

ART. II.—*History of Tennasserim, by Captain JAMES LOW, Madras Army, M.R.A.S., &c. &c.*

(Continued from page 275).

CHAP. III.

PRODUCE OF TENNASSERIM.

THE Tennasserim coast affords several valuable products; yet its advantages in this respect are, to a certain extent, counterbalanced by a paucity of inhabitants, a want for which no natural fertility of soil or happiness of situation can compensate.

This want will only be supplied, other circumstances continuing favourable, by the slow operation of time. Since the provinces fell under British protection, their population has received some increase by the return of emigrants, and the location of new settlers from Pegu, and elsewhere; also from the troops stationed there, and their followers. No accession of magnitude can well be looked for from the Burman side of the *San-lún* river, so long as the Emperor of Ava has the full control of his sea-ports, and the means of detaining the families of men desiring to leave the country, whether for trade or otherwise, as hostages for their punctual return; nor can any reasonable expectation of an increase from the eastern frontier be entertained, since, independently of the mutual antipathy existing betwixt the Siamese and the Burmans, their policy is decidedly adverse to emigration.

Rice may be considered the staple product of this coast.

Under the Burman government, however, the cultivator was debarred the privilege of carrying his grain to the best market, and none was exported except for the special benefit of the local governor. This prohibition rendered the cultivator careless and indolent; and he never willingly raised more grain than sufficed for his own wants and the payment of the taxes.

TANNAU OR MERGUI.

When the Siamese held possession of this province, it produced more grain than now, because it was more populous and better cultivated. After the cession to the Burmans, the Siamese carried on such an incessant system of border warfare and kidnapping, that the inha-

bitants were forced to leave many fertile tracts, and take shelter in and near the chief town.

The land under rice cultivation may be averaged at seven or eight square miles. The soil is alluvial near the banks of the main river, and is, perhaps, more fertile than that of Tavoy.

TAVOY.

Tavay, or Tavoy, is an agricultural province, and the greatest portion of the townspeople are either cultivators themselves or absentee farmers.

When the town was taken by the British, there were four large government granaries in it, containing the assessments of the three preceding years. In former times, Burman armies, when engaged in a frontier warfare with the Siamese, were cantoned in this province, and supplied with rice from its stores.

It requires in Tavoy an extent of $31\frac{1}{2}$ square miles to raise the average quantity of 3125 koyans¹ of rice; while, on the Keddah coast, it could be raised on $21\frac{1}{2}$ miles square.

The latter country must, therefore, have the advantage of a far more prolific soil than Tavoy possesses; or the system of transplanting the grain-plants adopted by the Malays, but not by the Tavoyers, must be the cause of such a difference in the respective degrees of productiveness. It would seem that culture is partly the cause, and that the soil of the Keddah coast is considerably better than that of most parts of Tennasserim. The Tavoyers observe, that the monsoon comes upon them so suddenly as to allow them no time to go through the tedious process of planting the rice-stalks. The monsoon, on the other hand, southward of Junk-Ceylon, is more irregular and protracted, and the people have long been accustomed to plant, instead of sowing broad-cast. It would be useless there, to cast grain on fields which are flooded with water; besides, it is well known, that in these more southern countries grain thus sown is liable to be entirely devoured by birds, rats, and its other enemies.

The Kareans, however, of Martaban, and more especially the farmers on *Billeo Kyún* island, at the mouth of the *San-lún* river, transplant the seedlings occasionally. In Tavoy, thirty-five square miles may be allowed for the maximum extent of land under rice cultivation, and ten square miles more for gardens and the sites of villages; which, however, is, perhaps, rather more than the actual produce warrants.

¹ Koyan, in weight, is equal to 5823lbs. English.

MARTABAN.—AMHERST, MALAMEIN.

The soil of the province of Martaban is considered more fertile than that of either Tavoy or Tannau. The substratum is commonly a stiff clay, or sand with clay over it. Sometimes, especially in the higher parts of the country, it is a gravel. As the elevation above the level of the plains increases in the direction of the Siamese hills, the soil becomes lighter. The detached hills are, for the most part, rocky and barren.

When our troops took possession of it, there were in the town four large wooden tile-roofed granaries, which contained, as far as I was enabled to judge, about three years' assessment raw grain; but the exact quantity was not ascertained.

The province, before it was systematically devastated by the Siamese, was itself a granary for supplying other Burman districts. But the real quantity raised could not be ascertained, as the territory on the north bank of the *San-lún* river was but partially occupied by us, and was not therefore brought under civil management.

That part of Martaban lying south of the river alluded to, and which has been ceded to the British, contained but a few scattered villages at the time of the cession, and consequently produced little grain. But the average yearly produce may now be rated at about 2190 koyans of rice in a state fit for food.

The extent of land under culture for rice may be roughly estimated at nineteen square miles.

It appears from calculations, that the Tennasserim provinces yield a yearly average quantity of 5940 koyans of clean rice. Ten koyans more might perhaps be allowed for improvement in cultivation, making 5950. The value of the above 5940 koyans in the Tennasserim markets is 356,400 Madras rupees.

But the quantity required for seed and for consumption by the population is, in round numbers (leaving the fraction of $\frac{1}{4}$ out), 7355 koyans; and if 360 koyans be allowed for rations to the British troops and followers serving on this coast, the consumption will be 7715 koyans of rice: the balance against the three *provinces* will, therefore, be 1775 koyans.

The revenue on 5940 koyans will be about 95,000 Madras rupees, which amount is higher by 5000 rupees than that received in 1827-28.

It is well known that the Burman court seldom allows grain to be exported; so that neither Rangoon, nor the Burman town of Martaban, can be looked to as places likely to supply a deficiency.

A few general remarks may here be made before leaving this subject. The Burman government allowed to the cultivators that sort of tacit or prescriptive right to the soil which seems the only real tenure in despotic countries. That some distinction existed betwixt public and private landed property, is evident from the fact of certain estates being termed crown lands. There were 274 such estates in Martaban, according to a Burman revenue statement which was procured soon after that place fell, and there were many in Tavoy also.

So long as the Ava government had its grain-tax regularly paid at the rate of ten per cent in kind on the net produce, and had its granaries, for the supply of its armies, filled, it did not take much interest in landed tenures, and seldom, if ever, disturbed the title derived from long occupancy. Prescription is a sufficient title where the will of the sovereign is law.

The Burman assessment of ten per cent was in a great measure nominal, and was, as it is now, where their power obtains, merely a formal, and often unmeaning recognition of the reputed code of Menu.

This code, or one founded upon it, is revered by all of the Indo-Chinese nations; but, in practice, its letter is not much attended to.¹

The Burman Myúwúns had abundant opportunities for extorting subsidies of grain beyond the fixed tax.

There is nothing like the Indian village system in the Burman and Malayan villages. Each cultivator enjoys the entire residue of his crop, after payment of the share due to the state. The Burman's share stands thus:² he pays, out of every 100 of produce, 10 to the government; and the expenses of cultivation and carriage, 30, being deducted, leave him a clear gain of 60.

Independently of the actual tax in kind, the Ryot had to deliver it into the public Burman granaries, which made the rate still higher. He now, in the ceded districts, pays in money, and at the rate of twenty per cent on the gross produce *value*, at the market price.

The Indian system of irrigation, by which three crops are frequently

¹ In the Bali ordinances, kings are enjoined to attend to *Satsamedhang*, under which are comprehended the giving loans of seed-grain to the husbandman, and the exacting of one-tenth only of the gross produce; *Parisamedhang*, or payment of dependants by two equal instalments yearly; *i. e.* six months each.

The *Zakát* of the Malays is a Muhammedan assessment, or voluntary contribution, in most instances, of a tenth of the gross produce, in order to support the church establishment and charities. In Siam, a tenth is a nominal duty on landed produce, for the land is assessed according to measurement.

² This alludes to territory under the Burman sway.

obtained within a year, has been but very partially introduced into these provinces, and may, in reality, be said to form no part of the general Burman system of cultivation. This neglect of so obvious a means of deriving the greatest possible return, has not been owing to any inaptitude of the soil to produce, with proper care, a second crop; but must be chiefly attributed to the indolence and poverty of the people, and to the indifference of the Burman rulers. The uneven nature of many parts of these countries, and their numerous streams, requiring only to be dyked, afford many facilities for irrigating the plains after the hot weather has dried them up. The Malays of Keddah who do not irrigate, allege, in excuse for their indolence, that grain will only there ripen at the period immediately succeeding the monsoon; but this assertion is entitled to little notice. The real cause may, perhaps, lie in the very level nature of the Malayan coast, which renders embankment of little use.

In the beginning of April the farmer clears away the grass and weeds, and burns them. When the rains commence, about the first week in June, he hires a drove of buffaloes, if he has none of his own, and drives them about, in a compact body, over the wet field until the whole soil has been sufficiently worked up to receive the seed. The seed-grain is commonly steeped in water for twenty-four hours, and then kept covered up in a moist state until germination has begun, after which it is sown broadcast.

The sower traverses the field in a straight line, casting the seed as he walks, and then returns on his steps casting a second time.

A branch of thorns, or a rough harrow, is drawn over the field. The only attention it requires afterwards is, that care be taken to supply it with the proper quantity of water, and to keep off birds and beasts.

The inferior kinds of rice are often sown, and the crop reaped, within two months and a half, or three months, according to the quality of each. Upland rice is cultivated also, but it yields a precarious crop, owing to the multitudes of birds, rats, and other animals which are ever ready to destroy it.

As it is generally sown on dry and newly cleared forest land by dibbling, it would, if unmolested, give a return of from eighty to one hundred fold.

The rice cultivated on this coast is arranged by the Burmans into at least twenty-one different sorts: these, however, need not be enumerated, since the distinction in many cases may be merely fanciful. That termed *Laungbú* is reckoned superior to any other rice cultivated on wet-land, and *Nansein mentha* the best of the dry land rices.

The *oryza glutinosa*, of three sorts, black, white, and red, is a favourite article of diet; but it is used more sparingly than other kinds.

Confections are made of this species, and the bázár women mix it up with seasoning or sugar, and after dressing it over a fire in pieces of plantain leaf, hawk it about the streets.

The white kind is carried on journeys; and, where no cooking-pots have been left behind, the green bamboo affords a ready substitute: one joint will suffice for cooking a meal in. The Burman soldiers, during the late war, carried rations of this rice to serve in cases of necessity. It was found, as those who had the task of taking their stockades will perhaps remember, in long bags wrapped round the waists of those killed or taken prisoners.

The main harvest is commonly reaped in December. The sickle in use much resembles an English one, but is rather smaller. Both sexes reap; and they cut off the ears with about six inches only of the stalk attached. This practice is not wasteful where there is never much want of pasturage; and, as the straw is soon trodden into the fields by the buffaloes, which are let loose into them, it serves to enrich the land.

The ears are laid out on earthen platforms in the open air, and the grain is trodden out by buffaloes. It is then exposed in heaps for several days to a powerful sun, and is finally stored in wooden or clayed-wicker garners, one of which is generally attached to each house. The people of this coast either do not know, or, if they do know, never practice the Indian method of preserving cleaned rice, by parboiling it, to destroy the germinating principle, and then drying it.

The women of Mergui and Tavoy beat out the rice for daily family use, by means of hand-mills formed of two grooved logs of wood set upright one above the other, and fitted into each other (*vide* Plate, No. I.), or by means of a simple wooden mortar. The upper roller of the hand-mill is made to describe a semicircle to the right and left alternately, by two women who stand on opposite sides of it. The same mill is used in Keddah. Debtors who have sold their services for a given period are chiefly employed in preparing rice; and it is, perhaps, to this occupation, and to other similar muscular exercises, that the women of this coast owe a strength of arm, which they do not scruple to illustrate practically when provoked by rudeness in the men.

In Martaban the wooden mortar is also used; but, instead of the wooden rollers, they use a hand-mill, consisting of two strong conical



See Page 30.

Born Khazi, delin.

TWO TAVOY WOMEN GRINDING RICE.

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baskets united at the apexes. These last are formed of the wood of the mangrove-tree, and are grooved obliquely, the one fitting into the other. The grain is put into the upper basket ; and this being made to revolve by the labour of women, the grain is unhusked in passing down.

The Peguers and Kareans are the chief cultivators in Martaban ; but in Mergui and Tavoy the Burmans make a large proportion of the farmers. The Kareans are fond of changing their ground, and will occasionally do so until no fertile tracks remain in a waste condition. Travellers may observe in the higher districts of the Martaban province, the population of whole villages just after migrating.

Temporary huts, in one instance, were noticed to have been built connected with each other, and forming a line of about one hundred yards. The jungle was cleared and burned ; the women were engaged in sowing dry rice, indigo, cotton, and other seeds, while the men were employed in hunting with their dogs and bows, or preparing the rice-fields for the ensuing wet season. On another occasion, the men were observed building a large house for the elder of the tribe, after which, they said they should have to provide for themselves according to seniority ; for the patriarchal authority is here acknowledged, although mutual interest causes it to be mildly enforced.

Wheeled conveyances, the criterion of improvement in most new countries, are but seldom used on these coasts, owing to the rough and miry state of the roads. They have, however, some light carts : the wheels of these are cut out of a solid plank, and have no spokes. The axle is never greased, and its horrid creak chimes in chorus with the frequent scream of the large black eagle, from the top of some majestic tree.

It is only in the driest season that such vehicles can be employed. In their stead the people use occasionally a sort of sledge drawn by one buffalo. It glides with a light load over sloughs where carts would sink.

It is not permitted to any subject under the rank of a governor to ride in a palankeen, or on an elephant, without special permission. The Kareans travel occasionally on their buffaloes, and are carried on their backs across deep creeks.

The stock of buffaloes belonging to the Tennasserim Ryots cannot well be estimated at less than 20,000. Tavoy, which is the best-settled province, contains upwards of 11,000. A full-grown male buffalo costs about seven rupees, and a female four or five. These animals, with a very few exceptions, are the only domestic cattle of the people, although the country is well fitted to support the other

species. On the route overland, during the Burman war in 1825, from Tavoy to Martaban, my party fell in with several large droves of wild cattle, of good size and fine symmetry. From their near resemblance to the domesticated cattle of the country, it is probable they are from the same stock.

The predilection of the people of this coast for the buffalo is easily accounted for. It is a hardier animal than the ox; and is sufficiently docile, although its aspect is wild. Children of five or six years of age may be seen riding on their backs, without being under any alarm. The buffalo is easily kept in condition, as he seeks his own food; and the country is never so entirely parched up as to deprive him of it. In the hottest months, the heavy night dews keep the grass alive. The people, besides, use no butter, nor what is called *ghí* in India, and do not prefer the milk of the cow to that of the buffalo: nor is milk a very essential part of the diet of the majority of the Ryots, or used frequently in a plain state by any class. Both Burmans and Kareans are gross consumers of animal food, when they can get it. It is curious, therefore, that milk should form so small a part of their diet.

They are not prohibited by their religion from eating either cows' or buffaloes' flesh; yet, as the shedding of bestial blood is, by its dogmas, a sin, they are prevented from feeding these animals for slaughter for their own use. They do not, however, seem to consider it sinful, to be so far accessory to the death of a cow or an ox as to eat, without scruple, the flesh of either.

The agricultural implements used on this coast are, besides the cart and sledge, a rude sort of plough, a harrow, a long knife, slightly curved to cut jungle and weeds, and a sickle.

Che, or tobacco, is cultivated, chiefly for home-consumption, all over Tennasserim, and is in general of a medium quality: that of the Mons and Kareans of Martaban is reckoned the best. Every one smokes, from the child of three years of age to the decrepid grandsire — from the *ménkadá*, or governor's wife, to the *míma chaba thaung*, or rice-beater. The *Cheduba* tobacco is preferred to that of home-growth, and is sold for about forty-five rupees the hundred *vis*, and assessed at twenty-five per cent.

Me, or indigo, is but sparingly cultivated in Mergui and Tavoy, but more generally so in Martaban. Here the Kareans raise two kinds of the plant, the common and the climbing indigo (*t,ha me*); but as it is never put into a shape fit for the European market, the use of it is mostly confined to the natives. The cultivation is conducted in a very slovenly manner; and plants were found by me,

on some islands thirty miles above Martaban, to be intermixed with cotton and other shrubs. It is probable that a large quantity of indigo might be manufactured on any part of the Tennasserim or Malayan coast by an enterprising person. The mode adopted formerly by the Rangoon merchants, of giving small advances on security of gold or silver ornaments, &c. to the natives, and receiving a certain proportion of the plants, might here, should population increase, be also employed with advantage. The Karean tribes might easily, by mild management, be induced to forward the planters' views; and they would take merchandise in exchange for the price of their labour.

The shores of the straits of Malacca are very favourable for the growth of this plant. The Chinese cultivate it at Penang without any difficulty at all seasons, and manufacture enough of the liquid indigo for domestic purposes.¹ In the semi-liquid, or crude state, it forms an article of export from Siam.

Ngrou kaung, or pepper.—This plant is scarcely cultivated either in Mergui or Tavoy. In the latter province there are only forty vines, near Maung Magan, where I observed some very strong healthy vines, said to be from fifteen to twenty years old. It is more widely diffused over Martaban. The date of its introduction, if indeed it is not indigenous, could not be learned.

The Kareans of the *Yúnzalen*, *Wengille*, *Yembaung*, and *Daung Damí* districts, on the Burman side of the *San-lún* river, are the principal cultivators of pepper (*piper nigrum*). The quality is good. It is not supposed that this article was ever exported except in small quantities. The price at Martaban was generally much higher than at Prince of Wales' Island; as supplies were only occasionally imported by petty traders.

P'hala, or *Cardamum*.—This plant is not cultivated: the seeds are collected in the forests by the Karean tribes, and other natives. In Tavoy, the *Taung Byaup* Kareans principally supply this commodity. It is found all along the central ranges of hills. *Palo* supplies it largely. In Martaban a considerable quantity is gathered in the districts of *Púlogyún*, *Daung Damí*, *Yúnzalen*, *Wengille*, and others near the hills. Perhaps the quantity yearly obtained on the whole coast does not exceed six thousand *vis*. The average price may be stated at one hundred and fifty rupees for

¹ Labour is, however, too high, perhaps, in the straits, and the population too scanty and indolent, to render a speculation in this article so profitable as in Bengal.

one hundred *vis* in Rangoon, and at one hundred and twenty rupees in the market of Tavoy.

Thyan, or sugar-cane, is an object of culture all over Tennasserim; but no marketable sugar is made. The cane is often red-coloured, and is said to be of inferior quality to that grown in the Malacca straits. Some coarse, raw sugar is manufactured and used for home-consumption. The island of Kalagyún, in front of Mergui, has a soil well fitted, the natives say, for the cane.

In Tavoy it is cultivated only in small quantities for the daily market, and in Martaban but sparingly. In this last province, the depth and richness of the alluvial soil would, if labour were cheap, which it is not as yet, and a ready market at hand, insure success to any capitalist, who should be enabled to commence planting under a protecting government. The Chinese are the only people who, under present circumstances, can safely be employed as labourers; and they are not yet sufficiently numerous in Martaban. Indeed, while the British possessions in the straits of Malacca afford them full scope for their industry, under mild laws, it cannot be supposed that they will fix themselves, and embark capital, in a country where no assurance can be given them of permanent protection. A wide field for the cultivation of sugar-cane, and the manufacturing of sugar, lies open in our possessions in the straits, especially at Malacca and Prince of Wales' Island. About six thousand *piculs* of excellent raw sugar, believed to be rather superior to that of Siam, is yearly manufactured by Chinese in Province Wellesley, on the Keddah coast, opposite to Prince of Wales' Island, and under its jurisdiction; and this quantity might be greatly increased.

Woá, or cotton. — This produce is chiefly obtained from the Kareans of Martaban, neither Mergui nor Tavoy yielding it in sufficient quantity for home-consumption. In the upper districts, lying on the Martaban rivers, and on the islands in the *San-lún*, the Kareans plant cotton to such an extent, that they yearly export considerable quantities to Rangoon, Mergui, and Tavoy. Small vessels carry on this trade during the north-east monsoon. The staple of the cotton is reckoned good; and the native cloth woven from it is very durable.

The market-price was, in 1825, about twenty-four rupees for one Ava *picul*, or two and a-half Penang *piculs*. Perhaps four rupees for ten *vis* may be taken as the average price. The petty traders of Martaban go up the rivers in large boats, and barter various commodities for cotton, indigo, &c.

The plant is an annual: it is cultivated in a slovenly manner, and

is subject to be injured by rain, if planted too late in the season. The Kareans, whom I observed cultivating it, informed me, that for its cultivation they clean and burn the jungle; dig up roots of trees, and burn them; then make holes with sharp stakes, and into these drop the seeds of the cotton. Scarcely any further attention is paid to the field until the crop is reaped. The *lallong* (*gramen caricosum*) is very hurtful to the plants. Káthá, one of the islands which I visited, was stated to afford about three hundred *piculs* of cotton annually; and the people of the town of Martaban, acquainted with the trade (for the records had been carried off or destroyed), affirmed, that a ship of one thousand tons in bulk, packed lightly in the native way, might be obtained yearly.

The districts yielding cotton are — Zimmí, Bénlein, Lein-boe, Myein Kalaum Kyún Island, Yein-bein-chaung, and Taung-beo.

Nan, or sesame, is raised in considerable quantities over the three provinces by the various classes of cultivators, but chiefly by the Kareans, especially those of Miyein, in Martaban. The machine by which the oil is expressed, differs but little from the Indian one; it consists of a deep conical trough, or cylinder, the apex downwards, in which a long wooden pestle is made to revolve obliquely by the labour of buffaloes. The weight of an Ava *picul* costs from sixty to eighty *ticals*, and a hundred baskets of the seed cost two hundred rupees at the highest.

It is used not only for the lamp, but by all classes for culinary purposes, and in making confections. Neither the Burmans, Peguers, nor Kareans, rub their bodies over with oil like the natives of some parts of Hindústán. Perhaps the general humidity of the Indo-Chinese climates renders unguents unnecessary: besides, these classes are better clothed than the mass of the Indian population.

The places in Martaban where it is raised are — Daung Won, Yungzillen, Wengille, and Yenbaung.

Sap'han k'ha, or *myrobalan*, the fruit of a tree, *belleric* (*setchin-thí*), and *emblic* (*gyí pyúsí*, or *zíbyúthí*), are found in the woods of Tennasserim.

Pei-san-ben, or hemp, is little cultivated; it was found growing on some of the islands in the *San-lún* river. The natives, particularly those N.E. of Tavoy, use, sometimes, instead of hemp, the integuments of a creeping plant called *Pan*, and the fibres of the inner bark of the tree termed *Sháni*. The leaf of the *Pan* is used to dye nets. The integuments of the bark are employed instead of hempen thread; and of these they make at Rangoon strong ropes and cables. They steep the rope in a strong decoction of the *kabyein-kha* (or *kablein-kau*),

or mangrove-tree bark, which preserves it. This bark is used to dye, or rather to tan fishing-nets and leather; but it is very inferior to the barks used in England in the tanning process.

Pogaung, silk and silken cloth.—The silkworm is hardly known by name in the Tennasserim provinces, raw silk being imported. The weavers mix silk and cotton occasionally.

The Burmans and Peguers have a decided aversion to wear a cotton or silken dress, the stripes of which are arranged vertically: for the upper parts of their dress they are partial to handsome chintzes, gold-flowered silk, and fine muslins; old men wear the plainly coloured cloth called *túnyinthe*; the young men the *panzen*, which is gaudily coloured. In Martaban, there is a plant having a large dark-green leaf, which was pointed out to me as the same kind of shrub, the leaf of which is used by the *Shaans*, and people bordering on China, to feed the silk-worm. Achín is the only place, as far as I can learn, on the coasts to the eastward of Bengal, or to the south extremity of the Straits of Malacca, where the silkworm is cultivated, and it is fed there on the mulberry.

Karawé, or *Kubab-chine*.—This, as far as can be learned, is the product hitherto termed *Kabab-chine*, or *piper longum*. Mr. Crawford, in his *Eastern Archipelago*, describes it to be the fruit of a climbing plant common in Java. The *karawé* is highly aromatic; its flower, or rather fruit, resembles black pepper in shape and colour, and has a short tail or stalk attached. *Sumatra* is reported to yield it in abundance. The *kubab chine* is an article of some value; a *picul* has been sold for eighty Spanish dollars. It is well known that it finds a place in the British Pharmacopœia.

Indian leaf (the *káyú-láwang*-tree leaf of the Malays) is also found in the forests.

Seche is the gum of a tree, the wood of which is of a dark-red colour.¹

It is used in gilding, a previous coating of it being applied to any wood-work intended to be gilded. The natives affirm that it dries best in wet weather, or perhaps it dries slowly without cracking. It is much used in lackering, and will not yield to common agents except oil, and then only before drying. It costs about twenty-eight *ticals*, a Malayan or Penang *picul*: its colour is at first nearly that of burnt amber, but it afterwards grows black.

Kiya is the root of a tall shrub, and is used as a yellow die.

Kanyenchí, or *Tangenchí*, or dammer oil, is used to pay vessels,

¹ *Batavia Transact.* vol. v. *Manga deleteria silvestris.*

and for torches. It is most abundant in Tannau and the Tennasserim archipelago. One thousand torches cost seven rupees.

Kanyen-ben is the dammer tree.

Poyet is the gum or resin of the tree used to pay vessels, &c.

Chek'ha, or *Shek'ha*, is the red-coloured bark of a tree so called. It often occurred in the dry tracts during my route from Yé to Martaban, and was found very abundant about Papéngwén. The leaf is small, but no flower was observed by which its botanical character could be known; the natives said it was white-coloured. This bark has a very bitter astringent taste: the Burmans chew it along with the areca and betel leaf, and it is probably a febrifuge.

Woods.—Tennasserim and Pegu (as a port) have long been celebrated for the timber procurable there. Few countries yield such a variety of useful woods as the three Tennasserim provinces. The most valuable only will require to be particularly enumerated.

Kyon-ben, teak.—Teak is one of those singular natural productions which are confined within certain geographical limits without any apparent cause. It has not been found on this coast in perfection south of Martaban: a few stunted trees have been discovered in the Yé district. But however confined it may thus appear to be by nature, the tree can be naturalised in more southern latitudes, and it is easily propagated from the seed, which drops and takes root of itself. Java yields it; and teak trees from thirty to forty feet in height, are abundant in Mr. Brown's plantations on Prince of Wales' Island, and thrive luxuriantly. Siam and Cochin-China also yield it. In the province alluded to it is abundant; but is only to be procured in the elevated tracts and plains. The first indication of its existence was observed by me at *Thaní*, on a line stretching north and south, and about forty miles by water above the Burman town of Martaban; and it was discovered to be plentiful higher up at *Kyassún*. It is got also in the districts of Kwam, Zimmí, Taungpho, and Keya. The Burmans used to force the Kareans to fell a certain quantity yearly without receiving any wages; an intolerable grievance, to escape from which they often retired into the deep recesses of the forests. The quantity available is, perhaps, only limited by the number of labourers that can be procured. Some sawing-machines have, I am informed, been erected at Málamein, or Amherst, by merchants from Calcutta.

Tinyet, or Sapan wood.—This valuable article is not general in the provinces, but is almost entirely confined to Tannau or Mergui. It affects the higher tracts like teak, and is abundant in the direction of the river above Old Tennasserim, and five days' journey distant.

It is brought down on rafts in logs of about two feet in length : the root is reckoned best.

The most which it is believed has been obtained in any one year since the conquest by the British, was about 600,000 *vis*,¹ which, at ten rupees the hundred, would give 60,000 rupees as the total value of one year's cutting ; the tax, at twenty per cent, would, therefore, average 10,000 rupees. Formerly the woodcutters were only employed on one trip. They now make two a year ; one man can cut from 300 to 350 *vis* in one month.

Two *piculs* and one half *picul* of Penang (or one *Ava picul* of Sapan) sold, in 1825, for fifteen rupees, but it was then very scarce ; its present price may average ten rupees per 100 *vis*. It, perhaps, exists in all the mountainous tracks dividing Siam from Martaban, Tavoy, and Mergui ; and it is abundant on the Siamese side of the mountains north-east of the three Pagoda Pags.

Kublein, or *Kubbyein Khán*, is the bark of the mangrove-tree, called *bakkau* by the Malays : the bark is employed to tan leather, and to give a reddish dye to fishing-nets.

The tree grows in a singular manner ; its numerous roots are bare for a considerable space below the trunk, which they seem, as it were, to prop up ; the lower end of the trunk is thus generally kept even with high-water mark : it is used to make pegs or nails for boats.

The taxable produce of orchards are chiefly cocoa-nuts (which are not very abundant, areca-nut, dorians, mangoes, mangustins, guavas, plantains, jacks, oranges, and several other fruits, chilli and pulses ; but the dorian and mangustin are not found to the northward of the Tavoy province. In Martaban, they reckoned seven hundred and sixty-seven areca gardens, containing in all 75,634 trees ; each tree, under the Burman government, paid twelve nuts, or about one fortieth part of the produce. But a considerable quantity of prepared nut was imported from Penang, the above quantity not being found sufficient for the consumption in the province. The tax amounted, it was said, to about 3000 *ticals*, rating the value according to the caprice of a Burman governor.

Kyetha is a red-wood tree, the bark of which is used in medicine, and has a strong disagreeable odour.

Akya, or *Úgyo*, lignum aloes, is a native chiefly of the island lying off the coast of Mergui ; but it is occasionally found in the interior. Chade island produces the largest quantity ; the tree is not, it is

¹ Since the above was written, the produce of this year, 1829, has been ascertained to be 500,000 *vis*.

reported, a tall one, but as it is in a decaying or decayed state when it yields the wood in question, its botanical characters do not appear ever to have been ascertained. This wood is much prized by the Burman fair as an ingredient in cosmetics: they rub it down with other sweet-scented woods and barks, on a smooth slab, with water, and, when a thin paste has been thus obtained, they perfume their persons with it. The *Kalambak* is an inferior sort of aloe-wood; its locality seems to be Pulo Lontar; five piculs' weight of it were gathered by some of the roving Malays, who annually visit the Tennasserim archipelago, in 1825, and for this quantity they got 160 Spanish dollars. The bark of the tree, which yields the *kalambak*, is said to be white, delicate, and aromatic.

Sanakha, or *tanakha*, is a white, odoriferous wood, used in cosmetics by the Burman ladies.

Mau, the aloe-tree, is most plentiful betwixt Martaban and Rangoon; but is found all along the Tennasserim coast.

The following are other varieties of wood, besides those already noticed, which grow on this part of the Indo-Chinese continent:—

Sassafras is abundant at Mergui.

Kamau, or *píma*, is used for house-building, and is the *Bongo* of the Malays; it is of two sorts, red and white. The red is best, and is used for ship timbers, being deemed a very durable wood. It bears a reddish-coloured flower.

Sambien, or *seman*, or *themban*. It is not adapted for the saw. The bark is used for making ropes.

Sirrapí, the Malayan *kayú binttangau*, is used for masts. It is the *pún*, both of the red and white sorts.

Kadút is employed in ship-building (the *marantí* of the Malays). It is of two sorts, *kado pyú* and *kado nyí*, red and white. The red, *kado yúathi*, or small leaved, is the most durable.

Kanyo is used for beams and rafters.

Saban thaban is used for boat-planks, but is not easily sawed.

Binnatha is used for house-posts.

Pannatha, next in value to *thengan*, is employed for various purposes; such as for cornices of pagodas.

Kyeze is good for house-building.

Kaumú, or *kamogí*, used in building práhus. It is a light-coloured, close-grained wood, and is easily sawed.

Taungbín is the lightest of the durable woods, or the Malayan *nungka pipit*. It grows on high lands, and is used in ship-building. It is not easily sawed.

Sagú, *thagú*, or *daggú*, is used for constructing canoes. It is

tough, and of a yellow colour. The tree is stunted. It is light and durable.

Taung-kajú, a tree procured from the hills, and used in house-building.

Membanse is a yellowish-coloured wood, of which bows and spinning-wheels, spear-shafts, and the like, are made. The *kranyí-laut* of the Malays.

Mík'himbí, or *mye-kyembí*, the yellow root of a tree, so called, which is administered internally with black pepper, as a tonic. It is given to boxers previous to their engaging; and is believed by the superstitious to render them innocuous.

Chímamít is a root of a climbing plant. It is used in the cure of wounds; and is given internally in cases of fever. The juice is balsamic.

Than yúglo, or *jojrú*, or *kanzo karo*, is the large tree of which timber is cut for the construction of práhus.

Pén le bien, or *pín*, is cut up into planks. *Lagú* is employed in house-building.

Kajú, or *telethí*, the cashú-tree, the *jack*, and the *nissah*. The fan-palm and the *ber* grow in abundance. The Burmese Proper call the cashú-tree *kaza*; the Tavoyers, *shethallé*; the Merguiers and people of Tennasserim, *kajú*.

Thaung thangi (Malay, *prealaut*): *momordica charantia* of Marsden.

Sein dabo, the *periploca Indica*, or sarsaparilla. It is used by the Burmans in medicine, and for removing the effects of mercury, &c. &c.

Ponyet is lac produced by an insect.

Natha is *sandal*, but none of the proper sort is got on this coast. An inferior description is, according to native accounts, to be found in the forests, and in the Ava province of Auntaung.

Thengan-kyaup seems to resemble the tree called by the Malays *dammer-laut*. The real tree of this last name is not found on the coast.

Thíngyín bein, or *thinyen*, or *kinyen*, is a tree yielding the resin called dammer; and the wood-oil used in giving the first coating to wood previous to painting. It most abounds in the Tennasserim or Mergui archipelago. It is a fine-looking, lofty tree, of great girth; but the wood is of little value. Dammer-oil is, however, got from several other sorts of trees, or, at least, an oil used for similar purposes.

Pen le aung, or sea cocoa-nut, a tree bearing a pyramidal-shaped fruit, the size of a pear. The rind is used to stop fluxes. It is full of seeds. It is called by the Malays, *buah pútut*.

Nungka pipit, or sparrow jack, a red-coloured wood employed in ship-building.

Thení, or red-wood (*Malag kayú merah*), *thinní*, *meke*, or *meleke* (the Malayan *kayú kamúning*). It is found on several of the islands. [It seems to be the *lin* and *astronia* of *Bat. Trans.*] The natives make of it ornamental kris-handles, shafts of spears, and walking-sticks. There are several species of this tree in the Malayan peninsula; the *kamúning amas*, *kamúning kúnjet-trús*, and *kamúning-tei*, *karbaú*. They all take a fine polish.

Myenaban, or *myennabeat*, is a tough-wooded tree used in making shafts of spears and bows. It is the lance-wood. It is excellent for carriage shafts. The trunk seldom exceeds ten or fifteen feet in height, and eight or ten in girth.

Zithí zedí, the ber-tree (*bidára* of the Malays). The fruit is sweet tasted, but contains an astringent matter.

The Burmans are rude carpenters, and, as wood is cheap, they very frequently sacrifice a whole tree of large size for the sake of one or two planks. They fell the trees either with their long knives, which increase in breadth and thickness towards the point, or by means of a very small axe.

Pemboa is the white, bulbous root of a sedge. The islanders grate it down by means of a piece of the skin of a large kind of scate. It is washed and soaked for some days in water, dried in the sun, and then laid up for food. It looks somewhat like sago. Eight guntangs used to sell for two Spanish dollars. I brought with me to Penang several roots which thrive well.

Kún, or betel vine, is of two sorts; one dies in three years. The leaf of this climbing plant is used by all ranks in their masticatory mixture. The people cultivate it regularly, although it is also found in a wild state. In the dry season the women water the plants, the water being drawn up from the well by a machine of a simple structure, like the Indian *pakotah*. A slender bamboo rests over a small beam; to one end is attached a stone, and to the other a small bucket made of date-bark or leaf. The drawer depresses this with one hand, and, when it is filled, a slight pull at the loaded end brings up the bucket.

Areca-trees were taxed at the rate of the fiftieth part of a rupee for four trees.

Amba, *amphan*, or *ambergris*, has occasionally been picked up in very small quantities in the vicinity both of the Mergui and Nicobar Island.

Samkhye, stick-lac, is not a plentiful production of this coast. It

is found occasionally at Kyanptaung, above Old Tennasserim. It probably becomes more abundant in the vicinity of the hills, as the natives say it is plentiful there. It is doubtful if any stick-lac is to be found near the coast.

Yan zein, or saltpetre, is not apparently a product of the Tennasserim soil; at least in such quantity as to make it profitable to the natives to manufacture any. The only resource they have for manufacturing the article would be by boiling a *lixivium* of bats' dung, and purifying the *residuum* after evaporation.

The rocky caves on the coast, particularly those in Martaban, afford the material in large quantities; but the natives prefer the imported saltpetre, and rarely resort to this expedient. The article comes from Ava, *viâ* Rangoon. There it is reported to be chiefly made from the soil of bats, and it is abundantly manufactured from this substance at Ka-gon, of which the caves in the vicinity yield large quantities. The Siamese came down formerly, and made saltpetre here.

Kan, or sulphur, is imported. A good deal is got at the burning island near the Nicobar group of islands.

Wax (*phayaun*) is most plentiful at Mergui and Martaban. In the former province, in the upper parts of the river districts, it was formerly obtained in considerable quantity from caves and rocks. In Martaban the bees chiefly inhabit the limestone rocks, there so numerous and so well adapted by their conformation to shelter these insects. In Tavoy, honey and wax are principally obtained from the hives on the branches, and in the hollows of trees. The bear here becomes a greedy rival of the forest wax-gatherer. The rock-honey and wax are best. It was reported to me, that in the Zoegabentaung (a high range of limestone rocks); and in its vicinity a quantity equal to eight hundred *piculs* was formerly obtained yearly. But this appears an exaggerated statement. The price in 1825 was sixty *ticals* per Chinese *picul*. The price now is about two rupees per *vis* of three pounds and a-half. The wax is often adulterated with flour made from the root of sedge, or with rice-flour; but, by melting the wax it is detected. Tavoy may yield about five or eight thousand *vis* yearly, or upwards.

Leik k'hún, or tortoise-shell (of the hog-billed sea-turtle), is procured in the Mergui archipelago; where, also, the natives termed *Chalomes* collect the shell-fish called *noa metse*, which they sell to the Chinese. Some of the last, which we got out of the hollows of rocks on the islands, were nearly the size of a conch, or *buccina*, but not so long. The head of the fish is defended by a hard and smooth stone, more

resembling marble than shell; and which covers the opening of the shell when the fish retires. One of these was found to weigh half a pound, and to be half an inch thick. The upper part only of the fish is preserved: it is first parboiled, and then dried and smoked. It has been sold for seven Spanish dollars a *picul*.

Meyo, or *Beche de mer*, is another article found on the shores of almost all of the islands lying off this coast: it is too well known to the eastern trader to require a further description than that it is of three sorts:—The first, *Payaun Meyo*; the second, *Meyo Byú*; the third, *Meyo Me*.

Shen-joe, or *Chenzoe* ivory, is procured from the Burman hunters. Elephants are so numerous throughout the provinces that it would not be an easy matter to effect any very sensible diminution of them. Their tracts cross the usual forest-roads or paths at very short intervals; but they are not much dreaded, and generally walk quietly away if not molested; they do, however, occasionally pull down the huts of the hunter, or tin-miner, to get at his store of rice. In Tavoy, during the Burman sway, more than two hundred pairs are stated to have rarely been got in any single year. The agreement with government seems to have been, that the hunter was occasionally allowed fire-arms and supplies, and that he got half of the produce, the other half going to the state.

Mergui yielded about two hundred pairs yearly, according to native information. The exact quantity afforded by Martaban was not ascertained: those natives who were acquainted with financial matters stated that five hundred pairs might be collected in a year.

The Burmans carve ivory knife-handles, chess-pieces, and other ornamental work, in a very respectable manner. The present revenue from this source is about one thousand rupees a year, and three rupees a *vis*; but the Burmans, and more especially the Malays, consider it in some measure sinful to take away the life of so noble an animal, and hunters are therefore few. The Burmans of this coast seldom try to catch elephants as they would have little use for them unless in time of war. The chief districts yielding ivory in Martaban, are *Wenra*, *Jagyein*, *Dagyein*, *Leinboe*, *Kalaum*, *Kyán*, *Yúnzillen*, and *Wengille*.

Kyanno.—Rhinoceros' horns are an article of trade, but the quantity is very limited, the natives being more afraid of this animal than of the elephant, or even the tiger. He is considered courageous who will venture near the spot where one may be luxuriating in the cool mud of a creek, for the animal, it is said, almost invariably attacks any person whom he sees near him. On such occasions he uses his

teeth. The rhinoceros is found all the way down to the Malacca Straits. It is frequent in the low tracts of Keddah, and on the borders of that district of Keddah which was ceded to the British.

Ngeksei, or *Ngethaik*, edible bird's-nest.—This substance, so valuable in the Chinese market, is plentifully obtained on many of the rocky islands which lie off the coast, and, from personal observation, it would seem that the swallow, which makes the nest, is rarely found where the lime or calcareous formation does not prevail. Granite is but seldom hollowed out into caves, while the lime-rocks are full of deep caverns and sinuosities, peculiarly fitted for the habits of a bird which nestles in almost total darkness. Several of these islands are so tortuously scooped out by the effect of time, and the percolation of water, that the *nester* is obliged to unravel a clue as he winds through their natural vaults. Sometimes he is let down the front of a precipice by a rope held by his friends above; at others, he ascends a perpendicular rock from the sea which washes its base, by help of rattan ladders arranged in a zig-zag manner, and reeved through perforated projecting angles, or tied to them; when the rock is vertically perforated he descends, torch in hand, by a rope held above by his assistants. The Malays are the most expert class at this employment, in which they have been long engaged.

The piratical Malays from the independent Malayan States, make an annual voyage, in a fleet of about fifty *práhus*, to the rocky islands of Trang, Junkceylon, and Tennasserim; and about one hundred boats also go to the same quarters from the British settlements in the Straits, from Keddah, and other Siamese ports, in search of the *nests* and of *beche de mer*, and other productions of the islands: the former class plunder as they coast along, and are equally the terror of the petty Malayan trader and the Siamese. It is impossible to state exactly how much is lost to the possessors of the Tennasserim islands by the intrusion of such adventurers; but, judging from what the Malays inform me, they consider the profits of a good voyage, in a large boat, to average forty *catties*, and of a bad one only two or three *catties*. But many of the smaller boats do not actually collect above one or two *catties* at any time. If we allow two *catties* for each boat, which is a very moderate calculation, and for the collection from the Tennasserim islands alone, we shall have not less than two *piculs* of birds'-nests thus annually smuggled; the value of which, at the ports to which it is conveyed, may average ten thousand Spanish dollars: but the quantity smuggled from all of the islands just noticed is much greater.

When the Chinese had the monopoly under the Burman govern-

ment they paid, I was informed (by Mr. Gibson, a person well known during the Burman war,) twenty thousand *ticals* yearly, or value to that amount, in kind. Now, the Chinese must have made a large profit, since they never long keep up a speculation which does not yield ample returns. As the Siamese can scarcely be considered as having ever occupied any of the islands in question, the Chinese, of course, took a wide range; indeed, the Burmans say, that when Mergui was given over to them, the sovereignty of all the islands down to Junk-Ceylon, was also considered as alienated in their favour.

The *bird-nest* swallow is now known to be so formed that it can secrete, probably with the help of some extraneous substance, the glutinous matter of which it builds its transparent nest; by watching their motions the gatherer can oblige them to build two or three nests in a season. The first one which he robs is, perhaps, the most transparent, if it is not an old one. The nesters use both opium and arrack. There are birds-nest islands on the *Bassein* coast, and they are frequent on the east coast of the Peninsula, in the Bay of Siam. The revenue at present derived from this source may average as follows:—

Tavoy Islands	15,000 Rupees.
Mergui, ditto	5,000
	20,000 Rupees.

Salt (Chó).—The coasts of Pegu and Tennasserim are peculiarly favourable for the manufacture of salt; in most places it is obtained by evaporation in boilers. A short description of the method of making it at Tavoy, on the *Taung Byaup* river, will serve for the whole coast, as far as I can learn.

The sea-water (which must here, however, become mixed with the fresh water of the rivers) is, at spring tides, let by channels into large shallow fields, lined with clay or mortar; here the sun frequently evaporates it, and leaves a tolerably white salt. The natives prefer to fill deep wells with the brine, and then to draw it up as the boilers require replenishment. These boilers are simply earthen pots, which, to the number of from fifty to one hundred, are disposed along the upper and rounded surface of an arched kiln; the kiln is three feet high, and is covered with a thick layer of mud, in which are made holes for the pots. These boilers are emptied thrice a day, and thrice at night, and give about five cattie¹ each time: the Martaban boilers

¹ Twenty-one, or twenty-two and a half dollars' weight. When the brine is strong in February and March, they will yield about double this quantity.

yield about twenty-five each time. Seven men, the workmen said, can manage two kilns at Tavoy. The salt is, when drying, put into triangular baskets or sieves, where impurities filter off. They stated, but with what truth I had no positive means of ascertaining, that during the hot months, which alone are very favourable for the manufacturer, one man can make three hundred baskets.¹ Salt is valued at about the average of six rupees the one hundred *vis*. The quantity which might be produced is unlimited.

In Martaban, a tax of one rupee a year was put on every pot : the yearly caravans from *Thaumpé*, and from other tribes and countries of the interior, took away large quantities of salt from Rangoon and Martaban. A *picul*, at this last place, was supposed to cost about three rupees, and as it was bartered for the products of the interior, a high profit was obtained. The bázár rate here is about five rupees for one hundred *vis* : it is believed that ten per cent was the tax on this commodity when it was not put on the number of boilers. The places in Martaban province where it is made, are *Wakrú*, *Jenkyeit*, *Rengyein*, *Wen-Kalotroa* and *Teit-Killá*.

Thré, hides, do not appear to have been in the list of Tennasserim exports, unless perhaps in a very accidental manner ; but those of the elk, varieties of deer, the rhinoceros, and other animals, might easily be procured if the natives desired it, and if they were in demand.

The *Kidderang* of Malays, and *Klé* of the Siamese, is a yellow dye ; it is exported to India from Mergui.

Balachong, *Ngapí* or *Ngapú*, which is a preparation of dried shrimps and other substances, a sort of caviare, forms an article of general consumption in the provinces. A cattie's weight sold for one tin coin, or about the $40\frac{1}{2}$ th part of a rupee ; of course, the value of this rude coin is very indefinite. The rate may be taken from $5\frac{1}{2}$ to seven rupees per 100 *vis*.²

The balachong and doria's are fit accompaniments to the viands on the board of a Burman, whose nasal sense is rather obtuse ; but custom renders him, and even Europeans, unconscious of the disagreeable congregation of smells which these *delicacies* announce. In Martaban, each shrimp-net was assessed at one *tical*.

Ngakyawp, dried fish, forms a considerable article of trade with the interior. The *kabús* fresh-water fish is in great request ; the ponds where they are caught were farmed out by the Burman government. The prepared fish is sold for forty rupees a *picul*.

¹ A basket is equal to about ten *vis*.

² Sixty-five pounds.

Metals, or Amyújoung.—This coast supplies only two of the metals in quantity sufficient to excite enterprise.

Tin (K'hé).—The most generally diffused is tin; and, amongst the ore of this metal, small particles of gold-ore are often found: but however rich the Mergui and Tavoy mines are, the Burman governors, before they were dispossessed by the British, took no care to improve them. The trade of a miner was rendered very dangerous from the proximity of the Siamese, who were in the habit of lying in wait to kidnap him. The hill on which Mergui stands contains tin, the ore is in form of a black sand or oxide; and it is also found in the beds of the rivulets flowing past Mergui. The ore of this metal was chiefly collected at the *Búbeinchaung*, near *Che-úppoeh*, or *Kye-poeh*, (or, “fowl festival places,”) a small river flowing from the hills about three miles to the eastward of a spot on the Nayédaung road.

Nayédaung (Devil's Hill).—These mines, as likewise those at *Shenze*, near *Kaleaung* and *Kamaunla*, one day's journey to the northward of *Ke-up Poeh*, were formerly worked by the Burmans during four months in the year, and about four hundred men were frequently employed. Perhaps the government did not gain more than 1500 *ticals* by the tax on the tin procured there, while the miner did not get above one, or one and a half *tical* more in any one month than he might have earned by much less troublesome occupations; but the Burman is averse to steady labour, and fond of speculating.

As the bulk of the population are of agricultural habits, and many Chinese have not yet settled in the country, the mines, I presume, cannot have been rendered so productive as they are capable of becoming.

The Tavoyers smelt the ore in small earthen furnaces, exposed to a red heat, which is kept up by double vertical bellows of bamboo-tubes, the pestle being lined with the feathers of jungle fowls.

There are no tin-mines worked in Martaban, nor have any been discovered. The *Búbeinchaung* mines in Tavoy may here be described, from which a judgment may be formed of the rest. When visited by me in 1825, there were only about twenty Tavoyers at work. They had elected one of their number to superintend their joint-stock, and this office exempted him from the personal labour of digging or sifting. Stream ore is here so easily obtained that they never think of searching for a vein.

The workman is supplied with a shallow wooden basin about a cubit in diameter, which is swung round his neck, and one or more cocoa-nut shells are attached to his girdle: thus prepared he walks into the stream, where it is about two or three feet deep; he then

sinks the basin to the bottom, fills it with gravel and sand by means of his feet, if it be too cold to immerse his body and to use his hands; the contents are then washed, and the gravel and sand being thrown out the black tin-ore is found at the bottom. The labourer generally rests contented if he can fill one shell: when the party have got as much ore as they can carry, or when their provisions have been expended, they leave their temporary huts and return to Tavoy. Such is the slovenly way in which mines are worked, which, under European or Chinese superintendence and skill, might yield large returns.

The Tavoyers smelt the ore on reaching home: the head smelter takes ten per cent for smelting, he being a government officer. They use an earthen furnace and double bellows; the profits are very small, and less than more regular and better directed labour would insure; but, like the Malay, the Tavoyer is fond of speculation, and will feel more pleased with a rupee thus obtained than with double the sum received as wages.

It does not appear that, at the period when Tavoy fell, the annual sum derived from the mines to government exceeded two thousand *ticals*.

Three or four hundred men worked during four of the dry months, paying, as usual, ten per cent, on the quantity of tin mined; but then the government took the tin at his own valuation, so that the actual tax was higher. The mines are mostly situated in deep forests. Many of the best mines have been neglected owing to the scarcity, or brackish quality of the water in their vicinity.

At mid-day, the temperature of the air may be averaged at 70°; it was found to be 65° at nine o'clock, A.M., while that of the water of the river was 68°. The miners use both opium and arrack to counteract the effect of *malaria*, and the variations of the climate.

These temperatures, which, for the tropics, are very low, are very sensibly felt by the miners. They seldom begin to work until the mists have dissolved, and the sun has appeared a few hours above the horizon. It does not appear that the mines now yield any revenue worth noticing.

The peninsula of Malacca contains inexhaustible stores of this metal.

The ore has lately become an article of trade to Britain; but the natives (Malays) prefer to sell the manufactured tin, alleging that the spirits of the rock, dell, and stream, are offended at any exportation of the raw ore. They are very superstitious, and retain many

ideas inconsistent with the pure Muhammedanism which they practise, and savouring of their primeval idolatry. On opening a mine, the natives of all these countries propitiate the spirits of the ground and stream by the sacrifice of cattle, and by offerings of fruits and other things. Their aversion to export the ore might, however, by good management, be overcome.

T'han, iron.—Ores of this metal are found in various parts of the coast. A low, rocky ridge, running parallel to the Tavoy river for several miles, yields the ore in abundance; but either that is not rich, or the natives can get the metal cheaper elsewhere than they can afford to smelt it, for the mines seemed to have been neglected for some years past.

On the top of the ridge, in the midst of a thick jungle, there is a projecting rock, which I found to be entirely composed of magnetic iron-ore, sufficiently powerful to hold in suspension a needle weighing nine grains. Manganese exists in considerable quantities.

Rich Iron-ores were not observed in Martaban. The Burmans of this coast are bad Ironsmiths.

Pille, or *palle*, pearls, are got on the coasts of the islands in the Mergui archipelago, and on the coast of Tavoy, at Maung Magan. I procured several, but at exorbitant prices, both at Mergui and the latter place.

It does not appear that many pearls of good size and lustre have been obtained; but the extent of the beds is unknown, as the natives only gather such shells as are left dry at low water, and have not tried the diving system. The Ceylon divers have been tried without much benefit, under Captain Drumgool.

There are pearl-banks at the Andoman and Nicobar islands. All subjects were, under the Burman governors, prohibited from having or wearing a pearl, the value of which exceeded fifty *ticals*. The pearl-fishers, of course, smuggled all those above that value, and sold them to traders.

They sold pearls according to their weight and colour, like the people of Hyderabad, Poonah, and Gujarát. They prefer, for their own use, those having a yellow tinge. It is said, that pearls, worth twelve hundred *ticals* each, have been sold by the pearl-fishers, or by regular dealers. Pearls are got at Junkceylon also.

Gold has occasionally been got in small quantities from the beds of mountain torrents. It is chiefly employed to gild pagodas, and for other ornamental purposes. It occurs in small quantities, along with stream-ore; and the smelter will sometimes get about the value of three or four rupees of the metal in twenty *vis* of tin-ore.

Amongst the useful earths, lime (*thaung* or *thaum*) and argillaceous compounds are most abundant. Steatite, or *kingwiasan*, I believe, is also obtained. Lime is never used as a manure; indeed, I am not aware that any kind of manure, except that derived from paring, or cleaning and burning, is ever employed on this coast.

Martaban has always been famous for its jars, and these, before the war, were exported in large numbers. They make various other articles of pottery, especially porous *guglets*, for cooling water in. It is an excellent custom all over these provinces, which the natives of all classes adopt, to preserve water for household purposes in large jars or pots. It purifies, is always cool, and is rendered more wholesome than when muddy, as is most river water here. Jars of cool water are often found on small stands by the side of a road, placed there by charitable persons for the use of passengers.

The minor productions of Burman art are, ivory knife-handles carved with various figures, and bowls made of polished cocoa-nut shells, carved with figures of men and animals in *alto relievo*.

ANIMALS, BIRDS, AND REPTILES.

The wild and domestic animals found on this coast nearly correspond with those on the Malayan peninsula.

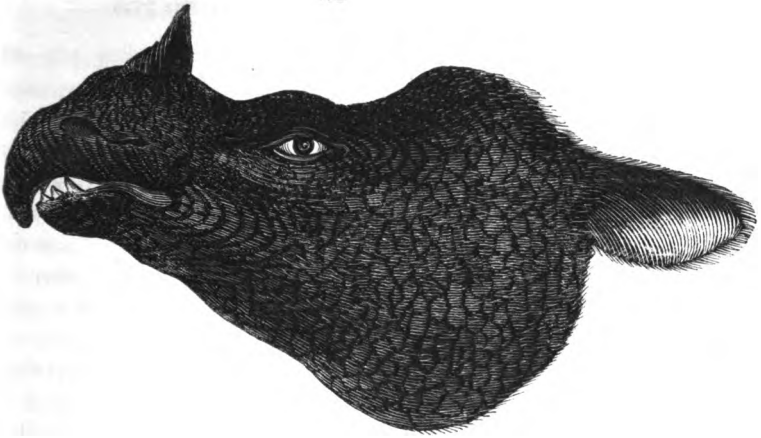
Elephants are very numerous, and of large size. The rhinoceros frequents the swampy banks of retired rivulets; the ox, the buffalo, the bison,¹ the elk, and deer of various kinds, traverse the plains and forests; tigers, leopards, tiger and leopard-cats, fox-cats, or *tokyaum*, bears, wolves, baboons, apes, opossums, flying squirrels, wild sheep, wild hogs, and bandicoots, are abundant. There are no

¹ *Vide* accompanying plate, No. 3. The dimensions of a head of one of these animals, which was killed within the Hon. Company's territory on the Keddah coast, were as follow:—

	feet.	inch.
From the tip of the nose to the back of the skull.....	2	1
Across the forehead, just below the horns.....	1	1½
Betwixt the horns, at their roots	0	10
Betwixt the tips of the horns	2	2
Circumference of horns at the root.....	1	7
Ditto of the head, between the eyes and horns	4	1
Slit of the nostrils, in length	0	4
Breadth of the closed mouth from top of upper lip to top of lower lip	0	5
Length of the ear	0	10
Circumference at the root	1	1½

The native who killed this bison, said it measured seven cubits (10½ feet) from the tip of the nose to the root of the tail, and was 5 feet 7 inches high; the colour being that of buffalo, or grayish black.

No. 2.



The Head of a Rhinoceros.

No. 3.



The Head of a Bison

hares nor jackals. The hare, it is said, is not found south of Ava Proper, nor the jackal much beyond the Bengal frontier. Some individuals of the latter species were lately introduced at Singapore, but with what object, unless it was intended to confederate them with the mosquitoes, to disturb the nocturnal slumbers of the inhabitants, or to help to thin the not overstocked hen-roosts, it were hard to determine.

Snakes are numerous; but of the various species the bite of which is absolutely dangerous, only two have been discovered, the *copra de capella*, and *copra de Manilla*. There is likewise a yellowish-hooded snake; but its bite only creates a partial inflammation, and has never, to my knowledge, proved mortal: although, where the habit of the person bitten was bad, a cure has been observed to be retarded for several months.

The domestic animals are a few small horses, buffaloes, a small number of oxen, dogs, and cats. The Peguers and Kareans train their dogs, which are strong and fierce, to the chase. They hunt deer and wild hogs by sight and scent, and are also taught to search for the tortoise, which is much relished by these people as an article of food. Near Mendat, a village in Tavoy, a huntsman unkenelled, at my request, a pack of about a dozen large, brown-coloured dogs; and, in the course of about two hours, they hunted down a buck.

It is not consistent with my knowledge that canine madness has been observed to affect dogs on this coast: certainly it is not known at Prince of Wales' Island, although overstocked with these animals. The fact can scarcely be accounted for by the supposition, that the equatorial climate is too moist to admit of the disease occurring; for England and Bengal are both damp climates, and seasons of drought are frequent in Penang.

Lizards are not here regarded with the dislike shewn towards them by Musalmáns, although certainly beheld by them in association with superstitious impressions. The followers of Muhammed shew great respect to the spider, because, on a certain occasion when he was concealed in a well, it wove a dark web over the mouth: but the foresight, as they express it, of the spider was rendered unavailing by the heedless conduct of the lizard, which made the clacking sound peculiar to itself, and thereby induced the prophet's enemies to look into the well and discover him. The *guana* is the king of the tribe on land, as the alligator is in the water. He is, however, amphibious too, but is feebly armed; and depends for subsistence on his agility, his capacious mouth, and superior tact in swallowing. Like the snake-tribe, he does not masticate his food; and when grown to his

full size, which sometimes reaches to six feet in length, and three in circumference, he will quietly seize fowls or other birds, or, crawling under water, suddenly catch an unconscious duck, and gulp it down.

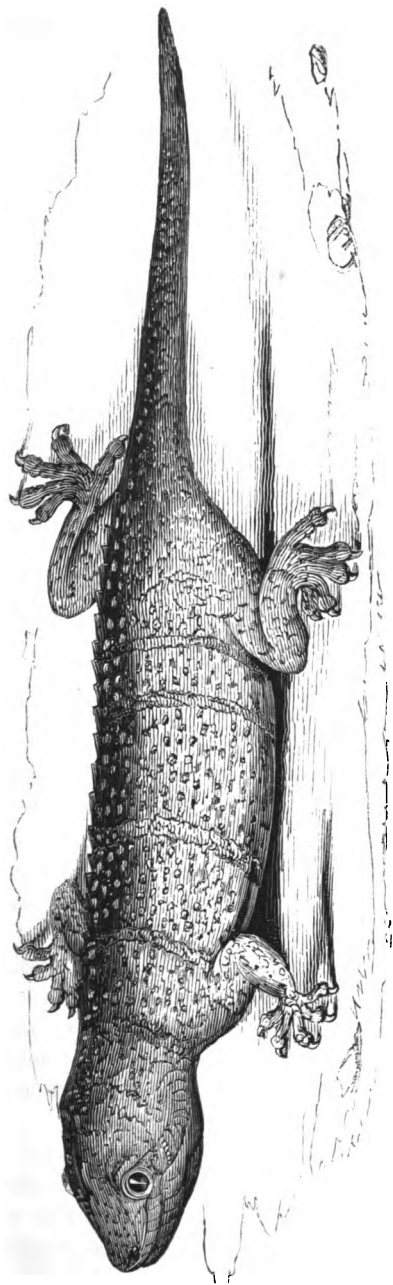
The *Tokké* lizard (*vide* sketch, No. 4) is found in most of the Indo-Chinese countries, and is thus named because it makes a loud and distinct sound, as if repeating the syllables *tok-ké*. Its common colour is a dark-brown mixed with gray; but it possesses, also, the property of changing its hue, like the chameleon. Its back is arched, and armed with a saw-like edge. In Rangoon and Tennasserim they abound in the houses, and are very noisy, although harmless.

The woods are stocked with pheasants, having rare plumage; with the golden-peacock, the common jungle-cock, stock-doves, green pigeons, rhinoceros-birds, and sea and land eagles. The sea-eagle is gray, and is a powerful bird, but avoids the immersion of his body in the water when attacking his prey. When the object is on or near the surface of the sea, he makes one or two rapid falling motions, and finishes with a swoop. It is a curious sight to witness him pounce on a sleeping sea-snake, of three or four feet long, and bear it aloft, the reptile, in the mean time, writhing to extricate itself. The carrion-eagle is a majestic-looking bird, with his dark body and red head and neck; and were he not confined by nature to his loathsome diet, would prove a formidable enemy to the lesser animals, and to birds of every description. He roosts on high trees, and on elevated stations, if possible; and his midday sphere is in the cool regions of the clouds, far beyond human ken. Here he scents his food at a great distance; and, as his comrades are numerous and greedy, he precipitates himself, by a quick, spiral motion, to the earth, to anticipate the general banquet. On the ground he is unwieldy, and, if galloped at, may be knocked down before he can get on the wing.

Kites and hawks are also numerous; as are paroquets, quails, snipes, and a variety of small birds. The quail of this country can only fly short distances, and is not apparently a bird of passage. Of web-footed birds, the large dark-coloured duck, having the body speckled with white, and a few white feathers in the wing, and teal, are the chief. The common duck is only found domesticated. Cyruces are plentiful.

The natives take game in traps and nets. To catch the larger kinds, they select a belt of wood; across this they cut out a narrow passage, and construct along it a fence with the trees thus felled. In this fence openings are left, in each of which is placed a snare or net composed of rattan rope. The game is driven towards the fence by men and dogs. To catch the mouse-deer, a small net is fixed in

No. 4.



The Tokké Lizard.

the opening, and a branch of a tree is bent down and tied to it, and kept in this position by a particular contrivance. The animal enters, touches the spring, and is immediately thrown up into the air along with the net, and remains suspended to the branch.

They have decoy-birds, such as the jungle-cock and king-fishers. The skins, with the feathers on, of this last species of bird are sold for the China market. The decoy-bird is not necessarily a tamed one. He is tied by one leg inside of a trap, or betwixt two nets, and being naturally very noisy, he instantly begins to scream; upon which the birds of his tribe which happen to be near, come, out of curiosity, to see what is the cause of his complaint, and, by peeping into the trap, or pecking at the bird inside, are noosed. The bird-catcher then generally kills the decoy-bird, and substitutes a newly caught one, alleging that the former will not be guilty a second time of leading his friends into danger. Each skin is sold for about twopence.

The domestic birds are common fowls, ducks, a very few geese, and pigeons. The average prices of these are considered high.

There is a class of people called *mauso*, who supply the markets with game, especially venison. They use the firelock. They shoot elephants to obtain their tusks; and sell their flesh, which is eaten by the natives. They occasionally catch wild animals at night, by bewildering them with the glare of torches.

FISH, &c.

The coast abounds in fish: the supply is, perhaps, most plentiful at Mergui. A great deal of what is caught is dried and salted; and a considerable quantity is transported from Martaban to the interior. Fish-preserves are very common all over the country. In these the flat-headed *kabús* is chiefly kept. The rivers abound in fish up to their very sources. In the deep and clear pools of mountain-rivulets which dash over ledges, or force their way through fallen rocks, very large fish may be observed; but they seem shy of the baited hook, and are seldom fished for by the natives. They rise to the natural fly; and although, from want of materials, the experiment could not be tried, it is believed that they might be caught by an artificial one.

The *bázars* of Mergui, Tavoy, and Martaban, used to be supplied in a very irregular manner with fish: that of Mergui is the best. A Burman is not very nice on the score of freshness in fish, and supposes the sense of others to be as blunt or vitiated as his own.

Twenty different sorts of fish fit for the table might be enumerated: the most valued are the pomfret, sole, mango-fish, mullet,

cockup, and a sort of rock-cod, scate, seer-fish, and a bummelo, said to be of the same species as that so famed as an article of export from Bombay. Alligators, guanas, sea and river turtles, land and water tortoises, and sharks, abound.

FRUITS.

These are the mango, oranges, small and large; shaddocks, dorian, limes, citrons, the jambu, rambei, rambútan, papaya, water-melon, gourds, cucumbers, guavas, plantains, bananas, jacks, pine-apples, and cocoa-nuts. The mangostín is not found (with the exception of one or two trees in Tavoy) beyond the north boundary of the Mergui province, nor the dorian to the northward of the Tavoy province, as far as I could learn. The wild mangostín, which is a hardy tree, and the wild jambú, were found in various parts of the coast.

Dorians are esteemed a great luxury at the court of Ava; but as the fruit will seldom keep longer than seven or eight days, the dessert for the Golden Feet is often conveyed by relays of horsemen, and by boats pulled by forty or fifty men each. They are preserved by being wrapped in cloth, which is then thickly coated with mud or clay. From the Nicobar Islands cocoa-nuts are brought, which are almost filled with a medullary substance. These are greatly esteemed at court.

WATER.

Tennasserim is well supplied with water. The islands, too, along the coast, even those which are little better than bare rocks, have their rills and natural reservoirs of fresh water.

[*To be continued.*]