

MEMOIR ON THE TIN OF THE ISLAND OF BANKA.

By the late Sir Stamford Raffles.

THE following Memoir having been originally communicated to the Royal Geological Society of Cornwall, by its President, Davies Gilbert, Esq., who now holds the honourable office of President of the Royal Society, we have received the permission of this distinguished Friend of Science to give it a place in the pages of 'The Oriental Herald.'

Extract from a Communication from Mr. Gilbert, to the Geological Society of Cornwall.

'The late Sir Thomas Stamford Raffles having had the goodness to give me much important information respecting the Banka Tin, at a time when the protecting duties were under consideration by the Government, previously to their being submitted to Parliament, I beg leave to submit the following Memoir, in full confidence that the Geological Society will be anxious to preserve a document highly interesting to Cornwall, from its intrinsic matter; and to the whole scientific world, on account of its lamented author, by whose premature death the nation has been deprived of one most eminent among the highly enlightened, active, and intelligent officers, who have enriched their country by importing into it the natural productions of remote and comparatively uncivilized regions; and who, at the same time, have amply repaid them, by exhibiting to millions of people the glorious examples of equal laws, impartial justice, and disinterested integrity in the administration of their respective governments:—examples more powerful than arms, in extending the influence and the authority of Great Britain over nations thus practically made sensible to the blessings of Liberty, before a term expressive of freedom had been engrafted on the idiom of their native tongues.

' DAVIES GILBERT.

' MEMOIR.

'Tin would appear to have been first discovered in Banka about a century ago, from which period the mines were worked, and the metal sold under the exclusive monopoly of the Sultan of Palembang, to whom the island belonged, until the year 1811, when it was ceded to the British Government. The Dutch, however, had a commercial contract with the Sultan, by which he delivered to them the principal part of the tin produced, at six and eight dollars the pecul.

'In the most prosperous times of the mines, the delivery is said to have amounted to 60,000 peculs annually; but the pro-

duce in later years cannot be taken at higher than 30,000 peculs, or half that quantity. A pecul weighs 133½ lbs. Avoirdupois, which, in round numbers, makes the highest produce about 3,500 tons, and that of later years 1,750, or nearly half what I have understood the average produce of Cornwall to have been.

‘ The highest annual produce during the period the island was in our possession, was 25,000 peculs, and I have no reason to believe it has since exceeded that amount.

‘ The mines are almost exclusively worked by Chinese, under the authority of the Government, who deliver the metal in slabs, at a fixed rate per pecul. This was, on our first establishment, at the rate of six dollars, and afterwards at eight; but I should consider ten dollars the pecul, of 133 lbs., as a fair remuneration for their labour; and, if the tin were paid for at this rate, I think a regular supply of from 20,000 to 30,000 peculs might always be calculated upon. The price for which we sold the tin at Batavia, seldom exceeded fifteen dollars the pecul, but of late years the price in China has exceeded twenty dollars the pecul, and this last rate may, I think, be taken at present as the fair average selling price in the Archipelago. It is not unusual to calculate the freight of the tin from the Malay Islands to China at one dollar the pecul, and, in considering at what cost it could be transported to Europe, I think sufficient allowance will be made by considering the pecul of 133½ lbs., in the Malay Islands, as equal to a cwt. of 112 lbs. in Europe. Dollars being worth about 4s. each, or five to the pound sterling, will make the cwt. 4l., or 80s.; and, at this rate, it may generally be brought into the European market as a remittance.

‘ The ore is always found in alluvial deposits, and is of that description usually called in England *stream tin*, and is seldom followed below thirty or forty feet deep: the beds are frequently found within three and four feet from the surface, and the process of mining, and preparing the metal, is extremely simple. The mines might, perhaps, be more correctly called pits, varying in size, but seldom, in the first instance, exceeding in length 100 feet. A stream of water, when practicable, is brought to the vicinity, into which, as into a kind of trough, the ore, with the sand, &c. with which it is associated, is thrown, and stirred about so as to cleanse the ore: this effected, it is carried to the smelting house, where the operation is equally simple: in short, the whole process consists of digging, washing, and smelting, and each of these is performed in the simplest possible manner. A wooden wheel, of a peculiar construction, is used for carrying off the water from the pits; and this machine, with the Chinese bellows at the smelting-house, may be considered as the only auxiliary apparatus necessary.

‘ The washed ore is said to yield, on smelting, from fifty to seventy parts of pure metal in 100 of ore, and when it is found to

afford less than thirty parts, it is not considered worth smelting at all. The smelters find abundance of fuel from the adjacent forests, and are in consequence abundantly supplied with charcoal.

A large portion of Banka yet remains unexamined; and there seems no reason to apprehend any deficiency in the ore for centuries, if the quantity of metal abstracted does not exceed 30,000 peculs in the year; but, to a certain extent, we must of course calculate on their gradual exhaustion, and I should presume that we do not go too far in supposing that it is *now* as difficult to procure the ore for 30,000 peculs, as it was, fifty years ago, to procure a sufficient quantity for 60,000 peculs, the former annual produce; the price was then estimated at six dollars, or 24s., and it cannot now be estimated at less than double that amount, or say ten dollars the pecul.

It is to be considered that the sole object of the island of Banka to the Dutch is the monopoly of its produce of tin, and that the whole of their establishment employed is, either directly or indirectly, for the security of this monopoly. Under the present system, if the expenses of this establishment are superadded to the price paid to the miners, it will raise the actual cost of the metal 50 per cent., or say to fifteen dollars the pecul, so that the difference between this last and the general selling price, say twenty dollars, is *all* the profit to the proprietors of the concern: thus 30,000 peculs, giving a clear profit of five dollars per pecul, affords a clear gain to the Dutch of 30,000*l.* only.

Our plan, had we retained the island, would have been very different; and, as far as our experience went, we were enabled to estimate a profit of about 50,000*l.* per annum, as clear surplus.

The above information is very general, but I take the liberty of sending you, at the same time, a more particular account of the mines, as published by Major Court, who was President of Banka for several years, under my administration, together with a mineralogical map of the island, by Dr. Horsfield: to these I can at any time add any further details that you may desire, on your furnishing me with queries on the particular points on which you wish for more definite information. Samples of the tin, and every other particular, can be furnished on your application.

Besides the produce of Banka, tin from numerous other parts of the Malayan peninsula and islands, enters largely into the market, and to an extent not much short of the quantity furnished from Banka. A considerable quantity also comes from Siam; and I think we cannot estimate the gross amount, including that from Banka, at less than 50,000 peculs per annum; and this quantity is likely to increase with the increase of our general trade. On the Malay peninsula, and the islands in its immediate vicinity, the ore

is procured principally by Malays, who are by no means such industrious and cheap miners as the Chinese; but, as the Malay states become more settled, and capital is introduced, it is most probable that the Chinese will supersede the Malays, even in these parts; and, if European, or rather English, spirit and capital have fair play, I think it is not too much to say that the produce might soon be doubled, and improved processes make up for any additional labour in excavating more deeply, or extending the mines more in the interior.

Tin is found in more or less abundance, and in alluvial deposits, from about eight degrees north, to five south latitude; and what we have yet found on the peninsula and islands, including Banca, would appear to have been originally washed down from the great central mountains of the continent, which terminate the eastern peninsula, &c. The higher mountains of Banca are granite, and the lower ranges red iron-stone; and these appear to be the last of the great range. The constitution of Java, which lies to the southward of this island, is altogether different, and almost entirely volcanic, possessing no metals whatever.

The principal demand for Banca and Malay tin is in China, where I should not suppose it to be less than 20,000 peculs in the year. Bengal takes off from 6,000 to 10,000 peculs, and the remainder goes to America and Europe. The quality is, in China, considered superior to the British tin, and it sells accordingly for about one dollar the pecul more.

In estimating the demand in China at 20,000 peculs, I think I am much within the mark: it may, perhaps, be considered equal to two thirds of the usual produce; and now that an extensive *junk* or native trade is carried on between Singapore and the northern parts of China, it will no doubt increase. Japan also has a considerable demand, which is only very imperfectly supplied by the Dutch.

Some allowance must be made in these calculations for the value of the Spanish dollar: if scarce, and worth 5s., the selling price of tin may be estimated at sixteen dollars; if 4s. only, as at present, then say twenty dollars the pecul.

MY HOME.*

'Mid pleasures and palaces though we may roam,
 Be it ever so humble, there's no place like home;
 A charm from the skies seems to hallow us there,
 Which, seek through the world, is ne'er met with elsewhere!

Opera of 'Clari.'

AGAIN, again, my heart awake!
 And I will touch thy trembling strings,
 And a sweet subject we will take,
 One that a thousand feelings brings;—
 The haven of my wanderings,
 The beacon o'er the ocean's foam,
 The spot where each affection clings,
 The place of happiest love—my home!

In those few words of bliss and love,
 'My own dear home!' there is a spell
 In which the deepest feelings move,
 In which the best affections dwell;
 Not Paradise, ere man first fell,
 Had more of bliss and less of gloom.
 Oh! my best lays were faint, to tell
 The happiness, the joy of home!

There may I wake at will my lute,
 And to my untaught song give birth,
 Unheeding how the critics eurt,
 Careless what strains I may draw forth.
 They please the loved ones of my hearth;
 Warm from the heart their plaudits come;
 And 'tis the sweetest praise on earth,
 Received from those who share my home!

Each flower, each leaf, is dear to me;
 There is a soft, though hidden link,
 That binds me to each well-known tree—
 A something sweet, on which to think.

* From 'Ada, and other Poems,' by Mary Ann Browne.
Oriental Herald, Vol. 17.

My Home.

I wander by the river's brink,—
 I see its bubbles rise and foam,
 Sparkle awhile, then quickly sink,
 And think, how diff'rent is my home!

I would not change my quiet life,
 Though others may more gay appear;
 I would not mingle in the strife,
 For rainbow pleasures, never near.
 The fickle smile, the hollow tear,
 To my retreat can never come;
 All, all is tranquil and sincere
 In the blest precincts of my home!

There are fond looks, and precious hearts,
 To light and bless my humble cot;
 My pleasures do not come by starts,
 They shine through all my happy lot.
 My home! my home! I leave thee not,
 Unless some angel spirit come,
 And to his heaven prefer this spot—
 Then for the world I'll quit my home!

Yet though, perchance, I may awhile
 Leave my dear home, my pleasant bower;
 When I return, full many a smile
 Shall pay me for the parting hour.
 Though, like the bee, from flower to flower,
 A little time I chance to roam,
 Like him I will return, to shower
 Sweets on the sweet I leave at home!

My precious home! from thy bright hearth,
 Oh! may I never once be driven!
 Still may the forms most loved on earth
 Circle around that spot at even!
 And if from me they should be riven,
 Not long will last my lonely doom;
 Then may I find, with them, in heaven,
 A glorious and eternal home!