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The Lake Region of Sikkim, on the Frontier of Tibet.

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(A Lecture delivered at the Evening Meeting, February 26th, 1881.)

Map, p. 384.

SIR RICHARD TEMPLE spoke as follows :—

I am about to address you upon the subject of “The Lake Region of Sikkim, on the Frontier of Eastern Tibet.” My address will consist mainly of an exposition of the map and of the pictorial illustrations which have been made for this purpose. The map has been prepared specially by our draughtsman, Mr. Turner. The coloured illustrations have been prepared on a large scale by my brother, Lieutenant George Temple, R.N., from water-colour sketches made by myself.

In the first place, I must ask you to observe that the district of Sikkim overlooks from the north the rich province of Bengal, and is situated in the eastern part of the Himalayas; and in the enlarged map of Sikkim before you, you will observe that a railway runs up from the direction of Calcutta, to the foot of the Himalayas near Pankabari. From the foot of the mountain there runs a road up to the hill station of Darjiling, which is the capital of British Sikkim. British Sikkim, you will perceive, is marked within the red line. It originally belonged to the Rajah of the native State of Sikkim, and was annexed to the British dominions by reason of his misconduct in imprisoning for several days Dr. Campbell, the British Superintendent of Darjiling, and Dr. (now Sir Joseph) Hooker, the Director of Kew Gardens. In punishment for such an offence, this district was taken from him and added to British India. Since its annexation to British India, the district has flourished immensely, and has become one of the principal seats of the tea industry of India. It is now dotted and studded with flourishing tea plantations.

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Now from the station of Darjiling you get a view, 45 miles distant, of the celebrated mountain of Kanchanjanga. Kanchanjanga is one of the principal of a group of mountains upwards of 28,000 feet high, and is the second highest mountain in the world. But the celebrated view of Kanchanjanga is not the only claim which Darjiling has upon the attention of the world. It is well known that it is the summer headquarters of the Government of Bengal, and the hill of Darjiling constitutes a remarkable watershed. In the first place, it is a physical watershed, inasmuch as it constitutes the water-parting of the rivers Ganges and Brahmaputra: the water that flows from the south side of the crest, ultimately finding its way into the Ganges, and that on the north side running into the Tista, which is an affluent of the Brahmaputra. But it is also, if I may so call it, a moral and religious watershed, for every man on the south side of the crest is a votary of the Hindu religion, and every man on the north side is a Buddhist. On the south side of the crest the bell of the Hindu temple calls the faithful to prayer. On the other side begin the Buddhist monasteries and chapels, where the deep-sounding gong summons the votaries to worship; and considering that the Hindu religion numbers 250 millions and more of people, and the Buddhistic upwards of 400 millions, the circumstance that this particular crest should be the boundary line between these two wide-spread religions, constitutes a remarkable circumstance. Moreover, Darjiling has now become the entrepôt and the market of the Eastern Himalayas. At that point are gathered the piece goods and woollens, and other manufactures of England to be exported to Tibet: thither come in exchange the wools, the horns, the various products, the livestock, the unrivalled sheep and goats, of Tibet. So much, then, for British Sikkim.

I must now ask you to leave the British dominions and to cross the red line on the map. We then arrive in Native Sikkim, on the western frontier of which there runs the important line of hills separating that State from Nepaul. This range has an average altitude of between 11,000 and 12,000 feet. You may ride along that ridge for 40 or 50 miles almost without a break. On your right hand, travelling northwards, you overlook the State of Sikkim, which is a labyrinth of hills; and on your left you have in view the valley of Nepaul. On your right front you see the Kanchanjanga, already described, and on your left front the famous group of snowy mountains, of which the highest is Mount Everest. Now, Mount Everest is more than 29,000 feet high—a few feet higher than Kanchanjanga, which is upwards of 28,000 feet; so that from that ridge of hills is obtained the finest view of snow mountains in the world. The vegetation is also very peculiar and beautiful, for besides the fir forests of the mountain slopes, there exist along that ridge the most beautiful rhododendron trees that have ever yet been discovered. The clusters of blossoms may be described in general terms as being as

large as a man's hand, and the leaves from 12 to 13 inches long. The colouring is quite superb, sometimes crimson and sometimes alabaster white. But the most remarkable circumstance is that these splendid flowering shrubs grow in a climate peculiarly rigorous. The rains and the winds beat on them, the rich tints are soon bleached, and in a few days after, the blossom falls. It certainly adds to the extraordinary interest of this floral display to find it thus set forth amid some of the roughest and severest aspects of nature.

Along the centre of Sikkim lies the valley of the Tista, a river which rises in the central, backbone ridge of the Himalayas. I am not about to lead you this evening towards the source of the Tista, but I may refer those who are curious upon that subject to the very interesting description of the locality given, firstly, in Sir Joseph Hooker's book entitled 'Himalayan Journals,' and secondly in Mr. Blanford's description of a journey in that region. Both those gentlemen agree in describing the views at the source of the Tista as among the finest they ever beheld, and they are extremely good judges on such a subject, having seen some of the best views in the Himalayas. But the Tista may be regarded as the main artery of Native Sikkim, and all the streams which run through this series of valleys may be considered as veins leading to this main arterial line of drainage. Now, the interesting point, from a commercial and political point of view, is this: that through Sikkim the British Government is gradually constructing a trade road from Northern Bengal to Eastern Tibet, more particularly with a view of opening communication with Lhasa, the well-known capital of Eastern Tibet. This road is to pass through British Sikkim first, then Native Sikkim, then on to the Jyelap Pass, which is one of the passes leading over the Chola range of hills, and then into the valley of Chumbi, to which I will allude more particularly presently. This road is to start mainly from Darjiling as the British terminus, and we hope in future generations that it will end at Lhasa as the Tibetan terminus. It is to supersede the old road to Eastern Tibet which used to run through the State of Bhutan, a portion of which you will see indicated on the right-hand side of the map. This old route through Bhutan is the one that was followed by the early travellers who went upon political missions under the orders of that far-seeing statesman Warren Hastings, then Governor-General of India—such travellers as Turner, Manning, and Bogle. The interesting and instructive journals of Bogle and Manning have been recently published and edited by our talented Secretary, Mr. Clements Markham, who has prefixed to the work one of those interesting geographical, historical, and political discussions for which he has such a special aptitude.

Before we proceed further, I must ask you to look more particularly in the map at the Chola range of mountains, and the Chumbi Valley. You will see that the Chola range lies in the north-east corner of Sikkim

separating that native State of Sikkim from the valley of Chumbi. Now the situation of Chumbi, you will observe, is very peculiar, because it is a portion of Tibet interposed, as it were, like a wedge between Sikkim and Bhutan. It is a piece of Tibet, and therefore politically a piece of China, protruded in the midst of the Himalayas which pertain to the British empire. I will ask you to observe more particularly the details of this new road to which, as you will readily understand, great political as well as commercial importance is attached. First, then, it leads from Darjiling deep down into the valley of the Tista; thence crossing the Tista by a bridge—I say a bridge, because I believe it is built; at all events, I know that before I quitted the government of Bengal I sanctioned the design and the estimate, and provided the funds, and I believe that the bridge must have since been completed. Thence the road passes on to a place named Dhamson, which we took from Bhutan after the last war. Then it runs down again into one of those deep valleys of the affluents of the Tista, where the rich vegetation, the tree ferns, the flowering creepers, the *Bauhinia* and blossoming trees like the *magnolia*, make you fancy yourself in Bengal and Assam, or even in Ceylon. From the midst of this exuberant vegetation, the proposed road rapidly mounts into altitudes where trees and foliage are seen no more.

After you leave this vegetation, you ascend into the rich pasturages and slopes of the spurs of the Chola range. There it is that the people of Chumbi and Tibet and the valleys of Sikkim bring their flocks and herds for what is called the winter grazing. Beyond the Himalayas the climate is too severe for the flocks in mid-winter, and therefore they are brought to lower altitudes of 10,000 or 12,000 feet, where the snow does not lie for more than a few weeks together, and where there is rich herbage. After that you ascend to the Jyelap Pass, at an altitude of about 15,000 feet, and thus you leave Sikkim and enter upon Tibet, which is virtually a part of the Chinese empire. Our engineers have marked the road out, and rendered it available for ordinary traffic as far as the Jyelap Pass, and beyond that it is of course for our friends in Tibet to continue it towards Lhassa. As may be imagined, there is a certain amount of reluctance on the part of the Tibetan authorities to construct these roads, because they sometimes believe, justly perhaps, that commerce follows the flag, and sometimes the flag follows commerce; therefore they think that politics have something to do with trade. Nevertheless, they highly appreciate the Darjiling market. They want money, and they know that they can bring their varied products to British markets for sale and obtain good British money wherewith to purchase British or Chinese articles. Therefore we hope they will cooperate with us at last in opening a trade route from India to China. It must be borne in mind that the crest of the Chola range, and the passes which cross that crest, especially the Jyelap Pass, are sterile in the

extreme. The region lies above and beyond the zone of vegetation, and nothing is seen but bare rocks or water, snow and sky.

Thus far I have occupied you chiefly with what may be called the commercial and political portion of my address; I have not detained you much with descriptions of the picturesque scenery; but before I leave Sikkim proper, I should like to remind you of the extraordinary beauty which belongs to that isolated native State. Sikkim is not remarkable for the industry or the skill of its people; its population involves many ethnological questions which do not appertain to the sphere of the Geographical Society; but its religious condition is in many respects remarkably interesting to all Anglo-Indians, because it is one of the few places where an opportunity is afforded of seeing the living Buddhism, debased in comparison with the original Buddhism as promulgated by Buddha himself many centuries ago. The monasteries and Buddhist chapels in Sikkim are wonderfully interesting structures, and of very peculiar architecture—a mixture of Chinese and Indian; in certain respects it should be called a sort of Hindu-Chinese architecture. But beyond the architecture, there is the extraordinary beauty of the sites on which these buildings are placed. They are almost always on the crest of rocky and wooded hills, and they have as their background the glorious peaks of Kanchanjanga and the snowy range behind them.

From the altitude of most parts of this region an immense sweep of country is beheld. The deep valleys of the Tista and its affluents, not more than 2000 feet above the sea, lie below you, and from their depths you look up straight in one uninterrupted view to the summits of Kanchanjanga; so that, deducting 2000 feet from 28,000, you have in one sweep of the eye 26,000 feet of mountain slope, and that not in one place only, but in fifty places all over Sikkim. These and other circumstances, combined with the richness of the vegetation and the botanical interest connected therewith, also the many kinds of beautiful birds—this mixture of scientific and picturesque interest—have rendered Sikkim the desire of everybody to behold. The only drawback to travelling there is the severity of the weather. You have really to undergo great hardships. The mist and rain are provoking beyond my power of description. You have to march in the wet, to unpack your tent in the wet, to lie down to sleep in the wet, to pack-up again in the wet. For hours, sometimes for days, together you live in the wet; but after enduring all this you are ultimately rewarded, for the rain ceases, the blast subsides, and the mist clears away, and then you behold spectacles such as are imprinted on the tablets of your brain for the rest of your life.

I will now beg of you to follow me on the map along the routes leading to the lakes of Sikkim. The road I have already described was a straight route planned for commerce—the route, as it may be called, of the trader, of the statesman, and the politician, and I am now going

to conduct you by what I may call the route of the artist. This route commences with an upper crossing of the Tista on the road leading northward from Darjiling. This is a very different crossing from the previous one I have described, and much more difficult; I very nearly had my riding ponies drowned at this spot. However, I and my staff got safely over, and commenced the ascent of the low hills over which the road lies, until we reach a point opposite Tumlong, whence we descend to a river, then re-ascend to Tumlong, and afterwards descending again to the river and ascending towards the Chomnaga Valley and the Chola Pass. It was in the Chomnaga Valley that Dr. Campbell and Sir Joseph Hooker were seized and pinioned, and placed in durance vile. I have already explained to you that the finest rhododendrons grow on the western part of Sikkim towards Nepal; but second to



I.—PALACE OF THE RAJA OF SIKKIM AT TUMLONG.

those are the splendid blossoms of the Chomnaga Valley. It was there that Dr. Hooker collected the seeds of a great number of splendid species and varieties which are now adorning the public gardens of England; and it is therefore to that scientific journey, taken thirty-five years ago, that we in England owe some part of the pleasure and instruction we now derive in viewing the public gardens in this country. Chomnaga lies at the foot of the Chola Pass, from which latter are visible the various lakes to which our pictorial illustrations relate, and which I will now proceed to describe.

Our first illustration represents the palace of Tumlong. This comparatively humble though picturesque dwelling belongs to the Rajah of Sikkim, and may be regarded as his Winter Palace. During the summer,



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11.—CHOLA LAKE AND PASS. MOUNT KANCHANJANGA IN THE DISTANCE.

particularly when the rains descend, he lives, by permission of the Grand Lama of Tibet, in the valley of Chumbi, because Chumbi, being upon the other side of the Chola range, the climate is not affected by the rainy season; but during the winter he lives at this little palace of Tumlong. Humble as the place may be, it is yet the capital of Sikkim. It is situated on a hill, about 5000 feet high, having in the background the north-western end of the Chola range. The hill indicated in the picture is that known under the name of Gnaream on the maps. The next picture represents the Chola Pass and Lake. This is one of the old passes by which people used to proceed from Sikkim towards Tibet; but it is much less used now than formerly, since the opening of the commercial route, already described, by the Jyelap Pass. Immediately behind the lake you will observe a rough, rugged, serrated range of hills rising up with its fantastical peaks, something like the jagged edge of a gigantic saw. Now, these are the hills which overlook the valley of Chomnaga—the upper valley where Dr. Hooker and his companions were seized by the Sikkim people. In the distance is Mount Kanchanjanga, viewed in its south-eastern aspect, or that which faces towards Chumbi and Tibet—the very opposite view from that which is ordinarily seen of Kanchanjanga by British visitors at Darjiling, which is really the western view facing towards India. This eastern view is that which is seldom seen by Anglo-Indians, and is, I venture to believe, the finer view of the two. There you see all its magnificent expanse of snows, the splendid granite formations, and all the glacial world of that snowy mass. The height of the Chola Pass and of the Lake may be placed at 15,000 feet above the sea, or very nearly the height of Mont Blanc, the height having been carefully ascertained, first by Sir Joseph Hooker, and afterwards by Mr. Blanford. The geological formation of the Chola range, for the most part, consists of gneiss. This, again, has been carefully ascertained by Mr. Blanford. Of course Kanchanjanga, in the distance is, for the most part, composed of granite—certainly all the upper part is so composed. The upper part of the Chola range is absolutely sterile; not a tree, not a shrub, grows in the locality—nothing but a few kinds of Alpine grasses and scanty herbage, which are dried up in most seasons of the year.

Our next picture represents the Chokham Lake. Whilst the Chola Lake lies exactly on the boundary between Sikkim and Chumbi, and therefore between the Indian and the Chinese empires, the Chokham Lake is situated a little above it and just within the Chinese or Tibetan border. I say "Chinese or Tibetan," for Tibet is virtually Chinese. The precise relations between the Grand Lama and the Emperor of China I need hardly at this moment undertake to explain, but virtually that part of Tibet is thoroughly dominated by China. Tibet has a local government of its own, no doubt, but its affairs are controlled by a Chinese resident supported by Chinese troops, and the Chinese are particularly careful to put boundary marks along the border. They do this in the most jealous

and particular manner possible. Wherever I went, my footsteps were dogged by Chinese and Tibetan officials. Even if I stopped to take a sketch, these gentlemen were always considering whether my foot was



III.—CHOKHAM LAKE ABOVE CHOLA PASS. MOUNT CHANGU KANG IN THE DISTANCE.

upon one side of the border or the other. On one side of the wooden boundary-pillars was an inscription written in the Hindi character of British India, and on the other side an inscription in Chinese. When I went up to sketch the Chokham Lake, the Chinese local officers with their Tibetan attendants were very careful to warn me that I had transgressed the limits of my jurisdiction. However, we secured the sketch, and there it is, or at least the copy of it. It is decidedly the finest of all the lakes. I have been reminded by the high authority of our President that I ought not to call these sheets of water "lakes," and that they are more strictly "tarns," because they have no outlets. In some respects they present geological problems; however, you will allow me to use "tarn" or "lake" as interchangeable. If the Chokham Lake is a tarn, it attains to the proportions of a lake, and is the loftiest and largest of the series. I do not know its dimensions, but it comprises an area of several square miles. The colour of the water is most superb. The altitude is fully a thousand feet higher than that of the Chola Lake, and therefore cannot be less than 16,000 feet above the level of the sea. We ourselves soon began to find that we were approaching a great altitude, because we found as we climbed the rocks that we became very easily winded, and our heads began to ache. However, when we surmounted the rocks we were more than rewarded by the splendour of the spectacle. Emerald, azure,

turquoise—all these phases combined can give you no impression of the indescribable beauty of the colour. In the background of our view will be seen a tract of low forest which creeps along the base of the hills overhanging the Chumbi Valley, and beyond the valley rise a series of purple, pinkish hills. I need not say that, to a spectator on the hills themselves, their colour would be of the dullest and most opaque yellow ochre; but the effect of distance in this clear atmosphere is to throw a sort of etherealised pink-purple over the mountains, which has a most lovely effect. Beyond the range of hills rises the snowy mountain of Changu Kang, a sort of pyramid. This Changu Kang is not found on the maps, but is very well known in that locality, and it separates Bhutan from Tibet.

On the southern spur of the Chola range lies the subject of our next picture, the Bhewsa Lake, which is much lower than those which I have



IV.—BHEWSA LAKE. MOUNT KANCHANJANGA IN THE DISTANCE.

been describing. It may be considered as having an altitude of 12,000 feet, being fully 4000 feet below the Chokham Lake. In the foreground near that lake, especially on the left-hand side of the picture, you will see indications of vegetation. These represent immense expanses of scrub rhododendron, a sort of rhododendron that grows very low and very thick, and spreads its branches in a tangled mass over the ground. It is a dreadfully difficult scrub for a pedestrian to get through; but it is very valuable to the traveller, because it supplies him with fuel for his fire, which he needs in the cold, and cannot otherwise get, and in the event of extreme danger in respect to water it will supply him even with moisture, because its leaves have upon them the hoar frost which can be wiped

off, and be made to supply a good deal of moisture to thirsty men, as I and my staff sometimes found out. This scrub is the only vegetation met with in this zone, lying above the limits of trees. The Bhewsa Lake has a purplish-violet colour. I am quite unable to explain the reason of this variety of colour in the lakes, but the Chola Lake was principally blue, the Chokham Lake a mixture of emerald, azure, and turquoise, and Bhewsa Lake somewhat violet and purple. Behind the Bhewsa Lake, in the middle background, rise the gneiss rocks overhanging the Chomnaga Valley. In our illustration of the Chola Lake these rocks are seen in shadow: here, in this illustration, they are in the full blaze of the setting sun, and beyond them Mount Kanchanjanga overhanging the lake is seen with the same evening effect. Instead of the glittering white in the blaze of the morning sun, it is now tinged with the pink and rosy hues of the setting sun.

The bad weather we generally had was interspersed with lucid intervals of most glorious blue skies, and of course I selected those lucid intervals for making my sketches. Generally speaking, what really happens is this: early in the morning, at sunrise, the weather is quite superb; the sky is unclouded azure, and the mountains are unbroken white. This lasts for about three hours, that is to say, till about 10 o'clock in the day, and that is what we used to call the bloom of the morning. Then, and then only, can you take your sketches. The air is extremely cold—biting cold—and after sketching for a short time your fingers get perfectly numbed, and the only thing to do is to keep a supply of hot water close at hand, into which you can put your fingers, and so get a certain amount of warmth in them, which enables you to preserve their cunning for sketching. After 10 o'clock up come the clouds. You cannot tell how they form. A little bit of vapour, no bigger than a man's hand, expands; fresh men's hands arise and clouds accumulate, till at last the whole atmosphere is clouded over. This lasts till about middle day. Then the clouds seem to turn into snow, and a certain amount of snow falls in the afternoon, which makes you very miserable in the evening, and you sit down to dinner with snow all around you, and your little tent also encrusted with snow. But towards midnight the clouds pass away, and stars come out, and it is a magnificent night. Then you have the sunrise as already described.

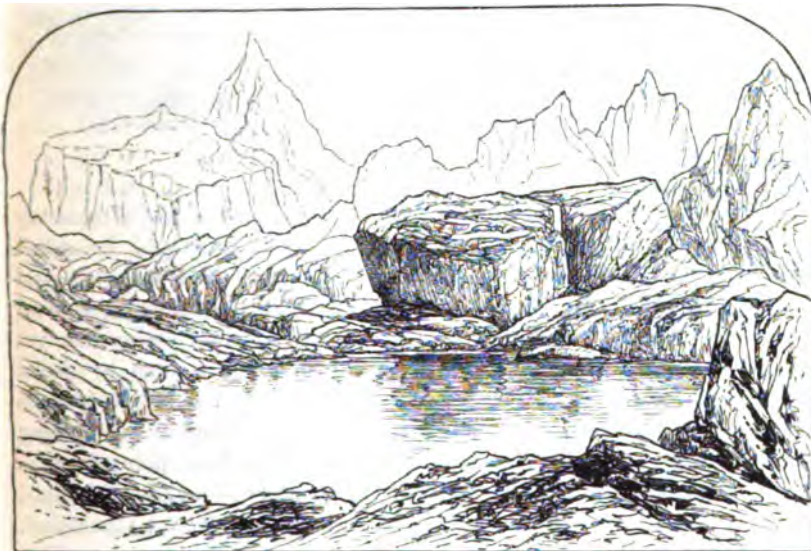
Probably the sun when it rises will melt the thin snow during the bloom of the day. With that kind of weather you very seldom get a sunset view; but on that particular evening when I was at the Bhewsa Lake, the clouds somehow seemed to lift and to display the setting sun, literally bathing Kanchanjanga in roseate light; and that happy moment, of course, I seized to make my sketch.

The Bhewsa Lake being comparatively low, we had to ascend from there once more towards the crest of the range, towards the point you will find named on the map Yakla Pass. On that ascent we found

three very little lakes, for which I will adopt our President's designation of tarns. The first of these is overhung by some very weird, strange-



V.—TARN NO. 1 ON ASCENT TO YAKLA PASS. DARJILING HILLS IN THE DISTANCE.



VI.—TARN NO. 2 ON ASCENT TO YAKLA PASS.

looking rocks, piled one over the other as it were by Titanic and Cyclopean hands; and in the back the view is not towards Tibet, but towards Darjiling. Leaving this tarn No. 1, we get to tarn No. 2. In

this latter you will observe a very pointed hill tipped with snow. This is the well-known peak, locally, of Dopenti, which geographers will find marked on Stanford's map as Dobendi, another name for the same hill. Dopenti Hill is the highest point of the Chola range, and is the same eminence as that called Chola Peak by Sir Joseph Hooker. It really overhangs the Chola Lake; but the lake is so close under the base that the summit is not visible from the banks of the lake. We have now advanced 10 miles to the eastward along the ridge, and thus we get a view of the Dopenti Peak which overhangs the Chola Lake and Pass.

We now come to tarn No. 3, which is exactly at the foot of the Yakla Pass. The Yakla Pass is just visible in the illustration, marked



VII.—TARN NO. 3 AT FOOT OF YAKLA PASS.

by a long saddle in the middle background. The existence of so many of these lakes or tarns—by whichever name they should be called—all at the crest of a lofty range of mountains, presents many geological problems which I will not now discuss; but I may mention in general terms that Mr. Blanford, the best geological authority who has yet visited the country in which they are situated, ascribes them to glacial action. He thinks that in a former geological period immense glaciers have scooped out these hollows in the crest of the mountains. Passing from the tarns, and ascending to the saddle, which I have pointed out as indicated on the illustration—a most toilsome ascent—a view is obtained of the Yakla Pass and Lake, and in the distance of Mount Chumalari, all which you will see depicted in our pictorial illustration. This, on the whole, was considered by all of us to be the most beautiful of all these lovely views. The lake and the mountains on either side of it, with other mountains in the middle distance, and this graceful obelisk of Chumalari, with the mountain shaped like a double-poled tent

on the left of the obelisk—the whole of the features together make up a truly lovely view, most difficult to sketch, I admit, because of the extreme, biting cold and the wind in that exposed position. The colour



VIII.—YAKLA PASS AND LAKE. MOUNT CHUMALARI IN THE DISTANCE.

of the lake is an intense blue. In the foreground, on the left-hand side, you will observe indications of a road. The mark of the road is slightly exaggerated in our drawing, in order to make it clear to you from a distance; but it is of course an extremely rough mountain pass. It is one of the passes by which the flocks and herds of Tibet descend to British India, as I myself saw. I never beheld such beautiful sheep and goats in my life as those which were coming along that pass at the time of my visit. A Landseer, if he were present, would have made of these splendid herds a worthy foreground to this dazzlingly beautiful scene. On the other side of the lake are again seen the hills of Chumbi. These hills comprise what is marked on the maps as the district of Phari. I mention that, because on all maps there is a district marked Phari; but the name applies only to a subdivision of the Chumbi Valley, and the hills of Phari are exactly indicated by the middle distance in this picture.

Once more I ask your attention to the peculiar beauty of the top of Chumalari. I have sketched it several times from several points, and on comparing the outlines I always found that they corresponded, so that I am very confident I have got the shape correctly. You will see that on the west side of the mountain there is a beautiful cone, gradually

tapering into an obelisk, and on the eastern, or right, side of the mountain there rises a great square mass of snow, which we used to liken to the double-poled tent of the Indian marches.

We are now on the crest of the range, and the altitude of the Yakla Pass is nearly the same as that of the Chola Pass, namely, 15,000 feet. Our route then descends from the pass for several thousand feet, to reach the Nimyetso Lake. *Tso* is a common termination in Tibetan names, meaning water, and is sometimes pronounced *tcho*; in fact, Europeans cannot tell whether natives are saying *tso* or *tcho*. It merely means a lake. Nimyetso is Nimye Lake. And I ought to take this opportunity of mentioning that the termination *la* means a pass, so that Chola, or Cho-la,



IX.—NIMYETSO LAKE.

merely means lake-pass, and Yakla, or Yak-la, is nothing more than the pass of the Yak, the famous Tibetan cow, so well known to geographers and naturalists. These cows are remarkable for the size and beauty of their tails, which are a very important article of commerce. You have often heard of the long-haired fan being waved by attendants over the heads of emperors and sovereigns on State occasions. These long fans are nothing more than the tails of yaks, and the consequence is they bring thousands and thousands of pounds annually into the pockets of the Tibetans.

After this slight digression, I must ask you once more to revert to the Nimyetso Lake, as depicted in the illustration. That lake is lower than any of the others which we have been considering. Consequently

it is surrounded by forests; fir-woods on one side, and on the other a rich sylvan mass, composed chiefly of chestnut-trees. The lake itself will be admitted to be a true lake, for it has an outlet; situated near to the foreground of our picture. Behind the forests rises the Chola range of hills, from which we have been descending, tipped with snow. On that ridge, on the left-hand side of the picture, is the Yakla Pass and Lake, which I have just described; and further on the left, outside the picture, would be the Chola Pass; and out of the picture on the right of that ridge is the Jyelap Lake, to which I am about to introduce you. This Nimyetso Lake is 10,000 feet only above sea-level.

I have now to ask you to ascend to the top of the forest-clad hills in the middle distance of our picture, and then to turn off towards the right; you will then be in the immediate neighbourhood of the next



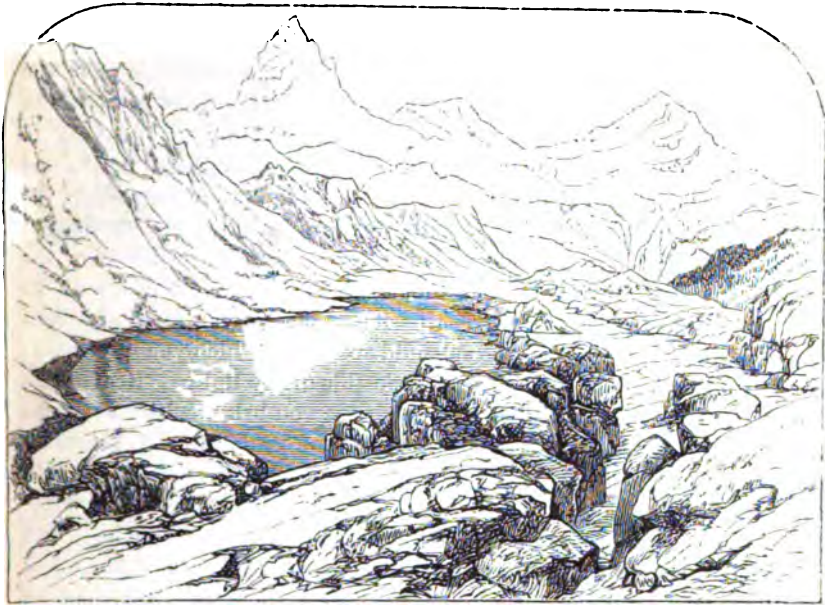
X.—BIDANTSO LAKE AFTER A SNOWSTORM. MOUNT GIPMOCHI IN THE DISTANCE.

scene, which is the Bidantso, what we used to call the Blackwater Lake, on account of its unaccountable blackness. This is depicted in the illustration. The lake was sketched in a snowstorm, and in the background is Mount Gipmochi. In Sir Joseph Hooker's 'Himalayan Journals' the name Gipmochi is always applied to the mountain which terminates the Chola range. This range you will have observed is the mountain region to which the chief part of my lecture this evening has related. At its north-west end rises the Gnaream Peak behind the Tum-long Palace, and Mount Gipmochi is at its south-eastern end. Our illustration of the Blackwater Lake, with Gipmochi in the distance, represents the view, as I have already observed, in a snowstorm. There had been during the afternoon just that sort of snowstorm which I have

previously described ; but towards evening some puffs of wind came, the mist and cloud lifted, and the snow ceased, and then we beheld a glorious spectacle, imperfectly represented, I am afraid, in the picture before you. The bright and radiant atmosphere of the world below you seemed in this view to be shining through the mists of these upper regions—mists which resembled a thin veil of transparent gauze. Anything more lovely than this sort of subdued light, dimly illuminating the lake and its snowy adjuncts, and the grand Gipmochi in the background, and the retreating and receding mists and clouds with the snow-storm still seeming to rest upon the extreme left of the picture, it is hard to conceive. The altitude of Blackwater Lake above the sea-level may be estimated at 12,000 feet, that is to say 2000 feet above the lake which we have last seen, and somewhat higher than the Bhewsa Lake. It also has in the foreground on the left-hand side some of the scrub rhododendrons which I have already described. The leaves of the bushes are represented in our view as encrusted with snow. It was near this Blackwater Lake that we were encamped, and we had to pitch the tents on the only lofty ground we could find, which was a half-frozen and indurated swamp, so that you may imagine the amount of sneezing and wheezing which troubled me and my followers upon that occasion. After a very snowy afternoon, which was just relieved by this gleam of light at sunset, we spent a rough night on this swamp ; but towards midnight the sky cleared, the stars came out, and we were enabled during early dawn to commence the ascent to the Jyelap Pass. Thus I have conducted you by the picturesque route to a junction with the commercial and political route already described.

We ascended to the Jyelap Pass early in the morning, and once more came upon one of the glorious sunrises of this region, the landscape, as shown in the illustration, including not only Chumalari in the background, but also Changu Kang Peak, with the Jyelap Lake in the foreground. In the background of our view of the Chokham Lake, Changu Kang only was represented, and in the background of the Yakla Lake, Chumalari only ; but here both are seen, forming upon the whole the finest background to be found in these parts of the mountains. This Jyelap Lake is a very little one ; but behind it, in the middle distance, are once more visible the pink rosy-coloured hills, with Chumbi, combining the district of Chumbi proper and the district of Phari which I have already mentioned. Between this lake and the lower hills there intervenes the valley of Chumbi, one of the deep valleys, which I believe is not more than 3000 feet above the sea. So that in order to get to those rosy-coloured hills from the lake, it would be necessary to dip down many thousand feet and re-ascend many thousand feet, and it would probably take two days' march to get to those hills. I have already explained to you that the trade route comes from British territory and Darjiling to this Jyelap Pass under British auspices and management ;

and at Jyelap Pass we have reached the extreme boundary of Sikkim, and therefore the boundary of the British empire. Beyond this commences Tibet, and we hope in future ages that the road from India to



XI.—JYELAP PASS AND LAKE. MOUNTS CHUMALARI AND CHANGU KANG IN THE DISTANCE.

China will run over those rosy-coloured hills past the western foot of Chumalari. At the left, or western, base of Chumalari in our picture may be seen the points where the road from India to China is to cross the central line or backbone of the Himalayas. The country beyond has been beheld by very few European eyes, but the road passes on northwards towards Lhassa, and then joins on to the route which was followed by Bogle and Manning, and which has been so well described in the book by Mr. Clements Markham.

Now, gentlemen, I have reached the end of my geographical exposition, and also the end of my small picture gallery; and I hope that pictures and maps, and pointing and exposition together have given you a clear conception of the topographical features of the country which I have undertaken to describe this evening. It has been the aim of the Geographical Society to give the members present in this theatre night after night, occasion after occasion, precise geographical details of different parts of the world. Whenever we come to topographical details we undertake to give them absolutely, to describe to you the particular locality with the same particularity with which the country

might be described between London and Richmond. That has been the aim, I believe, of myself and many other gentlemen who have stood in this place and addressed you in this theatre. Sometimes we illustrate localities in the North Polar regions, sometimes localities in the middle of South America, sometimes localities in South Africa, and sometimes, as you see, localities on the confines of the British empire in the East. On the last occasion I stood here, we endeavoured to give you precise information, such as you might require with regard to Southern Afghanistan, equal to that which you might obtain of the City of London by taking a bird's-eye view from the top of the Monument; and now I have endeavoured to give you similar information regarding the very opposite extremity of the British empire, namely, the confines of Sikkim and Tibet, and the line that is intermediate between two of the great empires of Asia. I trust that if you have at all followed me through all the travels and hardships of the march, you have also been rewarded in imagination by the splendid spectacles which you have seen; and I trust that when you go forth from this dimly lighted theatre into the streets outside, you will carry away with you bright visions in your inner minds; that you will have, as it were, Chumalari and Kanchanjanga "upon the brain." But I also hope that you will think with patriotic pride of the achievements of your countrymen in that quarter of the globe—achievements scientific, commercial, and political; and that you will have a kindly sympathy towards the labours of the many excellent men who have travelled in that region—historic men, as Turner, Bogle and Manning, also Dr. Campbell; and such living travellers as Sir Joseph Hooker, Mr. Blanford, and Mr. Edgar; and that you will carry away with you ideas of the peaceable progress of British influence and British power in that quarter of Asia.

On the conclusion of the lecture,

Mr. W. T. BLANFORD said Sir Richard Temple had treated his subject so fully that he could add very little indeed to the charming description which had been given. The history of his own journey in the Sikkim Himalaya was briefly this. In the year 1870 he had three months to spare, and he particularly wished to see a portion of the interior of the Himalaya. With Captain Elwes, who was then at Darjiling, he arranged an excursion to one or two places which had not been visited by Dr. Hooker, who, when on his way to examine the so-called Chola range, had been seized and imprisoned by the Sikkim Government. It had been pointed out that a rather tedious journey led to the Upper Tista Valley, but this had been made very much easier by a good road to Tumlong. From Tumlong, however, it was only practicable on foot, and even then it was necessary to climb over trunks of trees in order to get along. The district, too, was extremely hot and unhealthy, and infested, in the rainy season, with all sorts of insect plagues and enormous numbers of leeches, so that if this route could be avoided a great deal would be gained. Captain Elwes and himself had heard of the Jyelap Pass, and it appeared to them that there might be a road along the east side of the Chola range, which would avoid Chumbi, and enable them, by the Tankra Pass, to reach the Lachung

Valley, which had a comparatively temperate climate. They were, however, stopped by the Tibetans, and finally obliged to go by the road through Tumlong. Meantime, they had the good fortune to see the lakes Sir Richard had described, which, singularly enough, at that time had not been marked on any map. The map on which they had chiefly depended was that drawn from his own observations by Dr. Hooker, who had been seized by the Sikkim authorities before he could examine the portion of the country south of Chola. Although he (Mr. Blanford) saw the lakes under by no means such favourable circumstances as regards climate as those under which they had been seen by Sir Richard Temple, he was very much struck by their beauty. Nimyetso Lake especially was peculiarly lovely, independently of the mountains behind. It was only two miles long, lying in a deep glen, surrounded by fine forest, the sides of the other lakes being bare except for the rhododendron scrub. He walked round the Bidantso Lake, and it was certainly one of the most characteristic examples of a glacier lake that he had ever seen. It had been visited within the last two or three years by a Hungarian geologist, L. von Loczy, who entirely confirmed the glacier theory of its origin, and as he had recently come from the Alps, his opinion was no doubt trustworthy. The lower end of the Bidantso was dammed by large blocks of stone piled together in a peculiar way, which would be easily recognised by all who had examined glaciers, as the manner in which stones were left at the end of a glacier. A glacier gradually crept downwards, carrying with it many stones and large masses of rock which were left where the glacier melted. At the head of the Bidantso there was a second barrier of loose blocks of rock, and behind that an old lake bed which had in the course of ages gradually been filled up. Many other lakes were palpably rock basins, and as precisely similar lakes were found in ground formerly traversed by glaciers, it was fair to assume that the first named were formed in the same way. There was a lake, which probably had not been visited by Sir Richard Temple, near the bottom of the Jyelap-la, which was a fine specimen of a glacier lake. The accessibility of Sikkim was constantly improving. At the present time the railway was open to Silligori, at the base of the hills, and a steam tramway was now being made to Darjiling. This had already been opened half-way, and was expected to be completed in a few months. He believed, from inquiries on the spot, that a road through Chumbi would be comparatively easy to the temperate regions, where there was some of the very finest scenery he had ever seen. Some parts of the interior of Sikkim had never yet been explored. When Sir Joseph Hooker penetrated the country he was met with all sorts of difficulties, and was constantly half-starved. It was, however, now merely a matter of time and climbing.

The PRESIDENT said he was sure the Meeting would be all the more grateful to Sir Richard Temple, because this was the second time that day that he had addressed an audience, the first being at the University of Cambridge. All would agree that it was a great advantage to those who lived at home in England, when the Lieutenant-Governors of Bengal were of an inquisitive turn of mind, and liked to pry into the remotest corners of their government. It was an additional advantage when the Lieutenant-Governor was also an artist, and had a brother an artist, and possessed the faculty and the eloquence which could bring the beauties of nature vividly before the minds of others. The perfection with which all the preparations had been made had contributed to the completeness of the address. He was therefore sure they would all agree in a hearty vote of thanks to Sir Richard Temple, and in the hope that they might frequently hear him upon other subjects with which his varied experience had made him acquainted.

Sir RICHARD TEMPLE, in acknowledging the vote of thanks, expressed the satisfaction with which he had listened to Mr. Blanford's remarks, which seemed to

confirm many of his own opinions. When that gentleman visited the lakes it was the rainy season, whereas he (Sir Richard Temple) made his journey in the month of October,—the finest period of the year. That might account for the region appearing even more beautiful to him than it did to Mr. Blanford.

Dr. Regel's Expedition from Kuldja to Turfan in 1879-80.

By E. DELMAR MORGAN.*

IN the 'Proceedings' of last year,† a brief reference was made to Dr. Regel's expedition to Turfan in 1879-80: I am enabled now to present to the Society the following further details of his journey.

Dr. Regel is the eldest son of the eminent botanist and director of the Botanical Gardens of St. Petersburg. He had travelled much in Turkistan, especially in the Kuldja region, where for some years he had held the post of district physician. His previous travels have been noticed in the R. G. S. 'Proceedings,' and his botanical discoveries have appeared in full in German scientific publications. This was his first expedition beyond the Russian border. His special qualifications for the task were a knowledge of botany and an acquaintance with native languages acquired by intercourse with the people, by whom he was universally liked. A strong constitution and an indifference to hardships or privations contributed to the success of his undertaking. It is probable, although we are not told so, that besides scientific objects, Dr. Regel was entrusted with a political mission, for at that time a collision with China appeared imminent, and exact information on the movements and strength of the Chinese forces was of course important for the authorities in Turkistan. His intention apparently had been to follow the Imperial Chinese highway to Urumtsi and Turfan, and from the latter place to turn southward to Lake Lob, that goal of Central Asian explorers, returning by the southern road viâ Kashgar to Kuldja. But the suspicions of the Chinese having been aroused, he was obliged to renounce the latter part of his plan. He is the first European in modern times who has visited Turfan; as its Mongol name signifying "residence" implies, this town has been a place of importance for many centuries. It was the chief city of the Uighurs after they removed hither from North-east Mongolia in about the ninth century, and the earliest records indicate it as a rallying point and centre for oppressed nationalities and creeds in the heart of Asia. Situated between China and Dzungaria, it preserved its neutrality, and escaped the fate which

* Dr. Regel's account of his journey is translated from the 'Proceedings' of the Imperial Geographical Society, vol. xvi. No. 2. The foot-notes to the present paper are by E. D. Morgan.

† Vol. ii. p. 489.