continent, in the different settlements of which they present themselves to the traveller under very different aspects. They are by nature less adapted to commercial pursuits than the Chinese, or the Chuliahs, or other natives of India, and are therefore easily beaten out of the field by them at the stations frequented by Europeans. They are passionately attached to a sea-faring life, and their principal occupation is that of fishing.

Bold and enterprising in their maritime excursions, they hold the peaceful arts of civilized life almost in contempt. Negligent, slothful, and listless in their moments of ease, they display in the hour of danger and of enterprise, the most daring courage and intrepidity. They enjoy neither the good nor ills of life with the calm sobriety and moderation of other men. In action fierce, cruel, and immoderate, their leisure is passed in a sleepy indifference that approaches to the apathy of brute life.

Their character for treachery, though founded in truth, appears to be much exaggerated. This vice would appear to attach more to the state of society in which they are found to exist, than to any inherent propensity towards it in Malays generally. It must be confessed, however, that many of their practices are shocking to humanity. Their laws regarding the right acquired over property and persons falling into their hands at sea, by shipwreck or otherwise, shew them to be possessed of as little of the milk of human kindness as any other description of Asiatics⁴.

The condition of the lower class of Malays in these parts, is wretched beyond what we should conceive to be the lot of humanity in an intertropical climate; almost the whole of their life is spent upon the water, in a wretched little canoe, in which they can scarce stretch themselves for repose. A man and his wife, and one or two children are usually found in these miserable sampans. For subsistence, they depend upon their success in fishing. They have all the thoughtlessness of to-morrow that characterizes savage life. Their tackling is so rude and scanty, that they are often reduced to the most urgent want. When they have made a meal, they lay basking in the sun, or repose under the dense shade of the mangrove, till hunger again calls them into action. They have scarce a rag of cloth to secure them from the scorching noon-day sun, or to shelter them from the damp and noisome dews and exhalations of night. Their women are not less dexterous than the men in managing their boats. Their only furniture consists of one or two cooking pots, an earthen jar and a mat made of leaves of the *Pandanus lævis*, which serves to protect them from the rain.

In the numerous bays, inlets, and creeks, that surround Singapore, an inconceivable number of families live in this wretched manner, who have never possessed a house nor any sort of abode on the land. They are constantly roving about from place to place in pursuit of fish. What they have succeeded in taking more than is required for immediate use, they dispose of to the fixed inhabitants, taking rice, sago, betel, and cloth, in return. We are struck with the analogy between such a life and that of the tribes which subsist by hunting. The Malay is equally attached to his mode of life, nor can he be persuaded by the example of those around him to relinquish it. This description of Malays goes by the appellation of *Orang Laut*, or men who live on the sea.

Others of the Malays have proceeded a step beyond this rude state; they possess houses and a fixed abode; they use garments and cultivate small spots of ground: their agricultural skill, however, has rarely extended to the cultivation of rice or other of the *Cerealia*. They surround their houses with a wooden paling, of sufficient extent to admit the culture of the plantain, the yam, the betel, and a few other useful plants for their own use.

⁴ See *Raffles, in Asiatic Researches*. Vol. XII.

They possess but little skill in the mechanical arts, and are employed as labourers almost exclusively for the purpose of cutting down wood in the forests, and clearing ground for culture. We neither find amongst them a carpenter, a mason, a taylor, or a blacksmith.

We are told that in the interior of Sumatra, the Malays are found in a still more civilized state; that of an agricultural people.

How tenacious is man of the savage state, and how slow and imperceptible are the steps by which he emerges from it. The Malays of the peninsula and of the straits of Malacca are at the present day scarce to be distinguished from their rude ancestors of many centuries back, as may be seen by the descriptions which our early navigators have given of them.

A number of the people called Orang Laut were brought to us for inspection. They were superior in condition; in appearance more civilized than many whom we had seen in the bays and creeks remote from the haunts of man. A portrait was taken of one of them, illustrative of the physiognomy and general appearance of the Malay race. Six of these men were more minutely examined. Their average height was five feet three inches; average weight nine stone eight pounds; average circumference of the chest, two feet ten inches; circumference of the clenched fist about eleven inches; average of facial angle $66\frac{1}{2}^{\circ}$; average temperature under the tongue $100^{\circ}.02$.

The other tribes of people that frequent the commercial settlements of the straits of Malacca, are Chuliahs, from the Malabar and Coromandel coasts, Buggis from Celebes, Siamese, Burmans, a few Arab merchants, &c.

The situation of the new settlement of Singapore may be described in few words. A plain, nearly two miles in length, but of inconsiderable breadth in most parts extends along an elevated sandy beach, terminated on the west by an extensive creek, about a hundred yards in breadth, and running up into the land several miles.

The soil on the western bank of this creek is broken, consisting of low, rounded, sandstone hills, interspersed with level ground. The Chinese part of the population, and a few Malays, occupy this part of the settlement. Their campong is the workshop of industry, and affords at all hours a busy scene. The creek is navigable to boats of every description, and even to small ships at low water. On its banks are the store-houses, warehouses, &c., of the European and other principal merchants. The convenience for commerce is such that they can at all times, and in all weathers, land goods at their respective doors. Several parallel and cross roads extend from this line of houses over the plain, which is chiefly occupied as a military cantonment. A small stream of water divides this plain, which is surrounded by a mud wall, probably the remains of an ancient fortification, towards the east from another of greater extent, but only partially cleared of wood. In this last the Malays principally reside.

Behind the cantonment there is a hill of considerable height, on which it appears that it is intended to erect a government-house, if the place be retained.

During our stay here, we made several interesting excursions to various points on the coast, and to the neighbouring islands, for the purpose of ascertaining the geological structure of the group. These were highly satisfactory. The result of our examinations I must relate on a future occasion. From the accuracy, experience, and extensive knowledge of Captain Dangerfield, we derived the most essential assistance. Without his aid we might have had occasional difficulty in discriminating the rocks and minerals that fell in our way.

On the 23d February, we re-embarked, and on the 25th left Singapore harbour, and stood out towards the extreme point of the Malay Peninsula, the wind blowing strong against us, but the sea, as usual, being little agitated.

On the 26th we gained the mouth of the straits at the distance of a few miles only from the shore. We had cloudy and rather damp weather, but the temperature exceedingly agreeable, and almost invariable during the day and night, at least the variation did not exceed three or four degrees. It seemed in every respect congenial to the human frame. We had again to remark the unaccountable paucity of sea-fowl in these latitudes. At noon we fell in with His Majesty's frigate *Topaze*, Captain

Richardson, from Canton and Manilla. The Captain sent a polite invitation to such of us as might choose to visit his ship. I went on board, accompanied by Rutherford.

During the period of his stay in China, the natives of that country had, as usual, assumed a tone of insolence and presumption too marked and too humiliating to be quietly submitted to by a commander in his majesty's navy. This led to representations on the part of Captain Richardson, which were as bold as they were displeasing to the Chinese. At length the Chinese in a tumultuous manner made a wanton and unprovoked attack upon his men on shore in their boat unarmed, drove them into the sea, and wounded a considerable number of them. The first lieutenant seeing the disturbance from the ship, immediately beat to arms, fired grape shot amongst the Chinese, and sent armed boats to the assistance of the men in the water; on the approach of which the Chinese speedily dispersed. The lieutenant thought that the Chinese were beyond the reach of the shot. It appears, however, that at least five persons were killed, and several wounded.

This affair was no sooner made known to the Chinese in authority, than they put an immediate stop to the trade with the English, and demanded from the frigate a number of men equal to that of the Chinese who had been killed.

The captain resisted the proposal with indignation, and in his turn demanded of them justice and an apology for the unprovoked affront and unwarrantable attack on his men. In proportion as he remained firm and resolute, they became the less urgent in their demands. They even proposed to make the matter up, by suggesting that the captain should sign a paper which they brought ready prepared, to the effect that those who had actually killed the Chinese had either died of wounds, had fallen overboard, or otherwise perished. As he would not incur certain disgrace to himself and to his country, by asserting a palpable falsehood, the matter remained still unsettled, and the trade suspended, when he set out for Manilla.

In the evening, it being calm, mild, and agreeable, we landed in a spacious bay, with a sandy beach, interspersed with rocks, within a few miles of the extreme point of the peninsula. We found the rocks to consist entirely of horn-stone porphyry. We traced this rock to the extent of upwards of two miles, in the course of which it presents no appreciable difference. Large surfaces, divided into innumerable irregular masses, for the most part oblong, and occasionally brick-shaped, with an ochry fracture, presented themselves. The rock is extremely hard.

The land was, as usual, thickly covered with wood.

Forest, on the coast, formed chiefly of the following trees: —

Casuarina.

Hibiscus, two arborescent species.

Scævola.

Calophyllum inophyllum. This generally grows close by the sea-side, its roots being washed by the tide at high water.

Cycas revoluta. Very abundant; a more handsome palm than the *C. circinalis*. It was now in flower. The quantity of pollen discharged by the stamiferous plant was uncommonly great, and of an oppressively powerful odour. It appeared to us, on examining their structure, not at all extraordinary that this plant should long have been taken for a fern of gigantic size. A large, yellow-coloured, pine-shaped, squamate cone terminates the stamiferous plant. Each scale is somewhat of a triangular shape, the apex joining the central stem. On the under surface of the scale are innumerable sessile and minute globules, which burst exactly in the manner of many of the ferns, and discharge a fine, strong-scented, yellow pollen. This palm rarely exceeds ten or twelve feet in height.

Besides these we observed a species of slender *Caryota*.

Also *Nipa fruticans*,

And a species of *Calamus*; and another of *Urtica*.

We caught several fish in the seine on the 27th and 28th February.

We stood over towards the coast of Borneo, with the wind strong, and quite against us. We now had a heavy swell and rough sea, which soon affected the less experienced amongst us with sickness to a distressing degree.

On the first of March we had sight of a lofty conical hill in Borneo, and on the 2d we came in view of the coast of that island. The wind, which had hitherto been steady and strong, sunk into a gentle breeze as we approached the land, passing from the N.E. to N.W. and N.N.W. with a calm sea.

On the 3d we were off the point called Tanjung api, and on the following day stood over in the direction of the islands called Natunas, the more southern of which we were in sight of, and even close to. Their vegetation seemed to be quite peculiar. We were at one time within two hundred yards of one of these islands; and could observe along the beach several handsome scitamineous plants, and a considerable number of Palms. In this part of our passage, we found the weather, though rather damp, and for the most part cloudy, remarkably agreeable. The thermometer did not rise above 80°, nor sink below 78°, in the course of twenty-four hours, during our passage from the coast of Borneo to that of Cambodia.

An hourly register of the barometer, kept day and night, indicated a double tide in the column of mercury. At ten A.M., it was generally at its height, which on successive days, varied at this hour from 29.98 inches, to 30.1 inches, the barometer being suspended about eighteen feet above the sea. From five to six P.M., it had attained its lowest level, varying on successive days from 29.86 inches to 29.95. From this period it continued to rise till about midnight, when it had again obtained its maximum, and from four to five a.m. was at its minimum.

About three P.M. on the 11th of March, we came abreast of the island of Pulo Ubi, in lat. 8° 25' N., long. 104° 50' E., off the southern extremity of Cambodia, and cast anchor in a bay on the N.E. side of it, and prepared to land. In the same bay a Chinese junk lay at anchor.

As we approached the beach, we could observe one or two huts in a plot of tall grass, overshadowed by a solitary cocoa-nut tree, and several persons walking about. Our books had stated the place to be inhabited, but the dreary appearance of the island, the stunted form of its vegetation, its steril and forbidding aspect, and above all, the total absence of every thing calculated to remind us of humanity, soon destroyed the hopes we had cherished of mingling so soon in the concerns of our fellow-creatures, and of observing society under circumstances which might be supposed to confer on it a peculiar interest. We were therefore not a little gratified to observe these traces. We were still more pleased to observe one of the inhabitants walk towards the point we were approaching, and thence concluded that they must have been in some degree accustomed to the advent of strangers. This person proved to be a slender, but healthy and active old man. He wore a blue cloak, and an ample blue turban, and had a thin, scanty, long beard. His appearance was not unlike that of an Arab. He saluted us with respect, and though none of our party could understand his language, we could easily perceive that he was not displeased with our visit. We accompanied him to his house close by, which we found to be a sort of temple. On a rude altar of wood, raised about three feet from the ground, and covered with mats, was placed a small earthen image, of a reverend, though rather grotesque looking old man, in a contemplative attitude, his countenance not altogether destitute of a certain air of benignity and conscious innocence. He wore a long flowing beard and loose garments. On his left stood a smaller figure of more humble pretensions; probably the attendant of the former, or minister of his will. The first was different from the figure or image (Joss,) the more common object of the worship of the lower orders of Chinese.

Before them were placed various offerings of fruit, sugar and sweet-meats. The altar was tawdrily ornamented with pieces of tinsel, shreds of gilt paper, and painted silks.

Before the shrine was placed a low platform over which a mat was thrown, on which the old man invited us to sit down. In one end of the room were placed baskets of rice, a few small wax tapers, and some yams. We found that two families lived on this spot, and one or two Chinese. The latter had come for the purpose of collecting the gelatinous Fucus, agar-agar. The former had, it

would appear, lived here for several years. Their subsistence had probably been chiefly obtained from Chinese mariners, to whom this lofty island affords an admirable land-mark, for which they always make in their coasting voyages. They look upon the place as peculiarly sacred, and never pass it without offering up prayers and praises for their success in having made it. On this occasion they leave behind them a painted board, on which is written the name of their junk, the date of their arrival, the port they have left, &c. At this time several boards of this description were in the keeping of the old man.

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