

worth having in the country of their conquerors. The Manchûs may govern China; but the Chinese own Manchuria, and the thorough-bred Manchu, the ancient lord of the soil, has been successfully cozened out of his patrimony. There remain but his rank and privileges of birthright, declined by the practical Chinaman, which consist in serving the Emperor either within the fortified cities of the empire, or amidst the eight banners beyond the Great Wall. A nomadic Manchu Tartar horde, south of the Amur, would be an ethnological prize.

Purchases were made of sheep at nine dollars apiece, fowls three for a dollar; eggs and milk seemed abundant.

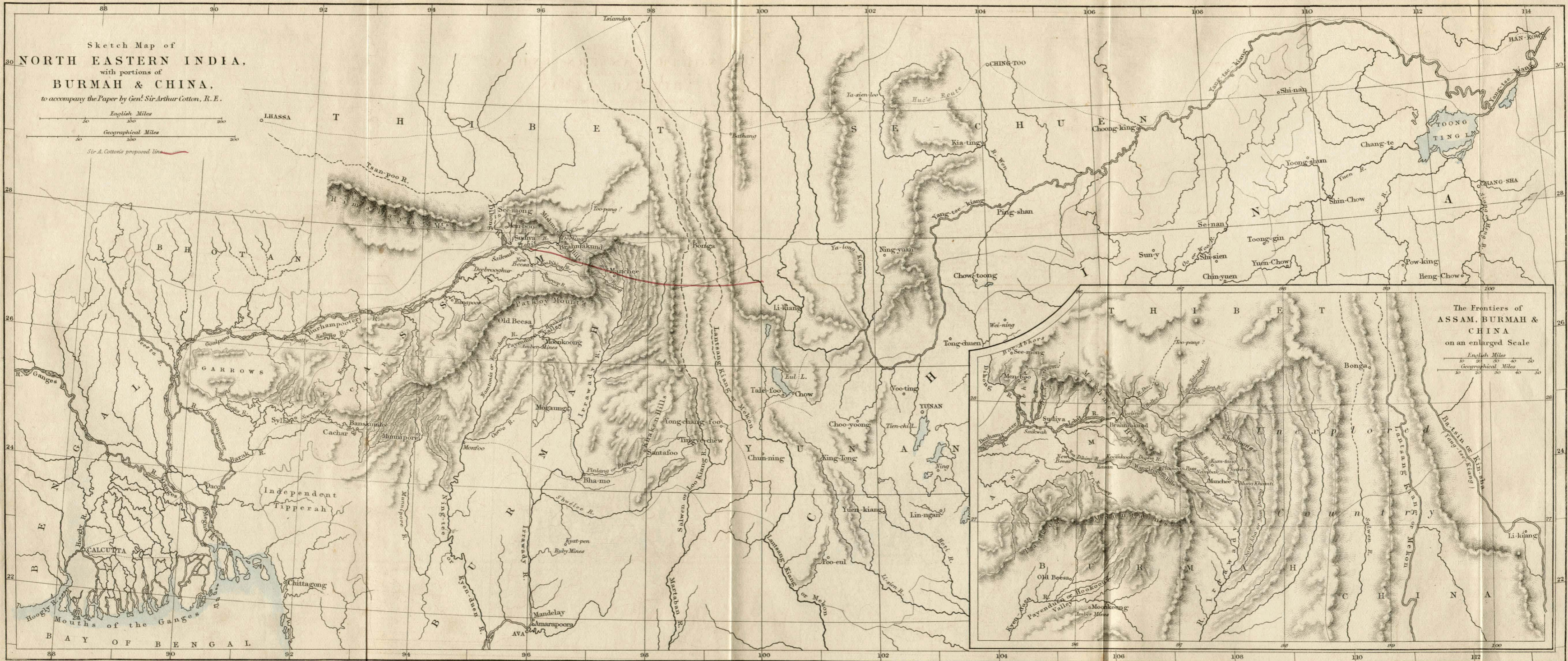
Communication with the Usuri is not an easy matter at Olga Bay. The commandant mentioned Boussera, six miles below Lake Khinka, on the Sungachan, as the nearest convenient point on the Usuri. The journey hence takes 20 days. The Gilbert river affords 70 versts (46 miles) of water communication in canoes, but horseback is considered preferable.

Our country walk along the so-called military road, pleasant enough in July or August, must be a veritable "slough of despond" for the involuntary traveller after the spring-thaws of March and April. The road is certainly cleared of trees, and has a certain direction and breadth assigned it by our friend the topographical engineer; but Nature alone attends to the contingencies of repair. What her laws forbid her to do in road-repairs at spring time, her bounty makes up for in advanced summer. The fields here are one blooming surface of wild flowers of many varieties and hue. The air is laden with the perfumes of the wild clematis and wild rose. Though the eye be gladdened by the most brilliant colouring, still the general aspect of Olga Bay is, even at this, its most favourable season, saddening. Denied its military, and only hopeful of its commercial character, we are forced to accord it the condition or status given by a Frenchman to his own commercial settlement under military supervision, Saigon, as a port "waiting for de commerce."

XII.—*On a Communication between India and China by the Line of the Burhampooter and Yang-tsze.* By General SIR ARTHUR COTTON, R.E.

Read, June 24, 1867.

THE subject of a communication between our provinces in Burmah and the south-western part of China, which has been talked of for many years, has lately again been the subject of correspondence between the India Office and the Government



Sketch Map of
NORTH EASTERN INDIA,
 with portions of
BURMAH & CHINA,
 to accompany the Paper by Genl. Sir Arthur Cotton, R. E.

English Miles
 0 100 200
 Geographical Miles
 0 100 200
 Sir A. Cotton's proposed line

The Frontiers of
ASSAM, BURMAH & CHINA
 on an enlarged Scale

English Miles
 0 10 20 30 40 50
 Geographical Miles
 0 10 20 30 40 50

of India, which correspondence has now been printed for the House of Commons. From this it appears that though there seems to be no intention of carrying out the design, and it is strongly objected to by some of the writers of these papers, yet orders have been issued to examine the line of country in Lower Burmah or Pegu and as far as our own north-west frontier in the direction of the Chinese province of Yunan, but not in the part of Burmah proper which lies between these.

It seems very strange that such a question as an internal communication between India and China, if it were raised at all, should be treated by all the writers in such a partial and imperfect way. This scheme has originated from persons connected with one particular province of India, and, as might consequently be supposed, it is treated by them entirely as a local question.

To the Rangoon merchant, of course, it was simply the question of how he could increase the trade of that port by making it the outlet of the trade of south-west China; and even to the local official it was necessarily also a question of increasing the prosperity of that province. But, when the question came before the Government of India, surely it should have been treated in a very different way. The real questions were, first, What is the importance of connecting India with China by a direct internal communication? and secondly, What would be the best line for such a communication with reference to the whole of India and the Imperial interests generally?

In the printed papers there is little attempt, in any of them, to examine either of these fundamental points; yet, till they are examined, all such partial discussion is only waste of time, and might lead to immense waste of money. Some years ago, when this matter was before under discussion, I wrote a short memorandum on the subject, and took the liberty of forwarding it to the Secretary of State, who transmitted it to Calcutta; but no reply was sent to me. There was, I believe, some little discussion on the point I had suggested, but, as usual, nothing was *done*.

The first question which I have raised—viz., What is the importance of a direct inland communication between India and China?—seems to require very little consideration to satisfy us that it is certainly a matter the results of which would be great, far beyond all calculation. The throwing open of all India to all China, the access of a country containing 200 millions to the produce of a country occupied by 400 millions, and the opposite, (to say nothing of Central Asia), would be of its kind a work of such magnitude as that nothing approaching to it has ever yet been seen in the world; and the export of a large portion of the

produce of Western China for Europe through our own principal port of Calcutta is an imperial question of the very first importance.

And even as respects the trade between China and Russia, the distance from Nankin to St. Petersburg is 5000 miles, almost all land-carriage, while the distance from the Indus to the Caspian is 1200 miles; so that on the line of India there would be water-carriage between those two places, with the exception of at most 1500 miles, and perhaps much less.

But perhaps the great point of all in this question is, that by this means we should have independent access to that country by a line on which there could be no interference on the part of other European or of American nations, by which we are so continually hampered in our access by sea. In case of war, the difference between having to guard our trade to the coast of China and to Calcutta would be incalculable, and I suppose at such a time our whole trade with China would be carried on through Calcutta.

What the traffic would become if the vast system of water-communication in India could be connected by a sufficiently cheap carriage with that of China it is impossible to estimate; but it would certainly be far beyond anything that has yet been seen, and would provide for a capital that would accomplish anything on this short distance of 250 miles between the two rivers.

It seems to me that these few words are quite sufficient to satisfy us of the vast importance of such a work.

The next question surely is not, Can a railway be laid from Rangoon to Yunan? but What is the best line by which a communication can be established between the two countries? There are three conclusive objections to the connection with Rangoon:—1st. That to lead the traffic to an insignificant port like that, if it can be conducted to the great port of India and the seat of Government, is obviously out of the question. 2nd. It would not connect the great body of India with China, but only an insignificant province containing 2 millions of people. 3rd. It is 900 miles from Rangoon to the Yang-tsze, almost all of which would probably be land-carriage; and it is, of course, essential to reach water-carriage in China, by which all the great traffic of the country is carried on. Without this, only a trifling traffic with the thinly-populated province of Yunan can be carried on, for nothing of any consequence can bear 1000 miles of land-carriage.

The moment we ask the true question, What is the best line for internal communication between India and China? it is answered—that is, so far as what is desirable goes—and that is,

the line from the navigable part of the Burhampooter to that of the Yang-tsze, a distance of probably under 250 miles. Indeed, in one place, according to the maps, it is only 80 miles from the one to the other, at points to which it is highly probable that both rivers are navigable; but it seems to be ascertained that there is very high ground between these points.

The Burhampooter has been navigated to the great bend near Sadiyah, and the Yang-tsze to probably within 200 miles of the nearest point to that, or about 1500 miles from the sea. Surely, there cannot be the smallest question about this being the line, unless it should be found to be absolutely impracticable, of which there is not the smallest probability.

1st. It is the shortest line between the heart of China and that of India, and also of the port of Calcutta. 2nd. It is the shortest line between the two systems of water-transit. 3rd. It does not pass through the heart of Burmah, or any other great foreign state, but only through small dependent or independent states, through which the objections to transit would be far less.

I need not here enlarge much upon the absolute necessity of water-carriage in order to make accessible the produce of any large extent of country; not 1 per cent. of what would be conveyed by water can bear the cost of thousands of miles of land-carriage. When we come to more than 100 miles, railway and all other modes of land-carriage entirely fail. They were lately carrying cotton from the north-west to Calcutta at 19*l.* a ton, and from thence to London, fifteen times as far, for 3*l.* Even valuable articles like cotton, worth 100*l.* a ton, cannot bear such a charge permanently. What becomes of the great mass of produce, worth from 5*l.* to 20*l.* a ton? They are either carried by water or not at all.

In France they are now revising the whole system of water-transit, improving and completing it throughout the whole length and breadth of the country; because they find they cannot compete with other countries while they are even partially dependent upon land-carriage.

The same in the United States. A report by a Commissioner has lately been laid before the Government on this subject, showing the absolute necessity of the most extensive improvements of their already magnificent water-communications. He says, "*To do away with the enormous cost of all rail transportation across the continent, it is proposed to make a communication of navigable water from the Ohio River,*" &c. &c. And some of the projects now under consideration are, to improve the whole line of the Mississippi from the highest point practicable to the sea; to make a ship-canal from the Lakes to the

Mississippi; another ship-canal round the Falls of Niagara; to enlarge again the Erie Canal from the Lakes to New York, upon which they have only just expended several millions in enlarging it, &c. &c.

All this is going on in these countries in the face of the most complete system of double railways, showing that after many years' trial, they have been proved totally to fail to carry the great traffic of the country at practicable rates.

So it is in England even, short as the distances are here. The great traffic of the country is still carried by water, by the coast, rivers and canals, utterly imperfect as the internal water-communications are, not even fitted for steam power. Several of these miserably imperfect rivers and canals carry more than a million tons a year, with double railways running by the side of them; animal or human power on water completely beating steam power on land, after spending 30,000*l.* or 40,000*l.* a mile on the railway, while 4000*l.* or 5000*l.* only has been spent on the navigation line.

Nothing therefore can be more certain than that the one point of paramount importance in this case is to find the shortest practicable line of land carriage; and it is most remarkable that this line is the very one that meets the other requirements, if it is at all practicable. On the one side we have water-transit from Kurra-*chee*, 3000 miles, to Sudiya, with only one interval of 150 miles between the Sutlej and the Jumna, of the easiest possible country, for which a canal has already been planned and estimated, and which would cost, perhaps, 300,000*l.*; and on the other several thousand miles of river and canal connected, of which one continuous line by the Yang-tsze, 1700 miles, the Grand Canal 100 miles, and probably 1800 miles of the Yellow River, is in all 3600 miles. So that this one line of 7000 miles, from Kurra-*chee* into the heart of Chinese Tartary, is only broken by two intervals, one of which we know can be overcome at a cost quite trifling. There is, indeed, little hope of water-transit being established on the other interval of 200 or 250 miles, from what we know of the country; and this is undoubtedly a very great pity. But even a land carriage which would connect such vast extents of water-line, and such enormous populations, must be of incalculable value, and will certainly justify ultimately any possible expenditure.

The question then remains, What do we know of this tract of country?

On the Indian side we have the published sheet of the Indian Atlas, No. 138, compiled from the investigations of the officers of Government sent to explore it during the first Burmese war, as far as the Irrawady, with their reports, and also the reports

of Burmese merchants, who now trade between the two rivers, the Irrawady and Burhampootee. The former proceeded by water to $96^{\circ} 30'$, within 250 miles of the Yang-tsze, as it is laid down in the maps, and thence by land to the Irrawady; but on the line they passed over they crossed very high land. Their expedition terminated at the Irrawady, just 100 miles from the Yang-tsze.

The Burmese merchants are reported to travel by a road south of their line, and to state that there is no serious obstruction of any kind as far as the Irrawady, but what height they pass over I have not heard. Between the Irrawady and Yang-tsze I have no information, excepting what the published maps give, which appear to be all copied from the Jesuits' map of China.

Whether the latitudes and longitudes are there correctly given I have no information, and I think no European has visited that tract in modern times. The gentlemen who navigated the Yang-tsze proceeded to within about 200 miles of the nearest point of that river to the Irrawady, and they ascertained that it was navigable beyond that.

According to the maps the line from the Irrawady to the Yang-tsze is across the lay of the country, and the Yang-tsze and Mekong are represented as divided by mountains; but whether this is correct, or whether there are any steppes or passes through those mountains does not appear. In the course of my engineering experience so many supposed insuperable obstacles have vanished as soon as they were looked into, that I am always reminded not to be deterred by one till I have ascertained that it really exists.

Thus we are not certain that portions of this line may not be practicable for water-ways, nor what the precise distance really is. The first thing to be done, therefore, is to examine this line of country. It would be advisable to do it from both sides; on the Indian side following the route of the Burmese merchants to the Irrawady, and so on to the eastward; and on the China side steaming up the Yang-tsze as high as practicable, and then proceeding by land to the westward.

The late navigators of the Yang-tsze saw some of the chiefs of the tribes inhabiting the intermediate country (the Miaoutrees, as the Chinese call them), and found them extremely friendly, and willing to be visited. They are quite of a distinct race from the Chinese, and probably are of the same as the Kurms, north of Burmah. They seem to be a very fine race, in a state very similar to that of the Highlanders of Scotland 200 or 300 years ago. Proceeding thus from both sides it is probable that it would not take long to examine the 100 or 150 miles between the Irrawady and Yang-tsze.

It is more than probable that men might be found among the missionaries in Upper Assam and in Burmah who are already so well acquainted with those races that they would understand perfectly how to deal with them, and who would gladly undertake the duty of exploring the line. They might also know so much of the languages spoken as would facilitate the communication with them. A Livingstone might be found among them who could make his way to the moon, if only it were filled with uncivilized people.

Part of the line would, I believe, pass within the frontier of the petty states dependent upon Burmah, and part through similar states altogether independent.

... If a small fast steamer, of the smallest draught, were sent up the Yang-tsze, it would be an easy matter to go to the highest point navigable, especially as there are coal-mines now worked on the very banks of the river, so that a steamer might proceed without any delay. If a small steamer like those sent out to the Godavery, drawing only 1 foot, and capable of working at 10 or 12 miles an hour, were used, it would be a very speedy voyage to the great bend of that river.

It might also greatly assist the expedition if a similar steamer were sent up the Irrawady. This river is represented in the maps as passing within 100 miles of the Yang-tsze; and it is not at all likely that it should not be navigable for very shallow steamers in June, when the snow is melting. On May 24th the expedition found the Irrawady in $27\frac{1}{2}^{\circ}$ North latitude "fordable," so that it must have been navigable thereabouts in that month; for the ford would of course be chosen where the river was shallowest, and "fordable" would hardly mean less than 2 or 3 feet of water there. So also a vessel might be sent up the Mekom or Cambojee, one of the affluents of which is represented as flowing from a large lake 40 miles long, and within 20 miles of the Yang-tsze.

It is thus evident that upon examination the actual distance in which land-carriage may be found unavoidable may be very small. And it is almost certain that the distances between points to which small steamers may be run when the snow is melting are very short indeed; viz., from the Burhampooter to the Irrawady 100 miles, thence to the Saluen 50, thence to the Mekom 25, and thence to the Yang-tsze 25; so that land parties supported by steamers would have very little difficulty excepting such as might arise from the inhabitants; and we have every reason to believe they would be friendly if the expeditions were under the charge of missionaries who were accustomed to those races, and would know how to deal with them. Two or three small steamers, just large enough to carry exploring parties,

would not cost more than 2000*l.*, and this would probably be the cheapest way of conducting the expedition, as well as the safest.*

With respect to the mode of opening the communication, the main points to be kept in view seem to be—

1st. To open the line, in however rough a way at first, as speedily as possible.

2nd. To do it in an inexpensive way at first, connecting the line and perfecting the communication by degrees.

3rd. To have as little work on the spot as possible.

4th. To establish ports at different points, in which suitable persons might reside, to communicate with the different native authorities, &c.

5th. To establish light steamers on the different rivers, to carry materials, stores, provisions, &c., while the line is being established.

The great point seems to be to carry on the work so as to be as little dependent as possible on local labour. For this purpose there seems nothing like a very narrow-gauge railway, such as is in operation in the vale of Festiniog in Wales, which is only 2 or 3 feet gauge, and yet it is even worked with locomotives. Such a railway could be laid with extremely little labour on the spot, and could be finished in a very short time if the materials could be conveyed by water to three or four points on the line. It would of course be laid with very sharp slopes and curves in the first instance if necessary.

There would be many advantages in proceeding in this way, especially as so little expense would be incurred in preparing the ground, that the line might be altered at any time, as the country was more fully explored, without any great loss; the time required would be greatly reduced, &c.

The total first cost of such a line would be very moderate. If timber could be obtained on the spot, or conveyed by water from the banks of the different rivers, continuous sleepers, with square iron trams of only 1½-foot gauge on the same timbers, might be laid down in the first instance, to be worked by horses or bullocks walking by the side of the rails. A perfectly effective railway, of only 2-foot gauge, was laid at the Godavery works for the carriage of stone, which cost 200*l.* or 300*l.* a mile; and this would be of great use to initiate such a line of road while more complete works were in hand, so that by the time

* I cannot find any information respecting this line. Capt. Sprye and others have furnished information respecting a mere junction line from Rangoon to Yunan, but the line I speak of, from the great bend of the Yang-tsze, in lat. 26° and long. 100°, in the direction of Sudiya on the Burhampooter, as far as the Irrawady, seems to be totally unknown.

the latter were ready for the traffic, the traffic, having been in the mean time diverted into this line, would be ready for the railway.

Of course it would be of the greatest importance to make water-communication as far as the line could possibly admit of it.

I should add that a new importance is given to this line of communication at this time by the tea speculations in Upper Assam. It seems to be fully ascertained that that province is of extraordinary fertility, and that nothing is wanted but labour to make it one of the finest fields for the employment of British capital and energy that could be found. If only access could be given to it from China direct, there can hardly be a doubt that any amount of labour could be obtained.

XIII.—*Notes of a Journey in the North-West Neighbourhood of Pekin.* By JONES LAMPREY, Esq., M.B., 67th Regt., F.R.G.S.

Read, June 24, 1867.

It was not till the autumn of the year after the signing of the Treaty of Peace in 1860, that the northern provinces of China were fairly opened to the excursion-loving Englishman. This delay was a wise and necessary precaution under the peculiar circumstances of our being so recently at war with the people, and our military occupation of an important city inhabited by a race who are characterised by self-conceit and a feeling of superiority over all foreigners. It was well, before going among such a people for the first time, that they should have some report of us, and that they should know that we were not the untamable savages we were hitherto supposed to be.

During our occupation of Tien-tsin, it was interesting to observe the change that took place in the dispositions of the inhabitants towards us, and how completely mistrust gave place to confidence. After a few months' residence among them, they soon saw that though conquered they were not oppressed, and that, though there was a force of about three thousand foreign soldiers quartered among them, they were amenable to law and order, and that justice, administered in matters in which they were parties, was as fair to them as to ourselves; they were paid well for anything we purchased from them or when they worked for us; we relieved their destitute poor, and established a hospital for their sick; all which circumstances being noticed by a peculiarly observant people, did not fail to spread our reputation throughout the northern provinces and secure that