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I.—*Account of the Mountain Tribes on the Extreme N. E. Frontier of Bengal.* By J. McCOSH, Civil Assistant Surgeon, Godpára.

[Read at the meeting of the 4th Nov. 1835]

The following pages have been compiled from original manuscripts lately put into my hands by Captain JENKINS, Agent to the Governor General on the N. E. Frontier, with kind permission to make what use of them I thought proper. Some of these letters were written from his own personal observation; others by Major WHITE, Political Agent for Assam; as also by Mr. BRUCE, commanding the Gun Boats at Suddia, so that the information contained in this digest may be relied upon. From the lively interest lately taken in the regions hereafter described, on account of tea growing there indigenously, and the probability of their speedily assuming an important aspect in the statistics of India, any facts concerning such districts will, I hope, prove not uninteresting to the public.

Few nations bordering upon the British dominions in India are less generally known than those inhabiting the extreme N. E. Frontier of Bengal; and yet, in a commercial, a statistical, or a political point of view, no country is more important. There our territory of Assam is situated in almost immediate contact with the empires of China and Ava, being separated from each by a narrow belt of mountainous country, possessed by barbarous tribes of independent savages, and capable of being crossed over in the present state of communication in 10 or 12 days. From this mountain range, navigable branches of the great rivers of Nankin, of Cambodia, of Martaban, of Ava, and of Assam derive their

origin, and appear designed by nature as the great highways of commerce between the nations of Ultra Gangetic Asia. In that quarter, our formidable neighbours, the Burmese, have been accustomed to make their inroad into Assam; there, in the event of hostilities, they are certain to attempt it again; and there, in case of its ever becoming necessary to take vengeance on the Chinese, an armed force embarking on the *Brahmaputra* could be speedily marched across the intervening country to the banks of the greatest river of China, which would conduct them through the very centre of the celestial empire to the ocean.

This beautiful tract of country, though thinly populated by straggling hordes of slowly procreating barbarians, and allowed to lie profitless in primeval jungle, or run to waste with luxuriance of vegetation, enjoys all the qualities requisite for rendering it one of the finest in the world. Its climate is cold, healthy, and congenial to European constitutions; its numerous crystal streams abound in gold dust, and masses of the solid metal: its mountains are pregnant with precious stones and silver; its atmosphere is perfumed with tea growing wild and luxuriantly; and its soil is so well adapted to all kinds of agricultural purposes, that it might be converted into one continued garden of silk, and cotton, and coffee, and sugar, and tea, over an extent of many thousand miles.

This valuable tract of country is inhabited by various races, several of which have acknowledged our authority, some that of the Burmese, and others that of China; but a considerable number have sworn allegiance to no power; and maintain their independence. Of these tribes the most considerable are the *Mírís*, *Abors*, *Mishmís*, *Kangtis*, *Bor-Kangtis*, *Singphos*, *Muamárias*, and *Nágas*.

Mírís.

The *Mírís* occupy that stripe of alluvial land along the northern bank of the *Brahmaputra*, from the large island *Majuli* (the extreme boundary of the present *Rájah* of Assam), to the river *Dihong* the northern branch of the *Brahmaputra*; and are bounded on the north by the hill country of the *Abors*. Till of late years, this district was deserted on account of the ravages of the *Abors*; but on our affording them protection, the original inhabitants have returned. The land is still very thinly populated, and the only cultivation is along the banks of the great river. Their head village is *Motgaon*. The manners and habits of the *Mírís* are wild and barbarous, their persons filthy and squalid; they use a language different from the *Assamese*, and make use of bows and poisoned arrows as a defence against their enemies. They are expert marksmen; and the poison used is so

fatal, that even a scratch of their arrow is followed with certain death. They eat all sorts of wild animals, not excepting those killed by their own poisonous arrows.

The Mirís are an industrious race, and partial to living in the skirts of the forests, clearing new ground, which they cultivate for a year or two, and then move off to another place, when the soil is exhausted. A great deal of opium is grown by the Mirís, which they barter for grain with the Assamese.

Abors and Mishmis.

These tribes inhabit an extensive range of mountainous country along the southern exposure of the great Himálaya chain, from the 94th to the 97th degrees of E. longitude, and border with Thibet and China. It is difficult to form a conception of the extent of these tribes, but they are not to be despised; for during the insurrection of the Muamárias, no less than 17,000 Abors joined to drive that tribe out of Assam. It is probable that at no ancient period these two tribes were unconnected, but the Mishmís are now considered by the Abors as dependent upon them, and treated as slaves. Besides the Mishmís here mentioned as subservient to the Abors, there are several other tribes of them; such as Muzú-Mishmís and Taen-Mishmís, inhabiting the extreme branches of the Lohit or eastern channel of the Brahmaputra, who are probably independent. These tribes possess one of the lowest grades of civilization; they occupy numerous villages along the precipitous shores of the two great northern branches of the Brahmaputra, the Dihong or Sampo, and the Dibong. Their houses are so constructed, that the perpendicular side of the rock forms one wall: the floor is made of bambus, with one side supported on the rock, and the other on beams driven into the ground. The space underneath is inhabited by the cattle, and the interstices in the floor afford the double advantage of showering down all the offal to the herd below, and preventing the accumulation of filth and nastiness.

Hospitality.—Though the snows of their mountain home have narrowed their means of subsistence, and limited their intercourse to their immediate neighbours, yet they are a hospitable and even a social race; and a constant round of festivity is kept up from one end of the year to the other. Each chieftain kills the fatted bullock in turn; all his associates are invited to partake of the good cheer: the host is in his turn a guest at the next feast; and thus a reciprocity of entertainment is insured. Nor are these hospitable rites allowed to be forgotten; the skull of every animal that has graced the board, is hung up as a record in the hall of the entertainer; he who has the best stocked

Golgotha, is looked upon as the man of the greatest wealth and liberality; and when he dies, the whole smoke-dried collection of many years is piled upon his grave as a monument of his riches, and a memorial of his worth.

Migration.—These people, accustomed to a temperature at and about the freezing point, seem to dread an exposure to the heat of the low countries during the summer, and make their descent to their markets at Suddia only in the cold weather, and take their departure to their snows as soon as the *Simala* tree puts forth its blossoms.

Trade.—They bring along with them a few bags of musk, and musk-deer skins; some ivory; a few copper pots, which they obtain from the same country; and a considerable quantity of a vegetable poison called *Bis-Bisi*, used in poisoning arrows. These they exchange for glass beads, of which they are very fond, and cattle, for the purpose of eating. The musk is for the most part adulterated; a portion of the genuine musk being abstracted to make into artificial bags, and its place filled up with dried blood.

Poison.—The poison is of a very superior quality, and is in great request by all the neighbouring nations for destroying wild animals. It is contained in a small fibrous root, which they tie up into little bundles. It is prepared by pounding the root to powder, and mixing it up with the juice of the *Otenga* tree, to give it tenacity, and make it adhere to the arrow head. They keep the plant a great secret, and take the effectual precaution of boiling it before leaving their homes, so as to destroy all possibility of its being propagated.

Road to Thibet.—The route to Thibet, adopted by pilgrims, leads through the Abor country, along the course of the Dihong or Sampu, and is accomplished in sixteen days from Suddia. The route, as mentioned by Mr. BRUCE, is as follows:

From *Saddia* to *Kaj-jin*, five days' journey; thence to *Lak-qui*, one day; *Gha-lum*, one day; *Ma-ma-nu*, one day; *Dullá*, one day; *Omona*, one day; *Hullí*, one day; *Sum-lay*, one day; *Hán-nay*, one day; *Kum-day*, one day; *Rí-sháh*, one day; *Bhá-lu*, one day. *Bhálu* is the frontier town of Thibet. About four days' journey beyond it stands the city of *Ro-shí-máh*, containing fine buildings, and a large civilized population, and a government purely Chinese.

The Grand Lama himself, and all head officers throughout Thibet, are appointed by the Emperor of China, and receive allowances from the Chinese government. The chief of Suddia seems to have considerable influence with the Thibetans, and the intermediate hill tribes. Almost all pilgrims apply to him for a passport, and he is in the habit

of sending an escort with them as far as Ma-ma-nu, whence they are passed along from one tribe to another till they arrive in the country of the Grand Lama. There is another route into Thibet viâ Brahmakûnd, through the country of the Mishmís; but it is at all seasons of the year covered with snow. There is but little trade now carried on with Thibet, and that little is chiefly effected by pilgrims. The few things imported are smoking pipes of Chinese manufacture, woollens, and rock salt. In exchange for these they give musk, ivory, and *Bisá* poison. Assamese captives at one time formed a considerable trade; but since these latter came under the protection of the British, that lucrative branch has been exterminated.

During the flourishing period of the Assam dynasty, we are informed*, that the kings of Assam were in the habit of sending presents to the Grand Lama, and that a caravan consisting of about 20 people annually resorted from Lassa to the Assam frontier, and transacted merchandise to a very considerable amount with the Assamese. The Thibetans took up their quarters at a place called Chouna, two months journey from Lassa: and the Assamese, at Geganshur, a few miles distant from it. The trade of the former consisted of silver in bullion to nearly a lakh of rupees, and a large quantity of rock salt. This they exchanged with the Assamese for rice, silk, lac, and other produce of Bengal; but this trade has for many years been discontinued.

Kangtis.

The Kangtis, the most civilized of all these mountain tribes, inhabit that triangular tract of country bounded by the Lohit on the one side, by the Dibong on the other, and by the mountainous country belonging to the Mishmís on the third. They are descended from the Bor-Kangtis, a powerful race situated on the sources of the Irawadí. About 50 or 60 years ago, they emigrated from their native country, and availing themselves of the civil war then raging throughout Assam, they took forcible possession of the country they now enjoy, ejected the reigning chieftain, the Suddia Cowa Gohaing; and the Kangti chief, usurping his name and jurisdiction, reduced his subjects to dependence or slavery. The Kangtis, by a vigorous mode of government, and holding out an asylum to refugees from other states, soon rose to eminence. They are now a superior race to all their neighbours; they are tall, fair, and handsome, considerably advanced in civilization, and are endowed with no small share of military courage. Their religion is Buddhism; but Hinduism is gaining progress. They are amongst the few tribes who have a written character, and can read and write the Burmese language, and understand it when spoken.

* HAMILTON'S Gazetteer.

Their own language, though written in a character a good deal resembling the Burmese, is quite different, and closely resembles the original Ahom. Every boy is taught to read and write it, by the priests. Suddia is the capital of the Kangti country, and the chieftain is known by the name of the Suddia Cowa Gohaing, and claims descent from the royal family of Assam.

Suddia is situated on the right bank of the Kunil or Kundil nallah, and about six miles above its junction with the Lohit. It is a place of some importance, and has a population of about 4000 men, exclusive of women and children. Its trade is rapidly increasing; all the necessaries of life are procurable: its exports are gold and silver; amber, musk, and ivory; Kampti daus, Chinese and Burmese trinkets; Bisé poison, and dye-stuffs, called Mishmí-títa and manjít. The Mishmí-títa, manjít, and lime, triturated with water, and allowed to digest in an earthen pot for a month, makes a beautiful permanent red dye. The daus are of a high order, and are so much prized as to bring 12 Rs. a piece. They are manufactured by a rude wild race, called Kánungs, (slaves to the Kangtis,) who are situated on the extreme branches of the Irawadí, who can neither read nor write, and are little removed above the brutes.

Suddia station.—The country around Suddia is composed of the richest alluvial soil, well adapted for cultivation; but is generally flat and liable to inundation. A large portion of it is waste, and overgrown with jungle: it is closely surrounded by the snowy mountains, which are only about thirty miles distant; and the water of the river is so cold, that of itself it serves to cool wine for table.

Force.—Suddia is the most advanced post we possess on the N. E. Frontier. Three companies of the Assam Light Infantry are stationed there, under the command of a European officer, invested with political authority. Two gun-boats are also stationed there, also under the command of a European: each boat has one 12-pr. mounted on slides, and is well manned and equipped for service: one of the boats is manned by Kangtis, who give much satisfaction. There is also a small stockade erected, with a few guns mounted. Suddia has hitherto preserved a healthy character. It is likely soon to become the headquarters of the Assam Infantry. The Suddia Cowa Gohaing, though he pays Government no tribute, acknowledges the Company's supremacy, and is bound to furnish a contingent of 200 men. That contingent is supplied by arms and ammunition at the expense of Government; they are drilled by the Subadar of the Assam Light Infantry, four months in the year, and the arms, when in want of repair, are forwarded to head-quarters at Bishnath.

The Suddia Cowa Gohaing is believed to be a firm friend of Chandra Kant's, the ex-rájah of Assam; when formerly driven from the kingdom, the Suddia Cowa had influence enough at the court of Ava to obtain the assistance of the Burmese to restore him to his throne; and now that Chandra Kant is again deposed, he is thought to be constantly intriguing to have him again placed on the throne.

Bor-Kangtis.

The Bor-Kangtis are a numerous and powerful race, situated amongst the mountains whence the Irawadí takes its origin. They are under the government of Ava, and supply a contingency to the Burmese army. Experienced Burmese officers are constantly traversing their country, for the purpose of drilling them, and inspecting their arms and ammunition. The capital of the Bor-Kangtis is Manchi, on a remote branch of the Irawadí. This place was visited by Lieuts. WILCOX and BURTON in 1827, by an overland route, cut across the mountains from Suddia. The journey occupied about 12 days: they were kindly received by the Bor-Kangti chief, who gave them every information about the sources of the Irawadí, and convinced them that from the smallness of the streams, it was impossible for any of them to afford a channel for the waters of the Sampu. The main stream of the Irawadí is there fordable, and not more than 80 yards broad.

There is a silver mine in the Bor-Kangti country; but it has never produced more than 8000 rupees a year. It might be turned to much more advantage; but the possessors are afraid of increasing its revenue, lest by doing so, they should excite the avarice of their neighbours. There are also mines of lead and iron in this country.

Múnglung Kangtis.

We have lately come into intimate contact with another tribe of Kangtis called Múnglung: these from dissension amongst themselves, and from the oppression of the Burmese, have lately dispatched about 200 of their tribe to stipulate for settlements in the British dominions, and report on the prospect of the country around Suddia. Should their report prove favourable, about 5000 more have expressed their desire to emigrate.

Singphos.

By far the most powerful and the most formidable of these hill tribes are the Singphos; they are also the most numerous, and are scattered over the greatest extent of country. They are bounded on the north by the Lohit river; on the east by the Langtan mountains, which separate them from the Bor-Kangtis; on the south by the Patkoí range, which divides them from the Burmese Singphos, from whom they are descended; and on the west, by a line drawn south from Suddia, till it meets the last mentioned mountains.

The Singphos are divided into 12 tribes, each having its own chief or Gaum ; but every chieftain maintains his own separate independence, and seldom unites with any other, unless it be to punish some aspiring chief obnoxious to them all, or in making plundering excursions upon neighbouring states. The Singphos have for several generations been the terror of the wretched and degenerate Assamese, and were in the constant habit of making irruptions into their country, sometimes as far as their very capital itself ; of plundering their temples, laying waste their country, and carrying off the inhabitants into slavery. Since the British troops have had possession of Assam, these inroads have been prevented ; but as might be expected, they are somewhat impatient of that restraint, and have once or twice endeavoured to resort to their old habits.

To give an idea of the extent to which the devastations were carried on, the late Captain NEUFVILLE, received from the Singphos alone upwards of 7000 Assamese captive slaves, and perhaps there are 100,000 Assamese and Manipuris still in slavery throughout the dominions of Ava.

About five years ago, a body of them amounting to about 3000 men, armed with spears, daus, and a few musquets and jinjals, under a chief called WAKUM KOONJIE, made an advance against the station of Suddia, with the confident intention of carrying away in chains every seapoy present, and of driving the British out of the country. This was a plot of three years' concocting ; large stores of grain were accumulated in convenient depôts, and shackles for 10,000 prisoners were all in readiness ; but the whole force was shamefully repulsed by the then political Agent, Capt. NEUFVILLE, at the head of a handful of men of the Assam Infantry, and a few armed Kangti and Muamária militia, and driven in consternation into their lines.

The Lubona only of all the 12 chiefs took part in this irruption, and he has taken an active hand in the late disturbances, headed by the Duffa Gaum.

All the chiefs have claimed our protection, though no tribute is exacted from them ; with one or two exceptions, they have acted up to their engagements.

The Busa Gauth or chief is a man of superior understanding, and was entrusted by the late Agent to the Governor General, the lamented Mr. SCOTT, with a good deal of confidence, and had an allowance from Government of 50 rs. a month, as an organ of communication with the other chiefs, and a spy upon their actions. The late Capt. NEUFVILLE was also confident in his integrity, and made proposals to him to desert his own country, and live on lands to be granted him at Burhath and

Jaipur, and allow his native hills to become a wilderness, and form a natural barrier against the incursions of the other tribes.

The population of the Busa Gaum is about 9 or 10,000 men, exclusive of women and children. He furnishes a contingent of about 100 men, and is supplied with arms and ammunition.

The most influential of the unfriendly chiefs is the Duffa Gaum. Only a few months ago he made a hostile incursion against our ally the Busa Gaum, and massacred every man, woman, and child he could get near; the Busa Gaum narrowly escaped with his life, and some of his own family were cut to pieces. After two or three skirmishes, the marauders were dislodged, and driven to their hills, by the force at Saddia; but the Duffa, instead of repenting of his atrocious act, and retiring to his home to await the consequences, commenced playing the despot in another quarter, threatening every one with his vengeance who acknowledged British protection, and even beheaded some who refused to conform to his will. By the latest accounts, the state of affairs in that district were very troublesome, and the whole of the Assam Infantry disposable are already on the move for its protection.

A feud has for a long time existed between the Busa and the Duffa Gaums, and the inroad lately made by the latter admits of some palliation, as it avenged a similar one formerly made by the Busa Gaum.

Rude as is the state of society amongst the Singphos, they are not without the distinction of caste; but are divided into Thengais, Myyungs, Lubrungs, and Mirups.

They have no religion properly their own, but have patched up a creed from amongst the superstitions of all their neighbours, and decorated their rude temples with ruder idols of all religions.

The Singphos are not a branch of the Shán tribes: tradition traces their origin to the confines of China or Thibet: the language is entirely different from that of the Sháns, and is unwritten.

Polygamy is patronised, and every man keeps as many wives as he chooses, free women or slaves; and treats the offspring of both without partiality. Infanticide in all its shapes they abhor.

It is the custom of the country to bury the dead. Those of the poorer classes are interred soon after death; but the chiefs and principal individuals are sometimes not buried for years. The reason alleged for this consummation of the funeral rites, is to allow the widely scattered relations of the deceased to have time to attend, who would not fail to take deadly offence at their not being allowed an opportunity of paying reverence to the ashes of the head of their family. Not knowing the art of embalming, the body after death is removed to a distance from any habitation, till decomposition is completed.

After that it is deposited in a coffin, and conveyed to the house of the deceased chief, where it lies in state, surrounded with all the insignia the illustrious individual enjoyed when alive. When all the relatives have assembled, or communicated their not being able to attend, the coffin is committed to the earth, and a mound of clay, surrounded with a curious trellis-work of bambus, is raised to his memory. If the person has died a violent death, a buffalo is sacrificed as a propitiation to their deities, and the head is fixed to a cross, and placed near the grave; but if he has died in the course of nature, no sacrifice is considered necessary.

According to the law of inheritance, the patrimony is divided between the eldest and the youngest son; while any children that may intervene are left to push their own fortunes as they best can. The eldest son succeeds to the title and the estate, while the younger, carrying away all the personal and movable property, goes in quest of a settlement for himself.

Tea.—The tea tree grows wild all over the Singpho country, as also upon all the hills in that part of the country, and is in general use by the natives as a wholesome beverage. The tea tree, according to Mr. BRUCE, was known to be indigenous to these climates about ten years ago; and during the Burmese war, large quantities of it were sent into Saddia by the Busa Gaum. How long the subject might have lain dormant is doubtful, had not the affair been again brought to the serious notice of Government, at a time the most favourable for doing so, by the scientific investigations of Capt. JENKINS and Lieut. CHARLETON of the Assam Infantry, to whom we must acknowledge ourselves indebted for a revival of its existence, and for the boon it must necessarily confer upon our country*.

Mr. BRUCE has lately been on a tour to the Singphos, and mixed in social intercourse with them. He saw many thousands of the trees growing in their native soils, and brought away some plants and specimens of the leaves and seeds. The trees were of a very considerable size, so as to merit a higher rate of classification than a plant or a shrub: he measured one of the largest, and found it 29 cubits long, and about four spans in circumference at the base.

Mr. BRUCE mentions the following as the native process of making tea, though he does not seem to have witnessed it. First, the leaves are collected from the tree, and put into large boilers containing water. As soon as the water boils, the decoction is drawn off, and

* This paper was written before the appointment of the scientific deputation to the tea districts, whose report may be now shortly expected.—Ed.

thrown away, and the leaves, being taken out of the boiler, are put into a pit dug into the ground, and lined with some sort of leaves, to prevent the tea coming in contact with the earth. When the pit is filled with tea leaves, it is then spread well over with a thick layer of the other leaves, and after all, covered over with earth, so as to exclude all air. In this state it is allowed to remain for two or three months, when the pit is opened, and the tea sold on the spot to traders, who pack it closely up in the joints of bambus, earthen pots, &c. and transport it to other parts of the country on mules for sale. He also mentions, that many thousand maunds of tea are manufactured at a place called Polong, and exported to China. Where Polong is situated, I have not been able to determine.

In addition to the tea tree, the Singpho country has lately been discovered to abound in many valuable gums, well adapted for varnishes.

Burmese Singphos.—The Singphos of Assam are separated from the Singphos subservient to the Burmese, by the Patkoí chain of mountains; and though these two races are entirely unconnected with one another, and independent, yet a constant friendly intercourse is maintained between them. The Burmese Singphos occupy a very extensive tract of country on both sides of the Irawadí, and from the Patkoí mountains eastward to the borders of China.

Trade with China.—As the Chinese carry on a very considerable trade with these Singphos, and through the medium of their country with Assam, I shall endeavour to mark out particularly the line of communication between the two countries. The Chinese province of Yunan being separated from a navigable channel of the Irawadí, only by a mountain chain, inhabited by Sháns, tributary to Burmah, the Chinese merchants, by a short land journey across these mountains, convey their merchandise on mules, to a place called Catmow, on the banks of that river. There the Irawadí is a large stream. The channel is unincumbered with rocks, trees, or sandbanks; the shores are composed of a stiff hard clay, not liable to tumble down, and present every facility for navigation. The exact position of Catmow seems undefined. The merchants, having loaded their goods on boats, easily procurable, commit themselves to the gentle current, dropping down with the tide due south, day and night, and on the third or fourth day arrive at the mouth of the river called Nam-yang. After ascending this river four or five days in a north-west direction, they come to a town called Mung-kung, or Mugaum, the chief depôt of Chinese trade situated at the junction of two smaller rivers, the one called Nam-kung, or the Mugaum river, the other, Nam-yang.

retaining the name of the united stream. The Mugaum river is navigable for 40 or 50 miles above the town, and for small canoes, a good deal farther, and extends in a northern direction. The Chinese wares are transported up this river as far as practicable, and afterwards conveyed overland through Hukung and Busa to Assam. The journey from Mung-kung to Assam occupies from 15 to 20 days.

Route into China.—There are two other routes to China besides the one mentioned, the one by a place called Senwa, and the other by May-nay, both of which run direct into Burmah, but little more is known about them than their name. The intercourse between China and Assam by any of these roads is extremely tedious, and can only be followed by a trading people, who traffic as they move along, without regard to time or distance. A knowledge of the extreme navigable eastern branches of the Brahmaputra has pointed out a much shorter and more convenient pass, and this was travelled by Lieuts. WILCOX and BURLTON on their visit to the Bor-Kangtis. Following up the river Noá Dihing, which flows into the left bank of the Lohit, a few miles above Suddia, they were able to proceed by water conveyance to within nine days' journey of Mung-lang, on the banks of the Irawadí, and without experiencing any serious difficulty or inconvenience farther than the jungly state of the country.

Importance of a Road.—A road passable even for mules or oxen between the navigable branches of the Noá Dihing and the Irawadí could not fail to be of great national benefit, and would open a channel for the direct importation of all the valuable productions of Central Asia. It would also tend to the complete civilization of the savage mountaineers, who inhabit these regions, and enable a force to penetrate into the centre of the country, whither they can at present retreat with comparative impunity. It is doubtful how far those tribes would contribute to the formation of roads, or the furtherance of any attempt on our part, to extend our intercourse into the interior; they have hitherto been jealous of any encroachment, and not many years ago, gave proofs of the spirit by murdering the individuals who conducted Lieut. BENNETT to the Patkoí boundary.

But the time, it is to be hoped, has already arrived when these fertile tracts will be taken under our especial protection; when the untutored barbarian must submit to civilization and improvement, and his wilds and his wastes to the ploughshare and the hoe of British agriculture.

The most important articles of trade exported by the Chinese from the Singpho country are gold dust, precious stones of various colours, and ivory.

Gold Dust.—The gold dust is procurable from most of the streams

of the Brahmaputra; but the gathering it is but a poor trade, and is now but little followed. The place most celebrated for its precious stones is Mung-kung or Mogaum.

Precious Stones.—On a range of hills near it, a great number of deep mines are dug, and the working of them affords occupation for many thousand inhabitants. When a stone of moderate weight is found, it is hoisted to the mouth of the shaft by a windlass erected for the purpose. But they frequently meet with large masses, which they have not the power of moving: these they contrive to break to pieces.

Mining.—The workmen begin by kindling a strong fire all over and around the precious stones, till it is well heated; they then mark off with some powerful liquid, the piece they wish to break off, a large stone is suspended from the top of the shaft perpendicularly over the piece to be broken off, and when all is ready, the stone is cut away, and falling with great impetus upon the mass below, breaks off the fragment exactly according to the line drawn with the liquid. It is difficult to account for this mysterious liquid being able to prevent the whole mass from being splintered, and how it should preserve such a line of separation; yet such is the native belief, and it is not improbable that its effect is merely imaginary, or that is practised from some superstition.

These stones are afterwards cut into convenient pieces by means of a bambu bow with a string of twisted wire, the string being applied to the stone and used as a saw, while its action is assisted by some sort of pulverized mineral*. As might be expected, much bloodshed is frequently the consequence of finding these hidden treasures. When any doubt arises about the party who first discovered one, or about the right of possession, bloody battles ensue with short swords in hand between whole villages. Large emeralds are allowed to lie around the pits unclaimed by any one: no one venturing to carry them away, lest every one should fall upon them in vengeance. These precious stones are afterwards carried on mules to China, and are sold at very high prices, some of them bringing 7 or 800 seers weight of silver. The Burmese governor levies a tax of two seers on every 10 that are exported. These mules are driven along in gangs of 20 to 30; the drivers go armed with swords and matchlocks, and guide their beasts of burden by word of mouth. The route they pursue to China is viâ Catmow or the Irawadí, and the overland journey from Mung-kung to Catmow occupies about nine days.

Amber.—Besides the mines of precious stones, there are several amber mines in the province of Hukung, which are wrought to con-

* Doubtless corundum: this is the common mode of cutting hard stones.—Ed.

siderable advantage. The amber is cut into cylinders about $\frac{1}{4}$ inch in diameter, and two inches long, and is worn as an ornament stuck through a hole in the lobe of the ear, both by Assamese and Burmese.

Ivory.—A large quantity of ivory is exported by the China merchants. It is almost all obtained by the Singphos, from shooting the wild elephants with poisoned arrows fired from a loaded musket. When once they get upon the tract of a herd, they continue the pursuit for days together, taking up favourable positions upon trees, or lying in wait in the long grass, till they can take a fatal aim. Vast numbers of these noble animals are destroyed in this manner, both by the Singphos and Kangtis; they are as susceptible to the fatal effects of poison as the smaller animals, and fall down dead immediately after being slightly wounded. Their teeth are struck out by the hunters, and the carcasses are left to be devoured by the beasts of prey.

Chinese returns.—In return for these valuable commodities, the Chinese bring into the Singpho country, nankins, silks, lacquered and China ware, lead, copper, and particularly silver.

A great portion of the silver that comes into Assam through the Singphos is stamped with Chinese characters. It can scarcely be called a coin, but a piece of bullion; and appears to have been made by scooping out a small round hole in a piece of clay, then filling it with molten silver, and before it becomes cold, impressing it with the Chinese stamp. Not two of these lumps of silver are of the same value or size: their intrinsic worth is ascertained by their weight, and is found to vary from two to 10 rupees.

Bullion.—Though the metal is very pure, it is called *kacha rupa*, and one sicca weight of it is fixed as equal to only half a sicca of the properly coined metal. No inconvenience arises in purchasing articles of small value; the hill tribes take out their dau, and chop it into pieces even to the portion of a pice. This *kacha rupa* is eagerly purchased by the chiefs in Upper Asam, who, after adulterating it largely, cast it into their own coin, and thus realize an enormous profit. These chiefs have most of them mints of their own, and are in the habit of coining rupees for any one who will give them the raw material, retaining only 10 per cent. for their trouble.

Muamarias or Mattuks.

The country of this tribe is bounded on the N. by the Brahmaputra, on the S. by the Burí Dihing; on the E. by a line drawn S. from the mouth of the Kunili nallah to the Burí Dihing, and on the W. by a line drawn from the mouth of the river Dibunu to the Burí Dihing. About 1793, these people rose in arms against the reigning Rájah GOUBINATH SINGH, and after many bloody engagements with the royal

troops, at last succeeded in driving him from his throne and kingdom, and in appointing a successor of their own choice. During the period of their ascendancy, they committed the most dreadful ravages upon the country, and the original inhabitants: great portions of it were deserted, and even till this day, it has never regained any thing near its former prosperity. But these lawless plunderers were not allowed long to enjoy the fruits of their conquests; they were speedily driven from the capital by 1000 sipáhis, under Captain WELSH, and retreated to the districts which they now inherit. The head of this still powerful clan is known by the name of the MATTUK Rájah, or more commonly, by that of the *Bara sènapati* (great general). During the Burmese war, he maintained his independence; but on our taking Rangpur, he claimed our protection, and has since manifested his sincerity, by a zealous endeavour to render every assistance in his power in the advancement of our plans.

The greater part of the country allotted them is a desert waste, and only the banks of the river Diburí are inhabited. The population amounts to about 60,000 men, inclusive of women and children. The capital is Rangagora. The state is allowed about 500 musquets and ammunition according to treaty, and supplies a large contingent. They profess the Hindu religion; but act so little in accordance with its tenets, that enlightened Brahmins scarcely acknowledge them.

The *Bara senapati*, with all his affability and apparent deference to our authority, is by some considered not entitled to perfect and unlimited confidence. Situated between two powerful states, the British and the Burmah, his policy seem to be to maintain good terms with both; and in the event of another Burmese invasion, it is to be feared, he would preserve neutrality, till he saw how the scale was likely to turn, and then join the stronger party.

Nágas.

The next border tribes met with in proceeding westward are the Nágas. To assign limit to their country seems almost impossible, and even to number their numerous tribes, no less so; they are scattered all over the mountainous ridge that divides Assam from Manipur, to which state some of them are tributary, some to Assam, and some even to the Burmese. There is no one individual tribe of any formidable consequence amongst them, and there is but little inclination to coalesce, they being constantly embroiled in petty feuds. Their houses are built on the most inaccessible points of the mountain, and planned for every-day defence. They are represented by the inhabitants of the plains as robbers and murderers, and are so much the dread of all, that little of their economy is known.

Brine Spring.—One of the most remarkable circumstances relating to their country is the number of brine or salt springs in many parts of it.

At Burhath, on the river Disung, there are about 20 of these brine springs, from most of which the Nágas are in the habit of making salt. These wells are dug to a considerable depth, and the brine varies in intensity, probably according to the access of fresh water from the surface; and being situated in a valley, and having no protection from the rain, they are generally filled in the wet season. The consequence is, that the manufacture is carried on only in the cold weather.

Manufacture of Salt.—Some of the best of these wells give 10 sicca weight of dry salt to the seer of water, and others, only three or four. The process of evaporation is carried on by filling the joints of large bambus with brine and suspending them in an earthen trough, filled with water, which answer for the purpose of a boiler, and in this rude way, the brine in the bambús is evaporated, till salt is formed. These mud troughs are every season broken down, and being triturated with water, afford a strong brine from which other salt is formed.

So tedious and unskilful is the manufacture, that the salt made from these wells cannot be made at less price than the same quantity of salt transported from Bengal.

II.—*On the Method employed to remove the Vaulted Roof of St. Peter's Church in Fort William, illustrated by a Section, (Plate V.)*

Works of engineering skill come peculiarly within the limits pointed out by the motto on our title page, as fitted for the Researches of a Scientific Society or Journal: "The performances of man," of such a class in this country, and under British rule, are, it is true, but rare and trifling compared with the noble efforts of art, which grow up from day to day under the eye of an observer in Europe. There, letting alone tunnels and railways of gigantic enterprize, we hear of half an elliptic arch sprung by the celebrated BRUNEL from a buttress and carried to a semi-span of *seventy feet, without centering*, by the mere adhesion of the cement!—of an iron suspension bridge at Fribourg in Switzerland thrown over a ravine of 170 feet deep, in a single bold span of more than 900 feet from rock to rock, far surpassing the Menai bridge, or even the designed bridge from St. Vincent's rocks at Clifton, which latter we regret to hear has been abandoned, in consequence of the riots in Bristol, and the destruction of that wealth which would have been so well bestowed upon this noble work.