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II.—*Sketch of the Malayan Peninsula.—By Lieutenant* NEWBOLD, *23d Regt. L. I.,—A. D. C. to Br. Genl.* WILSON, C. B.

Geographical position.—The Malayan Peninsula, properly so called, extends from lat. N. 8° 9· to lat. 1° 22½ N. where it terminates at Point "Romania," or, more correctly speaking, *Ramunia*, the most southerly land of continental Asia. To the north it is connected with the great continent of India, by the isthmus of Kraw; which, according to Forrest, in its narrowest part does not exceed 97 miles across from sea to sea. He states that by this isthmus an overland intercourse for the conveyance of letters to and from China might be established, which would obviate the necessity of going round Point *Ramunia* by the straits of Malacca and Singapore; there being a navigable river on the west side, where the portage is but six hours from another river, called the Tomfong, which falls into the gulf of Siam near the Sarchin Islands. Natives of this part affirm that a canal might easily be made across the peninsula connecting the bay of Bengal, with the China seas, by joining the two rivers. This is a subject well worth the attention of Government. The part of the peninsula actually under Malayan sway is that comprised between Point *Ramunia* and the sixth degree of north latitude, where its political power is bounded by the *T'hay* or Siamese empire. Its eastern shore is washed by the China seas, and its western side is separated from the large island of Sumatra, by the straits of Malacca, through which, and the straits of Sunda, flows the great tide of commerce of the eastern and western extremes of the globe. The breadth of the peninsula is from 50 to 150 miles, and length 450. Its direction, south-east.

Physical aspect and Geology.—The surface of the Malayan Peninsula, on each side of the primitive mountains that run down its centre, is undulating towards the coasts. It is shaded by primeval forests, stored with treasures to the naturalist and botanist, and a profusion of tropical verdure, the result in part of the moisture with which the atmosphere and soil is charged. Small plains covered generally by long grasses, occur in positions whence the moisture happens to be drained; while the flats that wind among the low hills are swampy, and frequently covered with water to a considerable depth. Where these flats lie in the course of rivers, lakes are formed, sometimes of considerable extent; as that of *Braugh*, lying near the centre of the peninsula be-

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tween Malacca and *Pahang*. Rivulets and springs are every where abundant. A few large rivers, having their sources in the mountainous chain above-mentioned, empty themselves into the seas on either side. Their banks are generally low, swampy, and covered with mangrove, *Nipah*, *Nibong* and other trees. Their bottom is for the most part muddy, except at short distances from the estuaries, where sand banks and coral reefs are often met with. Their mouths are frequently obstructed by bars augmenting or decreasing according to the operation of tides, reshes and oceanic currents. The principal rivers on the west coast are those of *Quedah*, *Perak*, *Singie*, *Muar*, and *Batta Pahat*, or Rio Formoso, that of *Johore* at the southern extremity, and those of *Pahang*, *Basut*, *Tringaun*, and *Patani* on the eastern shore. A number of verdant islets stud the coasts, among which are the *Sancavi*, the *Pinang* the *Dinding*, the *Sambilan*, the *Aroe*, the *Aguada*, the *Singapore*, and *Tinghie* clusters. The southern part of the Malay Peninsula and Banca assimilate in geological formation. Dr. Horsfield, in his observations on the mineralogical constitution of Banca, observes that "the direction of the island being from north-west to the south-east, it follows not only the direction of Sumatra and the Malayan Peninsula, but the large chain of Asiatic mountains, one of the many branches of which terminates in Ceylon; while another traversing Arracan, Pegu, the Malayan Peninsula, and probably Sumatra, sends off an inferior range through Banca and Billiton, where it may be considered to disappear."

This chain of mountains may be viewed as the termination of one of those beams or pillars of lofty hills, spoken of by M. de Guignes, in his work on the Huns, as supporting the stupendous edifice, to which he compares the elevated regions of Tartary, comprehending the lofty ranges of Imaüs and Caucasus; and the dome of which is represented as one prodigious mountain, to which the Chinese give the epithet of celestial, down the steeps of which numerous broad and rapid rivers pour their waters. The Malayan chain, as far as has been hitherto explored, is of primitive formation, principally a grey stanniferous granite and clay slate. As it approaches the equator, it diminishes in height: the highest of the *Rumbowe* and *Johore* ranges not exceeding probably 3,000 feet above the level of the sea; while many of those in the north of *Quedah* are said to be upwards of 6000. Mount Ophir, a detached mountain, between 30 and 40 miles to the eastward of Malacca, I calculated roughly (by means of the thermometer and boiling water) to be 5,693 feet above the level of the sea: its summit is of grey granite. Gold dust and crystals of quartz are found in consider-

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able quantities around its base. It is confessedly the highest mountain in this part of the peninsula. In the gold countries of *Tringaun, Pahang, Gominchi*, &c. quartz rocks and crystals of the same mineral are met with. At the southern extremity of the peninsula, and in some parts of *Salangore*, prophyry occurs associated with granite. The Elephant rock in *Quedah* is a mass of cavernous limestone and calcareous *breccia*, containing fossil shells. About 16 miles inland runs a range of small hills of a fine grained sandstone.

According to Dr. Ward "the small hills in the neighbourhood of Malacca are formed of a conglomerate, the base of which is clay-ironstone, containing imbedded portions of felspar, in a state of decomposition (having all the properties of yellow ochre), and small grains of quartz and iron glance, scattered through its substance. The specific gravity of the rock is 2,536; when recently dug, it is soft, can be easily cut, and readily stains the fingers; but after exposure to the air for some time, it acquires such a degree of hardness as to be broken with difficulty; and its durability is shewn by the present state of the ancient buildings, which have stood unimpaired for nearly 300 years. In its dry state it is porous, from the destruction of the ochreous particles by moisture and exposure to the air, resembling old lava in its external appearance. In all its properties, it agrees exactly with the rock common on the Malabar Coast, and described by Dr. Buchanan under the name of laterite." The laterite formation is of great extent on the W. coast of the peninsula. It is found at Province Wellesley. I have seen it on the coast of *Salangore* and on some of the islets in the vicinity; also at Malacca and *Muar*. It occurs likewise at the extremity of the peninsula, and at Singapore. The external conformaion of the low hills into which this rock rises resembles that of the ranges, lying between the foot of the Western Ghats and the coast of Malabar and Canara, smooth in outline with long flat or mammillary summits, never attaining any considerable height. This formation appears to commence at Fort Victoria on the Western Coast of India, partially fringing the shores of the Bay of Bengal, and running down the western side of the Malayan Peninsula. It probably extends also along its eastern coast,a knowledge of the geology of which is still a *desideratum*. Hornblende rock is found at a little distance to the south of Malacca, probably as a dyke in the granite; but this I had not an opportunity of ascertaining. Some of the islets in the vicinity of Pinang are of a bluish grey limestone, containing pelagic fossil remains, as at *Pulo Sedah*, and resting on an argillaceous schist, both in strata dipping at a considerable angle.

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This limestone has not hitherto been found in the southern part of the peninsula. I have seen traces of clay slate in the tin mines of *Naning*, and it is seen again in *situ* at the extremity of the peninsula. The matrix of the tin ore will be probably found at no great distance from the line of superposition, that is where the clay slate rests upon the granite. The islands in the neighbourhood of Malacca, and many of those off the eastern limit of the *Salangore* coast, consist of granite and sienitic granite, in some situations overlaid by laterite.

The following notes on the geology of the southern extremity of the peninsula and islets around Singapore, are deduced partly from a paper in the Singapore Chronicle, and partly from a paper* by Dr. Bland. The hill of *Johore* on the main is four or five hundred feet high—and consists of modifications of granite and hornstone, with beds of jasper. From this to Point *Ramunia* (twenty miles) is a dreary forest. Along the shore of a tongue of land, called Delhi Point, for the space of two or three miles, are strewed large masses of hard and vesicular *scoriæ* many feet thick, imbedding masses of silicious matter, in juxtaposition with indurated clay-slate in vertical strata. Dr. Bland found here a remarkable nucleus, which presented the appearance as if lava in a liquid form had been forced up from below with a gyrating motion; circular layers having different shades of colour, becoming wider, and more extended, and edging away into straight lines parallel to the other strata. At the N. E. point of a reef stood a fossil tree fifteen feet high, on a mass of a rock of argillaceous schist. Masses of coral, madrepore, bearing indications of igneous action, were seen scattered around and imbedded in the *scoriæ*. *Obin* isle, about six miles long, is of a small grained granite. At *Arah* on the main the granite formation ceases, and sand-stone and clay-iron-ore (laterite?) occur. At *Arah* are large masses of decomposed felspar suited for the manufacture of the best porcelain. From the point of *Arah* to the point of *Pandas* on the main, about six miles, is a trace of sandstone, but at the latter place a small grained blue granite appears, or sienite. The corresponding coast of *Singapore* is also sandstone and clay iron ore (laterite) until we come to *Pulo Pergam*, where blue granite again occurs. Beyond *Pulo Pergam* again the formation of Singapore is red clay slate. *Pulo Marambang* is a small island chiefly composed of granite with overlying sandstone and clay iron stone. The formation of the Carimons exteriorly is chert or hornstone. Interiorly, near

* Journal Asiatic Society, Bengal, vol. 5, p. 575.

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the tin mines, of granite with veins of white quartz. The general formation, granite with hornstone overlying. The coast rocky and precipitous. *Pulo Takung* is composed of clay iron or sandstone, and clay slate under the sandstone, soft and unfit for roofing—only found here and at *Pulo Saler*. The rabbit and coney rocks are two masses of sandstone. *Pulo Tinghi* on the east coast has a remarkably volcanic appearance.

From information hitherto collected, and from diligent enquiry made among the natives of the peninsula, I cannot discover that any volcanos exist in the interior; though the circumstance of numerous thermal springs, scattered over the face of the country, sufficiently testify the activity of subterraneous fires at no great distance below the surface. Severe shocks of earthquakes have been felt from time to time; but whether caused by violent eruptions from any of the volcanos on the opposite coast of Sumatra, or by under ground explosions there, or in the peninsula itself, which is near the line of one of the great volcanic belts, is uncertain. It has been already observed that large masses of *scoriæ* many feet thick exist at Delhi Point. Natives have traditions of the sudden sinking of mountains in the interior, and their sites being occupied by lakes.

There are thermal springs in the vicinity of Malacca: at *Ayer pannas*, near *Sabang*, and at *Sundi* in the *Naning* district. I have visited the two first places, and found the temperature of the water, at noon, of the springs at *Ayer pannas* to be 120° Fahrenheit, and at 6 A. M. 113½°. The temperature of the hot springs at *Sabang* was found at 6 A. M. to be 110°. The variation in the former instance is accounted for by the different temperatures of the atmosphere at the time of ascertaining the heat. The temperature of the springs in both cases, I found in several comparative trials to exceed that of the atmosphere by an average of 35° Fahrenheit. At the wells near *Sabang*, when the bulb of the thermometer was pushed into the soft vegetable mould at the bottom of the spring, the thermometer rose to 130°. The springs at both places are situated in swampy flats, the nearest hills are of laterite and granite. They average from 1 to 2½ feet in depth, and are discoverable from a distance by the steam, and odour that escapes. The water is of a pale bluish green tinge; from the bottom bubbles of air (probably sulphuretted hydrogen gas), ever and anon find their way to the surface, where they burst. Dr. Ward analysed a portion of the water from the springs at *Ayer pannas*, and found that, on slow evaporation in a sand-bath, 1000 grains of the water left a resi-

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duum of eight grains of saline matter, principally muriate of soda, with a slightly bitter taste, indicating the presence of sulphate of magnesia.

The superposition of the rocks of the Malayan Peninsula follows that laid down by geologists. Granite occurs in uplifted masses in contact both with the primary and secondary formations; on it is found clay slate in which no organic remains have hitherto been discovered, resting in strata highly inclined; also laterite and sandstone. The period at which the igneous rocks were upheaved, if, following Elie de Beaumont, we may be permitted to form any estimate by parallelism of elevation, is contemporaneous with that of rocks of the same class forming the Ghats in peninsular India, and the principal ranges of Arracan, Pegu, Ceylon and Sumatra. Over the clay slate and grau wacké, lies blue limestone, in conformable, beds, as in some of the isles in the vicinity of *Pinang*, and sandstone, as at Singapore. Overlying the sandstone and sometimes resting immediately on granite, we find that singular rock, the laterite, in which I have not hitherto been able to discover any marks of stratification. Jasper and hornstone are found in beds in the granite. Porphyry and sienitic granite interposed in unstratified masses. The trap will be probably found in dykes cutting the granite. The strike of the argillaceous schist as observed at Saddle Island, follows the general direction of the peninsula, viz. S. by E. Both the clay slate and limestone dip at an angle from 45° to 65° from the protruded or plutonian rocks, as shewn in Dr. Ward's section of Pinang, Saddle and Kia Islands, indicating a prior origin to the convulsion by which the granite was upheaved. The foregoing will, I fear, prove a most unsatisfactory sketch to the geological reader; much remains to be done by careful observation and collection of facts, both here and in our other Asiatic possessions, before attempting to classify the formations of India with those of Europe. In the Malay Peninsula especially, great impediments exist to connected geological survey, from the density of forest, and closeness of vegetation. I will conclude by pointing out a few *desiderata* to the geological observer. First, the careful examination of that singular mass of limestone, the Elephant Rock, in the *Quedah* territory, with a view to the discovery of fossil remains. It was visited by Dr. Ward, who found, resting on the base of the limestone, a bed of reddish yellow, cellular, calcarious *breccia*, containing small angular portions of a deep red argillaceous substance, resembling that composing an island in the neighbourhood, *Pulo Sonsong*, with small shells and pieces of coral.

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The red cementing substance is probably the red earth resulting from the decomposition of the limestone. It is noticed by M de Cristol, in his *Observations Générales sur les Bréches Osseuses*, that, in all cases where the red cement occurs, the cleft is in limestone, or where matter may be washed from limestone. One of these pieces bore the distinct impression of a fossil shell, supposed by Dr. Ward to be a species of *Cirrus*.* At the foot of a detached mass of the limestone he found, at an elevation of eight or ten feet above the level of the surrounding plain, a mass of shells, chiefly cockles, oysters, and a larger kind of muscle, which he describes to be connected together by calcarious matter, the interstices being filled with soft earth containing numerous smaller shells. The mass was of irregular shape, between three and four feet square, and about the same in thickness, perfectly superficial, and not connected in any way with the rocks near it. No appearance of strata of shells was discovered in the neighbourhood.

The rock is an insulated mass of limestone, close grained and of a dark smoke grey colour, perforated by stalactitic caverns of considerable size. It is situated about six miles from the coast, in an immense plain, bounded to the east by a small ridge of hills about sixteen miles inland, supposed to be composed of a fine grained sandstone. The soil of the plain is a whitish clay mixed with sand. From its general appearance, the low nature of the surrounding country, the existence of the shells in the *breccia*, and local tradition, Dr. Ward thinks that it was at one time surrounded by the sea, and at no very distant period. The nature of the fossil remains must determine this point. It does not appear that the stalagmitic flooring of the caves was broken up by Dr. Ward: this should be done in order to get at the silt, sand, gravel, or mud, in which organic remains have been usually found imbedded in the ossiferous caverns of Europe. The bottom of the numerous caverns, in the islets frequented by the adventurous birds' nest gatherers, might with advantage be subjected to a similar process. *Pulo Sedah dedarat*, a rock thus described by Dr. Bland, and indeed the whole *Lancavi* cluster, merit a more careful examination. This island (*Pulo Sedah*) lies off the *Quedah* coast, in sight of the mainland, and forms one of the *Lancavi* group. It is about one and a half miles in circumference and rises to the height of 4 or 500 feet, crowned by a castellated looking rock with perpendicular strata: the whole appears composed of limestone, having

* The Secretary of the Asiatic Society of Bengal, Mr. Prinsep, seems to think this supposed impression of a *Cirrus* might be that of one of Dr. Bland's species of Pterocyclos found on *Pulo Susson*, an island opposite Quedah. Asiatic Journal Dec. 1836, p. 784.

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a considerable proportion of silicious matter deposited in it, with veins of quartz a few inches in breadth occasionally intersecting it. The general rock was found stratified, from one to three or four feet in thickness, lying at an angle of about 45° dipping to the eastward; all the surface, wherever exposed, is rough and uneven. Numerous caverns were found, whose roofs, not being so exposed, were more smooth, which caves have been evidently formed by the action of the waves impinging against the rocks, which action is still going on in certain situations. Some caverns were situated higher up, and not now exposed to the same agency. On the north side of *Pulo Sedah* are found large masses of the same rock, from 20 to 30 feet in length and breadth, and 10 feet in thickness, lying in juxtaposition, and no doubt originally deposited *en masse*, but, having been raised unequally, have been broken into their present form and appearance. These masses were found rich in fossil remains; quantities of testaceous deposits were seen in all directions partly above the general surface, undergoing disintegration along with the matrix in which they were imbedded. Of the fossil *nautilus* many were seen, also some which Dr. Bland thought *ammonites*; silicious cylinders, also a fossil spine, which, from the round cup-like appearance of the *vertebræ*, was probably that of a fish.

The next point to which I would call attention is the careful observation of the laterite at its line of junction with the rocks on which it is found resting, viz. granite at Malacca, and sandstone at Singapore, *Arah* and *Pulo Takung*; whether the strata of the latter rocks are horizontal or inclined; and whether there be any appearance of stratification, or fossil remains in the laterite, or if it ever occurs in the form of dykes in its associated rocks. The origin of this rock, igneous or detrital, whether it burst up from beneath the crust of our planet like the Salses or mud eruptions of South America, overflowing the surface like basalt, overlying trap or lava; or whether it was formed from the disintegration of the subjacent rocks, or the detritus of the elevated plutonic rocks over the base of which it is generally found, is a question still undecided in Indian geology. Mud volcanos are known to exist in Pegu. In the reports of the British Association for 1831-2, is the following passage in the report on geology, by the Rev. W. D. Conybeare. "We learn that primitive formations, in which granitic rocks bear the principal proportion, occupy not only the great Himalayan northern chain, but also three-fourths of the entire peninsula, from the vale of the Ganges below Patna to Cape Comorin; although these rocks are frequently

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overlaid by a thin crust of laterite (a ferruginous clay considered as associated with the trap formation)." This opinion of Mr. Conybeare in regard to the igneous origin of laterite is evidently founded on that of Voysey, a name well known in Indian geology; who regarded laterite to have a common origin with greenstone, basalt and wacké, from the insensible degrees by which, he says, they pass into one another, differing only as to the degree of pressure to which they were subjected when under fusion.

The opinion of some later Indian geologists is in favour of its having resulted from the decomposition of granite, sienite, hornblende, and other crystalline rocks. I have little doubt however that essentially different rocks have been described under the name of laterite. The true laterite, first described and named by Buchanan, is that of Malabar and Canara, which I have seen between the western ghats or Cordilleras, and the coast, occurring like overlying basalt, in tabular and dome-shaped masses; as also at Malacca. I have seen a hand specimen of sandstone from Singapore, penetrated and shattered by the laterite. But whether it rises through the associated rocks by dykes or fissures, I have not hitherto had an opportunity of witnessing. As far as my own observation extends, no marks of true stratification or the presence of organic remains have been detected. The exterior of detached weather-exposed blocks of primitive greenstone of the western *ghâts* decomposes into a thin ferruginous crust, which might easily be taken for laterite at first sight; and I have seen veins and thin beds of a cellular hæmatitic iron ore traversing the gneiss of Mysore, which closely resembles some varieties of the true laterite. Dykes and organic remains should be diligently searched for, in order to set the question at rest: their not hitherto having been met with is by no means a proof that they do not exist. It must not be understood from what has been said above that laterite exists *only* as a *thin crust covering the granite*, and other rocks near the coast. I have seen it in the middle of both the Malayan and Indian peninsulas, composing entire hills, rising to the apparent height of four hundred feet. The Observatory at Trevandrum is said to be erected on a hill composed of a solid mass of it. At Beder it occurs on granite and passes into both wacken and basalt (Voysey). The laterite of the red hills near Madras is supposed by Mr. Cole to be of detrital origin. That of the Malay peninsula and contiguous islets resembles in mineralogical character, the rock of the Malabar coast is quarried in a similar manner, and was extensively employed by the Dutch and Portuguese, in

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the construction of their forts, and for other architectural purposes, for which it is admirably adapted, from the ease with which it is cut and shaped, its durability, and its little liability to splinter from shot.

The next point that demands the attention of the geologist is the ascertaining of the strike, dip, cleavage, and dislocations of the stratified rocks, and their relative, conformable or unconformable state of superposition. He should carefully note whether the laterite ever rests immediately on the limestone, and take drawings and specimens of both rocks at the line of junction. Trap is supposed to exist in dykes in the granitic rocks, but has not yet been seen in *situ*. The sea has been observed to recede from the western coast of the peninsula; as it advanced upon the opposite coast of Sumatra, or are the lines of forecoast produced for the most part by the deposit of mud and detritus brought down by the numerous streams from the interior? An examination of the west coast of the peninsula, and approximating coast line of Sumatra, might be made, to ascertain whether there be any grounds for an old tradition of their once having been united. Observations on the influences of currents, freshes and the tidal wave can be made on the coast of the peninsula with great advantage. Accounts of the tin and gold mines will be found under the head of *Sungie ujong*, *Johole*, and *Mount Ophir*.*

Area and Population.—The peninsula contains an area of about 46,000 square miles, and its population is roughly estimated, as follows, at 374,266; consisting in the states bordering upon Siam, of Malays, *Samsams*, and Siamese; and in the more southerly states, of Malays, interspersed with small colonies of Chinese, Chuliahs and Klings.

Exterior Native States.

Quedah and Ligore	50,000	corrected.
Perak	35,000	
Salangore and Calang	12,000	
Johore (including Segamet & Muar)	25,000	
Pahang	40,000	
Kemaman	1,000	
Kalantan	50,000	
Pringaun	30,000	
Patani	10,000	

* Vide Journal Asiatic Society, vols. 2, 4 and 5. Art. Mount Ophir, Sungie ujong and Johole.

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Interior Native States.

Rumbowe	9,000
Sungie ujong	3,600
Johole	3,080
Jompole	2,000
Jellabu	2,000
Srimenanti	8,000
Aborigines scattered over the peninsula	9,000

British Possessions.

Malacca and Naning	37,706 census for 1836
Province Wellesley	46,880 census for 1835
Total	374,266

This does not include the population of Pinang, Singapore, and other islands off the coast. The population of *Quedah*, before the Siamese invasion, was estimated by Captain Glasse at 100,000 and that of *Patáni* at 90,000. These fine provinces now contain little more than one-eighth of their former inhabitants, and this remnant in a wretched state. The *Samsams* are a race of Malays who have adopted the religion and language of the Siamese. The Siamese are supposed to occupy that part of the peninsula that extends from the gulf down to 7° N., from *Trang* on one side to *Sangora* on the other, where the Malay population commences, but of late years they have encroached much further south, driving the Malays from *Quedah* on the W. coast, and from *Patani* on the east, the most fertile of the Malayan states. The Siamese it is well known are followers of *Budd'ha*. They are divided into two races, the *T"hay* and the *T"hay J'hay*. Their national name is *Shan* corrupted into Siam. They are a busy, vain people, deceitful, and cruel, though industrious and enterprizing. In *Salangore* a colony of *Bugis* from the great island of Celebes is found. These enterprizing mariners are Mahomedans like the Malays, and are said to have established themselves here and at *Lingie*, on the Malacca frontier, towards the commencement of the last century. Along the coasts and adjacent islets is thinly scattered a race of *Icthyopophagi*, possibly identical with those described by Herodotus, termed by the Malays *Akkye* or "*Rayet Lant*," subjects of the sea; and among the forests and mountains of the interior are found several barbarous tribes, the aborigines of the country, who subsist chiefly by hunting, and by

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shooting game with poisoned arrows. Of these the natives enumerate several, viz. the *Semangs*, *Sakkye* or *Orang Bukit*, men of the hills; the *Udai Jacoons*, or *Rayet Utan*, denizens of the woods; and the *Halas*. The *Semang* and *Sakkye* are met with in *Quedah* and *Perak*, the *Jacoons* are found scattered over the rest of the interior. If credit be allowed to native information, the *Halas* are a tattooed race, dwelling in the fastnesses of *Perak*. The *Semang* and *Udai* are said to resemble the *Papuan* in colour, features and hair, but, I must say, in all the tribes of these aborigines that have fallen under my notice, I have never met with the peculiar features that stamp the negro of *Papuà*. The *Jacoons* do not differ materially from the Malay in colour or physiognomy, but struck me as being slightly lower in stature.* Many well informed natives corroborate my belief that most of the present race of Malays, that at this day inhabit the peninsula, are the descendants of Jacoon females, and the early colonists from Sumatra, with a subsequent sprinkling of Arab blood. The different tribes are sometimes generalized under the term of *Orang Benna*, men of the soil. None of them possess any written records; nor am I aware that they know the use of letters, with the exception of the *Semangs* of *Perak*, who, the natives assure me, write on the leaves of the *stebbal*. Some of a tribe from Salangore, who visited me at the mouth of the *Lingie* river, sang rude songs, and had along with their usual paraphernalia of blow-pipes, or *Sumpitans*, and poisoned arrows, a rude species of flute constructed of the *Appa bambu*. Their songs run in measured *slocas*, and, though wild, are characterized by a pleasing and artless melody. The tribes frequenting *Rumbowe* and the Malacca frontier are somewhat more civilized, many of them have been converted to Islam and blended with the Malays; from whom, when similarly dressed, they are scarcely distinguishable. The language of the various tribes slightly differs; but the whole, that I have had an opportunity of examining, bears an affinity to the purely Malayan. The Malays are supposed to be of the Tartar stock, both their features and those of the aborigines in the native states around Malacca are decidedly characterized by the Mongol stamp. To the philologist may I suggest a comparative examination of the language of the older Tartar hordes and the dialects of these nomadic tribes? The Malay language is well known to be a mixture of Pracrit or Sanscrit, Arabic, and a language, which I partly coincide with Mr. Crawfurd in calling Poly-

* See *Note on the Jacoons* at the end of this paper. —*Editor.*

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nesian, a little Persian, and a dialect purely Malayan which, constitutes a little more than one-fourth of the language written and spoken at the present day. Some of the Malays believe in the existence of two tribes called *Maiva* and *Biliang*; the former of which is represented to have an arm of iron serving as a chopper, and the latter to be entirely covered with long hair. Both are represented to be highly malignant in disposition and devourers of men. These stories are derided by Malays of information; they are not however confined to the peninsula. Mr. Marsden (Hist. of Sumatra page 41) describes two races of wild people inhabiting the interior of Sumatra called the *Orang Kubu* and *Orang Gugu*, of similar appearance and propensities.

The four interior states of *Rumbowe*, *Sungie ujong*, *Johole* and *Srimenanti*, as also the province of *Naning*, are peopled by the Malay descendants of a colony direct from the ancient empire of *Menangcabowe* in Sumatra. For further information regarding the origin, manners and customs of the Malays of the peninsula, and the singular law of inheritance prevailing among the *Menangcabowe* colonists, the reader is referred to my accounts of *Naning*, *Rumbowe*, Malacca and *Sungie ujong*, published in the Journal of the Asiatic Society of Bengal.

There are a few *Battaks* and *Caffirs* on the peninsula. The former, are chiefly slaves, or slave debtors, imported from the opposite shores of Sumatra; and the latter, slaves brought over by Malay *Hajis* or Arab *Nakhodas* from Arabia, and the eastern coast of Africa. The Chinese, Chùliahs, and Klings are settlers from China, and Peninsular India, chiefly from the Coromandel coast. They form a most useful and industrious class of the community; particularly the first, who are, comparatively speaking, most excellent artisans, agriculturists, and miners. I may take an opportunity hereafter of more minutely adverting to the habits and customs of these busy colonists from the celestial empire, and their singular system of emigration among the Indo Chinese nations, and insular states of the Indian Archipelago.

Articles of Export and Import.—The principal articles of export and produce are tin from *Perak*, *Salangore*, *Singie*, *Malacca*, *Tringaun*, and *Kemàman*, gold-dust from *Pahang*, *Gominchi*, Mount Ophir, *Kemàman*, and *Tringaun*; spices, elephant's teeth, pepper, sago, sugar-canes, timber for ship and house-building, dammer, ebony, bees' wax, betel-nut, aguilla and sapan woods, hogs, poultry, buffalos, tiles, and an immense variety of fruits. The chief imports are, opium, salt, cotton cloths, tobacco and rice.

The following is a rough estimate of the average annual produce of tin from the Malayan peninsula and Junk Ceylon, obtained from natives under every possible check.

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Mines.	*Produce in piculs* (1 picul=133⅓-lbs. avoir.)
Sungie ujong	7,000
Perak	7,500
Quedah	600
Junk Ceylon	1,500
Pungah	1,500
Salangore, including Calang and Langkat	2,000
Lukut (in Salangore)	1,600
States in the interior of Malacca	900
Pahang	1,000
Kemaman and Tringaun	7,000
Kalantan	3,000
Patani	1,000
Total in piculs	34,600

The tin of the peninsula and the Eastern Islands (particularly those of Junk Ceylon, Lingga and Banca, which may be styled the Eastern Cassiterides) is diffused over a great geographical extent. Mr. Crawfurd justly observes that tin wherever found, has a limited geographical distribution; but where it does exist it is always in great abundance. The tin of the Indian Islands has, however, a much wider range of distribution than that of any other country, being found in considerable quantity from 98° to 107° of east longitude, and from 8° to 3° of south latitude. Mr. Anderson since states that tin has been discovered in considerable quantities much farther north, viz., in the interior of Tavoy, in latitude 12° 40' north; the mines are situated at a place called Sakána, about four days journey from the city of Tavoy. It is said that it exists as high as 14° north in Siam.

The period of discovery of this metal in the peninsula cannot be traced, but it is assuredly of ancient date. Part of *Perak* is said to be the *Temàla*, or land of tin, of Ptolemy. *Tema* is the common Malay term for the metal. *Calang*, another place noted for its mines, is supposed to be the *Malaion Colon* of the same author, and the *Malaya Calam* of the Hindus. *Calang* is likewise a Malay word for tin. That of Banca was only recently discovered, as Mr. Marsden informs us, in 1710, by the burning of a house. The ore of the Malay Peninsula is extremely pure, being that, which, from its alluvial origin, is called stream

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ore. I am not aware that it has ever been obtained directly from its matrix, the granite, in which it is supposed either to exist disseminated or in the form of veins or lodes. The ore of *Sungie ujong*, *Naning* and *Perak*, is said by Malays to be the purest, yielding upwards of 76 per cent. In 1835, Mr. J. Prinsep, Secretary Asiatic Society of Calcutta, obligingly tested for me the purity of several cast blocks of tin (prepared for sale), produce of the principal mines of the peninsula, by the specific gravity, which was as follows: pure tin at the same temperature, 84° 5′, being about 7.290.

No. 1	from Naning	7.317
No. 2	„ Srimenánti	7.262
No. 3	„ Jompóle	7.287
No. 4	„ Sungie újong	7.223
No. 5	„ Lúkut in Salangore	7.349
No. 6	„ Rumbowe	7.256
No. 7	„ Jellabú	7.314
No. 8	„ Pérak	7.299

Two specimens of the ore from *Lukut* and *Srimenanti* were also tested. The former is a fine grained black oxide of tin. Specific gravity 6.74 and yielded a produce of 70 per cent. of very good metal, on simple fusion with black flux. That from *Srimenanti* is in much larger grains or lumps. It weighed only 6.64, and yielded only 52½ (?) per cent. of metal, giving off some sulphur in the fire. It is therefore inferior to the former, but probably not to the extent stated in the above single reduction. The stream ore of Cornwall, with all the advantages of European science and ingenuity employed in its reduction, does not yield more on an average than 75 per cent. That of Banca is said to give only from 55 to 60. That of Junk Ceylon 64½.

There is considerable variation in the value of the metal produced, arising from some difference in the ore; or, what is more probable, from adulteration, or from difference in the mode of smelting. The tin from Chinese furnaces is preferred to that smelted by Malays. The tin of Banca, for instance, fetches from 16 to 16½ dollars the picul, while that of the peninsula, principally worked by Malays, sells from 14½ to 15. The tin of *Perak* ranks the lowest. In consequence of a supposed adulteration in Peninsular or Straits tin, some specimens of ingots of this metal, rejected at Canton, were sent from Singapore to be assayed at Calcutta in 1831. This was done at the Calcutta Assay Office, where, after examination, the metal was pronounced to be of good quality and perfectly good in a mercantile sense. The ingots of tin

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are sometimes adulterated with lead, a cheaper and heavier metal, the presence of which may be detected by ascertaining the difference of the specific gravity, that of pure tin being, at 84° Fahrenheit, about 7°29, and of lead 11.35; or it may be found approximatively by casting two bullets or ingots, one of the suspected metal, the other of pure tin, and weighing both separately; the greater weight of the former will serve to show the extent of adulteration—care must be taken that the two ingots are exactly the same size. Another mode of adulterating tin is resorted to, which it is right to put the merchant on his guard against, viz. of filling a cavity in the middle of the ingot with dross, lead, or Malay pice. The shell of the ingot is of pure tin, consequently the fraud cannot be detected by examining a piece merely cut off. A case of this sort was recently discovered at Singapore. The fumes of sulphur are resorted to in order to give the tin the colour of that of Banca.

"Great Britain," says Dr. Lardner (Cabinet Cyclopædia, No. 54), "notwithstanding the productiveness of her own mines, imports upwards of 700 tons per annum, of Oriental, or, as it is more commonly called, Banca tin, from the name of one of the islands where it is chiefly obtained. The Malay countries are reckoned the richest depositories of this metal in the world; and from them, China, Hindustan, and many European markets are chiefly supplied." The total produce of the tin of the peninsula is a little more than half that of England, which is estimated at from 3 to 4,000 tons annually. She exports annually about 2,000 tons, including 400 or 500 tons of that received from the Straits and Banca. It appears from tables in McCulloch's Dictionary of Commerce, that Malay tin is now very extensively employed for warehousing into England; at the same time that large quantities, probably from Banca, are carried direct into Holland, where this has affected the export of British tin to a considerable degree.

Gold.—With regard to the produce of gold, it may be remarked that the peninsula of the present day, although auriferous, does not merit the appellation of "Kruse" or "Golden Chersonesus," so much as its neighbour, the island of Sumatra, to which, as previously observed, there is a tradition, mentioned by one of the early Portuguese historians, that it was formerly united. Sumatra, by some, has been supposed to be the *Taprobána* of the ancient geographers; this, Mr. Marsden, with his usual acumen, denies, ascribing rather the name to Ceylon, the *Serendib* of Mahomedan writers, and the *Lanca* of the Hindus;

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and affirms that Sumatra was unknown to them, denouncing the descriptions given by Strabo, Pomponius Mela, Pliny and Ptolemy, as obscure and contradictory. Admitting the tradition of the Malay peninsula and Sumatra having once formed one large undivided tract, to be based on truth, it might both account for the circumstance of so extensive an island as Sumatra, and one so rich in gold and spices, having, as seems to be the case, escaped the notice of ancient geographers, and strengthen the opinion which has applied the term of "Aurea Chersonesus" to this part of the continent of Asia. How far geological observations will corroborate this supposition remains to be shewn. The quantity of gold dust exported annually from the south-west coast of Sumatra and Achin alone, according to Marsden and Hamilton, amounts to 26,400 oz. The former states, that there are no fewer than twelve hundred gold mines in the dominions of *Menangcabowe* (in the interior of Sumatra) alone, a considerable portion of the produce of which (perhaps one half) never comes into the hands of Europeans.

The annual produce of gold of the Malay peninsula, on a rough estimate, amounts to 19,800 oz. It is chiefly got at *Ulu Pahang*, *Pringaun*, *Kalantan*, *Johole*, *Gominchi* and *Jellye*, at *Reccan*, and *Battang Moring*, and other places at the foot of Mount Ophir. It occurs disseminated, and in thin granular veins, in quartz; and in alluvial deposits, such as beds of streams. It has been found near beds of tin ore.

Iron.—A small quantity of iron is found in the interior of Quedah. Siam and Billiton produce this metal in abundance.

I do not find that silver is produced in any part of the peninsula, although *Perak* from its name, which in Malay signifies silver, and which is conjectured by Marsden to have been the Αργυρα of Ptolemy, might have been supposed to have derived its appellation from the presence of this metal; for which probably the tin was in those days at first mistaken.

Zoology.

MAMMALIA:—QUADRUMANA.—In this cursory sketch of the zoology of the peninsula, a few only of the most remarkable animals will be mentioned. Commencing with the *Mammalia*, the order *Quadrumana* ranks first. It has been stated that the *Orang Utan* is found on the peninsula, but I much question, whether this has been ascertained by naturalists. It is probable that the *Pongo Wurmbii*,

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has been mistaken for it.* Of the genus *Hylobates* are the *Siamang*, *Simia Syndactyla* of Raffles; the black *Unka*, *Simia Lar* of Vigors; the white *Unka*, *Hylobates agilis* of F. Cuvier; the Chimpanse or *Simia Troglodytes* of Linnæus. Of the genus *Semnopithecus*, are the *Chingkon*, *Simia cristata* of Raffles; the *Lotong*, *Semnopithecus Maurus* of F. Cuvier, the *Kra*, or *Simia Fascicularis*; and of the genus *Macacus* the *Broh*, or *Simia Carpolegus*. Of the genus *Loris* are two species, the *Kukang* or *Lemur tardigradus*, and the *Nycticebus Javanicus*, the latter of which however I have not seen. The former of these animals is termed by the Malays *Kamálasan* from its supposed bashfulness in hiding its face, or rather screening its eyes from light, its habits being nocturnal.

CHEIROPTERA.—Among the *Cheiropterous* or bat family are the Vampire bat, the *Vespertilio Vampyrus*, the *kulowang* of the Malays. The *Pteropus edulis*, or eatable bat, is said to be found in the islands.

PLANTIGRADA.—Of the *Plantigrada* tribe are the Malayan bear, *Ursus Malayanus*, called *Bruang* by Malays: discovered by Sir Stamford Raffles in Sumatra, and first described by him in a paper read before the Linnæan Society in 1820. A specimen was sent by him to the museum at the India House. The hams of this animal are held in great estimation by the Chinese. There is another species existing in the interior of Malacca, called the *Bruang auging*, or bear dog, by the Malays.

DIGITIGRADA.—Of the *Digitigrada* there are the *Lutra Leptonyx*, or "dog of the water," *Auging Ayer* or otter of the Malays, and several of the genus *Viverra*, viz. the *Musang*, the *Musang Jebbat* or civet cat, and the *Musang Akkar* or climbing *Musang*. Of the genus *Felis*, we have the royal tiger, the tiger cat, the spotted black tiger, *Rimon Arang* of the Malays, a singularly untameable beast; the *Rimon Dahan* or *Felis Macroscelis* of Horsfield, that lives among the boughs of trees; and the Java cat, *Felis Javanensis*. Besides these are the *Rimon Kumbang* and *Salat*, said to be species of leopard by Marsden, the *Rimon Balu* or *Felis Sumatrana*, and the *Rimon Jumpak* and *Akkar*. There is said to be a sort of wild dog in *Naning*, called by Malays, *Anjing-utan*, or dog of the woods.

* Cuvier, and his English commentators, express an opinion that the Pongo is the adult Orang Utan—G. St. Hilaire thought differently—Mr. Swainson (*Nat. Hist. and Clas. of Quadrupeds*) has succeeded, it appears to us, in establishing it as a distinct species of *Simia*, reserving for it exclusively Geoffroy's appellation *Pithecus*. Mr. Swainson thus characterises it:—"Facial angle—? Cheek pouches and tail none; arms long; muzzle lengthened, similar to the baboons; canine teeth very large. Habitat, India (Indian Islands?) Species 1."—EDITOR.

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INSECTIVORA.—Of the tribe *Insectivora*, is the *Gymnura Rafflesii*, an animal of which I have not seen a specimen, called by the Malays, *Tikus-am-bang-bûlan*. Sir S. Raffles discovered it in Sumatra; the native name was given to an animal brought to Colonel Farquhar, from the interior of Malacca, previous to its discovery by Sir S. R. in Sumatra, which Sir Stamford believed identical with it. There are several varieties of the genera *Tupaia*, and *Sciurus* or squirrel family.

EDENTATA.—Of the tribe *Edentata*, are the hairy and scaly *Pangolins*, the *Penggoling-rambut* and *Penggoling-sisik*, or the short tailed manis (*M. Pentadactyla* of Linnæus), called *Penggolings* from the faculty they possess of rolling themselves up.

PACHYDERMATA.—Of the thick skinned family, *Pachydermata*, is the elephant, *Elephas maximus*, in great abundance; the *Badak*, or Sumatra rhinoceros; the Malayan tapir, the *Mariba* of F. Cuvier, rare; and the wild hog. Specimens of the Malayan tapir have been sent to Europe by Duvancel and Sir S. Raffles; a female upwards of four feet in height, has lately been presented by Lieutenant Mackenzie to the Asiatic Society of Bengal. The remark of our Secretary Mr. Cole, on a drawing of the animal just mentioned (Journal No. 16, p. 146), that "the figure in the English edition of Cuvier, represents a comparatively light and agile animal, quite devoid of the heavy look, cumbrous figure, and rugous skin, delineated in the drawing", perfectly coincides with my observations on living specimens of the Malayan tapir. Drawings of the animal should always specify the age or approximative age; as both the colour and texture of its coat I have seen to vary as the animal grows up. The *Seladang* is supposed by some zoologists to be identical with the tapir. The Malays however make a difference, distinguishing the true tapir by the name of *Tennok*. This is a point desirable to ascertain. The *Seladang* may probably be a variety.

RUMINANTIA.—In the genus *Moschus* we have those elegant deer in miniature, the *Plandok* (*moschus pygmeus*) the Chevrotin of Buffon; the *Nàpu*, or *Moschus Javanicus*, of Pallas; and the *Kanchil*, or *Moschus Kanchil* of Raffles. The Malays dry and preserve the flesh of these animals, which tastes a little like that of the hare. They pine away in confinement. I attempted in vain to send a living specimen of each to England. The *Plandok* is a favourite animal among

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the Malays, and frequently alluded to both in their prose compositions and poems. Of the *genus, Cervus*, are the *Kijang*, or *Cervus Muntjac*, the *Rusa*, or *Cervus Hippelaphus*, and the *Cambing-utan*, goat of the woods, or *Antelope Sumatrensis*. The *Cervus axis*, or spotted deer, has been imported at Pinang from Bengal. It is indigenous in Sumatra. The *Bos Arnee* or buffalo exists in a domestic state on that part of the peninsula occupied by Malays. It occurs I believe wild in Burmah, and at the southern base of the Himalayas. There are two kinds of bison found in the forest* though rare. Neither the horse, ass, camel, cow, hare, rabbit or fox, are, I believe, indigenous in the peninsula; nor the *singh* or lion, although *Singhapúra*, or Singapore, is stated in the Malay annals to have been so called from the appearance there of an animal of that species. Among the *Hystricidæ* is the *Landok*, or *Hystrix longicauda*, the Malay porcupine. Those that have fallen under my observation, appear to be larger than the Indian porcupine.

Cetacea.—The last order of *Mammalia* is that of *Cetacea*, connecting as it were the inhabitants of the land with those of the watery deep. Of the genus *Halicore*, stands first the supposed Mermaid of the eastern seas, the *Dúyong*, improperly termed *Dugong*. Skeletons of this singular production of nature have been sent to Europe by Mr. Crawfurd, Sir S. Raffles, and Messrs. Diard and Duvancel. In 1830, a *Duyong* preserved in spirits was forwarded by Mr. G. Swinton, to the Royal Society of Edinburgh, and delivered over to Dr. Knox for dissection.† But it had been unfortunately divided into three portions which incalculably diminished its value. It is to be hoped that this deficiency will be shortly supplied through the zeal of some of our countrymen in the Straits.

* The horns of a bison found in the Naning district are now in the possession of Brigadier General Wilson, C. B.

† The following description of the *Duyong* is from the Ed. Cab. Library, No. VIII. p. 76. The Halicore, or daughter of the sea is called *duyong* by the Malays, and has hence acquired the name of dugong in our books of natural history. There is only a single species as yet ascertained. It inhabits the Indian seas, especially the Sumatran coasts, and has been confounded by several voyagers with the lamantins, which belong to the African and American shores. It measures seven or eight feet long, and is covered by a thick hide, of a pale-blue colour, with whitish marks on the abdomen. The head somewhat resembles that of a young elephant deprived of its proboscis. The body is fish-shaped; the anterior extremities are contained within an undivided membrane, in the form of a fin. The rudiments of a pelvis are observable and the caudal extremity is horizontally sloped, or cut like the arch of a circle. The flesh of this animal is held in great estimation, and is usually reserved for the tables of the sultan and rajas. Its own food is said to consist of *algæ*, *fuci*, and other marine productions of the vegetable kind."

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AVES.—Among birds the Falcon tribe is classed first by naturalists. Birds of this kind are generally known to the Malays under the name of *Lang*: there is the *Aquila Pondiceriana*, and the *Lang laut* or sea falcon. The *Falco dimidiatus* of Raffles; besides many others too numerous to mention. Of the *Strigidæ* or owl family, called by Malays *Buring Hantu*, the spectre birds, the woodpeckers, and the *Lanii* or butcher birds (of this last *genus* is the *Bárubàru*, an elegant singing bird), are several varieties; and four or five of the *Buceros*, or rhinoceros hornbills. One or two of storks, among which is the *Bangu* or *Ciconia Javanica*. Of parrots, kingfishers, flycatchers, pigeons and doves there is an endless variety. The *Hirundo esculenta*, or swallow that builds the edible birds' nest, frequents the islands. The yellow-caruncled, black mina, or *Gracula religiosa* of Linnæus, enlivens the forests. Those superb creatures the crimson-plumaged *Pergam*, the Argus pheasant, the *Phasianus Nycthemerus* or pencilled pheasant, the peacock pheasant, the common peacock, the blue pheasant partridge, the jungle fowl, and humming birds, dazzle the eye by the beautiful brilliance of their plumage. The murei or dial bird, the *Gracula Saularis* of Linnæus, is a native of the peninsula.

Snipes, common and painted; wild duck; teal; the common, grey, and whistling plover; rails; bitterns; red, black and green quail abound in the plains, marshes, and banks of rivers. The red-legged partridge is said to exist, though I never met with it. The common sparrow and crow are to be found as they are in every quarter of the globe. The latter, however, is not plentiful.

REPTILIA.—Of the class reptiles, order *Testudinata*, are the river, sea and the hawksbill turtle. Of *Loricata*, the crocodile is said to exist. Of the order *Sauria* are many varieties, among which is the common alligator in great abundance, the elegant monetor lizard, and, in the genus *Draco*, the flying dragon of Linnæus. Among ophidians is the *Boa Phrygia*, the Python of Cuvier. Of the *Coluber* genus are the tiger snake, so called from its stripes; the whip snake, and many others. I once shot a variety of the *Cobra di Capello*, perfectly black, except the belly which was of a darksilvery hue. There are also some interesting varieties of the genera *Leptophis*, *Hurria*, *Cophias*, and of the *Hydrus*, or water snake.

PISCES.—Among the fishes we have the sword-fish, the electrical skate, the ray, the fasciated ray, the shark, the zebra shark, the ham-

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mer-headed shark, (*Zygæna vulgaris*), which may be seen almost daily in the fish bazars, the *Chætodon Rostratum*, that kills its prey by the accurate and forcible propulsion of a drop of water from its tubular mouth; two other varieties, and the *Chelmon*. The *Jkan Layer* is a fish about eight or ten feet long, that erects its dorsal fin like a sail above the water; whole shoals may be seen passing up and down the Straits, like a small fleet of sailing boats. Excellent fish for the table abound, among which are the black and white pomfret, the Indian sole, and seer fish.

Of the *Exuviæ* of *Testacea*, or shell-fish, there is not so great a variety thrown on the coasts of the peninsula as one would expect. Among the *Cephalopodous molluscs* is the *Sepia tuberculata* or cuttle-fish. Several of the *Nautili*, *Murices*, *Turbinellæ*, and many others. Among the bivalves are various *Pectens*, *Spondyli* and *Mallei*; the *Monoculos Cyclops* which is eaten by the natives; oysters, cockles, and muscles.

Crabs are found both of the land and sea kinds, also great quantities of shrimps, of which and a small kind of fish, the *Caviar* of the East the odoriferous *Blachang* is composed.

There are a vast number of insects chiefly of the orders *Coleoptera*, *Lepidoptera* and *Orthoptera*. The depths of the forest resound with the whirrings and wheellings of families of the *Grylli*, *Cicadæ*, and *Scarabæi*; and by night its dark recesses are often illuminated by the liquid brilliance of the glittering firefly.

Vegetable Kingdom.

This comprises an immense variety of trees and plants, many of which are still unknown and present great scope to the botanist. French naturalists have occasionally penetrated the forests, but for most of what is known of the botany of the peninsula, we are indebted to the labours of Wallich, Jack and Ward, to whose publications I must refer the reader, contenting myself with mentioning a few of the most general interest. The trees most in use for purposes of house and shipbuilding are the *Chingei*, the *Dammer Lant*, the red and white *Meranti* for planks, the *Bintangor (Calophyllum inophyllum,)* used for the masts and spars of vessels; the *Murbowe*, *Metrosideros Amboinensis*, a large fine tree of hardish wood; the *Kranji* used for posts and masts, the *Rungas*, *Anacardium encardium*, for furniture, the *Medang Ketanaahs* and other *Medang* trees. The *Kayu Kamuning* is a beautifully veined hard wood, taking a high polish, and used principally for the handles of Malay knives and daggers. Ebony, Sapan, Lakkar and

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Aquila woods also form articles of commerce.

The fruit trees of the Straits are too well known to require a particular description here. The *Durian*, *Mangostin*, *Duku*, *Tamarind*, *Langseh*, the *Rambye*, *Rambutan*, the cashew or *Caju*, the *Jambu Ayer* and *Jambu Kling*, the custard apple, *Papaya*, the *Nam Nam*, a fruit with a fine flavour acid not unlike that of an apple, the plaintain, pine apple, cocoanut, lime, guava, mango, *Pulassan*, *Tampui*, jack, *Tampuni*, and a long list of others.

While the forests abound with bambus, canes, rattans, parasitical plants, timber and fruit trees, the shores and marshy banks of the rivers are fringed with the mangrove, the *Api-api*, or *Pyrrhanthus littoreus*, *Nibang* and *Nipah* trees. The two last are *palmæ* and of great utility to the natives—of the tough elastic stem of the former, the *Areca tigillaria* of Jack, bows and spears are constructed, also the posts and laths, which almost universally constitute the *lantei* or flooring of Malay houses. The little buckets in common use in the Straits, called *Timba*, for carrying water, are made from the leaf like sheath that covers the fruit. Of the leaves of the latter, the *Nipa fruticans*, the thatch is made, called *attap*. From this tree a sort of sweet toddy is got. Among the *palmæ* are also the graceful *areca* or betel-nut palm; the true sago palm, the *Metroxylon sagu* or the *Rumbiya* of the Malays, and the *Borassus Gomutus* or *Anou* palm, from which is produced but little farina, and that of an inferior description. The Malays obtain from the *anou* fruit excellent *nira* or toddy, and a sort of coarse sugar, also the hard black spikes used by them for caltrops and pens for writing, which are found enveloped in a black fibrous substance, resembling in texture coir, but stronger. This is used for the thatch of the mosques and better sort of houses in the interior, and for cordage. The teak tree it is asserted by Mr. Crawfurd is not indigenous in the peninsula; but the Malays of the interior affirm that it is sometimes found wild under the name of *Játi*. The *Upas* tree of the Javans or the *Ipoh* of the Malays is found, though rarely in the forests. It is described to be a largish tree with an ash white bark. The aborigines extract a poison also called *ipoh* from a parasitical plant.

The Catechu shrub, *Nauclea Gambir*, is produced on the rising grounds. The India rubber plant or *Urceola elastica* is found encircling the trees at Pinang. The *Rámi Rámi*, or *Urtica tenacissima*, of Roxburgh, of the fibres of which the Malays twist fishing lines, cordage, &c. flourishes on the peninsula. The Chinese affirm that the *Rámi Rámi* is the identical plant used in China for the manufacture of the famed "grass cloth." The cocoanut of the Straits, I am informed, contains a silicious concre-

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tion somewhat resembling that of the *tabashir* found in the joints of the bambu. Perhaps some of my readers now in the Straits will ascertain whether this be the fact; and if so, forward specimens of this singular substance to the Society. On the higher zones of the hills are found rhododendrons, the cypress, fir, and a variety of beautiful ferns. Some specimens, which I brought from the summit of Mount Ophir in 1833, were examined by Dr. Wallich, who furnished the following note upon them (Jour. As. Soc. for Jan. 1834, p. 48).

"The specimens from Mount Ophir, with which I was favoured the day before yesterday, consist of two ferns, three *Lycopodineæ*, and two *Phænogomous* plants. They are not in a good state of preservation, and only one has any fructification, but they are nevertheless very valuable, and I feel greatly obliged to Lieut. Newbold for them. The most interesting among them is a specimen full of good sori of *Matonia pectinata*, Brown, published in 1830, in *Plantæ Asiaticæ Rariores*, vol. I. p. 16, table 16, from a specimen, unique in Europe, which was gathered in the identical locality by Col. Farquhar. The individual now before me beautifully confirms the generic character and general observations relative to this remarkable fern, which were politely supplied for the above work by Mr. Brown; in shape it differs in having a bifid frond, the pinnæ being unilateral towards the bifurcation. The other fern may perhaps be a *Blechnum*. The *Lycopoeineæ* are very curious, and belong seemingly to new species. Of the Phænogamous plants, one is exceedingly remarkable. It has the habit of some members of the coniferous, as well as the myriceous, tribe; the structure of the wood obviously brings it under the former; the leaves are acerose, opposite, and gland-dotted. Perhaps it is a *Dacrydium*. The other plant belongs perhaps to the family of *Ericeæ*."

Of spices, the wild nutmeg is indigenous. The true nutmeg, cinnamon and cloves have been long introduced and thrive well. The tobacco plant, cotton, coffee, sugar-cane, the pepper-vine and the true indigo plant, *Indigo fera tinctoria* are cultivated with much success. The *Marsdenia tinctoria*, the *Tarum Akkar* of Malays, a climbing species of indigo, grows wild. Native catalogues of Malayan flowers, plants, shrubs, grasses, fruit and forest trees, will be shortly forwarded to the Society, together with native lists of quadrupeds, birds, reptiles, fishes and shells.*

Of our political relations with the states of the Malayan Peninsula, their extent and boundaries, I have already given an outline in the Journal of the Asiatic Society of Bengal, vol. 5, p. 626.

* Published in the APPENDIX to this Number.—*Editor.*

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NOTE ON THE JACOONS.

[A late lamented clergyman of the Church of England on the Madras Establishment, furnished me with the following extract from his note-book, containing interesting mention of the Jacoons, spoken of in the text at p. 63.—EDITOR.]

" Late in 1835, I took a ramble to the southern *Ayer Panas** and Reihm. The well at *Ayer Panas* is not quite hot enough to fix an egg; I used it as a bath, letting the water cool in vessels before throwing it over me, and at last could just jump into the well and out again, it being only knee deep. The heat may be about 130°; it is impregnated with sulphur, but I think not with iron. A good government bungalow in the middle of cleared ground of a few hundred yards—the rest dense forest. The foot marks and other signs of elephants, tigers and deer, were frequent, and at night in bed I heard the wild hog, with their squeaking young ones, and the sough or heavy sigh of the tiger from the deep forest; which I felt to be the most dismal sound that ever met my ear—the loud roar is nothing to it. The natives say it is generally towards morning when he approaches his den, after prowling all night, that the tiger emits this *singultus*, by which he seems as if relieving his great lungs. There is a melancholy in it, which impressed me with a sense of desolation. The last night of my stay we were roused by a cry resembling that of a pig in the hands of a butcher —it was a wild hog seized by a tiger, they said. Every one was up, shouting and making as much noise as possible to scare the free-booter; but of course nobody stirred out; and I fancy no Malay would have left his hut at such a time, had the tiger's prey been his own father. Although the Malays so dread the tiger when they actually hear him or his doings, yet they are reckless enough, when they do not positively know him to be near, and they traverse the forest in quest of fruit or to cut timber in the day time. They pointed out to me one place which they superstitiously avoided; several people, they told me, had gone in that quarter to cut wood, but never returned, having been seized by spirits (*datoo*). No doubt they had been carried off by wild beasts.

The forest supplied abundance of fruit, indeed the people cultivate scarcely any thing—a little paddy, but not enough for their own consumption—their supplies of rice, tobacco, cloth, &c. they get from Malacca in exchange for fruit; although with little labor they might fur-

* Malay, hot-water.

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nish themselves at home, and ought to have a surplus for the Malacca market. All are lazy, but the women do more work than the men. They have plentyof buffaloes, animals which in such a country require no care, except to pen them at nights—and yet I could not get a drop of milk—I believe they never milk them. I brought away specimens of different forest woods; as the cassia, the lemon, the mangusteen, the nutmeg, of which last the nut is larger, but less aromatic, than that of the cultivated tree. A forest road for five or six miles brought me to Reihm, where is a stockade with a few sepoys. Here, after much difficulty, I succeeded in having five of the Jacoons (supposed aborigines) brought in from the jungle. These poor creatures have no houses—neither plant nor sow—nor, I believe, make use of fire for any purpose—but lodge at night in trees; and in the day eat wild plaintains or any other fruit they meet with. If, in intercourse with the Malays, they obtain a little rice, they devour it raw, unless given to them boiled. They are generally quite naked, but sometimes the women wear the reddish bark of a tree, beaten into something of a pliable texture. I brought one of these away. Of their language, or rather chatter, I had not time to get any vocabulary. Dr. Bennet and others assert, that these Jacoons cannot be derived from the same origin with the rest of mankind, but are an inferior species—no grounds whatever for such an assumption. Of those I saw, the two elderly people were certainly frightful specimens of humanity—the woman particularly--but why? because of their wretched manner of life, starvation, and exposure. The two infants were fine little things as need be, and the other, a lad of perhaps thirteen, was comely enough—but I can well conceive that, soon after that age, they begin to wither for lack of nourishment and needful care. I gave them two dollars, and when the Malays made them understand the value of the coin, the man asked in simplicity whether I designed the sum to be shared amongst the sepoys and all others present, or if it was exclusively for themselves.

I asked the Jacoons some questions to find out what their idea of God was; as soon as they understood the tendency of my questions, the old man, who spoke Malay, exclaimed "Oh that is *Islam*." (Mahommedan being the only religion they could have any conception of). "We are forest people (*Ourang Outan*); we know nothing of that."

F. J. D.

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