

Plate XXI:—

Elevation of a grotesque capital and its ornamental carving and entablature at the angle of the Octagon. The elevation is taken from the interior of the Octagon, as the entablature on the inner side is carved differently from the other portion.

Plate XXII:—

Drawing of another grotesque capital.

Plate XXIII:—

Carved chafts of both orders of columns in front of the cave.

NOTE.—The Editors regret that owing to the sickness of the Pandit upon whose assistance they relied in transcribing the inscriptions which should form the Appendix to the foregoing paper, they are compelled to postpone the publication of these till next month.—Eds.



Journal of a trip through Kulu and Láhul, to the Chu Mureri Lake, in Ladák, during the months of August and September 1846.—By Capt. ALEXANDER CUNNINGHAM, of Engineers.

Leaving Simla on the 6th August, we proceeded viâ Kunihár and Sâhihetî to Biláspúr on the Sutlej, which we reached on the following day, and on

Saturday, 8th August 1846, we crossed the Sutlej in the ferry-boat, which was swept down the stream a considerable distance, the river being then at its greatest height. Some of my baggage was conveyed across on *dhrés*, or inflated buffalo skins. Baron Hugel erroneously calls them *ox-skins*; a mistake which has not been corrected by his translator Major Jerry, who as an old Indian officer should have known better than to transport Hindus upon *ox-skins*. But the Major has been guilty of a bold piece of pictorial invention in the manufacture of a sketch to illustrate “the method of crossing rivers in the Punjáb on inflated skins,” where the buffalo skins are represented with horns, ears, and tails, as if the animal were alive, floating with the back out of the water, and the paddler astride across the back. In reality the skin floats upon its back with the legs upwards, and the paddler lies across the skin with his feet on one side—hanging in the water, while he grasps one of the legs in his left hand, and uses a small paddle with

his right hand. The horns and ears are removed and all the orifices are carefully sewn up, with the exception of one leg, which is left open for inflating the skin, and when in use, is secured with a piece of string or a leather thong. When crossing upon a single skin the passenger generally sits across the back of the paddler, or kneels upon the skin to keep his feet dry, whilst he holds on by the legs of the skin. A preferable mode of crossing is by two skins with a *charpai*, or bedstead fastened upon them, on which the passenger sits safe from all mishaps, unless the waves should be high, when there is the certainty of being well wet with spray, and the chance of the skins being separated. As it rained heavily and the road was dangerously slippery, we halted at Chatwali-ki-heti, distance only 5 miles.

Sunday, 9th August. Marched again through heavy rain to Kumár-ki-heti, distance 6 miles. Baron Hugel spells this name *Kumagaheti*, and states that *gaheti* means a serai or lodging. This is a gross mistake, which might be pardonable in the traveller, but which cannot be passed over in the translator. *Ga, ka* or *da*, is the sign of the genitive case throughout the Punjáb, and *heti* means a shop. Kumar-ki-heti, or Kumár-ga-heti is therefore the shop of Kumár. Some of these *hetis* are single shops on the road-side, and they take their appellations from any local peculiarities of situation as well as from the names of the Banyas or grain-sellers who build them: thus *Bur-ki-heti* is the "shop under the Banian-tree," *Ghati-ki-heti*, is the "shop on the ghat," &c. &c.

Monday, 10th August. To Ghori Matoli, 8 miles.

Tuesday, 11th August. To the Sikunder ki dhar, 6 miles.

Wednesday, 12th August. To Mundi, 16 miles, over the Pass. On the previous night we slept at the village of Barla, not far from the top of the Pass; this morning we found the height of the Pass to be 5,430 feet above the sea. As the Sikunder-ki-dhar had attracted the attention both of Moorcroft and of Vigne, we made inquiries on the spot from the people of the country who were with us, in order to ascertain what foundation there was for Vigne's identification of this spot as the locality of the altars of Alexander. His words are—"no place could possibly have been chosen which would have been better adapted for the altars. Being by the side of the highway it became impossible for

any one to pass without seeing them."* It will be sufficient to observe that the Sikunder-ki-dhar is on the high road which leads to the poor country of Ladák, and not any where near the high road which leads to the rich provinces on the Ganges, whither Alexander was directing his steps, when his soldiers refused to proceed farther : on which occasion he erected twelve altars of stone on the eastern bank of the Hyphasis or Byás. It is besides particularly recorded that there was a desert to the eastward of the Hyphasis on Alexander's proposed route. I presume that Mr. Vigne will scarcely be so bold as to identify this desert with the luxuriantly rich valley of the Suket river, which lies to the eastward of the Sikunder-ki-dhar. He appears to have been chiefly attracted by the name and by "some ruins surrounded by a trench cut in the solid rock." Moorcroft however, with his usual sound judgment, came to a different and more probable conclusion regarding these ruins ; of which he says :—"The whole was evidently the remains of a fortified camp, but I found nothing to indicate a Grecian origin."† I found that the Baori or walled spring of water just below the Pass was also called Sikander-ki-baori, which as well as the ruins was attributed by the people to a Sikander, but not to Sikander Zulkarnein, or Alexander the Great. If the name has reference to a king, which is perhaps doubtful, I should incline to refer it to Sikander Lodi, the great image-breaking king of Delhi, who delighted in destroying the temples and gods of the infidels. Had he heard of the temples of Mundi, he could only have marched there from Kangra, (which was the Mahomedan head-quarters) over the Sikunder-ki-dhar, and in that case there is nothing more likely than that he should have formed a camp on the hill to command the high road, whilst engaged against the infidels in the valley below.

Saturday, 15th August, 1846. Crossed the Byás by skins at 5 P. M. The river was running rapidly—the right bank very much cut up, and huge rocks still falling into the stream. We heard the plunges of many of them while we were at Mundi ; halted for the night at the village of Air. So great a rise in the Byás, has not, it is said, occurred for the last hundred years.

Sunday, 16th August. Started at half past 5 A. M. ; road for first mile almost obliterated by the Byás ; marks of the high flood were clearly

* Vigne's Kashmir, i. 104.

† Moorcroft's Travels, i. 69.

traceable along the steep banks where the river has washed away every particle of earth and every trace of vegetation, and left the rocky strata bare for about 25 feet in height. The rocks look exactly as if blasted with fire along the course of the river, which is the more remarkable now from the green freshness of the foliage about. At 4 miles the road turns to the east, and ascends very gradually to the top of the Pachind Pass.

The Pachind Pass is 4,900 feet above the sea, and the level ground on each side of the Pass partly under cultivation, is 5000 feet high. This Pass commands the high road into Kulu. From the round topped hills right and left of the Pass, distant less than a mile, can be seen the fort of Bhyrkot in Kulu, the Jinetri Devi temple and the peak of Sháli near Simla. As a military position I consider Pachind as the most eligible that I have yet seen for the location of native troops. The height, 5000 feet, is sufficient for coolness. There are good slate quarries immediately below the Pass to the west, and a considerable supply of water, only 150 feet below the pass on the eastward, partly preserved in a well constructed Baori, but chiefly running down the face of the hill. This is a never-failing spring, and I observed no difference in the supply of water before and after the rains. I crossed the Pass on the 16th of June, first, and again on the 16th of August.

The iron mines of Kumán lie only 4 miles to the eastward; there is plenty of good building stone at the top of the hill; and there is wood procurable below the Pass in the neighbourhood of the slate quarries.

The position is 6 miles N. E. of Mundi, and it commands the high road, and only horse road which leads from the Kangra and Mundi districts into Kulu, and if it should be found necessary to locate troops in or near Kulu I would strongly recommend Pachind for the cantonment. Two companies might be stationed in Bhyrkot, and the communication be kept up with Pachind by signals of guns, both day and night.

From Pachind the road descends rapidly to the bed of the Ohl river, a large torrent unfordable at all seasons. At the foot of the descent there was formerly a spar bridge across the Ohl, but the horizontal spars were burnt during the insurrection against the Sikhs a few years ago. The piers and sloping spars are however still perfect, and as they have withstood the extraordinary flood of this year, they are likely to

stand as long as the materials will last. Beyond the bridge the present road continued up the right bank of the Ohl river for half a mile, to a spot where the stream is rather smooth—and there we crossed upon skins—the clumsy but useful Dhrés. The Ohl rises in the snowy range, about three days' journey distant, and close to the source of the Serbrie river, which joins the Byás below Súltanpúr, in Kulu. From the Ohl the road ascends to the alluvial flat and then descends to the Utr-sál nullah, which we forded with difficulty. By repairing the broken bridge across the Ohl this ford would be avoided. From the ford the road continues up the left bank of the Utr-sál rivulet to Kumán, where are the iron mines, about 200 yards to the right of the Bunyá's house. The ore lies in thin layers and streaks in a dark micaceous sandstone. The stone is so soft that it is pounded by hand with small round boulder stones. It is then washed in small wooden platters and the sand is poured off with the water, leaving the ore in the shape of a coarse black heavy sand at the bottom. One seer of this ore yields half a seer of iron. The metal is considered good, and is sold on the spot at $2\frac{1}{2}$ rupees per pukka maund, or 1 rupee per kucha maund, of 12 seers, which is cheaper than it was in Moorcroft's time, when the price was $3\frac{1}{2}$ rupees per pukka maund.

From Kumán the road descends to the Utr-sál nullah, which was again forded with less difficulty than before. We halted at Utr-sál in the Dharmasála, which was 4,255 feet above the sea.

Monday 17th August. To Bajaora, 9 miles. The road from Utr-sál to the foot of the Ghát was but little injured by the heavy rains of this year, but the ascent of the Bajaora Ghát, which is commonly called Kandi, was very much cut up. The ascent lies through a thick forest of large trees, and the ground is literally enamelled with flowers, among which the wild sweet-scented pea is very luxuriant. In June, when I crossed this Pass before, asters were the commonest flowers, but they had now disappeared. On the eastern face the road was completely obliterated, excepting in a few isolated spots. The heavy rains of this year have swept away all the alluvial soil from the bed of the Bajaora nullah, and left behind only a wreck of enormous boulders and fragments of trees. It appears to me that it would now be very difficult to make a road down the course of the nullah, on account of the steepness of the hills on both sides. As this was the high road

through Kulu to Ladák, I presume that the Government would wish to keep it in good order; and I would suggest that instead of attempting to repair or rather to re-make the road down the Bajaora nullah, it would perhaps be better to take a new line altogether from the Bajaora Pass towards Bhyrkot, keeping the road below the fort. This part I have not examined; but from the fort downwards to the Byás there is at present an excellent foot-path along the gently sloping side of the hill, passing through villages and corn-fields for above five miles to the bank of the Mâwar nullah beyond Sumsi. By taking the road in this direction a saving of about 4 or 5 miles would be effected in the distance between Mundi and Súltanpúr.

The height of the Bajaora Pass is 6,484 feet.

Tuesday 18th August. To Súltanpúr, the capital of Kulu, 9 miles. At two miles crossed the Kokan Khud. Kokan is a large village on a spur of the hill, with a new picturesque Chinese looking temple—chiefly built of wood. Since I was here in June last, the Kokan torrent, owing to the late heavy rains, had destroyed a large tract of well cultivated land 200 yards at base, by 250 yards or more in depth. The whole of this tract, which two months ago I saw smiling with young green rice, is now covered with large blocks of mica slate, in some places about 20 feet thick. The only part of the Sikh road now traceable is near a large tree, which is still standing in the midst of the rubbish, with its square stone terrace around the trunk, for the accommodation of travellers to rest beneath its shade.

The delta of the Mâwur nullah is now about 400 yards broad at the base, by five or six hundred yards in depth. Only two months ago it was a well cultivated tract, but it is now strown over with huge blocks of mica slate and thousands of trees, and fragments of trees of all sizes, looking like Nature's timber-yard.

Just before entering Súltanpúr, we crossed the Serberi nullah by two spars thrown across the stream, the bridge having been carried away by the floods. The bed of the Serberi is also strown with trees, but there are no marks which show so sudden and great a rise as must have taken place in the Bajaora and Mâwur nullahs. The heavy rains must have been confined to the hills south of the Serberi. Probably the Parbati, Gomati, Syuj, and Tirthan also rose very high this year, for the first has carried away all the bridges built by Lena Singh on the road to the

hot spring, called Parbati Kánd, and the others have carried away all the bridges on the lower part of their course. Even small dribbling threads of water, as they appear now, were (about the 1st, when the floods happened) large enough to move blocks of stone about 10 feet cube from 100 to 150 yards along a very gentle slope, and to cover the fields 10 feet deep with clay and sand.

These floods fully account for the unprecedented rise of the Byás river, which the people of Mundi say has been higher this season, than for the last one hundred years. All the small streams which feed the Byás, have this year swept down large trees and enormous blocks of stone, along with clay, sand, boulders, and mud; and have deposited a mass of rubbish on the alluvial and cultivated flat on the banks of the Byás. A similar flood must have occurred at least once before within the last 250 years; for at the village of Háth, opposite Bajaora, there are two stone temples which were built by Syâma Sen, Rájá of Mundi, just 250 years ago, one of which is on high level ground, but the other is more than half buried in rubbish, about 10 feet deep, which tradition says was brought down by the Bajaora nullah more than a hundred years ago, on account of the negligent government of a certain Bhosul Rájá. His extreme carelessness regarding the affairs of government has passed into a proverb, which is in the mouth of every one.

Bárah pétuh, athárah dáni,
Bhosul Rájá, khabar na jáni.

Which may be translated—

One of twelve gourds took each exciser
And Bhosul Rájá none the wiser.

The town of Sáltanpúr is surrounded with dry stone walls; only 200 of the houses are now inhabited, and the place appears to be nearly deserted. In 1839 about 400 houses were inhabited, but even in Moorcroft's time, A. D. 1820, the town bore marks of decay. He says, "Kulu is of no great population or extent." There were formerly between 600 and 700 inhabited houses. The town is also sometimes called Raghunáthpúr, from a temple dedicated to Raghunáth.

Wednesday 19th August. Marched to Dwára, 10 miles. Road along the right bank of the Byás, paved with large stones from 10 to 50 feet above the river for the first 3 miles. It then descended to the

bank of the river, and continues along the water's edge for some distance. The stream divides, and winds amid luxuriantly wooded islets, now rushing impetuously in one sheet of white foam over rocks, and again murmuring occasionally unseen between overhanging trees; now joined by torrents vehemently roaring and white with foam; and again gleaming placidly in the sunshine between the numerous islets, which are covered with many kinds of trees, including the apricot, the peach, the apple, and the pear—with the wild vine and wild fig. The scenery is remarkably beautiful, and extremely pleasing to the eye from its greenness and variety.

Just before reaching Dwára, we crossed the Phajloti or Phajráni nullah by a bridge of spars 100 feet in length, with a planked roadway 4 feet in width. The span of the bridge was 60 feet, with a rise above the stream of 18 feet. The Phajráni is a large unfordable nullah, with a bed full of boulders.

At Dwára we procured fine large wild apples with plenty of good cucumbers and peaches. We put up in the same Dharmśála, which Capt. Broome and myself occupied in 1839. A Dharmśála is properly a traveller's house, and it is sometimes attached to a temple, as at Dwára. In 1839 it was unoccupied, but this year we found that a Gosáin had established himself in the building—to the exclusion of all travellers, who are obliged to put up in an open shed close to the Dharmśála. Height of Dwára 5,150 feet above the sea.

Thursday 20th August. Marched to Monáli, 14 miles. For the first two miles the road lay along the edge of an alluvial flat, it then descended to the low ground near the river which was covered with boulders and jungle, through which it continued for one mile, occasionally along the brink of the river. It then ascended a rocky point, and again descended to the river, in which, at the foot of the cliff a pathway about 50 feet in length was constructed of loose stones, which were covered with water. Beyond this point to the Sitá kúnd, 9 miles from Dwára, the foliage was very thick. The large sweet pea, and small plants, with pink and blue bells were very common; and the jungle was filled with the gigantic nettle, 8 and 9 feet high, with leaves more than a foot broad, and from a foot to a foot and a half in length.

The Sita-kúnd is a hot spring of a bitter taste: temperature 104°; the same as I found it in 1839. It is 5,700 feet above the sea, in the middle

of the valley, and only a few feet higher than the level of the river. It is surrounded by a low wall of masonry, and is enclosed in a small tank 12 feet square, and 3 feet deep.

The road from the hot well to Monáli for five miles lay through a thick tree jungle. The occasional glimpses of the Byás shining amongst the trees with its numerous tributary torrents dashing and foaming over huge rocks as they descend into the river, are very beautiful. The height of Monáli is 7000 feet above the sea; just before reaching Monáli, we crossed the rivulet of the same name, a large unfordable stream, by a spar bridge, 60 feet in length.

Opposite to Monáli is the village and hot spring of Vashishta Muni, a celebrated saint, to whom common tradition assigns the origin of the name of the Byás. The Sanskrit name is Vipása. The origin of the name is thus related in the Mahábhárat : Vashishta Muni, being overwhelmed with grief on account of the death of his sons, who had been slain by Viswamitra, became weary of life, and having tied his hands and feet with cords threw himself into the Byás river; but the pious river burst his bonds, and wafted him ashore unhurt.

The following explanation of the above legend appears to me as simple as it is natural.

Just below Monáli and the hot springs and village of Vashishta Muni, the valley of the Byás closes in, and the gneiss rocks which have been thrust up through the mica slate are scarped on both sides of the valley, forming opposing cliffs, which rise to a height somewhat greater than the levels of Monáli and Vashishta Muni. The lower village of Monáli is situated on an extensive alluvial flat, below which, on the opposite bank of the Monáli nullah, there is a long spur covered with pines, which stands out prominently, and stretches nearly across the valley. This spur is much higher than the level of the Monáli lands, and I have no doubt that it once extended right across the valley, and pent up the river, which must then have formed a large lake, the bottom of which was the extensive alluvial flat of Monáli, which could only have been formed in this manner. Indeed, there is every appearance of the former existence of a lake in this part of the bed of the Byás, from which the waters made their escape between the gneiss cliffs just below Monáli and Vashishta Muni. When the lake existed the hot springs must have been covered by its waters. In the

course of time, as the gneiss rocks were either gradually worn down, or suddenly rent asunder, and swept away by the Byás river, the hot springs of Vashishta Muni were brought to light, or to use the language of the legends "the bonds of Vashishta Muni were burst" by the waters of the river, which was afterwards called *Ví-pása*, or "the bondless."

The Mahábhárat further relates that the sage Vashishta, being determined on suicide flung himself afterwards into the Satadree or Sutlej; but the pious waters of the river divided themselves into a hundred shallow channels and left the disappointed sage on dry land: from which the river was ever afterwards called *Satadree*, "the hundred-channelled," from *Sata*, a hundred, and *dree*, to flow.

Friday 21st August. Marched in the afternoon to Boorwa, distance five miles. We were detained at Monáli making arrangements about provisions, which we are obliged to carry with us, as Láhul and the countries beyond produce little or no wheat. The road from Monáli to Boorwa was good; the latter part much blocked up by numerous gneiss boulders, with which the whole of the Boorwa plain is thickly strown over. The cultivation about Boorwa was principally buckwheat.

Height of Boorwa above the sea, 7500 feet.

Saturday 22d August. Marched to the Les-dhár Dhurmsála—8 miles. Just beyond Boorwa we crossed the Sarahi nullah, an unfordable torrent, by a spar bridge. From this point the road was a gentle ascent at first, then rather steep by steps built in the rock where the Byás is confined between precipitous cliffs. Just beyond Rálha, a halting place 5 miles from Boorwa, there is a picturesque fall of 20 feet, in the Byás, where the bed of the river is contracted to 8 feet in width. The same tree is lying across the stream, just overhanging the fall, which I observed in 1839, but it is now much decayed. Beyond Rálha, the ascent is by a flight of stone steps, generally very steep, to the Lés-dhar Dhurmsála. The ascent was extremely fatiguing, and rain having fallen during our journey, we found the wind piercingly cold even in the Dhurmsála, which being built of dry stones without any cement admits the air through a thousand crevices. The height of Lés-dhar above the sea is 10,500 feet. There are two buildings, about 20 by 10 feet, which were erected by Lena Singh Majithia since 1839, when I formerly travelled this road.

Sunday 23rd August. The ascent from Lés-dhar to the top of the Pass was gentle and easy. There was no snow on the Pass, and we were able to trace the Byás river to its actual source, 300 yards beyond the block of mica slate noticed by Moorcroft, to a ridge of mica slate at the top of the Pass, from beneath which it trickles forth in a gentle rill. Just below the block of mica slate a new temple has been built by Lena Sing Majithia, dedicated to the Rishi Vyása (or Byás Rikhi) the compiler of the Vedas. The Pass is 13,000 feet above the sea.

The descent from the top of the Pass to Koksar, the first village in Láhul, was steep but easy; the distance about 5 miles.

Monday 24th August. The jhula, or suspension bridge over the Chandra river, not having been put up this year, we were obliged to halt on the left bank opposite to Koksar. This jhula is annually carried away by the snow, which is drifted down in enormous masses from the hills to the south. The river too is constantly varying in width. In 1820 when Moorcroft crossed the Chandra the jhula was only 96 feet long. In 1839, when I travelled this road before, it was 106 feet long; but this year it was 210 feet in length. One cause of the greater length of the jhula was the undermining of the projecting rocks on the southern bank, from which the bridge was formerly sprung. Large masses of this rock were lying immediately below the jhula.

This description of bridge is quite safe; but it is very unpleasant to cross, from the little height of the suspension side ropes above the foot-rope, and the great play of the bridge, which swings about very much from side to side, as well as up and down, whenever more than one person goes upon it. I have seen a woman, a native of the country, sit down in the middle of the bridge, and scream for assistance; many of the coolies also cannot cross with their loads, which they are obliged to make over to people of the place.

The Koksar jhula was formed of two side suspension ropes and a foot-rope connected with the side ones by smaller ropes at short intervals. Each of the side-ropes was formed of seven birchen-twig cables of four plaits, and the foot-rope consisted of three cables of the same thickness.

Tuesday, 25th August. Crossed the Chandra river to Koksar. From this place there are two roads leading into Piti—the first down the Chandra river, the second up the river. The first, which is the better road, is that which we followed; the second, which is much the shorter

one, is described as being very bad for the first half. By this route a laden coolie can travel from Koksar in Lâhul to Losar on the Piti river in six days. The marches are the following.

1. Old Koksar (deserted) on the left bank of the Chandra.
2. Halt (name unknown) ditto ditto.
3. Shigri, ditto ditto.
4. Hoolyâs, at the foot of the Koolzoom Pass.
5. Hoolyâs, on the opposite side of the Pass.
6. Losar.

Two other roads from Kulu, namely, one up the Parbutti river, and the other up the Raini rivulet, both join at Shigri. They are described as being seldom used, on account of the difficulty of the Passes.

Small firewood of furze bushes is procurable the whole way from Koksar to Losar.

Wednesday, 26th August. To Tehling 5 miles. Road stony, but generally good. The ascents and descents of the nullahs steep and bad. These might easily be made better with a very little labour.

Thursday, 27th August. To Sheeling, 7 miles. At Sisu we crossed the nullah of the same name by a bridge; the water foaming and roaring between precipitous rocks, with a fall of about 50 feet immediately below the bridge.

Friday, 28th August. To Goondla or Râni ki koti, 4 miles. Road good throughout. Halted here on account of fever and ague, and to make arrangements about coolies and provisions. During our stay at Goondla the greatest difference between the wet bulb and dry bulb thermometers was $23\frac{1}{2}^{\circ}$ from 12 A. M. to 2 P. M., which shows an excessively dry climate. We also observed that a strong wind sprang up about mid-day from the eastward, which blew for two or three hours daily, raising the finely pulverized dust in clouds, which we found very annoying in this almost treeless country. At Râni ki kothi however there were numerous gooseberry bushes, and on the slopes of the hill above there were several clumps of the pencil cedar (*Juniperies excelsus*) which is called *Skâr* by the Lâhulis and Shupa or Shupka by the Lâdâkis and Bhotis.

Monday, 31st August. To Kârdang on the Bhâga river, 10 miles. Road to Gantâl at the junction of the Chandra and Bhâga rivers not so bad as in 1839, but still dangerous in parts from landslips. The

bed of the Chandra is here exceedingly narrow ; and the mountains are bare, bleak and wild, and blasted, as if freshly risen from the innermost and fiery depths of the earth. The limestone strata on the left bank are very much contorted. From Gantál to Kárdang, 4 miles, the road was at first very bad, with a steep descent, and a still steeper ascent over almost perpendicular landslips. The rest of the road was very fair. The country improves on approaching Kárdang ; and the view of the Bhága valley, with the high picturesque-looking houses in the village of Kárdang, situated on a commanding point, is really beautiful for this desolate district. There are numbers of trees too around the village, especially pollard, willows and pencil cedars, with numerous gooseberry and rose bushes.

Tuesday, 1st September. To Kolang, 13 miles. A large village with temple. Road, for 3 miles, along the left bank of the Bhága river, bad : but it could be easily made into a very good one. Crossed the Bhága by a *Sanga*, or spar bridge of 38 feet span, and 40 feet above the stream, having a roadway 4 feet broad of split spars without a hand-rail. At this point the river is confined in a narrow chasm of only 30 feet in width, between siliceous rocks, in which the waters forever rush and rave impetuously and frantically from side to side. From the bridge there is a steep ascent to Goomring : thence the road lay for 3 miles amidst cultivation along the edge of the bank and about 600 feet above the river. For three miles more the road ran through a thin forest of pencil cedars and along the edge of very steep rocky cliffs—then again over rough, stony, and barren ground for 5 or 6 miles to Kolang. Throughout this march the road was bad. The hills on the opposite bank of the Bhága look barren and hideous, and scathed as if with fire—with bare and frightful precipices, so steep that even the snow cannot rest upon them. But high above all these rise the majestic snowy peaks of Rúnkánta and Tinú, the latter named from a village at the foot of the hill, *khRún-kánta*, the “avalanche-peak,” is a remarkable looking cone of snow which may be seen from Súltanpúr.

Wednesday, 2nd September. To Dárcha, 10 miles. A rapid, steep, zig-zaggy descent from Kolang, amidst granite boulders, to the bed of the Bhága. Thence a tolerably level road along the river's edge, among stones, and over grassy ground for about 4 miles to Jaspa, a pretty looking village with plenty of trees about it. From Jaspa the

road for the first mile and a half was good, then alternately over loose stones and rocks to the bed of the Zanskár river, up which it ascends for nearly a mile to the Sanga or spar bridge,—which consists of 2 spars of 58 feet span raised 12 feet above the stream, with a roadway of split spars, and no hand-rail. The Zanskár river is a considerable stream, apparently as large as the Bhága. Immediately opposite the Bhága is joined by another large stream, the Milang. From the bridge the road follows the Zanskar river for about a mile to Darcha, a small, poor, desolate-looking place, completely bare of trees, excepting only five stunted pollard willows. From this place there is a tolerably good horse road up the Zanskár nullah into the district of Zanskar. Moorcroft's decaying and dangerous hill, to avoid which he was obliged to cross over to the Milang side of the river, is now quiescent, and the high road runs over the débris at the foot of it.

During our stay in the Láhul district the thermometer ranged between 40° and 50° at sunrise, and rose to between 70° and 80° at mid-day.

Thursday, 3rd September. To Shungnung or Chungnung, a mere halting place, 5 miles. Road for the first mile and a half a tedious ascent; then continuous rough and stony ascents and descents. No firewood at this place: the coolies used sheep's dung, with which the ground was covered in all directions.

Friday, 4th September. To Kitpobrang, another halting ground, 8½ miles. Road slight ascents and descents for 2¼ miles to Dojám; a level spot used by the shepherds and traders as an encamping ground, then stony for 1¼ mile to Patseo, where we crossed the Bhága river. This bridge is dignified with the name of Patseo (or the stone bridge) merely because the roadway is formed of slates instead of the usual split spars. It is thrown across the stream at a very narrow point, where a large rock confines the waters within a space of 6 or 7 feet, the whole length of the bridge being only 12 feet. Thence for two miles the road is level and stony to the junction of a large stream which comes from the north. Beyond this the road turns sharply to the eastward up the left bank of the Bhága for 3 miles to Kitpotrang; height 13,400 feet; country very stony, but covered with numerous strawberry plants. The hills still bare, steep, and scathed, as if with fire.

Saturday, 5th September. To the Yunam lake, 13 miles. Road for 5 miles good, but very stony; with a gentle ascent to Mongpa (or Mápú) a level halting place at the foot of the Bára Lácha Pass. From this point we crossed the Bhága on a solid mass of snow, which stretched right across the river, and beneath which the stream rushed along impetuously. In A. D. 1820 Moorcroft saw a mass of snow across the river in this very spot. Beyond this the road was a gentle ascent for 4 miles to the Suraj Dul, or lake, which is a small oblong sheet of clear green water hemmed in at its western end by the debris of rocks fallen from above, about one quarter of a mile long, and half as broad. The water finds its way out of the lake unseen through this mass of disintegrated rocks. From thence the road was for nearly a mile almost level, along the dry bed of the lake, and then a short but steep ascent to the top of the Pass. From the total absence of snow this year the source of the Bhága was traceable to a ridge to the eastward of the Pass, somewhat more than a mile above the lake. This is the true source of the Bhága river; for the Chandra rises on the opposite side of the ridge.

We were particularly fortunate in the mildness of the season which had melted every trace of snow on the Pass. It is remarkable that we crossed the Bára-Lácha on the anniversary of the day on which Moorcroft had crossed it twenty-six years before us. He found the snow "lying in vast undisturbed masses," on all the great slopes and crests of the chain. Bára-Lácha, or as it is often called, Bára-Lách, means the "middle pass," it being the middle one of the three great passes on the high road from Ladák to Kulu and Mundi; the others being the Langa-Lách and the Kotáng.

At mid-day the temperature in the shade was 55° , and the boiling point of water by an excellent thermometer by Dollond, was 183.5° , which, following Prinsep's tables, would give a height of 16,276 feet, or 224 feet too low, the actual height having been correctly ascertained on two separate occasions by Moorcroft and Gerard, from barometrical measurements, to be 16,500 feet. In 1839 a capital thermometer belonging to Capt. Broome made the height to be 16,332 feet, or 168 feet too low.

The summit of the Pass is almost level for about half a mile. Each of the prominent parts is crowned by a pile of stones covered with

votive pieces of rag, and horns which are dedicated to Gépan. From the Pass the road descended along the side of the hill to the bed of the Yunam river, which rises to the south-east near the sources of the Chandra and the Bhága. It then continued along the left bank of the Yunam for about 3 miles to the Yunam lake, a large sheet of water, 1000 yards long by 500 yards in breadth. It must have been formerly more than twice this size, and it is probably much larger even in the present day during July and August, when the snows are melted by the mid-day sun. When Moorcroft saw it, it was clear:—but we found it tinged with the pale ochrous clay which is washed into it by a small stream on the left bank of the river immediately above the lake. The dry bed is an extensive sheet of small stones, below which the water may be distinctly heard trickling towards the lake. On the 28th of September, when I returned by the same road, I found that the lake had shrank to about three-fourths of its former size, its level having fallen 3 or 4 feet, leaving the eastern side quite dry. The water was much clearer than before, which was most probably owing to the greater coldness of the season which had arrested the melting of the snow, and stopped the supply of water which formerly washed down the pale ochrous clay into the lake. Moorcroft remarks of the lake that “not a weed deformed nor a wave ruffled its pellucid and tranquil waters, there seemed to be no fish in it, nor was any bird nor even a fly in its vicinity.” The same solitude and utter desolation of the scenery around the lake was remarked by ourselves, and suggested the following lines, which are descriptive of the place:—

On Yunam's still and yellow lake
 No living thing is seen :
 Along its bleak and rocky shore
 There is no smiling green.

The scathed hills rise on all sides
 As bare as at their birth,
 When by tremendous force upthrust
 Fresh from the depths of earth.

No joyous bird on early wing
 Beholds the morning break ;
 But winter's stern and chilly eye
 Frowns o'er the cheerless lake.

Eternal silence reigneth there
Upon his snow-girt throne ;
And the unsyllabled dull air
Sleeps echoless and lone.

The dreary stillness that pervades
Earth, air, and all around,
Appals the heart ; and social man
Longs for some cheering sound.

The traders with their laden sheep
Who pass by Yunam's shore,
Leave not their foot-prints on its stones,
All desolate as before.

Yet to the simple shepherd's mind
The place doth not seem lone,
For every hill and mountain Pass
Hath Spirits of its own.

But Gépan chiefly wins their love !
To him square piles they rear,
Upon each Pass ; with votive flags
And horns of the wild deer.

Sunday, 6th September. Road at first along the edge of the lake : then over three sharp ridges of confusedly heaped up and angular blocks of ferruginous sandstone, down to the bed of the Yunam river. Moorcroft was informed, and appears to have believed, that this "scene of fantastic ruin," as he calls it, was the effect of an earthquake. Indeed no other cause with which we are at present acquainted could produce such mighty and extensive effects. Just below these ridges we saw the ruins of a former bridge, of which only two pieces of timber were now left, which, as fuel was scarce, we carried on with us to cook our food. Indeed, since leaving Darcha our only fuel has been the low, short, dry furze bushes, which with some coarse grasses, appear to be the only herbage of these dreary and uninhabited regions. Along the bed of the river we noticed, what had before attracted the attention of Moorcroft, the numerous and curious isolated hillocks composed of angular masses and fragments of rock. As far as our observation extended they always occurred in the midst of the alluvial flats : they could not therefore have been formed by accumulated stones which had rolled from

the mountains on both sides, for the mountains were too distant; besides which these hillocks were composed of angular fragments and not of boulders, which had been rounded in rolling from the action of water. They are most probably, as suggested by Moorcroft, "the harder fragments of a mass, from which the softer portions, the clay and sand, have been removed by gradual decomposition." Here we crossed the river, which was knee-deep and rapid, to Kelang, a shepherd's station, in a sheltered level spot. Large blue hares were numerous on these alluvial flats. They live under the stones in holes scooped out of the clayey sand. The herbage, though scanty, and dry, was eagerly eaten by the cattle. The neighbouring hills were of a reddish brown and pale ochrous colour, tinged here and there with slight patches of olive green and yellow grass. They were generally very low, the nearest not being more than 1000 feet above the river, and the more distant ones, which were more or less covered with snow, did not appear to rise higher than about 3000 feet above the river. We halted on a level spot without name, 14,600 feet above the sea, and $6\frac{1}{2}$ miles from the Yunam lake. In this distance the fall has been only 680 feet, or little more than 100 feet per mile, which is a very gentle fall for a mountain stream.

Monday, 7th September. To mouth of Cherpa river— $6\frac{1}{2}$ miles. Road good, over a long level alluvial plain, in the midst of which was a square block of mica slate thickly imbedded with large crystals of quartz. This stone, which is 8 feet square and 12 feet high above the ground, is called *Lingti* by the people of Kulu, according to Moorcroft, and *Phálangdanda*, by the Ladákis. The only name that we could learn was *Phálang-danda*, which means the "boundary stone," the stone being a well known boundary mark between the states of Kulu and Ladák.

Beyond this the road continued over the plain, which became gradually narrower to the bank of the Ser-chu, or Ser rivulet, a stream coming from the S. S. E., of which the source is 10 miles distant. A footpath was visible up its right bank, and the remains of a custom-house on a commanding point looking up the Ser valley, shows that this footpath was formerly used by the smugglers of shawl wool, and probably of borax. Just above the Ser, the Lingti, a large river from the S. W. joins the Yunam on its left bank. The road beyond the Ser laid over a dusty plain to the junction of the Cherpa or Cherep

river, which comes from the E. S. E. about 25 miles. It is a large stream, apparently of as great a volume as the united Yunam and Lingti rivers.

We halted at this junction after a march of only $6\frac{1}{2}$ miles ; height above the sea 14,210 feet, which shows a fall of 401 feet, or about 65 feet per mile in a straight course.

On the left bank of the Yunam, below the junction of the Lingti, the ferruginous strata of sandstone are contorted in the most confused manner. There are caves high up in the rock, but apparently of no great extent. In the beds of the Ser and the Cherpa rivers, the banks are formed of a coarse sandstone grit dipping towards the north at an angle of about 30° . The water of the Yunam river is a clear green, most probably from having been filtered through the Yunam lake ; that of the Cherpa is grey, a hue derived from the melting of dirty snow.

As there was a well trodden footpath up the left bank of the Cherpa, and as the Láhulis, who were with us, stoutly denied all knowledge of it, it seemed certain that this must be one of the principal routes used by the smugglers of shawl wool between Rodok and Láhul. As we could obtain no information regarding this route, we determined to dispatch a trustworthy party up the Cherpa, who should rejoin us at the Chumureri lake ; as we had little doubt that this route would lead upon the southern end of the lake. On their return the party reported that they had found a bridge 5 miles above the junction, and that the pathway was perfectly practicable even for laden animals, with the exception of an extensive landslip near the head of the Cherpa river. Several traders' or shepherds' encampments were noticed on this route, where both grass and fuel were procurable in the neighbourhood of the river. They described the Pass at the head of the Cherpa river as being so easy that with a little labour it might be readily made into a very good one. From thence after a short descent the route ran over stony alluvial flats along one of the feeders of the Para river, and over a low Pass to the southern end of Chumureri lake, as we had anticipated. The object of the smugglers would appear to have been to reach the Láhul boundary as near the Phálang-danda (or boundary stone) as possible, by some unfrequented route. A glance at the map will show at once that this route leads directly from the shawl countries of Rodok and Gardok *viá* Hánli and

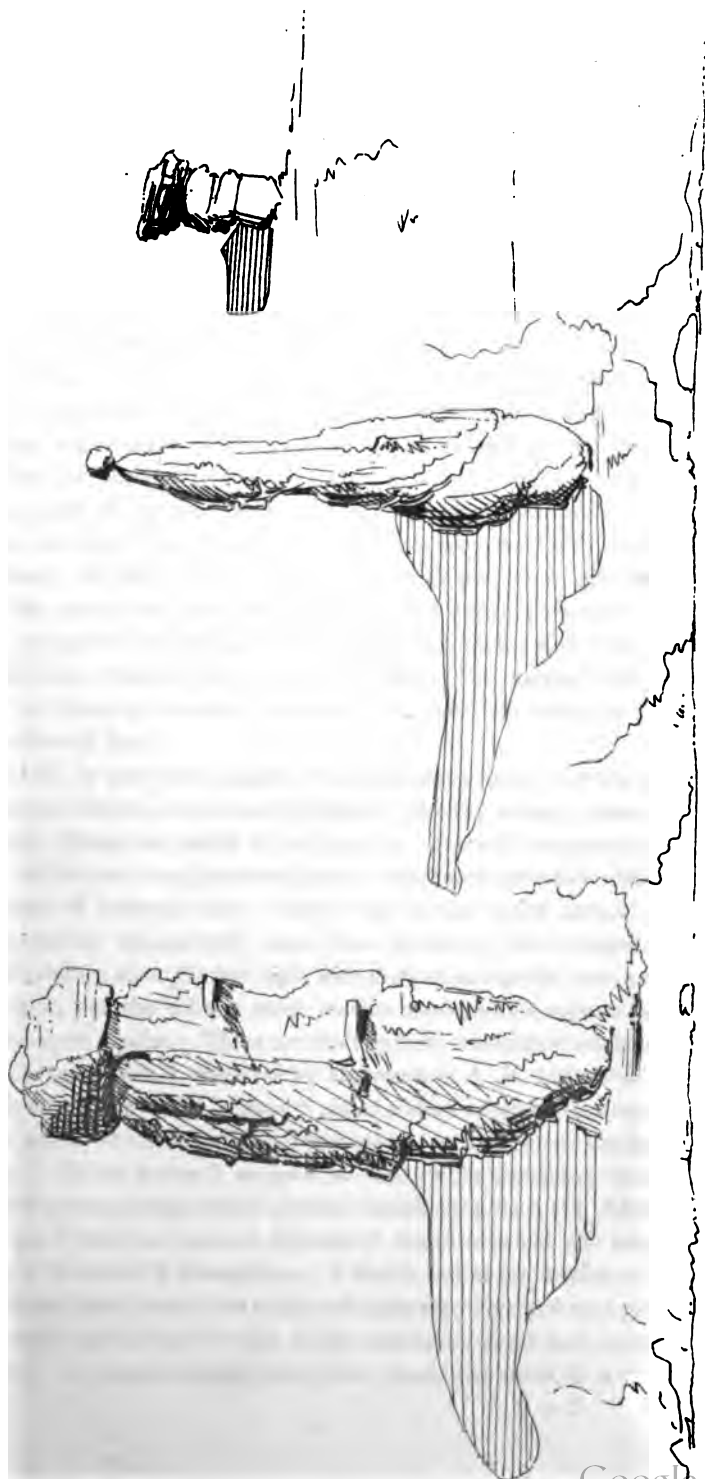
the Pará and Cherpa rivers to the Láhul boundary at the Phálang-danda: for the route by the Serchu is only an offshoot of that by the Cherpa. Were this route to be opened by the British Government, and a few Dhurmsálas, or travellers' houses, built at convenient distances, our traders in shawl wool from Noorpoor and Rampoor would be saved the heavy duties which are now levied by Maharaja Guláb Singh. One of these Dhurmsálas would cost about 200 Rupees: and eight or ten of them would be sufficient along the whole line of uninhabited country from Dárcha to Hánli. The most eligible positions, combining easy distances with the indispensable requisites of fuel, grass, and water, are shown in the map,* and the proposed Dhurmsálas are numbered from Dárcha eastwards and marked D. Our traders would thus be able to obtain their shawl wool direct from the Chinese districts of Rodok and Gardok, by a route through our own territory.

From the information which we received, and from the view of the country which Mr. Agnew obtained from the Lanka peak, the Cherpa is formed of two large branches, of which the general bearings were taken by Mr. Agnew. The northern branch leads up to one of the sources of the Para, and the southern branch leads directly upon the head of the Losar river, a fact which did not escape the researches of the accurate Moorcroft, who remarks, (I. p. 265,) "Beyond the Ladak boundary, it (the Losar) is said to meet with the Tsurip (Cherep or Cherpa) from the north."

Almost due east from the junction of the Cherpa and Yunam rivers, there is on the top of the hill, a remarkable square rock, which has so much resemblance to a Fort that it had received the name of Lanka from the shepherds and traders who frequent these parts. It is a well known point, and it can be seen from the Langa-Lách Pass, as well as from the neighbourhood of the Yunám lake. Mr. Agnew succeeded in scaling this height with some difficulty, at 4 P. M. he found the thermometer at 44° and the boiling point 181°, which after correction gives a height of 17,513 feet above the sea, or 3,300 feet above the alluvial flat at the junction of the Cherpa and Yunam rivers. The thermometer fell to 18° during the night.

Tuesday, 8th September. To Gadéra 6½ miles, crossed the Cherpa at 10½ A.M. the river rising fast from the melting of the snow. The

* This map will accompany another article by Capt. C. in our next number.—Ecs.



A. Cunningham del.

stream was 100 feet broad, rapid, and strong and mid-thigh deep ; and the crossing was effected with some difficulty. In the latter months of July and August the Cherpa is not fordable except early in the morning, and the traders who reach its banks too late for fording are obliged either to halt until the next morning, or to go round by the bridge, which is 5 miles higher up the stream.

The road from the Cherpa was alternately over stony plains, and shingly slips from the rocks above. Just before approaching Godéra the plain is a succession of levels gradually becoming lower and narrower in size, and showing clearly the extent of a former lake at different periods, until the rocky obstacle, at a point about four miles below Gadéra, was burst through altogether and the lake completely drained. The height of Gadéra above the sea is 13,949 feet, which gives a fall from the junction of the Cherpa river of 261 feet in a distance of $6\frac{1}{2}$ miles ; or just 40 feet per mile. At some former period it is clear that the bed of the Yunám river must have been a long narrow lake, the extent of which is shown in the map by a shade of brown confined between dotted lines.

The hills on each bank consist of hard siliceous rocks ; and the alluvial flats are formed of siliceous pebbles of all sizes strongly cemented together. Along the banks of the river we observed numerous rude pillars of this hard conglomerated gravel, which were generally crowned by stones of different sizes. In the bed of the Chântú nullah, near Godéra, and on the northern bank, there are two of these remarkable natural columns about 30 feet high, with their stone capitals ; one a very large block, and the other a much smaller stone, which appears to be balanced upon a point. These are the identical "insulated columns of pebbly conglomerate," described by Moorcroft in A. D. 1820, "on the summit of one of which," he says, "rested a block of stone many tons in weight, and upon the top of the other stood a smaller block nearly on a point." On my return I stopped at Godéra for breakfast, when I made the accompanying sketch of these remarkable pillars, (Pl. XXIV.) which prove both the extreme dryness of the climate and the minute fidelity of Moorcroft's descriptions. I fired a ball at the smaller stone, which is not more than 2 feet thick and apparently balanced on a point, but though the ball hit it right in the centre, the shock had no effect whatever. In a moist climate these pillars would not stand for a single

season; whereas we have, from Moorcroft's faithful description, the most satisfactory proof that they have existed exactly in their present state for the last six and twenty years. The larger one of these capital stones appeared to me from a rough calculation to be between 6 and 8 tons in weight.

Wednesday, 9th September. To Demra, 4 miles. Road for three quarters of a mile to the northward along the right bank of the Yunám river. We then ascended by a very steep zigzaggy path up the face of the hill to the eastward, until we reached the bank of the Cháná nullah. From this the path alternately ascended and descended over spurs of the hills on the right bank of the stream to Demra, a halting-place, where fuel and water are procurable.

Thursday, 10th September. To Gangá Anáj, 10 miles. Road from Demra, at first undulating, then a steep ascent for about 500 feet, after which a very rapid descent to the bed of the nullah at a level spot called Súmdo [the three streams, from *Sum*, three] where three small streams join their waters. From this point there was a long ascent for about 4 miles to the top of the Langa-Lách Pass, 16,043 feet above the sea. The Pass was crowned as usual by a pile of stones covered with bits of cloth, and dedicated to Gépan. From the Pass there was an easy descent for nearly six miles along the left bank of a nameless nullah, chiefly over steep, gravelly slips. Road stony and very narrow. The nullah is a mere ravine between siliceous rocks which rise from 1500 to 2000 feet above the bed of the stream.

At Gangá Anáj, where we halted, the bluish grey siliceous cliffs from 800 to 1000 feet in height, stand almost perpendicularly facing each other at a distance of only 120 yards apart at base, as shown in the sketch. The whole way down to this point the sides of the ravine are of a gravelly conglomerate lying in horizontal strata composed of fragments of all sizes, from several tons in weight to the smallest grains of the same bluish grey siliceous rock, cemented firmly together by some siliceous matter more or less mixed with clay. As the fall from the top of the Pass to this point is only 491 feet, and the cliffs are nearly 1000 feet in height, it seems almost certain that the ravine was once blocked up at this point, and that a long lake formerly existed there, in which this gravelly conglomerate was deposited in sediment, as it is composed of fragments of the rocks on each side.

Immediately above this point there is a high conglomerate cliff; and the ravine is even now closed to a height of 400 or 500 feet, by a confused mass of enormous blocks, both of the siliceous rock and of the conglomerate; but chiefly of the former; and the stream finds its way unseen beneath this mass of rubbish. This must have been the place where Moorcroft noticed an isolated rock more than 300 feet high so much undermined that it threatened to fall "at no distant period." As there is now no rock answering this description, it must have fallen down not long ago. Immediately below this point however, there still exists the pathway, which runs as described by Moorcroft, for about ten yards between a detached pillar on the edge of the stream and the solid rock, and is only sufficiently wide for the passage of a man on horseback. It is on the right bank of the stream between a conglomerate mass and the cliff.

Friday, 11th September. To Pángtik, $5\frac{1}{2}$ miles. At two miles below Gangá Anáj clay slate first makes its appearance, contorted and twisted and broken in the most inextricable confusion and overlaid with gravelly conglomerate. Nothing short of the power of a mighty earthquake could have caused such extensive and complete disjointment. The strata appear as if they had been lifted to some considerable height and then suddenly let fall, which broke them up into small fragments, standing and lying at all angles. Beyond this point the road continues along the left bank of the nullah for half a mile to Ruptang, a shepherd's station, where it crosses to the right bank and follows the stream for a quarter of a mile farther to its junction with a second stream coming from the S. E. On crossing the latter stream, there is an open level spot of ground called Thoga Chokpo, which, from the numerous fire-places, is apparently a favorite halting-place with the traders. Just beyond this a third rivulet, also from the S. E. joins the others, and the united streams are called Súm-khel, or the three springs. Passing up the bed of the last stream for two miles we halted at an extensive level spot called Pángtik on its left bank; we were obliged to halt here as the nearest water on our road was still 10 miles distant.

On looking up the stream to the S. E. from Pángtik, the valley appeared to be so broad and open and the hills so low that we felt assured there must be an easy route open towards the Chumureri lake. A party was accordingly dispatched to ascertain this point. They

afterwards met us near the lake, and described the road up the Súmkhel as stony, but easily passable even for ponies. The pass appeared to them more like a gradual rise of the whole country than a ridge separating two valleys; after crossing which the road continued along the bank of a small stream which joins the lake at its southern end from the westward.

Saturday, 12th September. To Moré-cho (the Moré pond) a pool of fresh water, distance 10 miles and 1 furlong. Road at first a very steep ascent from the bed of the river for about half a mile, and thence level along the plain of Kyung, running nearly due north for six miles, and then N. E. for 4 miles to the Moré-cho, a pool of fresh water not more than 300 feet in circumference. On the 25th of September, when I re-passed this spot, the pool was quite dry. The plain of Kyung is from one to two miles in breadth, with a long bed of white sand to the S. W. of the Moré-cho:—the rest of the plain is but scantily covered with furze and grass.

This plain has evidently once been the bed of a long lake, the extent of which is shown in the map by a brown shade included between dotted lines. The point where the waters eventually burst through must have been just below Thoga Chokpo, at the junction of the three streams. The hills on the eastward are entirely of mica slate.

Sunday, 13th September. To Rúkchín, an encampment of Nomad Tartars, living in black hair tents; 7 miles, and 1 furlong. The road continued to the N. E. along the level plain of Kyung, which gradually diminished to half a mile in breadth. At 6 miles reached Rúkchú, an old station of the Nomads, where Moorcroft halted two days. One mile further turning up a ravine to the westward, we reached the Rukchin encampment, consisting of ten or twelve black hair tents, each containing 4 or 5 people.

These Nomads appear to be a happy race, who being satisfied with little, have but few wants. They are called Kampás (the Champas) of Trebeck. The men usually wear woollen great coats reaching below the knee. As they are never washed, but often darned and patched, these great coats are mostly rather tattered looking garments of many colors. They wear leggings also, generally of thick coloured woollen, which is put round the leg like a bandage and secured by a long garter, usually of black woollen rope, which is wound spirally round the leg





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*Kämpa Women.
Nomadic Tatars of Ludak.*

from the ankle to the knee. Their short boots are made of goatskin or sheepskin, with the hair or wool turned inwards, and well stuffed with wool, which while it makes them warm to the wearer gives rather a clumsy appearance to his feet. The cap is generally a piece of goatskin with the hair inwards, or else a woollen one edged with skin or coarse red silk. The women go bare headed, but they wear lappets round the cheeks, and over the forehead, from which a broad band well studded with large flat badly-flawed turquoises and cornelians, passed over the head gradually narrowing until it reaches the waist behind. The hair is dressed in numerous thin plaits, which hang behind and over the shoulders, forming a complete fringe or rather a sort of well greased mane to the head and neck. They frequently wear long great coats and leggings like the men; but I have seen them also dressed in three or four thick woollen petticoats, and a sheepskin jacket with the wool turned inwards over the coat. The men also wear these sheepskin jackets when they feel cold: and their tents are well supplied with them, as both sexes put them on when they go to rest.

The men are generally from 5 feet to 5½ feet in height, and the women from 4¾ to 5 feet. Yet they are hardy and even strong. I have often seen the roof of my tent, which was wadded with cotton, carried throughout a whole march by one of these diminutive women; although the taller and finer-looking men of Simla declared it to be too heavy for one of them to carry. These Nomads are generally of a deep brown complexion; the girls are however rather fairer, and some of them have colour in their cheeks. They all have the small eyes of the Tartar races, and to use the words of an old traveller, they are "a square, stout, strong people having platter faces and flat noses." Their ears are particularly large, and many of them wear ear-rings. Both men and women carry about them all their property excepting some wooden pails for milk and the few large iron pans which they have for cooking their food.—Knives and spoons, pipes and tobacco pouches, flint and steel, and a small cup, either of iron, brass, or wood, are carried by every one. These are usually crammed inside the great coat above the waist, where also may be found a long piece of woollen rope for fastening packages, and occasionally a single or double flageolet, either of wood or brass.

Their cattle consist of herds of Yáks, or Grunting oxen, with the

long bushy tails, and droves of sheep and goats. The hair of the Yaks is cut every summer, and woven into the coarse cloth of which they make their tents. During the winter they live in the valley of the Indus: in the summer they move to any places where they can find grass, water, and fuel. They exchange their wool with the traders for wheat, flour, tobacco, and any thing else that they may require.

Tuesday, 15th September. To the bank of the Chokhar, or "Salt lake," distance 6 miles. The road lay towards the S. E. over a low pass with an easy ascent, but a steep and bad descent. The rock here changed from mica slate to gneiss. We halted near a small religious building on the southern end of the salt lake, which is about five miles long by three miles broad, and which was covered with thousands of wild ducks and wild geese. The water of the lake is salt and bitter, and the whole shore is covered with white banks of the saline efflorescence. Height above the sea 14,961 feet. The thermometer fell to 9° during the night. There are on all sides the clearest marks of the former higher level of this lake about 60 feet above the present surface of the water. The former extent is shown in the map by a brown shade surrounded by a dotted line.

Wednesday, 16th September. Marched 10 miles to a nameless halting place to the north of the Nakpo Gonding Pass. Road at first due east, along the southern shore of the salt lake for 4 miles; it then crosses the stream of fresh water 10 feet broad flowing from a small fresh water lake to the south. Thence for 2 miles alternately over sandy flats, and hard caked sheets of saline efflorescence. Beyond this it lies due east for four miles over slightly undulating and very stony ground along the bank of a dry nullah, in which a few puddles of melted snow water occurred at our halting-place. The large blue hares are very common at the foot of the hills on both sides of this nullah. They have enormously long ears; and live under the stones. I shot half a dozen in half an hour on my return at this very spot.

Thursday, 17th September. To the foot of the Nakpo Gonding Pass, distance 9½ miles. Road for the first four miles a very gradual ascent to the crest of the Poldong or Pulakonka Pass. Beyond this, at a mile and a half, we crossed the deep bed of a nullah coming from the S. W. source about 10 miles distant: thence for 4 miles the road continued to ascend over stony spurs; passing a small stream which

comes also from the S. W. The spray of this stream was frozen in icicles over the boulders. We encamped just below the Pass at a halting-ground called Nakpo Gonding. Snow fell at mid-day and continued falling for two hours. Height above the sea, 16,225 feet.

Friday, 18th September. To Beldong near the northern end of the Chumureri lake, distance 12 miles, and half a furlong. Road at first a gradual ascent, then a descent, and a second ascent to the crest of the Nakpo Gonding Pass. Total ascent about 800 feet, and height of Pass 17,000 feet above the sea.

A few hundred feet below the Pass, on a level plain, I saw a single Kiang or wild horse; and by sending men to the right and left I was enabled to approach within 200 yards of the animal. The Kiang then moved off and I followed, and when he turned to look at me I stood still, and followed him again as he moved. After repeating this three different times I got within about 180 yards of him, and taking a steady aim, I struck him six inches behind the shoulder, the ball passing clean through him and striking the ground beyond. The animal then scampered off for about 200 yards reeled round, and fell over heavily to the ground. When I came up to him he was quite dead. The ball had passed through his heart—a lucky shot for a fowling piece at 180 yards. This animal, which is the *Equus Hemionus* of Pallas, and the *Equus Kiang* of Moorcroft, is very common about this part of the country.

From the top of the Pass the road was an easy descent for $4\frac{1}{2}$ miles to Lámzung, a halting-place on a small clear stream which feeds a salt lake lying to the eastward about 2 miles. This lake escaped the notice both of Trebeck and of Gerard, although it is about 3 miles long by $1\frac{1}{2}$ mile broad. It is called Chokhar, or the salt lake, and the salt is seen in sparkling crystals all around its edge. The people say it has no outlet, which will account for its saltness. It has several feeders on the eastern side, besides one on the northern side.

From Lámzung a slightly undulating road for about a mile led to the Chakshang rivulet which comes from the snow to the westward and turning sharply to the southward flows into the Chumureri lake,—of which it is the principal feeder at its Northern end. A slight ascent from the Chaksang led over a low point, and the road then descended

to the rivulet again, and followed its right bank for about 5 miles to a level spot called Beldong, where we halted.

Saturday, 19th September. Marched $6\frac{1}{2}$ miles to a halting-place on the bank of the Chumureri. Road for first $2\frac{1}{2}$ miles very sandy as far as the lake. At 2 miles further passed the Korzo Gúnpa, or monastery, inhabited by one Lama, who resides there throughout the year. He rears some barley and turnips on the banks of the Korzo rivulet close to the lake, at an elevation of 15,000 feet above the sea. The barley had just been cut when we arrived there. It was still quite green; but there was every appearance of snow, and the Lama was afraid of losing his crop altogether. The barley looked strong and healthy but the turnips were very small and hard. The Lama informed me that even in the depth of winter the snow does not lie more than knee-deep near the monastery, a point which I am disposed to believe from what I myself beheld on the two following days; namely, that although it snowed heavily for a whole day and night at the southern end of the lake, where the snow was a foot deep; yet at the northern end near the monastery there was not even a trace of snow. This phenomenon would appear to be due to the following cause. The vast clouds which are formed on the plains of India are drifted northwards by the monsoon until arrested by the loftiest ranges of the Himálaya. The last of these mighty chains towards Ladák is that in which the Párang Pass is situated; and here the clouds discharge their contents. Beyond this lies the dry and desert country of Ladák, where water is so scarce as not to afford sufficient moisture for the formation of any extensive clouds, which will account for the little snow that falls to the northward of these great ranges.

At mid-day I placed a mark in the water to ascertain if possible whether there was any rise and fall in the level of the lake; but up to 6 o'clock in the evening and again in the morning at 6 o'clock I did not observe any perceptible change. The water of the lake was sweet to my taste, but the people of the country although they call it sweet, prefer for their own drinking that of the small snow streams which flow into the lake. Both of these facts would show that there must be an outlet to the lake.—If so, it must be at its south-eastern end, as laid down by Trebeck, for I examined all the rest of the lake carefully; and had I not on the following day been obliged to return in conse-

quence of heavy snow, I should have examined the south-eastern quarter also to ascertain whether there was any visible outlet to the lake. Were there no outlet, the water would be salt as in the other lakes; and there would certainly be considerable rise in its level during the day from the melting of the snow, and a corresponding fall at night. Dr. Gerard however declares that "whilst it is fed by several considerable streams, it has no efflux, and is kept at its level entirely by evaporation." I cannot agree with this opinion, for it appears to me that the greater the evaporation the more salt should be the water, which is not the case, as it tasted sweet to me, and Trebeck found it only brackish. The lake is 15 miles in length and from 2 to 3 miles in breadth. The water is beautifully limpid, and of a deep blue colour. I saw but few wild geese upon the lake. The mountains on both sides were perfectly bare excepting near their summits, where there were some patches of snow; they do not appear to rise more than 3000 feet above the level of the lake.

Sunday, 20th September. Marched 10 miles and 7 furlongs to the southern end of the lake, to the bank of a small stream which joins it from the west. It began to snow about 7 o'clock, and continued snowing the whole day and night. In the morning the snow was a foot deep on the ground, and six inches thick on the roof of my tent. As the coolies positively refused to proceed any further, we were obliged to yield to them, and to make arrangements for retracing our steps. Accordingly on

Monday, 21st September, we marched to Korzo Gungpa, 13 miles over the snow: from which place I returned by the route already described, excepting that instead of visiting Rukchin, I went straight from the Chokhar, or great salt lake, to the Moré-cho; crossing the Sápokong Pass, and halting at a shepherd's station, called Tákzám, where I shot several hares.

On the 26th I joined Lord Elphinstone and Major Bates and marched in company with them to Simla. We crossed the Bára-Lácha Pass on the 28th of September, where it was still free from snow. On the 5th of October we crossed the Rotang Pass, on which we found fresh snow from a foot to a foot and a half in depth; and we were just in time, for the people assured us that the Pass would be com-

pletely closed by the 5th of October. The remainder of the journey has already been described.

It may be observed that the whole of the country from Dárcha in Láhul to the Chumureri lake, is a vast uninhabited desert, without a single tree, or even a bush knee high, and but scantily supplied with water.

In conclusion I will only notice the strange belief of the Gerards that the snowy peaks to the north eastward of Piti and Láhul exceeded in height all that they had seen of the Himálayas. The Baron Humboldt (Kosmos, p. 45 n.) calls it an unfounded surmise, in which opinion I cordially agree: and I believe that I am fully borne out by the observations of Moorcroft and Trebeck when crossing the Kandu La (Pass) 16,600 feet in height to the south-westward of La. Moorcroft remarked that "the mountains near at hand were not much more elevated than the ghát, except one at some distance to the west, the peak of which was lost in clouds." Again, when crossing the Changla Pass, 17,800 feet high to the south-eastward of La, he remarked that "as far as could be estimated by the eye the line of elevation of the loftiest ridges rarely exceeded this, with the exception of the mountain descried from the Pass of Kandu La." It is needless to multiply passages to the same effect. It is sufficient that neither to the south-westward, nor to the south-eastward of La, did Moorcroft, observe any peaks higher than 18,000 feet, excepting one far to the westward, which, on referring to Vigne's map, would appear to be the double-peaked mountain called Paja Huy and Dum Huy, situated in the great snowy range which divides the valley of the Chandrabhága from that of the Indus.

MISCELLANEOUS.

- 1.—*Inundation of the Indus, taken from the lips of an-eye witness,*
A. D. 1842.

(Communicated by Capt. J. ABBOTT.)

Ushruff Khan, Zemindar of Torbaila, states:—"In the month of Poos (Dec.) the Indus was very low. In Maag and Phagoon (Jan. and Feb.) it was so low as to be fordable (an unprecedented phenomenon). In