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JOURNAL
OF THE
ASIATIC SOCIETY.

AUGUST, 1848.

Narrative of a Journey to Cho Lagan (Rákas Tal), Cho Mapan (Mánasarówar), and the valley of Pruang in Gnari, Húndés, in September and October 1846. By HENRY STRACHEY, Lieut. 66th Regt. Bengal N. I.

(Continued from page 120.)

27th September.—Morning pretty fine but clouds still hanging about the mountain tops. Thermometer at 8 A. M. 38°; must have been freezing at night. This valley is so shut in by lofty mountains that the sun does not show his face for some two hours after the proper time of his rising, and apparent sunset is premature in the same degree, so that the day is much curtailed of its fair proportions, which the climate of the place can ill afford.

Here I make my last halt to-day in order to sort my baggage, getting rid of the greater part of it, and to muster my Bhótias with cattle and all other requisites for progress across the snow. I leave all my domestic servants, with the impedimenta; the Hindus, including two Paháris, are already hors-de-combat, as much I believe from the after effects of the heat to which they were exposed in the lower part of the journey, as from the present cold, which is not very severe. My Musulmen are still pretty lively, but they probably would become unserviceable to me, if not to themselves at 14,000 feet, so they may keep the Hindus company.

I consider it advisable also to reduce the bulk of my Káfila as much as possible, the better to avoid notice, though my Bhótia companions

seem inclined to multiply themselves and their beasts for mutual protection against the dangers of our expedition. Hirkun Budha considers that one of the greatest risks we have to encounter is the Khampa, who he says are little better than organised gangs of robbers infesting the vicinity of Darchin and plundering all parties they may meet not strong enough to protect themselves; they are in greater force than usual this season, attracted by the concourse of people and concomitant opportunities of plunder, attending the twelfth year religious fair at Gángri. This year the Byánsi Bhótias thought it necessary for their own safety to enter Húndés in armed parties, to which precaution they ascribe their escape from a considerable “*luting*” and “*múring*.” The Khampa are so called from their native country, “Kham,” which is probably identical with the “Kumbák” of Turner; and pending more certain information about them they may be set down as an extensive horde of what we call Tatars (vulgo Tartars) occupying a large tract of country on the north-east of Tibet between latitudes 30° and 40° and longitude 85° and 95° , and filling up the blank in our maps, between the Huns of south-western Tibet and the hordes of “Kilmák,” “Cal-mucs,” “Eleuths” or “Tatars of Koko-Nor,” towards the frontier of China Proper. These people frequent the province of Gnari in considerable numbers under the color of trade and pilgrimage; and they bear a general bad character, both Hunias and Bhótias regarding them with fear and distrust, particularly in unprotected situations where their thievish propensities are said to break into open robbery. On some occasions when unusually mild weather rendered the passes of the Himálaya practicable during the winter months, they are reported to have extended their depredations across the snow, and rifled the houses of the upper villages whilst the Bhótias were absent in their winter quarters below. The Khampa however are not exclusively of this sort; one of the tribe, by name Lochambel, who come from a distance of $1\frac{1}{2}$ month’s journey with salt, Borax and Pashm to Gartokh and Pruang, is a wealthy and respectable person, well known and esteemed by our Bhótias who have dealings with him. He once, at short notice, lent Chakwa Garpun 62 *Nega* of gold, some 20,000 Rs. worth. The country of Kham is said to be under the dominion of the Lhasa Pontificate, but the extent and nature of the authority exercised is very questionable. I doubt whether the Lhasan Court have any regular

system of government established in Kham under their own officers, as they have in the province of Gnari.

I must now introduce my assistant, Bhauna Hatwál Khasiah, Bráhma, Kumáoni, of Jhirkuni, a village near Lohu-ghát. I believe he is the only native of British Kumáon or Garhwál not a Bhótia, that has any personal intercourse with Húndés. For many years past he has been engaged in a small trade chiefly with Pruang, either on his own account or as agent for some of the Almora merchants. The commencement of his intercourse with Gnari was characteristic: making his first appearance at Dába (viâ Jwár) he was forthwith arrested as a "Nia Admi," and brought before the *Zungpun* for examination; he pleaded that "in the days of Chand" some of his ancestors had been in the habit of visiting the Jang-Tang* for purposes of trade, and he hoped for a renewal of the privilege to himself, on which the Deba directed the Clerks to make search in the archives of Dába, where sure enough, they found mention of one Bhauna Hatwál, an authorised trader from Kumáon some 100 years ago, and the present Bhauna was then admitted to free intercourse with all parts of Gnari. For the first year or two he went through Jwár to Dúngpu, Dába, and the Gartokh Fair, but the avaricious interference of certain influential Jwári Bhótias, jealous of the competition with their own trade, threw such impediments and annoyances in his way that he abandoned that route and took to a more limited traffic with Pruang, through Byáns; he met no opposition from the Bhótias of this district, who if less civilized than their brethren of Jwár, are less sophisticated, and as their own trade is chiefly confined to the barter of grain for salt and Borax, Bhauna's dealings in Europe cloths, Pearls and Corals gave them no offence. In quest of Pearls and Coral and other merchandise for Húndés, Bhauna has been often to Jaipur and sometimes as far as Calcutta and Bombay, and he is probably the only man now living who has visited those places and Gartokh. He is proficient, colloquially, in the Gnari dialect of Tibetan and his ideas generally have been somewhat expanded by travel. He was introduced to me, unexpectedly only the day before I left Almora (31st October, ultimo): but having heard previously of his qualifications, I engaged him to accompany me on this expedition; never having been to the lakes by the out-of-the-way route I am now taking, he is nothing of a guide, but promises to be useful as informant general-

* i. e. Uplands of Tibet.

ly, and negociator in case of any untoward collision with the Hunias; also as interpreter, for I can scarcely understand these Byánsi Bhótias, who have a language of their own (a dialect of the general Bhótia language with little affinity to the Hindi,) and their Hindustani is hardly more intelligible; they have some imperfect acquaintance with the Khasia-Hindi of the lower hills, but speak it like a foreign language. It is a curious circumstance that the Bhótias of Jwár do not speak the Bhótia language, but a dialect of Hindi like that prevailing in the lower hills; all the respectable people among them communicate fluently in ordinary Hindustani, and a few are literati in a small way.

The case of Bhauna is one instance to show that the Bhótia monopoly of the trade between Kumáon and Gnari is ascribable not solely to the jealousy of the Lhassan Government but something also to the avaricious spirit of the Jwári Bhótias, which seems to have its own way notwithstanding the British administration of the Province; the difficulties of the Alpine route and snowy passes, the inhospitable climate of Húndés, together with the poverty of the markets, and actual insignificance of the trade, and much of course to the moral hindrances. Any possible extension or participation of the trade, such as it is, by the Almora merchants should be sought, I think by the way of Byáns, where the Bhótias are more tractable to strangers and the snowy passes less formidable to lowlanders.

As I have before mentioned, there is already some traffic of the Khasias from Dúng of Doti, which passes through Byáns without molestation. The Nítí pass, next in facility to Lípu Lekh, should be similarly open to adventurers from lower Garhwál. But to tell the truth, there seems little scope for material improvement of the Hunia trade so long as the Province of Gnari labours under the political depressions and restrictions that emanate from Lhassan tyranny and Chinese influence, nor is that system likely to be changed at the mere request, or demand even of the British Government. The abolition of the Ládák monopoly of shawl wool, when effected, may perhaps add to the trade of Bisehir and our newly acquired Trans-Sutlej hill districts, but it can do little for Kumáon and British Garhwál under present circumstances. It is to be regretted that none of the Káshmiri refugees have settled in these provinces, where their manufactories could be carried on to great advantage from the proximity of the raw material, and now particularly that the supply of it promises to be unrestricted.

A Káshmíri colony and shawl factory in some part of Kumáon or Garhwál, is still a feasible and promising project ; but it would require encouragement and good management at the outset ; such I believe, were bestowed by the local authorities at Ludhiána when the immigration of the Káshmírís naturally passed that way.

Maximum Thermometer in the sun this afternoon, 62° ; evening cloudy, Thermometer at 9 P. M. 42°.

28th September.—Thermometer at sunrise 34° ; morning fine. After some delay, on the part of myself as well as the Bhótias, with packing and loading baggage, &c., we start soon after noon ; the party consisting of myself, Bhauna, Anand, a young relation whom Bhauna has thought proper to bring with him, to assist in cooking dinner, etc : though as this is Anand's first visit to Hundes, or southern Bhote even, he is likely to be of small use in manual service : Rechu (Pudhán of Kunti) and five other Bhótias, two of whom are supernumeraries intended to return to Kunti when the rest of the party get well over the pass. I begin to have misgivings about Rechu, who I fear is no better than a demi-savage, and I rather regret that I have not taken Hirkun, the Thokdar, in his stead, as in fact Bhauna from the first advised, but in such a sneaking suspicious way that I rejected his suggestion in disgust. The other Bhótias are, if any thing more uncivilized than Rechu. When first asked who were to accompany me, I said that I left Rechu to bring whom he chose from his own village, (as I thought the most simple and convenient plan) but the men of Kunti raised objections, and after much discussion, it was settled coram Patwari and Thokdar, that the service should be equally distributed (like the supply of baggage cattle, provisions, &c.) each village furnishing one man, and then the separate villagers began to assert their independence of one another, and of Rechu, who was mere Pudhán of Kunti they said, and of no authority out of his own village. They will cool down a bit I hope, when I get them well into the snow. Notwithstanding these bêtises and their general rudeness I have had reason as yet to be well satisfied with the readiness which the Byánsis have shown in meeting all my requisitions, whatever part of that alacrity may have arisen from their inability to distinguish between the Government official and the mere private adventurer.

Our baggage goes upon six Zhobus, four of which are however

Chanwr (the Yak) which latter appear to be more numerous in Byáns than the mule breed; and two more of these cattle go as far as the pass to take fuel and assist in relieving the loads of the others in case of difficulties in the snow. We have also a couple of saddle ponies, which may be of use beyond the pass; these are indifferent, long-legged animals, bred in Pruang, whence the Byánsis get the few horses that they have. The only things in the shape of tents that I have been able to get from the Byánsis are half a dozen "Chera," which are blankets, perhaps four yards by two, furnished with loops at the corners and sides by means of which with two sticks and a few pegs of Birch tree a quasi tent is rigged out in a few minutes to any required size and shape, and if necessary the several Cheras are tacked together with the large needles and woollen yarn which every Bhótia carries with him. We have taken provisions enough to subsist us all for near a fortnight, so that we may be independent of intercourse with Hunia villages and *Dúng*, in which lie risks of an untimely end to our travels.

To obviate the questionable appearance of English bottles, as well as their fragility, I have filled a lot of Port wine into a pair of the Bhótia wooden surais, and some rum, &c. into another pair. The spirits should do well enough in this style of decanting, but it is a very doubtful experiment with the Port already deteriorated to the usual Indian quality.

I have of course adopted the Hindustani "*Dhab*" of costume, just enough to pass muster in the distance, and nothing more, as I have not attempted to disguise the Feringi complexion of my face and hair, and my clothes are so much cleaner than the cleanest of my companions that the contrast entails some risk of attracting notice and marking me for a "Nya ádmi," in a country whose native inhabitants vie with their authorized visitors from our side of the snow in the personification of filth. I perceive now that I should have had my clothes dyed of a dirt colour as the only possible way of getting up a passable resemblance to the Byánsi Bhotias, or even to my Kumáonis, who are also villainously dirty. In Jwár I found some of the head people tolerably clean and decent.

For food, &c. having laid in a good stock of materials, I depend for cookery on Bhauna, Anand and the Bhótias.

All my Hindustani servants, with the bulk of my baggage, &c. re-

main at Kunti, till they get notice of our having crossed the pass, when they go down to Gárbia or Budli, and there wait my return to lower Byáns by Lipu-Lekh.

I have instructed the Patwári to apprehend nothing particular for a fortnight or so ; if our absence exceed that time to send out scouts in the direction of Taklakhár, and in event of our being imprisoned or otherwise coerced or maltreated by the Hunias to do what he can for our rescue and report the state of affairs to Batten. Thokdár Hirkun, the best of the Byáns Bhotias, takes his leave, with repeated warning to me against the "Khampa," whom he seems to think worse enemies to progress than the Pruang Zungpun and his satellites.

Leaving Kunti at length we descend and cross the river (though here easily fordable I should think) by a small Sánga, and a mile or two on cross a small rivulet, Mangdang ; the valley now narrows to a mere open glen, the river and the road one or two hundred feet above it, gradually rising, and the mountains on both sides decreasing in relative (if not absolute) height. A considerable stream, the Toshi-Yánkti, nearly as large as the western branch of the Kunti River, comes through a large ravine, entering the main valley from the northward. The top of the opposite ridge of no great height apparently, and only just tipped with snow, is said to look into the table-land of Hundes (the western branch of the valley of Pruang) but there is no pass this way, the mountain being steep and rocky ; and yet some one must have been to the top to have seen the said view into Hundes. The Surveyor's Map calls this stream Kembelchoo. The road continues over a tolerably level shelf in the hill side, affording a pretty smooth and easy path a few hundred feet above the river. The only vegetation here is grass and a few herbs reaching one or two hundred feet above us, and on the northern exposure of the hills to our left the snow has descended nearly to the limit of vegetation. Having started so late in the day we make but a short march to Sangchúngma, a mere encamping ground near a small stream on the shelf in the mountain side ; the river is one or two hundred feet below us and not visible from this owing to the depth and narrowness of its channel.

Thermometer at 5 P. M. 41° ; boiled at 188° ; elevation of Sangchúngma 14,000 feet.

Evening cloudy, with slight symptoms of rain or snow.

My share of our camp equipage turns out to be two "Chera," one stretched tent-wise over a rope between two sticks, and the other closing one of the gable ends; which covers altogether an available area for lying and squatting of six feet square or thereabouts.

Night cloudy and cold. Thermometer at 10 P. M. 34°.

29th September.—Morning clear; at sunrise Thermometer 31°. Ice on the still parts of the neighbouring stream and in lots of water left outside at night.

Leaving Sangchúngma, we continue our journey by a very easy ascent over the same sort of undulating berm on the hill side that prevailed in yesterday's march. The ground is covered scantily with grass and a few herbs, among which is *Poh* (*Rhododendron anthopogon*) now in seed; I saw it in flower in Jwár last June, the whole plant is very fragrant, and exported to Hundes for the benefit of the Lámás, who use it for incense.

Monks-hood, or Wolf's-bane, *Atis*, (*Aconitum heterophyllum*) the root of which is exported to the plains of India as a medicinal drug.

A few scraps of Juniper, and Potentillas not in flower.

Cross a rivulet, Nikúrch, and further on we come to the new snow which fell on the 18th, 19th and 20th of this month (when we were imprisoned by the rain at Gala in Chaudáns) and still lies on the northern slopes and other sheltered spots of the ground over which our road passes. Cross the Jhúling-Yánkti, up which is the Pass into Dárma over Lebung-Dhúra, and we here meet two Sipáls* of Dárma, who have just come this way, with infinite trouble they say, 3 cos in 6 days, through deep snow, which however I do not believe any more than the height of the pass marked on the map 18,942 feet. This Jhuling is the usual halting-place half way between Kunti and the foot of Lánkpya. Cross another stream coming through Byank-shiti, a small pool which must be a permanency (though it would hardly be expected from the loose moraine-like appearance of the ground) as there are traditions that some Raja of Byáns in days of yore indulged his fancy by calling the puddle Mántaláw, and one of the neighbouring snowy peaks (of no remarkable figure) Kailás, after the great originals of those names in Húndés.

The snow now increases and our path lies over it constantly.

* Men of Síbu, in Dárma.

Cross the Rárub-Yánkti, which consists of one or two rivulets flowing through a remarkably wide and level bed, that looks much like an extinct Taláo, with a single small exit into the Kunti river.

Beyond this, the snow entirely covers the ground, wherever that is level enough to retain it ; it is tolerably deep in the hollows, and on the northern slopes, but well frozen and hard enough to afford fair footing to man and beast ; the ascent too is very gradual, over easy undulating ground ; so that we have got on without much trouble ; but I have suffered something from the excessive glare, my hands and neck being already severely scorched. I found a pair of the Bhotia hair shades sufficient protection for my eyes, though not equal to the wire-gauze of English make.

After a march of 7 hours, and which strange to say, measures only 8 miles on the map, we encamp at Phíámangbu, (a mere name) the "Dakhna" (as the Bhótias call the hill-foot) of the two passes. To the northward, in front of us is Lánkpya, which we cross to-morrow weather permitting, and to our right, Mankshang, the direction of which is almost eastward from this, and it is said to be rather more difficult than the other ; neither of them look very steep or lofty. The Kunti river here consists of a small divided stream winding through a wide and level bed, now so full of snow that we had some difficulty in finding a few feet of bare stones for our encampment.

Afternoon and evening cloudy with slight indications of snow, or particles of frozen mist not enough to whiten the ground, which Bhauna says are signs of safe weather, precluding the likelihood of actual snow-fall.

Thermometer at 5 P. M. 33° ; boiled at 185° ; elevation 15,750 feet.

The rarefaction of the air is very sensible here ; what I feel is a mere shortness of breath in any bodily exertion whatever ; and in drinking, and even in talking, the same symptom is very decided.

30th September.—I found it rather cold last night, and the thermometer at sunrise this morning 18° ; a temperature at which it is not easy or agreeable turning out of bed. We start accordingly at $9\frac{1}{2}$ A. M., rather later than is proper with a snowy pass in front.

Crossing the Kunti Yánkti, which rises not far off to the westward in deep beds of snow, the stream here shallow and half frozen, we ascend the mountain side to the northward ; the valley here comes to

an end, and no further progress could be made but by scaling the hills in one direction or other; the head of the river appears quite impracticable from depth and steepness of snow. Our road lies over a moderate acclivity, but completely covered with snow, which goes on increasing to an unpleasant depth; the pure unsullied surface without the vestige of a track upon it, indicates a recent and heavy fall, since which the pass has not been crossed. The glare is intense: the surface of the snow is frozen and hard enough to afford tolerable footing to a man on his own feet, but the cattle sink deep at every step; when only knee-deep they get on, though slowly, but where the snow meets their chests it is with the utmost difficulty that they can gain a step; being also exhausted by the rarity of the air which here affects both man and beast. I found it useless to attempt riding through this snow, for the sudden sinking, plunging, and floundering of the horses was such as to knock the breath out of me at every step. The Zhobus would have been better for riding here, but it was necessary to have our two spare cattle unladen in the front, so as to tread down a passage through the snow by which the rest followed with the baggage. At 1 P. M. the cattle came to a stand-still, yet a long way below the top of the pass, and the Bhótias seemed inclined to follow the example of the beasts, and began to talk of the impossibility of getting further, but as the difficulty did not appear to me to be insurmountable, with the two Kumáonis I went on ahead to a small heap of stones or projecting rock free from snow, where we sat down, determined, or pretending a determination, to pass the night there rather than go back, and in hopes of so shaming or alarming the Bhótias into better exertion to join, I began to read a newspaper (which I had got at Kunti), but soon found it intolerably cool work in such a situation.* In the course of an hour and a half

* On the ascent of this pass I observed that where holes were sunk in the snow by the foot of man or beast, or by a walking-staff or otherwise, the snow inside assumed a very fine deep colour between azure and sea-green (like Turquoise colour), and I remember to have seen the same appearance in the deep fissures at the top of the Gori Glacier (above Milam in Jwár), near its origin at the head of the valley, many miles up where the substance of the Glacier seemed to be half ice half snow; this must be the inherent colour of the pure rain or snow water, I imagine, (as azure blue is supposed to be of the air) for I saw it when the sky was dull and dark with clouds and incapable of reflecting any such colour, nor did I ever notice it in the old and dirty snow on the Jwár passes in the end of June.

the Bhótias managed some how or other to get the cattle through the deep snow which had promised to stop them altogether; they came up to us at 2½ P. M. and we proceeded again towards the top. This stage of the ascent fortunately proved easier than the preceding, or we should never have got over it in the day. Though the acclivity was steeper (and for that reason, I suppose) the snow decreased, and occasionally patches of bare rock afforded much relief, which was the more needed as the rarefaction of the air became more decided; the Zhobus, Bhótias, and Bhauna were not much exhausted, but Anand, the young Kumáoni, a novice at this work, was quite ill. I felt passing heavy in the head, as though a *mun* weight were hung over my neck, and the ponies were grunting and groaning in sore distress; I again attempted to relieve myself by riding, but one of the beasts staggered back under my weight absolutely unable to carry me one step upwards, and I found the struggles of the other more intolerable than my own exertions, so I was fain to dismount again and get on the best way I could on my own legs. We reached the top of the pass, at length, by 4½ P. M. Two thousand feet is I think sufficient allowance for the vertical ascent from our last encampment, Phíámangbu, at the bottom of the pass, and the horizontal distance is only 4 miles, which has taken us seven hours, however, the time and trouble being doubled I suppose, by the depth of new snow; absolute elevation of Lánkpya Dhúra, according to this estimate, 17,750 feet, and it seemed to me something inferior to Unta Dhúra and Jainti of the Jwár pass, in the ascent of which, last June, I felt still more exhaustion from want of air, and when those ghauts had not half so much snow on them as now covered Lánkpya. The afternoon had brought with it the usual clouds which obscured the prospect from the top of the pass, if ever there is any; beyond a dull monotonous chaos of snow on all sides, I could see nothing worth notice in any direction. The imagination of the novice in these scenes usually anticipates wonderful prospects from the lofty summits of the Himálayan passes, the natural and political barrier-wall dividing two great kingdoms, from which the eye hopes to range one way over terraces of mountains descending to the plains of India, the other over vast expanses of Tartarian table-lands. Such views are hardly to be realized from the passable gorges of the Himálayan crest whence the prospect is intercepted by obtruding shoulders of higher

mountains. What nature can afford of panoramic sublimity, the traveller may see from the heights above Sákh on the road from Laptel to Dungpu, and the most exacting imagination might hardly be disappointed with that glorious view ; some part of that is to be seen from the Nítí Pass, the only one I believe that admits of any tolerable prospect into Húndés ; from the top of the Lákhúr over Chirchun, I had some faint and narrow glimpse of the distant Gángri mountains.

The possibility of a fall of snow, which might prove dangerous to us in this situation at this late hour of the day, hurried our movements down the north side of the pass. We descended forthwith, after hastily dismissing one of the Bhótias, with the two spare Zhobus, who returned toward Kunti with a message of our having crossed the pass in safety thus far.

The first few hundred feet of the descent was extremely steep, the slope and quantity of snow very suitable for glissading, but I was not in the humour for trying it that way. At the foot of this declivity was a shelf of comparative level, beyond which I was unable to see any thing clearly for the fall of the ground and the obscurity of the weather, and I erroneously imagined that our labours would soon be terminated by reaching terra-firma. The descent began again in a succession of steep slopes on which the snow lay deeper than ever, and in many places it was of very unpleasant consistency, being superficially hardened by frost at top, and soft below, so that it afforded firm footing for an instant, and then suddenly gave away plunging us knee-deep at every other step. I much admired the style in which the laden Chanwrs came down the snowy declivity ; they looked like ships driving before a gale in a heavy sea, the snow flying in spray before them, as they tumbled through it breast-deep ; what a pleasant contrast to the slow toilsome efforts with which they ascended the other side. Half way down we crossed great mounds of broken rock that looked very much like the moraine of a glacier, and the Bhótias called it Gal, though I could not make it out clearly for the quantity of snow with which it was covered in most places. I was now much exhausted with the fatigue of eight hours wading through snow, and from the want of air which made me gasp for breath at the sudden plunges into soft snow ; half stupified and tumbling over at every step, I was at last glad to avail myself of the support of Bhauna and Rechu, who were themselves

still strong and lively. It was past sunset before we three reached the bottom of the pass, and we then had the miserable prospect of an expanse of pure snow covering the whole mountain sides around us, and the valley which extended at our feet as far as could be seen through the obscurity of the cloudy weather and approaching night, and no sign of the rest of our party with the cattle, who had fallen far in the rear, unable to tumble through the snow so fast as ourselves. At the bottom of the hill, a small ledge of bare rock, protruded through the snow, and on this we came to anchor, Bhauna and Rechu attempting to clear a space big enough to lie upon, for we expected that we should have to bivouac there for the night, and were doubting whether we could get one or two *Bakus** and *Cheras*† from the baggage in the rear. But in the course of half an hour or so I was most agreeably surprised by the appearance of the Bhótias with the cattle floundering down the last steep of the snowy descent; and one of the party going a little way down the valley found in the wilderness of snow a small oasis of bare stones, a ridge some 100 feet long and ten wide, on which we were right glad to fix our encampment. Verdant meadows, shady groves and hospitable roofs have afforded less welcome resting places to the weary traveller than this little ridge of bare cold ground open to the freezing air. It was night by the time we got the Cheras over our heads, and past nine before Bhauna, with a few remaining scraps of the fuel we had brought with us from Kunti, could accomplish a *lota* full of greasy tea, on which we consigned ourselves to sleep, too fatigued to miss better refection.

Thermometer at 9½ P. M. 20°; night very cold.

1st October.—Thermometer at sunrise (or an hour after it, more likely) 14° outside; and inside my tent (so to call the two blankets) 15°; I have now experienced what Moorcroft relates on one of his mountain passages in Ladak, the moisture of the breath freezing on to the pillow at night, which has also taken some of the skin off my blistered face. At 9 A. M. the Thermometer was 29°; at this time I was attempting to write my diary, when the first dip of ink at once froze in my pen, and on looking into the Inkstand I saw the contents of it all suddenly congealed in the same way. I found my hands so benumbed with cold and encumbered with gloves that I could hardly use a

* A kind of hill-cloak.

† Small blanket-tent.

pencil. We are all of us something the worse for yesterday's work : the Bhótias not much, nor Bhauna, who seems as strong as a Yak. I still feel great oppression in the head, or rather in the neck, as though a heavy weight were slung over it, and every part of my face not protected with beard is as perfectly blistered as though it had been treated with cantharides, which signifies little however, as my eyes (always strong) have escaped without damage ; the glare from the fresh snow has been intense, but I found a pair of gauze wire shades sufficient protection. It is this glare, I suppose, alternating with the keen dry cold of the air, that plays such havoc with a white skin, for the blacks are hardly affected by it. I have heard some people talk of darkening the face in order to complete a disguise, for entering Húndés, but there would be an even chance of the color coming off along with the skin, I apprehend. I found my Hindustáni clothes troublesome enough ; two *Paijama* and three *Chapkan*, one over the other, with a slouching cap, *Pagri* and *Kamarband*, all abominably uncomfortable. Anand, the young Kumáoni, is very unwell indeed, both sick and heavy in the head.

The place of our encampment here is called by the Bhótias Lánkpya-Dakhna or Welshia ; by the Hunias, Lareha ; it is near the head of a valley which rises from the Byáns Himálaya to the South-Eastward, and running for a few miles north-westward, turns east of north into the valley of the Sutlej. Upwards nothing but pure snow is visible, downwards, a few symptoms of bare rock, as the valley expands and the mountains on either side subside into hill, and through the opening northward is a glimpse of distant blue mountains, part of the Gángri range perhaps, on the north side of the Sutlej. The descent from Lánkpya Dhúra opens into this valley from the southward ; the top of the pass is not visible from the Dakhua, being hidden by the lower declivities, which are rather steep ; the way by which we descended yesterday looks very formidable ; heaps of driven snow rising one above the other, in which our track appears as a thin faint streak. We tumbled down this somehow or other in two hours, but all of us agree that to ascend by the same way with cattle and baggage would be an absolute impossibility ; Reehu says that he has never before crossed the Ghát in such a state.

Thermometer at 9 A. M. 29° ; boiled at 181°, but fuel was wet, fire slow and ebullition imperfect, so that the proper boiling point is 181½

probably, and elevation 16,000 feet, and I cannot suppose the place to be much higher than the Dakhna of the Byáns side, (which is 15,750 feet for a boiling point of 185°) the descent this side appearing nearly equal to the ascent on the other.

From Larcha our road lay north-westward, down the valley of the Dárma-Yánkti, the name of the river which flows into the Sutlej; the stream winds quietly through a flat bed a furlong wide, stream with rough fragments of broken stone, now mostly covered with snow, and there was a great deal of ice on all the stiller parts of the water; the declivity is very gentle. We travelled in the bed of the stream for the first mile or two, and then over the foot of sloping ground on the right bank. Two or three miles down we passed an opening from the south-westward through the mountain on the left, coming in two branches from the Dárma passes, Nyue and Kach, which communicate this way with Húndés. The Dárma-Yánkti has derived its name from its alleged origin in this quarter, though as far as I could see, by far the principal body of the river is that by which we have descended from the base of the Byáns, and not the Dárma, Himáchal; I could distinguish nothing in the direction of the Kach and Nyue Dhúras but confused heaps of continuous snow, like the northern side of Lánkpya. Two or three miles further down at the point where the river turns northward by east, the left bank assumes the remarkable straight and regular form which is one of the characteristics of the ravines on the northern side of the Himálaya in this part of Húndés; it resembles a huge artificial dyke running for several miles in a straight line, in a steep slope which at this end is I suppose 500 feet in vertical height, the top of it being covered with snow. Our path along the right bank of the river now lay over undulating ground intersected with a multitude of ridges and hollows which proved extremely troublesome to us, fatigued as we were still from yesterday's work; the ridges were all of bare sharp stones, and the hollows between them filled with deep accumulations of snow, recurring one after the other at every fifty paces, for one or two miles; over which abominable ground I found it a choice of evils to ride or walk, my pony being as jaded as myself. Below this we came to Silangtar, a stream flowing into the Dárma-Yánkti from the eastward in a bed of great width and depth, through a considerable opening in the mountains on our right hand, a mere ravine apparently leading to

nothing but Himálayan chaos. Notwithstanding the difficulty of my own progress, I had got so far ahead of the Bhótias with the cattle and baggage, that I was obliged to wait an hour here before they rejoined me. We then crossed Silangtar, and came to easier ground; the snow decreasing as we continued down the valley, then altogether receding to the adjacent hill-sides giving place to stunted herbage, and lastly to a few scraps of *Dáma*, the "Goat-thorn" of Tibet (a sort of *Astragalus*) and the only firewood for the traveller in Húndés. Late in the afternoon we reached a halting-place called Bháwiti, close under the hill-side on our right. The Dárma-Yánkti is a quarter of a mile to the westward of this, flowing through a level bed a furlong wide, with the great dyke-like bank rising high on the opposite side; on this side the mountains have subsided into steep hills, still abundantly covered with snow, between the base of which and the river bed intervenes an open bank of undulating ground.

Our halting-place here is eligible only by comparison with those of the last two days; there is just enough *Dama* for a few fires, some shelter under a small precipice in the hill-side and one or two boulders of rock, and a most ridiculous Dharmshála consisting of a stone built hovel four or five feet cube, just big enough to admit of one Hindu squattant.

Thermometer at 8½ P. M. 30°, but this was on the top of the Dharmshála, inside of which I afterwards found that Bhauna had established his kitchen, and no doubt the temperature was thus much raised above that of the open air. At this time, when attempting to empty a mug of water from which I had been drinking not long before, I found the contents retained so firmly by a coating of ice that they could not be dislodged by the most sudden and forcible inversion.

2d October.—Thermometer at 7 A. M. 20°, boiled at 185°; elevation of Bháwiti 15,750 feet, which agrees pretty well with my estimate for Larcha, as we were there encamped in the bed of the river and are now two or three hundred feet above it; the fall of the stream between the two places appears very moderate, and I did not observe any very decided descent in our road over the left bank. The diminution of snow here naturally follows the greater openness of the country and the distance northward from the crest of the Himálayan range, beyond which the formation and fall of snow makes little progress. There are

still a few patches of snow lying on the ground about our encampment.

Our road from Bháwiti turned somewhat to our right, north-eastward away from the river, over easy undulating ground, a great relief from the troubles of snow and sharp stones that beset our journey for the last three days. A mile or two on, we reached an eminence on the shoulder of the hill, perhaps 250 feet higher than Bháwiti, and 500 feet above the bed of the Dárma-Yánkti, which passes a mile or so to the westward; this spot commands a fine view of the country, and as usual in such situations, is studded with the religious structures called *Choktan* or *Mánepane*, little towers of stones, stuck about with dirty ragged flags.

There is an unusual number of these here, erected by some Láma they say, after whom the place is called *Láma Choktan*. Before us extended a low plain, which on the left, northward, expanded to a considerable size (many square miles), but to our right, eastward, contracted to a mere valley a mile wide, receding south-eastward behind the shoulder of hill on which we stood: beyond this valley north-eastward, the ground is occupied by lofty hills or low mountains not easily reducible to a regular plan, but the general tendency of them seems to be in parallel ranges running N. W. and S. E., the most distant of them, the highest, slightly tipped with snow in streaks here and there, and beyond these lie the lakes, entirely shut out from view. The north-western horizon is bounded by the Gángri range of mountains moderately tipped with snow, and remarkable for the deep purple-blue color of their inferior rocky parts; and about the middle of this range rises the snow-capped Peak of Kailás, somewhat higher than the rest of the line. I do not believe these mountains are nearly so lofty as the main ranges of the Indian Himálaya. On our left, westward, the view is closed by the high bank of the Dárma-Yánkti, which to the northward however, gradually subsides into the lower level of the plain first noticed. From what I saw in June last on the road between Laptel and Dúngpu, and Dúngpu to Chirchun, I know that a tract of elevated plain lies on the top of this bank extending westward a great distance, near 120 miles perhaps, up to the mountains of northern Bischir, with no other interruption than occasional clusters of hills, and deep ravines draining into the Sutlej. The Dárma-Yánkti, after running northwards

a few miles receives another stream, the Gúnda-Yánkti, rising from the Dárma Himálaya, after which the united river takes the name of Chu-gárh (?) (or Chu-gák?), and lower down receives another tributary that springs from high ground near Ligchepu, a day south of Kyunglung, on the Chirchun road. It thence runs nearly parallel to the course of the Sutlej, but in a contrary direction (viz. from west to east), from which circumstance it derives its name Biphu-kula, *Biphu* signifying *contrary*. This Biphu-kula, I believe, before entering the Chugárh, receives the Chúnagu, a stream which rises from the northern foot of the Dárma Himálaya, a few miles west of the Gúnda-Yánkti, and flows nearly parallel to it past Gumpáchin, which is half way between Chirchun and Kyunglung, and a short journey south of Ligchepu. One of the sources of the Indus half way between Misar and Gartokh bears the same name, Biphu-kula, apparently for the same reason, that its course is *opposite* to that of the sources of the Sutlej, which flow southward from the other side of the same height. The Chugárh falls into the Tirthápúri branch of the Sutlej, half way between Kyunglung and Tirthápúri. Moorcroft noticed the debouchment east from the route on the opposite bank of the Sutlej, (15th August, 1812) but erroneously supposed the stream to come from Rákas Tál, and Hearsay's map has made the same mistake, inconsistently with Moorcroft's own previous observation at Tirthápúri, (31st July,) to the effect that the Tirthápúri branch of the river came from Rákas Tál, which it does to some partial extent.

In the low plain to the north-eastward, 10 or 12 miles off, rises a small isolated hill, on the top of which was once a fort, called Nima-Khar; Bhotias call it, Gyánima; there is no village or fixed habitation here, but a considerable resort in the summer for the salt and grain traffic of the Bhotias from Dárma and western Byáns; it lies in the road from Pruang to Gugi, and one way to Gartokh, and on the road from Chirchun to Gángri. They say that the Sikhs had a fight with the Hunias somewhere hereabouts. Immediately beyond Gyánima a long narrow sheet of water is visible; it is a sort of lake receiving the drainage of the low plain and the adjacent hill, on the east, and giving off its surplus water occasionally into the Chugárh westward. Beyond this again rises a range of hills concealing the bed of the Tirthápúri-Sutlej. Gyánima belongs to Kyunglung. Wild geese and ducks breed

upon the lakes during the summer, and the people of Kyunglung take the eggs.

In the season of heat and rain the Chugárh is a very considerable stream, sometimes unfordable, and perhaps equal to the Tírhápúri river; it is the furthest eastward of the large feeders which the Sutlej receives from the Indian Himálaya, and may be considered as one of the main sources of that river.

From Lámá-Choktán we descended into the plain by a long, but easy declivity, and crossed the flat where it is about a mile and a half wide; reaching the middle of which, we saw it extending many miles in a long valley confined between the base of the Byáns Himálaya, and the ranges of the lofty hill which I noticed from Lámá-Choktán. The origin of the Karnáli is close upon this valley; the river enters it a few miles further down (south-westward) coming out of ravines in the North-eastern face of the Byáns Himálaya, its principal source probably from the north slope of the Mankshang pass, though I could get no accurate information on this point. It is a curious fact that the sources of the Sutlej and Karnáli, main branches respectively of the Indus and Ganges, should lie so close together and divided by an almost level plain, across which a man might walk from one river to the other in an hour or two, without vertical ascent or descent of 500 feet. The case is much the same with the south-eastern source of the Gartokh Indus (the Bíphu-kula) and the north-western branch of the Misar Sutlej, which are separated by a mile only of mere rising ground (Jílkwá-Lá), and it would probably be found the same with the Jáhnavi above Nilang, *the main source of the Ganges, yet unexplored by Englishmen!*

The end of this valley appeared to turn southward where it entered the head of the Pruang valley, and the view in this direction was terminated by a huge snowy mountain, the last and greatest of a chain which comes from the south-eastward along the left bank of the Karnáli. I immediately recognized this remarkable mountain as the same that I had seen from the high plain between Dungpu and Chirchun, and of which the Jwáris who were with me could give no account; according to Rechu, the Hunia name of it is Momonangli, and the Bhotias call it Gurla. It is one of the grandest objects I ever saw; from this point of view, the huge towering mass of snow that forms

the upper part of the mountain is wonderfully contrasted with the dark shadows which the height and steepness of the surrounding hills throw upon the corner of the valley at its base. To avoid the possibility of exaggerating, I reckon Momonangli to be as high as the second-rate peaks of the Indian Himálaya, or 23,500 feet, of which 8000 rise above the level of the valley, and the uppermost 5000 is all pure snow.

I was about to take bearings of this and other points when the alarm was given of a horseman ahead, which obliged me to pocket my compass and assume as much as possible of the *Chal* of a Bhotia, depriving me as I afterwards found of a most valuable observation for my survey. The horseman who was coming up the valley from the direction of Pruang, fortunately took no notice of us, but crossing our path entered the hills in front and was soon out of sight; we also saw one or two *Dúng*, i. e. encampments of herdsmen and shepherds, under the hills on both sides of the valley, but at tolerably safe distance.

My Bhotia companions were not a little alarmed at the horseman and the *Dúng*, and we edged off to the right in order to give them a wide berth, and then ascended the hills on the north-east, throwing out an advanced guard of two men to feel the way. This precaution proved useful, for soon after on gaining the crest of the hill and looking down the other side our videttes found a valley full of *Dúng*; we then skirted along the ridge eastward (or south-eastward) for a mile or two in hopes of finding some place to cross safe from observation, but the *Dúng* appearing rather to thicken as we proceeded, we gave it up and encamped under cover of the hill side, with the intention of effecting our transit before daylight next morning. This valley proved to be Chujia-Tol, a favourite resort of herdsmen and shepherds from Pruang; and all the best pasture grounds in this country are similarly situated in low hollows sheltered between lofty hills. This Chujia-Tol is a side ravine running from north-west to south-east, into the main valley; the springs of water that rise in it form but a meagre rivulet, which I believe is absorbed again before it can reach the Karnáli.

In the afternoon some of our party went into the Tol and had a conference with the shepherds, who were after all not over-dangerous enemies, for they evinced no curiosity at all regarding their visitors from the encampment of Byánsis on the other side of the hill; they reported

that the horseman we saw was a Government chaprassy (or whatever may be the Hunia equivalent to that functionary) come to collect men from the Tols for the conveyance of provisions, &c. from Pruang to Barka, for the use of a Garpun then encamped at the latter place; who this Garpun was and what he was doing at Barka did not appear; the regular Garpun being usually fixtures at Gortokh, or in the winter at Gargunsa, which is one or two days further down the river northward.

Fuel being scarce and Bhotias dilatory, I was unable to boil the thermometer here; but the elevations of the bottom of Chujia-Tol may be estimated, I think, at 15,250 feet, 750 below our last camp at Bháwiti, and 1000 feet of descent from Láma-Choktán. Our camp here was on low hills not more than 150 feet above the bottom, being only a mile or so from their termination, where the Tol enters the main valley.

Thermometer at 9 P. M. 25°.

3rd October.—Thermometer at 3 A. M. 24°. We started early at 4 A. M. with moonlight just sufficient for our purpose; descended the hilly bank, crossed Chujia-Tol, in which I could see nothing, but the flat bottom of the valley appeared to be a furlong or two in width, and the stream of water very small; we then ascended again a very considerable hill, part of which was very steep and stony, and the rarefaction of air so sensible as to give some trouble to myself and my pony. We reached the summit a little before sunrise; the elevation of it must be about 1,750 feet above Chujia-Tol, i. e. 17,000 feet, yet there was very little snow on the top, only a few patches lying in hollow and sheltered parts of the north side. The most remarkable part of the prospect from this eminence was the Indian Himálaya, the view of which extended from Momonangli on the extreme east, as far westwards perhaps as Laptel, including all the outer part at least of the snowy range of Byáns, Dárma and Jwár, and from our elevated station we seemed almost to be looking down upon the top of the snowy range, which had now lost much of its apparent height, but with an increase of visible breadth in the same proportions, so that the range assumed something of the appearance of a wide field or sea of snow tossed into a thousand heaps in the most gigantic confusion. It was only at the base of the Byáns mountains close opposite that I could distinguish any thing like a regular arrangement

of ridges and ravines which tended northward into the head valley of the Karnáli, and among which lie the ultimate sources of that river; and to the eastward I could see the Byáns Himálaya receding some way south-eastward, and close opposite to it a parallel snowy range of equal height terminating in the great peak of Momonangli, which seemed to be the loftiest of any in sight. The bed of the Karnáli that lies in the deep valley between these two ranges was concealed by deep shadows and obtruding shoulders of mountain. On the extreme west I noticed some distant and very lofty looking peaks and ridges of snow, but I attempted in vain to identify these and others in eastern Byáns with any of the known points of the snowy range as seen from the southward, nor could my companions help me. The northern face of the Himálaya thus seen from a commanding station, though still much broken into ravines, peaks and ridges, exhibits a much more gradual and flatter general declivity, with smoother and rounder slopes than the vast rocky walls of the southern face, and a much greater expanse of snow, which extends down to the limit of congelation in a regular line, scarcely broken here and there by a few more rocky prominences. The snow line was now, I suppose, between fifteen and sixteen thousand feet, much about the same as on the south side; a zone of one thousand feet or so must be allowed for the variation of the line according to the nature of the subordinate slopes, their individual exposures, and degree of proximity to the open country northward, in which direction the snow line appeared to me to be somewhat higher, as I before noticed at Bháwiti. The termination of the Himálaya in the table-land is generally abrupt, and well defined, and the transition to a new climate seems to be similarly well marked and sudden. The great bulk and height of the mountainous range appears to arrest the progress of the Indian rainy season, and to the northward consequently, there is so little free moisture in the upper air, that snow does not fall in sufficient quantities to withstand the heat of the sun for many days together, at very considerable elevations: hence the line of snow on the mountains that rise from the northern table-land is on an average perhaps two or three thousand feet higher than on the Indian Himálaya, though the atmospheric temperature on the former may possibly be colder at equal heights. The lower plains of the table-land which enjoy a good deal of bright sunshine are thus exempt from

lying snow except in the occasional severity of winter; otherwise the country would be quite uninhabitable. A heavy fall of snow which occurred at Gartokh this summer in September (the same three days I believe of universal rain on the south side of the Himálaya, or of snow on the higher elevations), was considered a most unusual circumstance.

I expected some view of the lakes from this lofty ridge, but they were still hidden by intervening hills, some of which also rose high enough to shut out Kailás, and there was no good prospect of the country northwards.

From this pass we descended again as much as we had come up from Chujia-Tol, but more gradually, into a level valley with flat bottom, varying from one to three furlongs in width, winding between steep rounded hills for many miles together, along which we continued till 10½ A. M. when a small stream of water made its appearance, and we halted for breakfast, &c. The name of this valley is Amlang; a little further on it turns northward, and drains into the Gyánima water, which I noticed from Láma-Choktán. We were fortunate in finding no *Dúng* here, for the place is well adapted for pasturage, and occasionally frequented by shepherds. I thought it a very pleasant spot—for Húndés. The bottom was well covered with green herbage, and the surrounding hills sheltered the valley from wind without excluding sunshine. Here we saw some of the wild animals peculiar to Tibet; the *Kyáng* (*Equus hemionus*?) which I shall call the wild mule, for in appearance it is half way between horse and ass. The hares, *Rekong*, differed much from any that I had seen elsewhere; the upper part of the body, head, ears, &c. being of an iron-grey color; belly, breast, and inside of legs and ears white; rump (and perhaps origin of tail) slaty blue, and a long furry white tail. Ramsay (of Gurhwal) has seen hares between the Nítí pass and Dungpu answering to this description, save the long white tails, which he does not acknowledge. I don't think I could have been mistaken in these observations, for I had many good views of these animals, who sat upright with reverted ears waiting my approach within a few yards; yet in June last I saw many hares in the vicinity of Dungpu, which were probably the same sort as described by Moorcroft, (July 13th,) near Dam, somewhat different from the English or Indian hare, but without the remarkable peculiarities "a posteriori" noticed in these of Amlang. There appears to be some contrariety

in the matter of the tails here, for the field rats have none that I could see; the ground was intersected in all directions with the burrows of these animals, and I saw numbers of them, looking like diminutive Guinea pigs, but of the ordinary mouse colour.

Thermometer at noon 45° ; boiled at 186° ; elevation of Amlang 15,250 feet (about the same as Chujia-Tol). In the sun at noon the thermometer rose to 68° .

Our course from Chujia-Tol to this had been somewhere about east north-east. We now turned eastward, leaving Amlang over the low hills on the right side of the valley. A mile or two of undulating ground brought us into another valley similar to Amlang, through the opening of which, north-westward, was seen an isolated cluster of remarkably bare red-colored hills, *Chulda*, not far east of Gyánima, and the road thence to Gángri passes under them. In the opposite direction the valley was closed by hills over which the top of Momonangli came in sight again. A mile further on we entered a third valley or a second branch of the last, like the others, but open at both ends and I observed a slight rise across the flat bottom dividing the drainage into Gyánima water north-westward, from that into Rákas Tál eastward. We here came upon the western high road leading from Pruang to Gartokh, a well beaten track of men and cattle 30 feet wide. The eastern road goes between the Lakes, viâ Barka, Gángri, &c. A mile down, the valley divided into two branches going eastward and south-eastward, the road following the former, and we were proceeding that way when on turning the corner of a hill that separated the two valleys, we found ourselves entering suddenly into a large Tol full of sheep and cattle with encampments of shepherds. The Bhótias recoiled in alarm, and we turned back into the other branch of the valley to the south-east, but finding this to end in nothing, except hills, a mile up, we endeavoured to regain the proper road by crossing the hill side if possible ahead of the *Dúng*. On gaining the ridge, however, we saw the Tol still occupied by the shepherds, as far as could be traced, so we continued skirting along the top, till we were brought up by the sudden termination of the ridge, in a passage that communicated with another valley, also full of flocks and shepherds, close under our right. We were in rather a critical position here, between two fires, and the Bhótias vented their disgust in loud complaints against me for bringing

them into it, so I resolved to push through it at once, rather than waste time in indecision or retrograde movements. We descended accordingly, into the hollow connecting the two valleys, whence we perceived the southern Tol to be more extensive than the other, with a number of black tents, some of them of good size. There was a fine expanse of verdant pasturage in a flat bottom enclosed by steep hills, and a deep rivulet came out of the southern valley through the narrow passage into the northern, thence turning east, towards Rákas Tál. We crossed this and immediately ascended the hills, which began again on the other side, without hindrance from the enemy, who kept their camp at tolerably safe distance. Continuing along this ridge of hill till sunset, we had the northern Tol with the *Dúng* in it, still close under our left. The Bhótias were so paralyzed with fear that I had to take the lead myself, though ignorant of the ground, and show the way to what I thought a safe corner for our encampment during the night, but the want of water obliged us to keep close to the Tol. Thus dodging about the hills we were 3 hours in reaching a point not more than 2 miles up the eastern valley, at the entrance of which we were diverted from our proper course. The shepherds here when visited by some of my Bhótias, proved to be as harmless neighbours as those of Chujia-Tol, being quite uninquisitive about us, though our parade along the top of the hill over their heads might well have attracted their notice and suspicions. It would have been as safe probably and much easier, to have walked straight through the *Dúng* by the proper road, as my imitation of the Bhótia costume, &c. was good enough to pass muster at a little distance, and it is not the vocation of shepherds to stop and question travellers on the high road. The timidity of the Bhótias to-day was little short of rank cowardice, and rather disgusted me, as promising to increase difficulties. Bhauna evinced much better sense and spirit.

Near this I saw some deer, "*Ridákh*," i. e. "*Banbáshi*," "Jungle squatters." They were in herd, of a dozen or so, small-sized (as big as Kákar perhaps) of very pale fawn color, approaching to white, and, as well as I could make out, with stag-antlers.

Thermometer at 9 A. M. 30°. I had no opportunity of boiling here, but the elevation must be much the same as that of Amlang, 15,250 feet. The Byánsis could not give me any name for this place, but

from the Jwáris I afterwards learned that it is called Jungbwa-Tol.

In the middle of the night one of the ponies amused himself by walking over the ropes of my tent, which brought the whole concern down upon me: but as it was not very onerous, consisting of two blankets, and I still found breathing room, I thought it better to lie still and let matters rest as they were till morning, rather than turn out into the miserable cold of the night air, till I could rouse my companions and so get the hut set up again.

4th October.—Thermometer at 6 A. M. 20°. Up to this time I had been somewhat in the dark as to the true position of the Lakes, and my best route for a good inspection of them, depending on the map, which was uncertain, and the clumsy accounts of Bhótia and other informants equally vague and doubtful; nor had I much confidence in the guidance of Rechu: but I now began to understand the anxiety he had shown at the Dakhna to take me by Mankshang instead of Láuk-pya-Dhúra, for the great easting we had now made from Laukpya, without attaining Rákas Tál, proved the Map to be wrong in bringing that Lake too far westward, and Rechu to have been right in asserting that the direct route to the nearest point of the Tál was by Mankshang, and his object was evidently to cut the expedition as short as possible. I had determined to begin with Rákas Tál,* because it was less known than Mánasarowar, though geographically more interesting, as being suspected of communication with the Sutlej; being no resort either for pilgrimage or for Bhótia traffic, the western Lake has been less observed by Hindustáni visitors, and from its intricate outline less easily comprehended and described by them; nor did Moorcroft's imperfect view and accounts of it add much to our information. Rechu now affirmed that we were close upon the south-western quarter of the Tál, and a debate arose as to which way we should proceed so as to have a good view of both the Lakes and of the chaunels connecting the two together and Rákas Tál with the Sutlej, all of which I insisted on as essential. The Bhótias were rather inclined to make for Mánasarowar along the southern bank of Rákas Tál, but as I had little confidence in their intentions, and there was constant risk of an untimely end to our expedition, should we be detected, by the interveution of

* Ráwanhrad of Moorcroft.

the Lhassan authorities, I resolved first to secure the north-west point of Rákas Tál, said to communicate with the Sutlej, and thence return by Mánasarowar along the isthmus between the two Lakes. My orders were accordingly for the *Nikás* (outlet) of Rákas Tál; all the Bhótias seemed well acquainted with it, and saving the presence of the enemy, Rechu promised to bring us to the spot by evening.

Finding no harm to have come from yesterday's dangers, the Bhótias had serewed up their courage a peg or two this morning, and allowed me to lie in bed till daylight, though we had to begin our march by crossing the Tol. We started at sunrise, course about north of east, descending, crossed the stream, the same that we had passed yesterday afternoon, which runs into Rákas Tál, and ascended rising ground at the foot of lofty hills on the other side. The shepherds of the Tol were asleep in their tents, I suppose, for I saw none of them. We were now again on a frequented road, leading from Gángri to the large Tols near our last encampment and thence on to Pruang, and a *Rah-gir* (traveller) suddenly made his appearance over one of the ridges of high ground; he was horsed and armed, and the Bhotias in great alarm declared that he must be either a *Khampa*, come to rob us, or a Government messenger to arrest us. As we were edging off to the right to avoid the man, he seemed to be doing much the same on his part, apparently in equal apprehension of us, which emboldened the Bhotias to accost him, and he turned out to be a humble shepherd coming from his master's house at Gángri to one of the Tols, where he had flocks at graze; he possibly took us for *Khampa* and was glad to pass us so quietly. We now came in sight of a corner of Rákas Tál, a mile or two south-east, and apparently an inlet advancing further west than the body of the lake towards the low ground of the Tol, and thence receiving the rivulet before noticed. The view of the lake enlarged and improved as we proceeded. At 10 A. M., we reached a point that seemed to lie about the middle of the eastern side, a mile from the shore, and well elevated above it, whence the lake swept before us in a long irregular crescent some seven miles wide, east and west, and twenty long, north and south. The snowy mass of Momonangli, was again conspicuous to the south-east, and from the base of the mountain a lofty range of hills, partially tipped with snow, stretched north-westward, separating the lake from the head valley of the Karnáli, and forming its south-western banks nearly par-

allel to the course of the river. These hills rose abruptly out of the water in bold rocky banks with many deep inlets, promontories, and one or two small islands of the same character. This part of the lake is altogether so irregular in outline that it could hardly be defined without detail-survey and close inspection of every point. The eastern shore was bounded by shelving ground and low hills, the south end being a good deal recessed, eastward, into a deep bay, the middle part advancing, further westward, in a rocky bank of moderate height, and the north end sweeping round to the westward, as far as could be seen, with a margin of green grassy plain from the back of which the Gángri mountains rose in dark steep slopes. The main peak of Kailás, now beautifully developed to its very base, was seen on the extreme left of the range, (so far as visible to us), and over the low hills in the middle of the eastern shore, a streak of bright blue showed a distant glimpse of Mánasarowar. The western shore of the lake was undulating ground or low hills, over which we had been travelling this morning, at the foot of steep and lofty hills here and there streaked with snow. The water of the lake was of the clearest brightest blue, reflecting with double intensity the colour of the sky above, and the northern horn of the water overshadowed by the wall of mountain rising above it, was darkened into a deeper hue, partaking of the fine purple colour that distinguishes the rocks of Gangri. Fresh breezes broke the surface of the water into waves that rolled upon the shore. The surrounding hill sides, though very bare of vegetation, were tinted with many shades of red, brown or yellow, happily varied with the margins of verdant grass in other parts of the shore, and bright sunshine spread a warm glow over the whole landscape, entirely divesting it of the cold barren aspect that might be supposed inseparable from these intemperate regions. The beauty of this novel scene appeared to me to surpass any thing that I had seen on the south side of the Himálaya; it certainly far exceeded my expectations, and I felt already repaid for the trouble of my expedition.

Our course now inclined to the northward, and as we proceeded, the hilly bank on which we had been travelling subsided into level shore sloping down to the water's edge. Our road lay over this for two or three miles, the water half a mile to our right; and as far to our left we passed Chabgía Gumba somewhere, not visible under the steep hill-side; this I believe is the only *Gumba** on the banks of Rákas Tál.

* *Gumba*, Monastery.

We met an orange colored *Dába*, (inferior monk,) coming from it, who passed by without taking particular notice of us. At noon we came to the end of this plain under a low spur of hill that advances to meet a small bay of the lake, and here halted for rest, breakfast, &c.

Thermometer at 2 P. M. 54° ; boiled at 186° ; elevation of the lake 15,250 feet; we were close upon the water. In the sun the thermometer rose to 70° .

The native name of Rákas Tál is *Cho Lagan*, “*Cho*” or “*Tsho*”, signifying lake.

The shore of the lake here shewed marks of variation in the water-level to the extent of a few feet; ground which appeared to have been lately inundated, now half dry and swampy, was covered with a very thick efflorescence of soda (or some such salt), which must arise from the soil, as the water was quite pure and sweet.

I found this a most delightful place: the lake was beautiful; quite a little sea; long rolling waves broke upon the shore close under our feet, and as far out as could be seen the whole face of the water was freshened into the “*ἀνηριθμον γέλασμα*” of old ocean. There might be glorious sailing here, if the Láma of Gángri would keep a boat, which might be made with Pine or Fir imported from Byáns.

At 3 P. M. we continued our journey; course about northward; passed under the small rocky headland, which advanced close to the water edge, and then entered on another low flat, bearing marks of occasional inundation in places; here two promontories of low clear land appeared stretching into the lake for a mile or two, one from the south, and the other from the north, covered with green grass, and I think I saw *Kyáng* on one of them; they enclosed a large bay, the middle of which came close up to our road. High hills were still on our left.

I saw a few wild ducks on the lake here, coarse ill looking birds, about the size of the domestic; color dirty grey and fulvous red; specimens of the same sort are occasionally to be met on the south side of the snow, I believe; I saw one myself, last June, on the *Sángas-kúnd*, a pool in the Gori Glacier above Milam in Jwár; and there were other white-looking birds, still more ill-favored than the ducks. I saw no signs whatever of the grey goose said to frequent these lakes in the rainy season, and according to Moorcroft (August 10th and 12th) “bred on

the banks of Rákas Tál" "in vast numbers;" they had all migrated to India I suppose. Nor could I see any thing of the fish, though I do not doubt the assertions of the Bhótias that there are plenty of them. In the winter when the lakes are frozen over, numbers of the fish, they say, are cast up dead along the banks where the ice is broken, and in this state the Hunias present them to their Gods as *prasád*, but they have not the sense to take the fish alive for their own eating.

The northern horn of the lake was now rapidly narrowing and we continued skirting its western edge till sunset, when we reached the extreme north-western point, where the lake ended in swampy ground interspersed with puddles of water. This is, or ought to be, the *Nikás*. The ground evidently slopes down to Changchung, a verdant hollow with pasturage, *Dúng*, &c., a mile or two to the north-westward, but there is no visible channel from the lake, and the only effluence is by filtration through the porous soil of the intermediate ground, unless it be at times of extreme flood, when the level of the lake may possibly rise high enough to overflow the margin at this corner. The stream so formed flows westward, through an open valley; below Changchung it receives the Sar-chu (gold river), a rivulet from the deep ravine immediately west of Kailás; the united stream then takes the name of Lajandák, which is also an encamping ground on its banks about a day's journey from Gángri: below this the river receives three other feeders from the Gángri mountains, viz. the Kyuktwa; the Dokpa-chu, (i. e. the river of the Dokpa), by the ravine of which a road crosses into Bongbwa-Tol, a valley on the north side of the Gángri hills, inhabited by a tribe of people called *Dokpa*, who are the chief carriers of the salt from the north country; and the Yarmigu; the united river then flows under Tirthapuri. Dulju is a *Gumba* on the left bank, half a day west of Lajandák, as far south-east of Tírhápúri, and a day and a half east of Kyunglung; the most direct road from the last named place to Gángri running through the valley by Dulju and Lajandák. Moorcroft's statement regarding the Tirthapuri river, (12th August,) agrees with this account of mine, though not with his own of the 15th, when he made the Chugárh come from Rákas Tál. Hearsay's map makes the same mistake, and on the 13th idem, he describes two of the four tributary streams from the Gángri mountains large enough to be bridged with Sángas, though he did not notice them on his way

out to Mánasarowar, 1st and 2d August. The effluence of Rákas Tál probably contributes less to the Sutlej than others of its numerous sources in the Gángri mountains, or the Indian Himálaya, for the Bhotias say, that the stream at Lajandák, even after it has received the Sarchu, is very inconsiderable. It is a question that can be decided only by actual measurement perhaps, whether the main source of the Sutlej be not in the Dárma-Yánkti, for the discharge of the Chúgarh sometimes, though not constantly, exceeds that of the joint Tírthapúri and Misar river, as the Bhotias testify, who are in the habit of fording both streams close above their confluence at Pálkia. The former is liable to great floods in the summer, the discharge of the latter being more equable throughout the year.

The mountains which had run along the left flank of our march to-day had here subsided into moderate hills and circled round to the westward, leaving the open valley of Lajandák, perhaps three miles wide, running in that direction as far as could be seen; on the other side the Gángri mountains stretched north-westward, their snowy summits visible for many miles, (up to Misar perhaps, 30 miles distant), and the road to Misar and Gartokh lies along their base, which merges into the Lajandák valley by inferior hills. The Gángri range continued also far to the eastward, rising out of a wide green plain, which extended between the base of the mountains, and the northern shore of both lakes being visible from this as far as the low hills on the north-western corner of Mánasarowar. The Lhássa road lies along this plain. The most remarkable object here was Kailás, now revealed in full proportion to its very base, rising opposite (northward) straight out of the plain only two or three miles distant. The southwest front of Kailás is in a line with the adjacent range, but separated on either side by a deep ravine; the base of the mass thus isolated is two or three miles in length perhaps; the general height of it, I estimate to be 4250 feet above the plain, but from the west end the peak rises some 1500 feet higher, in a cone or dome rather, of paraboloidal shape; the general figure is not unlike that of Nanda Devi, as seen from Almora. The peak and the upper part of the eastern ridge were well covered with snow, which contrasted beautifully with the deep purple color of the mass of mountain below: the stratification of the rock is strongly marked in successive ledges that catch the snow falling from above, forming irregular

bands of alternate white and purple : one of these bands more marked than the rest encircles the base of the peak, and this, according to the Hindu tradition, is the mark of the cable with which the Rákshasa attempted to drag the throne of Siva from its place. Fragments of a dark purple stone strongly resembling in color the rock of Kailás, which I found on the shores of the lake, were a sort of rough jasper. The openings on both sides of Kailás disclose only more mountains in the rear ; the western ravine appears to be two or three miles deep ; the back of the eastern recess is occupied by a fine pyramidal mass rising in steps of rock and snow, with a curious slant caused by the dip of stratification (to the eastward). I conjecture the average height of the Gángri mountains to be about the same as the eastern ridge of Kailás, 4250 feet above the plain, i. e. 19,500 feet of absolute elevation above the sea, of which only the uppermost 1000 feet, or so, was now tolerably well snowed, and the eastern summit of the peak of Kailás, may be 1,500 feet higher, i. e. 21,000 feet ; at sunset I had a proof of its inferiority to Momonangli, the snowy top of which was illuminated a minute or two longer than Kailás. But in picturesque beauty Kailás far surpasses the big Gurla, or any other of the Indian Himálaya that I have seen ; it is full of majesty, a King of mountains.

On a ledge in the base of Kailás, about the middle of the south side, is Gangri, by the Hindustánis called Darchin. I could distinguish nothing in the site pointed out to me : the buildings are few and mean, I believe, and the place of no note except in the way of religious resort, the concourse of pilgrims also attracting a little peddling trade in the summer.

Mooreroft, 3rd August 1812, found here "four houses of unburnt brick or stones, and about 28 tents," to which may be added the Gumba of Gyangtang.

Through the ravines on either side of the mountain is the passage by which the pilgrims make the *parkarma* ; the circuit is performed in two days by those who take it easily, but with more exertion it may be done in one day. There are four *Gumba* on the road, viz. 1st, *Nindi*, in the western ravine, on the right bank of the Sarchu, and immediately opposite the Peak of Kailás ; this is the principal shrine and the head-quarters of the Lho-ba Láma. 2nd, *Didiphu*, which is further up the ravine of the Sarcho : thence the pilgrim road crosses

Dolmala, the ridge of the mountain behind the Peak, on which is a small pond which the Hindustanis call *Gauri-Kúnd*; the ridge is high enough to have snow upon it early in the summer. Thence the road descends to the 3rd Gumba, *Jungdulphu*, in the eastern ravine. The 4th is *Gyanktang*, in Gángri, already mentioned. The Sarchu, which comes from the western ravine as before observed, flows past Changchung into the channel of Lajandák, contributing to the Tirthápúri Sotlej. This was not noticed by Moorcroft, apparently, on his way to Gángri, 3rd August, but it may be the "small river" at which he encamped on his return, 11th idem.

From the south face of Kailás, close above Gángri, rises a considerable stream, which the Bhotias called *Lá-chu* (i. e. the mountain river), falling into Cho Lagan, 3 or 4 miles to the south-east of its northern extremity. Moorcroft describes this stream, 3rd August, as crossed by a Sánga just below Gángri, and originating in a cascade close above; and 11th idem, he calls it the Darchan-gadrah, a mere Hindustani generality. From the ravine east of Kailás comes another considerable stream also debouching into the lake a mile or two east of the Lá-chu; I could get no other name for this than *Barka*, which is on the right bank of it somewhere in the plain between the mountain and lake. This Barka is the third "*Tarjum*," i. e. mail station, on the Lhasa road from Gartokh. There is no village, but a standing camp of a tent or two, for the couriers. On Moorcroft's return from Mánasarowar, 8th August, he encamped "near 7 or 8 tents;" 3000 paces further east he noticed "tents of Tartars and Jwaris;" and somewhere between the two encampments, "a watercourse, dry when he went towards Mánasarowar, but now two feet deep;" one or other of these possibly was Barka.

These two streams, La-Chu and Barka are the only permanent affluents of Cho Lagan from the Gángri mountains. Moorcroft, 10th August, makes many more, with Hindi names, but that enumeration of his must be set aside, being derived apparently from the report of his Hindustani companions, and not agreeing with his own account of the streams actually crossed on his route along the northern shore of the lake: nor indeed do his accounts of streams crossed going and returning by the same route, agree, inter se.

In attempting to find a channel of effluence from Cho Lagan, Rechu

and I, following two of the Bhotias who were equally ignorant of the place, went a good way westward towards Changchung and were floundering about the swampy ground for a long while seeking in vain for the channel that did not exist, till at last we perceived that the rest of our party, with the baggage, &c. had already turned the northern extremity of the lake far behind us, and were now proceeding eastward along the northern shore : we followed, and joined them by dark. The Bhotias affirmed that Barka Tarjum was too close to the bank of the lake to be passed by daylight without risk of detection, particularly if the Garpun should be encamped there with a concourse of people, as we had been informed by the shepherds of Chujia Tol on the 2nd instant. It was resolved therefore to pass Barka by night ; and in order to make it later and safer, we halted for an hour, a mile or so east from the northern point of the lake. We were then so far north of the shore that water was not accessible ; fuel also was very scarce ; so instead of dinner or tea, I had to content myself with biscuits, port-wine (both very bad), and a cheroot. My port-wine in the wooden decanters had got sour enough by this time, and nastier than ever.

At $8\frac{1}{2}$ P. M. we resumed our journey, course somewhere about south-eastward, as well as I could judge from the moon, and the great land marks Kailás and Gurla. The ground became very sandy, and undulated into ridges and hollows which reminded me of the bank of the Ganges. Three or four miles of this brought us to the La-Chu, which we found a very large stream, in the aggregate I suppose 150 feet wide and at deepest 3 feet, running through a sandy bed here a furlong broad, but expanding with much subdivision of the stream towards the lake. The passage proved extremely troublesome and occupied us near half an hour : the sandy bottom was soft under the main streams of running water, and frozen in the shallows, so as to afford footing for an instant, then breaking suddenly under the feet of the cattle and plunging them knee-deep at each step ; it was without exception the worst ford I ever crossed. Two miles further on, in the same direction and over the same sort of ground, we reached the Barka river, which was like the other, but a third smaller in width and depth. The ford was not quite so troublesome as the Lá-Chu but the cattle showed the greatest reluctance to attempt it. We could neither see nor hear any thing at all of the Tarjum, being in all probability a mile or two below it, and

as the lake was also out of sight, perhaps a mile off, Barka must be two or three miles above the shore, instead of close upon it, as the foolish Byánsis had asserted, and the same might be inferred from the relative direction of the Lhassa road and the north-east shore of the lake. Crossing the Barka river we continued, rather more southerly perhaps, over ground still sandy but now remarkably flat and level, with a straight dyke-like ridge some 100 feet high close above our left, and the lake visible again on our right, perhaps $\frac{1}{4}$ mile distant. This continues without any variation whatever that I could see for six or seven miles.

5th October.—At 1½ A. M. being at a safe distance from Barka and all of us pretty well tired, we bivouacked for the rest of the night. With a *Baku* and *Chera* for bedding I found it miserably cold, and suffered great pain from my *Lam* (snow-boots) which were damp from walking over wet ground and seemed to be nearly freezing on my feet. I had kept them on, as I thought for warmth, but got no rest till I divested myself of them. At sunrise, finding ourselves on very bare ground with water distant and fuel scarce, we started again, in quest of a better encamping place further on, and one that would command a full and close view of Mánasarowar. The margin of Rákas Tál was now a mile from our road, circling off to a headland, the north end of the projecting rocky bank, which occupies the middle of the eastern shore, as noticed from the opposite side. The ridge of high ground on our left began to break into irregular hillocks. A mile on, we came to a large stream 100 feet wide and 3 deep, running rapidly from east to west through a well-defined channel: this was the outlet of Mánasarowar. It leaves that lake from the northern quarter of its western shore, and winding through the isthmus of low undulating ground, for four miles perhaps, falls into Rákas Tál in the bight formed by the projecting headland above mentioned. Two or three miles to the eastward, we saw the back of an odd looking eminence, in the face of which was Ju Gumba, a Láma-shrine on the west bank of Mánasarowar, and on the north bank of the *Nikás*. I could see nothing of the Gumba itself. Having forded the river, the deepest we had yet crossed, we ascended a little on to higher ground broken into easy undulations; course still south-easterly. Here we passed sundry pits said to be the remains of extinct gold mines, the working of which was stopped

by some sage auguries of the Lámás, an interference that is often exercised by the priests in this country, where superstition is at a premium and gold at a discount. I saw a few Kyáng hereabouts.

On the top of the high ground, we came in sight of the further part of Mánasarowar, and thence descending a little, reached the middle of its western shore, five or six miles from the point where we had crossed its outlet. At 9 A. M., we encamped under cover of a steep bank, close above the edge of the lake, and halted here for the rest of the day, man and beast being somewhat fatigued with the long march of the preceding day and night.

The Hunia name of Mánasarowar is *Cho Mápán*. In general characteristics this lake is very like Lagan, but so much more compact in form that our position in the middle of the western shore commanded (what we could not get, from any point as yet visited, on the shore of Rákas Tál), a complete view of the entire lake, excepting only the extreme western edge of the water which was concealed by the declivity of the high bank on which we were stationed. The figure of Mápán is, as stated by Moorcroft, an oblong with the corners so much rounded off as to approach an oval; the longer diameter lying east and west. To avoid the possibility of exaggeration I assent to Moorcroft's estimate of its size, viz. 15 miles in length (E. and W.) by 11 in width (N. and S.) though it appeared to me somewhat larger; I think this would give a circumference of some 45 miles, at the water's edge; divided by the eye into four quadrants, each of them seemed, as well as I could judge, a moderate day's journey of 11 or 12 miles, which agree with the accounts of pilgrims who make the *parkarma* usually in 4, 5, or 6 days, according to their stay at the several Gumba and other circumstances. Bhauna tells me that Chakwa, ex-Garpun, made the *parkarma*, (as he himself informed Bhauna) in six days, on foot, as all pilgrims do, by way of *Dharm*. As the Garpun could have been little used to walking, it is not improbable that he was content with a daily march of 7 or 8 miles, 6 of which would make the circuit, as estimated, about 45 miles. Mápán is bounded thus; westward by the hilly ground that separates it from Lagan, of no great height (averaging 250 feet perhaps), but rather steep towards the lake, and apparently leaving little level shore on the margin excepting at small bays here and there. The northern bank begins in a ridge of high ground rising precipitously

from the water's edge, and extending along four or five miles of the west end, the "face of the rock," noticed by Moorcroft in his walk round the north-west corner of the lake, "in many places near 300 feet perpendicular." Thence eastward the shore is a plain three or four miles wide, sloping down from the base of the Gángri mountains, which rise behind in a continuous wall. This ground appears to be a continuation of the plain on the northern shore of Lagan under Kailás, passing without interruption, or with a slight rise perhaps, behind the ridge of hills above mentioned. Moorcroft, 8th August, estimates the valley of Gángri to be 12 miles broad and near 24 long: that length may be right, but the breadth is not clear; if the 12 miles be intended to include the whole basin of the two lakes it is considerably under the mark; and the mere plain between the Gángri mountains and the northern shore of the lakes cannot average any thing like that width. Moorcroft was then encamped (as I conjecture) in the vicinity of Barka, and he possibly estimated the breadth of the plain from its appearance at that point, where it is certainly very much widened by the southing of the eastern shore of Rákas Tál. At the north-east corner of Mápán the level ground is widened by the rounding of the lake; it looked greener than the rest, as though irrigated by streams of water, and is said to be pasturage occupied by *Dúng*, &c. This was noticed by Moorcroft as "a plain at the foot of elevated land. . . to the north-east." On the east side of the lake rise hills and mountains sloping down to the water's edge with more or less margin of level ground at the bottom. The northern half of this range is mere hill of no great height, connected at the north end with the base of the Gángri mountains, and on the south joining a cluster of mountain, that occupies the southern half of the lake's eastern shore: the latter was well topped with snow and seemed as lofty as the lower parts of the Gángri range. The south end of this mountain was connected with the base of the Nipál snowy range by a ridge of inferior hills, behind which rose another mountain very similar to the first, but not so far detached from the Himálaya. These hills preclude any distant prospect to the east of the lake, in which direction nothing more is to be seen than the crest of the Gángri range on the north, and of the Nipál Himálaya to the south; both appear to make a good deal of southing; and the Gángri range, is terminated twenty or thirty miles off either by actual subsidence in height,

or by change of direction to the northward, or by both of those causes perhaps. On the south side of the lake, (which Moorcroft observes to be "bounded by immense mountains,") in its eastern half, rises sloping ground, then hills, and behind all the Indian snowy mountains, a blank dismal chaos, in appearance rather broad than lofty, the further end receding southward, and the nearer advancing towards the lake, till it terminates in Momonangli. This great mountain occupies all the western half of the lake's south bank; its upper and greater part a vast towering mass of pure snow, the base in earthly mounds, almost bare of verdure, sloping right down to the water's edge. The isthmus of low hilly ground that forms the western boundary of the lake joins the foot of Momonangli. The view which I here obtained of Mánasarowar confirmed my belief of the accounts of native informants, which all agree in stating that the lake has no other affluents than a few unimportant streams rising close by in the surrounding mountains, and but one effluent, that communicating with Rákas Tál, which we crossed this morning. The two lakes are placed together in a basin, girt about by an enceinte of hill and mountain, from which the only exit appears to be at the north-western extremity opening into the valley of Lajandák.

The outlet (Nikás) of Mápán leaves the lake from the northern quarter of its west side. I was much puzzled to account for Moorcroft's failure to find the mouth of so large a stream as that we forded this morning, till at last I heard on good authority, that the entrance of the channel is completely closed by a large bar of sand and gravel, continuous with the shore of the lake, and the effluent water runs through this in a copious stream. He thus describes the very point he was in search of, and passed without knowing it: "As the bank approached this angle (i. e. the north-west), it declined to gentle elevations leading to interrupted table-land, and at its base was a large bay, from the bottom of which rose a pyramidal red rock connected with a ridge of high land to the higher flats on the north and steep towards the south: upon this was the house of a Lama and many Gelums, &c. &c." That was Ju-Gumba, with the outlet immediately under the south-west side of it concealed merely by the bank upon the edge of the bay.

It is a pity that Moorcroft did not get the company of some intelligent Hunia (as he might easily have done), who would have explained

all such matters as this, and have removed many other doubts and errors in the course of his explorations.

The permanent affluents of Mápán are three or four. First, a stream rising in two branches from the Gángri mountains, and falling into the lake at the eastern quarter of its north side; the second also from the Gángri range, a few miles further east, entering the lake at the north-east corner: at the very same point is the mouth of the third stream, which rises in Hortol, behind the mountain which I noticed at the east end of the lake, and flows round its northern base. The presence of these three streams accounts for the greater verdure which I observed in the ground above the north-east corner of the lake. Sátáling is the name of the pasture ground on the bank of the second river, through which the Lhássa road passes, and thence along the north bank of the third. The fourth affluent is doubtful: a stream possibly comes from the Nipál Himálaya into the south-east corner of the lake, but of this I could get no certain account. In the summer season there are many temporary streams from rain and melted snow, and it was probably one of these that Moorcroft saw, and called the "Krishna river," on the south-west corner of the lake.

There are eight *Gumba* on the banks of Mápán, viz. 1st, Tokar, somewhere about the middle of the south side; this is sometimes called a village, but it is a mere monastery somewhat larger than the others.

2d, Gusur, at the southern quarter of the east end.

3d, Ju, at the northern quarter of the east end, on the north bank of the Nikás.

4th, Jakyab, at the western quarter of the north side, where the high bank terminates; this probably is the "house inhabited by Gelums," with "terraces of stone with the usual inscriptions," near which Moorcroft encamped 5th to 7th August, 1812, and which figures in the old maps (after Hearsay?) most unduly and exclusively, as *the Lama's house*."

5th, Langbuna (i. e. elephant's trunk), in the middle of the north side.

6th, Bundi; at the north-east corner, between the 1st and 2d affluents.

7th, Sárálung, in the middle of the east end; and 8th, Nunukur, at the south-east corner of the lake.

I could see none of these from our camp, nor did I think it prudent

to visit the nearest. The exterior view of those which Moorcroft saw (Jakyab and Ju), exhibited nothing but huts pitched on steep banks, and their main interest, I imagine, consists in our ignorance of them.

The water of Mápán is quite clear and sweet, and in mass of the same fine blue color as Lagan. In picturesque beauty the eastern lake is hardly equal to the other; its uniform outline being comparatively dull and monotonous, the surrounding hills blank and dreary, and the gigantic grandeur of Gurla less pleasing perhaps than the majestic beauty of Kailás. The Rákshasa have got, in my opinion, the better quarters of the two.

The depth of these lakes is possibly an average of 100 feet or so, and double that in the deepest places.

I saw no signs of animal life on Mápán, the *Mánasaucas* must have taken their departure for their winter quarters in India; Moorcroft saw numbers of them here in August (1812).

Thermometer in the sun at noon rose to 120°, part of which must have been caused by reflection from a *Baku* (of white woollen stuff), against which the instrument was placed, but in the course of this expedition, I had often found the noon-day sun unpleasantly intense.

At 3 P. M. Thermometer in shade 46°, boiled at 186°; elevation of the lake, which was some 175 feet below our camp, 15,250 feet.

Bhauna and Anand bathed in the lake, by way of *Dharm*, and not at all for cleanliness, which, as good Kumáouis, they duly set at nought.

In the afternoon I began to moot the *Parkama* of Mánasarowar; and suggested the feasibility of doing it in 3 or 4 days, myself with Bhauna and one Bhótia, taking only two of the Zhobus, without tents, bedding, or kitchen, leaving all the rest of the party and baggage to wait our return. Bhauna made sundry hollow professions of readiness to accompany me to Lhássa, or Peking, if I wished to go so far, but I observed him in fact putting excuses into the mouths of the Bhótias, who were all quite aghast at the idea of thus wantonly adding to aimless risk and trouble, as they considered my expedition from beginning to end. Rechu declared that they had already "*Margayé*" to a greater degree than on any former occasion of their many visits to Húndés, and that the execution of my plan alone was wanting to make a calamitous end of them altogether.

My estimate of the risk of detection was not a tenth part of what

they made it, and of the consequences, if we were detected, not a hundredth (for they talked of getting hanged!); but with such discontented and dispirited companions, I had little inducement to incur the further hardships which the proposed digression would have entailed upon myself; and the circuit of the lake after all promised no other result than a little nearer approximation to the true figure and size of its outline, and to the exact position of the few unimportant affluent mountain streams, and of the several *Gumba* round the bank. Putting together Moorcroft's observations, my own, and the reports of native informants (the best of which I have embodied in my account), I think the geography of the lakes is fixed in the rough, beyond all reasonable doubt, though my map cannot pretend to topographical accuracy.

In the evening, Rechu, with a well assumed air of distress, reported that both the ponies had strayed from our camp, and one of the Bhótias in search of them for the last hour not yet returned. I have a strong persuasion that this was a contrivance of my worthy companions to put a spoke in the wheel of my *parkarma*; for being rather sulky, I had not yet informed them of my consent to abandon that design: their clumsy artifice would certainly not have stopped me, if I had resolved upon it, as my own plan had been to go without the horses, riding one of the Zhobus when I could not walk.

Thermometer at 9 P. M. 30°.

6th October.—The ponies not yet found, reported Rechu this morning, either to make sure (as he might think) of me and my *Parkarma*, or to preserve the vraisemblance of his own stratagem; and besides the Bhótia already detached two others had walked off, as they pretended to enquire for mutton at Tokar, but in fact more probably straight back to Byáns, for they never showed themselves again to the end of our journey. Rechu also stayed behind to make further search for the horses, according to his own story. We saddled two of the Zhobus, distributing their loads among the other four, and the rest of us then started for Pruang at 8.20 A. M.; course west of south. Descending from the high bank we entered on a small bay of the lake, now half dry, with great quantities of efflorescent salt (carbonate of soda, I think,) about the swampy grounds. There were two unfortunate Hunias here who seemed to avoid us with alarm as though they expected some maltreatment; they took us for *Khampja*, perhaps. Crossing this bay we

ascended on the high bank again, and then fell into the high road between Pruang and Gángri, which is nothing more than a wide and well beaten track over hill and dale. Four or five miles brought us in view of what appeared to be the south-western corner of Mápán, which was rounded off with shallow water; a concentric bar of shingle-sloping beach, and then steep hills, connecting the ground on which we were travelling with the base of Gurla. There was no sign of any affluent stream in this quarter, and the nature of the ground precludes an effluent. Continuing along the ridge, and inclining gradually from the east to the west side of it, we came in sight of Cho-Lagan again, viz. the south-eastern quarter of it which forms a large bay under the foot of Momonangli. By an easy descent we reached the shore, and 1½ P. M. halted at Lagan-Tunkang, which is, or was, a Dharmshála close upon the water at the south-east corner of the lake; it now consists of some roofless and ruinous walls built of shingle stones embedded in mud; the roof is said to have been burnt by the Sikhs under Zoráwar Sing, who passed this way during winter and were hard up for firewood. There is rather a marine looking beach here with concentric ridges and shingle showing variations in the water level to the extent of six feet perhaps, above the present surface: the shingle and sand are mostly granitic, and the former partially rolled; only the southern half of Lagan is visible from the Tunkang, the northern part being hidden by the projecting hilly banks which I noticed from the other side occupying the middle part of the lake's eastern shore. The extreme breadth of the lake at this its widest, may be eleven miles or thereabouts, equal to the middle breadth of Mápán. The south-western bank had the same steep profile and irregular indented outline, as viewed from the other side, and the little islands were visible again. Gerard was misinformed about the island in Rákas Tál with a monastery on it: there is nothing of that sort I believe: as the Hunias have no such things as boats here, the only access to these islands, is by the ice when the lake is frozen over in winter, and they are then sometimes visited by shepherds in quest of fresh pasturage. There is a story, true or not I cannot say, of a shepherd having thus taken up his quarters on one of the islands, and not being alert enough on the approach of spring and thawing of the ice, his communication was interrupted before he could effect his retreat to the shore; he was thus

imprisoned for some nine months, and had to live the best way he could upon his sheep, till released by the formation of ice again next winter ; a miserable and dangerous situation, comparable to that of the Jwári Bhótia, who was snowed up for a whole winter at Topi Dúnga, a dismal pit between the two formidable passes of Kyúngar and Únta-Dhúra.

At 2 P. M. we left Tungkang ; course south-westerly, crossing a mile of flat ground upon the south-east corner of the Tál, with a large ravine running through it from the foot of mount Gurla, full of granitic shingle, but without water. We thence ascended high ground connecting the base of Momonangli with the range of hills that forms the south-western boundary of Lagan. The eminence is many miles in breadth, undulated into a number of ridges and hollows, and attaining an elevation of 100 feet perhaps above the level of the lake, at the highest part crossed by the road ; but further west the hills are higher than that, and partially tipped with snow. We were nearly 4 hours crossing this hilly ground, something impeded by a very strong south wind blowing in our teeth ; towards sunset, we descended into a sloping plain, the head of the Pruang valley.

Gurla rose close upon our left, on our right and rear was the southern face of the hills of Lagan, which here range east and west for a few miles ; in front rose the Byáns Himálaya in dark steep slopes with the snowy summits towering behind, and close below ran the Karnáli, hidden in a deep ravine. Projections of the mountainous enclosure concealed the opening of the valley from Chujia Tol on the north-west and to central Pruang on the south-east. This valley of northern Pruang forms an acute triangle, of which the base and smallest side, is marked by the hills of Lagan on the north ; the two longer sides by the base of Momonangli on the east, and the Karnáli at the foot of the Byáns Himálaya on the west ; the apex of the triangle being southward at the entrance of middle Pruang. All this ground, though flat in the gross, has a sharp slope towards the Karnáli, and drains into the river by a multitude of deep ravines rising from the base of mount Gurla, and one or two from the Lagan hills. In the middle of the valley, a mile or two from its north end, a singular little isolated hill rises from the plain ; apparently the same that I saw from the valley between Lámá Choktán and Chujia Tol on the 2nd instant.

We had to cross a mile of very rugged ground covered with a flood

of granite shingle from the foot of Momonangli; the road said to have been made over this by a certain Láma, being nothing better than a width of a few feet, very indifferently cleared of the larger stones, which have been thrown to the sides of the path; numerous large water courses, which in the summer contribute streams to the Karnáli, were now all dry. We encamped in one of these at 6½ P. M.; night and fatigue obliging us to halt notwithstanding the want of water, I had to dine again off biscuits and cheeroots.

7th October.—Thermometer at sunrise 16°; ground and tents covered with hoar-frost; hitherto I had seen little or no dew in the mornings; the increase of moisture in the air here is brought perhaps by the south wind blowing up the valley of the Karnáli from the Indian side of the Himálaya. This place is probably about the same elevation as the lake, i. e. 15,250 feet.

Rechu and the other Bhotia made their appearance early this morning, bringing the ponies with them. Yesterday, Anand lagging behind the rest of us on the march, saw two horsemen in the distance, probably these very worthies of our own party following at our heels as near as they durst.

We started at 7½ A. M., course south-westerly; 3 miles on crossed a very wide ravine full of granite shingle and large enough for a considerable river, but at present there was a small stream only: on the left bank is a ruined Dharmshála high Baldak, like Lagan Tunkang, and strewed about with bones said to be the remains of the cattle which perished here in the flight of Zoráwar Sing's party from Gángri to Pruang. Three or four miles down, and little above its entrance into the Karnáli, this ravine is joined by another from the northward, (one of those we crossed yesterday evening), and in the angle of ground between them stands Kardam, one of the three *Khar* or Forts of Pruang, and a large village, the highest up the valley; the fort is said to be in a ruinous, or at best neglected condition, without garrison, though nominally kept by a "*Zungpun*" of inferior rank (a *Kharpun* probably). Our route continued with very little variety over ridges of high ground, alternating with stony ravines, for the most part dry. We could now see many miles up the valley to the north-westward, the head of which under Chujia Tol we had crossed on the 2nd instant; but there were no points of particular note about it. Five or six miles

below Baldak, the narrowing of the Pruang valley brought our road within a mile and a half of the Karnáli. On the top of the opposite bank stood a small village, Dunsála, on a ledge of flat ground under the Byáns mountains; the depth of the channel concealed the river and two other villages on its left bank, Dumar and Hárkáng, through the former of which passes the road from Taklakhar to Kardam, &c. Three miles further down we entered a ravine with a small stream falling into the Karnáli not a mile below. The river here seemed to take a turn to the south-eastward after receiving a western branch through a deep ravine from the Byáns Himálaya. We were still close under the base of the huge Momonangli, the snowy top of which was almost hidden by the lower outworks that rise in steep earthy mounds with little precipitous rock, which is very much the character of all the mountains hereabouts on the north side of the Himálaya. Pruang has got a reputation, amongst our Bhotias, for great fertility; and with diligent cultivation it doubtless may produce some scanty crops of barley and peas, but its advantages in this way can only be by comparison with other places still more sterile than itself, for I can assert that the upper part of the valley, at least thus far, is barren in the extreme; indeed it seemed more destitute of vegetation than any of the low ground I had yet passed over, and the “Dámá,” goat-thorn, still the sole shrub, was certainly much scarcer, though perhaps from the consumption of it for fuel by a dense population. At the best however, upper Pruang cannot compare in natural fertility with the most sterile of the inhabited parts of our Cis-Himálayan Alpine valleys, such as the vicinity of Kúnti in western Byáns, or of Milam in upper Jwár.

We now halted at 1 P. M. and encamped for the rest of the day, having approached as near as was safe (or according to the Bhotias, much nearer) to the large village of Toïyon. The road to Lípú-Lekh, the eastern Byáns pass, lay through the very middle of this, and other thickly inhabited ground beyond under Taklakhar, which we thought it adviseable to pass by night.

In the course of this morning's march we had passed some native travellers on pilgrimages from Kajarh, with whom we exchanged salutations, and shepherds grazing their flocks in the hollows along our road. Our present encampment too was close below a *Dúng* in the same ravine; but we were not troubled with particular notice from any of these quarters.

Thermometer at 2 P. M. 56° , boiled at 187° ; elevation 14,750 feet. Kardam-khar is probably about 15,000 feet. Thermometer in the sun rose to 76° . The south wind blowing up the valley of the Karnáli was disagreeably strong, though I am not sure that the temperature of the air was depressed thereby.

Our Bhotias went to the *Dúng* for milk and mutton: the shepherd was very stingy with his milk, but I got just enough to qualify half a lota of tea, which was the most, and perhaps the only, refreshing draught that I had enjoyed since leaving Kúnti: hitherto I had subsisted on Bhauna's decoction, which was made with a liberal mixture of ghec. The Bhotias make their tea with soda (*Bal*), which extracts the color, and, as they fancy, the taste of the trash they get from the Lhássa merchants at Gartokh; the decoction, which is boiled for a long time, with plenty of ghee also, tastes more like broth than tea. In the matter of mutton, the Bhotias insisted on bringing goat, which I rejected. The Tibet goat is the most elegant of his tribe, small and handsome as a deer; but his virtues reside rather in the fleece than in the flesh.

We resumed our journey at 7-40 P. M., course east of south; a bright moon little past the full rising soon after, gave me a fair view of the principal objects in the vicinity of our route.

Leaving the ravine in which we had been encamped, we crossed a mile of high ground, and then entered another ravine wider and deeper than any we had yet crossed in the Pruang valley: a steep descent of some 500 vertical feet, brought us into a flat bottom half a mile broad covered with a profusion of rough granite shingle, of which a very indifferent clearance had been made for the road. The length of the ravines was inconsiderable, the foot of the mountain being hardly a mile from our left, and the Karnáli a furlong below our right. For want of light perhaps, I did not see the houses said to stand on the river bank, but our road passed through fields belonging to the village, and channels for the irrigation of them.

It was on this ground, the ravine of Toïyon, that the Sikh invaders of Gnari under Zoráwar Sing met their well deserved end. After having mastered the whole province, and established himself in Pruang, Zoráwar took it into his head to go to Gángri with the greater part of his men: when there they were surprised by the arrival of the relieving army of Hunias from Lhássa, and attempting to effect a retreat, a

flight rather, to their position in Pruang, they were here overtaken and destroyed, but more by want and cold, for it was the middle of winter, than by the prowess of the Lhássa army, who were probably a viler rabble, though far more numerous, than these bastard Sikhs, the refuse of the Jamu hill districts. The Sings well earned their fate by the indiscriminate robbery and violence which they perpetrated on the unoffending Hunias of Gnari: ruined villages and impoverished people still shew the brand of their devastations throughout the country.

On the south side of the ravine ran a good sized rivulet, crossing which we ascended the left bank, here not more than 100 feet high, but rising to double or treble that elevation by high ground close upon our left, (eastward). On the corner of level ground, some half a mile wide, between this hill and the Karnáli, stands the village of Toiyon, straggling loosely over the next mile of the road: there are houses also on the eastern eminence, besides the hamlet, which we passed on the other side of the rivulet. The greater part of the area I have assigned to the village is occupied by the fields, amongst which the houses are scattered here and there, singly or in small groups: I could see nothing in the shape of a street excepting the rows of Choktán walls and towers, ruinous inelegant structures of stone and mud, that lined the road in considerable numbers: none of the houses were within a hundred yards of our road and most of them further, so that I could see little of their construction, but they seemed to be rather long than lofty, with very few doors or windows, the walls whitewashed, and crowned with dark lines, which from their low shallow appearance could be coverings to the walls concealing a flat roof to the interior body of the house. Bhauna explains that the houses are built in hollow squares, two-storied, with a flat terrace roof above, which is dignified with the name of a third story: the apartments are ranged round an open court in the centre, to which all the windows are directed, a single doorway in the middle of one side, being the only aperture in the outer walls. This construction, however, is by no means universal in Hundes, for at Dúngpú in Gugi, I myself saw numbers of houses quite open to the front, though otherwise as above described, and very like the dwellings of the Byánsi Bhotias. The dark summits of the walls, are the copings formed by layers of *Dámá*, *Hompú*, or other brushwood laid upon the top of the parapets and weighed down by stones.

Turner (Chapter VII. Teshoo Loomboo) was at a loss to understand the object of this crowning to the house walls which he found equally prevalent in the province of Chang; in Gnari it is intended merely as a coping to protect the walls from rain and snow, flag-stones suitable to that purpose being rarely procurable. The annual renewal of these cornices, together with a general repair and ornamenting of houses, forms one of the observances of the "*Lo-sar*" festival, the Tibetan new-year's day, which many possibly have some affinity to the new year's day of China, the principal festival of that nation. The ground-floors of the houses here are appropriated chiefly to cattle and whatever else cannot find room in the dwelling apartments of the family in the upper story.

We heard and saw some signs of life indoors; musical noises and voices, lights and shadows; but ourselves passed unnoticed except by the dogs, who did their best to give the alarm.

The harvest here, which is mostly barley and peas, had been all reaped and carried; the fields were quite bare, but showed marks of careful tillage, being intersected with a multitude of artificial watercourses for irrigation. Pruang is in advance of Byáns with its harvest: this must not be attributed to superior temperature of climate, but rather to the greater amount of sunshine enjoyed by the former, the valley being more open, and the far smaller quantity of rain and snow on the north side of the Himálaya, and something I believe to the palpable neglect of the Bhotias in their agriculture, which they postpone to their trading affairs, leaving the tillage of their fields almost entirely to their women.

The elevation of Toïyon may be estimated at 14,500 feet, viz. 250 feet below our last encampment.

This village is the head-quarters of one of the three *Makhpun* of Pruang, who are the hereditary superiors of as many small circles of villages, responsible for collection of revenue and keeping of the public peace, but entirely subordinate to the Zungpun of Taklakhar.

Beyond the village was an easy descent for a mile, but the road very stony, by which, after crossing a small rivulet, we reached the left bank of the Karnáli.

The river here appeared to be about as rapid as the Káli in the middle of Byáns, and in width such as to be spanned by a Sánga, 50 feet long from pier to pier, and of the construction common on the

south side of the Himálaya, but more carefully built than any I have seen in Kumáon. Probable elevation of the bridge (200 feet below Toïyon) 14,300 feet.

The right bank of the river rises abruptly to the height of two or three hundred feet; above the bridge in cliffs of conglomerated earth and shingle, with Láma caves in them, overhanging the river; and close below in steep slopes and landslips up which we ascended. The top was some 250 feet above the river, and for a mile in length an open level with higher ground rising on our right (westward). Here on the roadside occurred a line of Choktán wall and towers, remarkable chiefly for its extreme length, which was not short of a furlong I suppose, and exceeding any I had yet met with. At the end of this elevated level we crossed a very deep ravine connected with the bed of the Karnáli, beyond that a ridge of high ground, and half a mile further on a second ravine like the first, ascending from which we wound over the shoulder of a steep rounded hill which sloped down to the river on our left (eastward) to the depth of 250 feet below the road, rising as much above it on our right (westward). The hill side was here and there broken into small cliffs and prominences; the top was studded with a moderate assemblage of houses like those of Toïyon. This is Taklakhar, by the Hindustanis called Takla-kot, which is a fair equivalent, as "*Khar*" signifies a fortress: the fort however was not visible to us. Half a mile from the last ravine brought us to the south side of the hill, which is formed by the Tidya-Chu, a very deep and wide ravine with a river coming from the westward out of the mountainous base of the Byáns Himálaya. On the northern corner of its confluence with the Karnáli, is the village of Beli, whence the inhabitants of Taklakhar have to fetch their water, the hill above being destitute of it. The south side of the hill is very steep and ruinous, being little better than a great landslip strewed with fallen masses of the conglomerate (earth and shingle) that forms the more solid parts of the soil. We descended by this and forded the Tidya-Chu, a very considerable stream not far inferior I suppose to the main branch of the Karnáli.

Ascending the right bank, which was steep and some 200 feet in height, we found a pretty extensive level on the top, entirely occupied by fields, like those of Toïyon, quite fallow and scored all over with channels for irrigation. These marks of irrigation point to the fact of

the great dryness of the climate in Pruang, compared with that of the neighbouring Cis-Himálayan Alpine valley, in which the natural rains during the summer supply abundance of water for all cultivation. The crops of Pruang are raised by artificial irrigation during the height of the Indian rainy season. From this ground we had a good, (moon-light) view of Takla-khar, which extended along the top of the opposite bank: the principal development of the place appears to be east and west, the extreme length in which direction may be a quarter of a mile; and to judge from what we saw of the east end, and from the descent of the buildings in parrallel terraces this side, its breadth must be inconsiderable; a mere strip along the top of a narrow ridge. I could see nothing of the Khar or the Gumba, which are the principal edifices; the former is said to be well built, with lofty walls and numerous apartments, capable of holding a thousand men; but the fortress has the fatal defect of being without water, the nearest supply of which is, as above mentioned, in the village of Beli at the bottom of the hill: there was once a walled passage communicating with this, but it is now ruined, and so far obliterated that I saw no vestige of it, as we crossed the east end of the hill. The Pruang Zungpun resides in the Khar, but without any garrison whatever. The Gumba is a large building adjoining to the fort, and stocked, they say, with some 300 of the monkish order. Many of the houses of the place belong to people of the neighbouring villages, and are used chiefly as depôts for their salt and grain, the traffic in which with the Bhótias of Byáns, and the people of Dhúli, Humla, &c constitutes the main resort to Takla-khar. The village, with its Khar and Gumba, may perhaps equal in extent the north-eastern suburb and bazar with the town fort of Almora. I estimate the elevation of the summit of Takla-khar to be 14,750 feet, viz. 500 feet higher than the confluence of the Tidya-chu with the Karnáli.

Námi is a small village on the south bank of the Tidya Pryág, where there are the remains of field-works made by the Sikhs under Zoráwar Sing, who (to command water I suppose) took up his position here in preference to occupying the fort above.

When he went on his fatal pilgrimage to Gángri, his Lieutenant, Basti Sing, with the remaining party, went over to Kirow, the district of the third Makhpun on the other side of the Karnáli, and thence after the

destruction of their commander and comrades, effected their escape by Lipu-Lekh into Byáns and Kumáon.

Our road now turned to the westward ; half a mile up the right bank of the Tidya-chu stood Maghram, a small village, of note only as being the residence of the second Makhpun, whose district, "Tidya," lies on the south side of the Chu. The elevation of Maghram is about 14,500 feet, being 250 above the bottom of the Tidya-chu.

"There was a sound of revelry by night," a noisy concert of singing and instrumental music, very like the oratoris of the Hindus, proceeding from the Haweli of the Makhpun ; perhaps, as Bhauna suggested, on the occasion of his son's marriage, which promised to come off about this time, and Pruang Zungpun might possibly be among the wedding guests. We saw dark shadows of men flitting across the lights through the open door. I longed to approach and look in upon the strange scene, which would have been rendered doubly strange by the sudden apparition of a "Feeling"* visitor, but the diversion was not worth the possible cost to my companions, if not myself. The Bhotias indeed, thought it unsafe to keep the road which passes close to the village, and we struck across the fields to the left under a range of hills, bounding the cultivated flat of Maghram on the southward. Two miles from the Tidya-chu, brought us to another ravine with a small stream coming from the south-westward, and entering the Tidya-chu a little above Maghram. Tashikang, is a hamlet on the west bank of the confluence. Three or four miles up the ravine we came to Pála, a *Dúng*, in which I observed a good collection of cattle and a few shepherds' tents, &c. Here the ravine divided into two branches from the south and from the west ; our road turned up the latter, called Ningri, where a mile further on we halted at 3-40 A. M. 8th October, and being now close to the foot of the pass we bivouacked till morning.

This night I had fortified myself with an extra Chapkan and Paijáma, which with the excitement of the stolen march through the thick of the "Chinese Tartars," had kept me warm and comfortable enough : the first time I may say since leaving Kúnti, that I had felt any thing of the sort at night. The worst inconvenience I experienced this night was the difficulty of opening my watch to time distances, and of writing a

* The Tibetan form of "Feringi."

few pencil notes for my field book, &c., my hands being nearly disabled between cold and gloves.

This place, Ningri, is but a narrow ravine far recessed in the Byáns Himálaya, with little to be seen but bare walls of rock with glimpses of snowy summits behind. There was so little fuel forthcoming that I could not boil my Thermometer here, but the elevation may be estimated at 15,000 feet, 100 feet above Pála, which I reckon to be 500 feet higher than Maghrám, the ascent up the ravines from that place being very moderate.

Bhauna, with Anand, now returned to Pruang to visit his friend Tidya-Makhpun, realize some debts and pick up the news. With the Bhotias I started for Byáns at 8.25 A. M. course westward (by south) up the Ningri ravine. We met several Hunias on the road with laden sheep, &c. and they stared at me with no little astonishment, as I now showed my face without reserve, but none of them presumed to ask questions, which were rather defied by the confident air of the Bhótias who had regained their courage now that the danger (such as it was) was over; among a party of Hunias I met "the man of Lamjung" again, who also recognized me with some surprise; he appeared to be doing a little in the salt and grain line in partnership with some Kham-pa. They asked three rupees for a puppy worth a timashi, for which I had offered a rupee.

Three or four miles of straight and tolerably easy ascent by a fair road (for these parts), brought us to the top of Lípú-Lekh by noon. Seven or eight hundred vertical feet of the summit was pretty well covered with snow, but this was for the most shallow and well frozen, or when otherwise, so beaten down by the traffic of men and cattle, as to make a very good path, over which we travelled without any difficulty. The sun was shining bright, but the passage of snow was not long enough to entail any injury from the glare, though that was of course considerable over the snow. The rarefaction of the air was sensible but no way distressing to any of us except the ponies, who seem to have very little endurance in this matter. Altogether, I found the ascent nothing more than a pleasant morning's walk, and that after an 8 hour's march through the preceding night. A Barometric measurement of this pass made by Manson, 14th October 1828, made the elevation

16,844 feet (Calcutta Gleanings of Science, April 1829), which appears to me rather in excess.

Lípú-Lekh, like most of the other passes, does not command any extensive prospect; I saw nothing but low ugly looking snowy ridges on all sides, a partial glimpse of Gurla, and a spur of bare hills down below in the direction of Takhlakhar.

We met with several cut Pine trees near the top of the pass, in process of transport from Byáns to Pruang. Wood, both for carpentry and fuel is an article of regular traffic this way; for Pruang, the upper part of it at least, is utterly destitute of trees; as far as I could see down to Taklakhar the vegetation was of the scantiest sort, even Dáma bushes being rather scarce.

The descent down the south-west side of Lípú was long but not steep, and I found much the same quantity of snow as on the north-east side. The road fairly made or naturally good, follows the right bank of the Káli, which rises in water courses under the pass. The spot marked on the map "Mandarin's Camp," I suppose to be the delta of level ground at the entrance of a ravine, with a stream coming from the eastward, which opens through the left side of the main valley three or four miles below the top of the pass; this ravine had a wide level bottom near a mile long, terminated rather suddenly by steep snow-topped mountains, said to be impassable: its elevation, according to Webb's map, is 14,506 feet; there is no vegetation here except grass and small herbs. The origin of the absurd name "Mandarin's Camp," may have been in the circumstance of a former Zungpun of Pruang having come here to visit Captain Webb, when that officer was surveying in Byáns (in 1816?) Deba Phúndu, the Pruang Zungpun who was relieved last year (1845) was the son of Captain Webb's visitor, and then a mere boy, accompanied his father on this occasion. He appeared to have derived a favourable impression from the interview, or the present of a fowling piece which terminated it, and when last in Pruang, in the office formerly held by his father, is said to have expressed his desire to renew the intercourse with any English gentleman who might visit Byáns. It is well for himself that he had not an opportunity of doing so, for any proceeding of the sort if known to his superiors would certainly have lost him his "*Zung*" at the very least.

I looked in vain for the great snowy mountain, which rises close above the left bank of the Káli between Lípí-Lekh, and the "Mandarins" ravine, as marked on the map under the name of "Koonlus," nor could the Bhotias tell me any thing about it. I have seen it, however, from the Deo Dhura, between Lohu-ghát and Almora, and its position must have been fixed by observation from some such distant points of view. The snowy summits, though towering to the height of 22,513, and 21,669 feet, are here quite hidden by the nearness of the steep and rocky base.

Below the "Mandarin's Camp," vegetation began to increase, first Dama and Juniper shrubs, then birch trees, and at last gooseberry bushes and the upper limits of Pine forest. At 3-20 p. m. having walked rather quick down the hill far ahead of the cattle, &c., I reached Yirkha, which is a small hamlet with one house and a few fields, on the right bank of the Káli, just above the confluence of a large stream coming through a deep ravine from the westward. The elevation of this place is near 13,000 feet, (I suppose that is), according to Webb's survey, which makes the Kálápání bridge some way lower down 12,742; but the vegetation appeared to me very luxuriant for such an elevation, and the village of Kúnti, which I made 13,000 feet, is more cold and sterile than Yirkha, and it must be 10 miles road distance from the top of the pass, though less in a straight horizontal line. Here I found quarters in the vacant cottage which, though low, dark, and dirty, felt absolutely luxurious after the miserable discomfits of my quasi-tent in Hundes; and the change of climate was no less agreeably marked.

The pass which we had crossed to-day was a wonderful contrast to all the others that I have seen. A march of 7 or 8 hours had brought us, with nothing beyond a wholesome fatigue, from a passable encamping-place close above a pasture ground on the Híndés side, into a pleasant smiling hamlet, green with shrubs and yellow with harvest, in a sheltered Alpine valley, the bottom terraced for cultivation (here and there) along the river bank below.

Lípí-Lekh must be passable for the next month or two, if no fresh snow should fall in the interim, indeed, I can readily believe the passage might be effected safely even in the middle of winter, if not over-

severe, only with proper arrangements and precaution. It was rather from the want of such arrangements than from absolute extremity of climate, that the Sikhs under Bashti Sing suffered so much damage to life and limb in their winter-retreat from Pruang by this pass. The commander, obliging his men to carry him in a Dooly, escaped unhurt, and those who were maimed by the frost accused him, perhaps justly, of imposing on them more than a fair share of exposure.

The cattle came in 2 or 3 hours after me, all foot sore, I suppose from the abominable stony ground of Pruang; the ponies, as usual the least enduring, were dead lame.

In the absence of Kumáonis, who had hitherto cooked my dinner for me, when I had any, I was obliged to divide the kitchen operations between Rechu and myself, and the result was not much worse than the average of the last 10 days from the hands of Bhauna and Anand. I regaled the Bhótias with all that remained, which was nineteen-twentieths, of my wine and spirits in the wooden bottles; Rechu had prudently declined my offers of it in Húndés, because "when the *wine* is in, the wit is out," and they had then great need to keep their wits, (such as they were) well about them.

9th October.—I enjoyed such luxurious rest in the little mansion of Yirkha, that I was not on foot till 10 A. M., after my last breakfast of greased tea and biscuits.

We crossed over to the left bank of the Káli under Yirkha, a mile below which is a good-sized stream coming through a deep ravine from the eastward, with plots of cultivated ground at the confluence, very similar to Yirkha; thence recrossing the river, the road lay over a great landslip which, for some years past, has quite obliterated the former hot spring of Kálápáni: the name however has been transferred to another spring further down on the left bank of the Káli, (to which the road crosses again,) but the water here is neither black nor hot, nor any way remarkable. Below this the valley begins to expand, and gives room for Shangduma, a very pleasant little *maidan* on the left bank of the river, beautifully planted with Pines. It was here that the Commissioner (Lushington) had his interview with Bashti-Ram Sing in September or October, 1841, 3 months before the Sikh discomfiture and flight from Pruang. Close below Shangduma, is the hamlet of Mala-Kawa. The

valley of the eastern Káli then opens into the main valley of the Kúnti-Yánkti, our road falling into the Kúnti road at the hamlet of Tala-Kawa, and thence entering on ground already sufficiently described in my way to Kúnti.

Having tried in vain to reconcile the map with what I saw of the ground between Lípú-Lekh and Gárbia, I have come to the conclusion that the map is wrong in many particulars. The position of Kálápáni, if the same site as that pointed out to me, may be about right, but from that to the "Mandarin" the distance is very far short of the truth, leaving no room for the two confluent streams of Yirkha and the other, which have been omitted accordingly; on the other hand the "Koonlus Peaks" interfere with the necessary corrections, which if the position of the former has been truly fixed by distant triangulation, indicates some radical error in the survey of the valley. The Káli meets the Kúnti river at right angles a long way above Chángrew, and not as the map has it, in an acute angle tending south-eastward towards that village. The confluence of the Tinkar river is equally misdirected; it should come obliquely from the north-eastward running close under the village of Chángrew.

It was more than 5 hours' walk from Yirkha to Gárbia, where I arrived at 3¼ p. m. I here found my servants and all that I had left behind at Kúnti, and I was not sorry to exchange the inhospitalities of Húndés for some of the comforts of civilized life again.

It cost me the rest of the afternoon to clean myself, ablutions having been quite out of the question during the last 10 days; even now my face was only just enough recovered from the blistering of Lánkpya Dhúra to bear a gentle application of warm water. On looking into the glass I was quite astonished at my own visage; my nose was one entire cicatrix, contrasting strangely with my cheeks, which had already changed their skin and were now a color that I had never known since boyhood in England; such roses are to be gathered only in the gardens of Húndés.

(To be continued.)

Notice of the Ikhwán al safá, by Dr. A. SPRENGER. Communicated by H. M. ELLIOT, Esq. Vice-President. (Continued from the June number.)*

12 (25.) A man is a microcosmos *في ان انسان عالم صغير*. The authors explain the subject of this chapter in the following words: "Know, O brother, that the knowledge of one's own self is the key to every science, and this is threefold; first man ought to be acquainted with the component part and economy of his own body, and with all those qualities which are independent of the influences of the soul; secondly, he ought to study the soul and its qualities independent of the body, and thirdly, he ought to understand their joint action." They compare the animal economy with the systems of the heavens. According to their opinion every thing is formed under the influence of the stars, and every thing must therefore bear a resemblance to them. This is the leading idea of the natural sciences of the Arabs. The openings of the body, (the ears, eyes, nostrils, mouth, orifices of the breasts, navel and the *sabylán*) answer to the signs of the zodiac; the five senses correspond with the five planets, reason with the sun, and understanding with the moon. The principal functions of the body are equally likened to the seven planets; they are the power of attraction *القوة الجاذبة*, of retention *القوة الهاسكة*, of assimilation *القوة الهاضمة*, of secretion *القوة الدافعة*, of nutrition *القوة الغازية*, the vegetative power *القوة النامية*, and the plastic *القوة المصورة*. Every element is predominant in one part of the body: in the head, fire: this is attested by the sparkling of the eyes and the rapidity of the motion of the senses; in the chest air is predominant, for it contains the organs of respiration; in the abdomen water, and in the lower extremities, on which the body rests, the earth. This idea has been revived and expanded by Professor Oken in his natural history.

13 (26.) On the growth of partial souls in the human body, *في كيفية نشو الانفس الجزئية*. The authors explain that this life is a

* Since I wrote the first part of this notice I found one of the authors of these memoirs mentioned in the following terms: "Zayd b. Rofá, one of the authors of the *Ikhwán al safá*, was extremely ignorant in tradition, and he was a liar without shame."

period of probation, during which the soul ought to be perfectionated and prepared for a future state : knowledge is the food of the mind.

14 (27.) On the extent of the powers of the human mind to penetrate into the mysteries of the universe ; *في طاقة الإنسان*.

15 (28.) What is life and what is death ; *في ماهية الموت*.

16 (29.) On pleasure and pain both of mind and body and in this life and in the life to come *في ماهية المذات والالام*.

17 (30.) Causes of the difference of languages *في علل اختلاف اللغات*.

III. SECTION.

1 (31.) On the origin of things according to the notions of Pythagoras. It is shown in this chapter that God has created every thing (in opposition to the opinion of those who maintain that the word is eternal), and that the system of the world is contained in the units of the decimal system.

2 (32.) On the origin of the *logos* *عقل* (i. e. intellect considered as a substance and not as a faculty).

3 (33.) The world is a human being magnified *في معني قول الحكماء ان العالم انسان كبير*.

4 (34.) On intellect (as a faculty of the mind), and the object of intellect *في العقل والمعقول*.

5 (35.) On the revolutions and orbits of the stars *في الاكوار والادوار*.

The authors enter at some length on the sidereal period, or Yugas of the Hindus, which became known to the Arabs by a translation of the Siddhanta.

6 (36.) On Love *في ماهية العشق*.

7 (37.) On the resurrection and immortality of the soul *في ماهية البعث والذشور*.

8 (38.) On motion *في اجناس الحركات*.

9 (39.) On cause and effect *في العلل والمعاولات*.

10 (40.) On the nature of simple and compound bodies *في الحدود والرسم*.

IV. Memoirs on law *الرسائل الناموسية*.

1 (41.) On the different religions and philosophical sects *في الراء والذاهب*.

This chapter is very long, but the reader, who would expect to find any facts on the systems of philosophy or heresies then in vogue among

the Arabs would be much disappointed; the authors dwell here as elsewhere on generalities, and repeat their dreamy speculations on astrology and natural philosophy as they do in every chapter.

2 (42.) On the road to God;—admonitions to a virtuous and pious life في ماهية الطريق الى الله عزوجل.

3 (43.) On the faith of the *Brothers of purity*, and on the religion of the *Rabbániary* في بيان اعتقاد اخوان الصفا ومذهب الربانيين.

Qorhazry derives the word تصوف from صفا; this may be etymologically wrong, yet in several Sufi books, (among others in the *Kashf al-Mahjúb*), in Sa'dy, &c. “brothers of purity,” and “Sufis,” are used as synonymous terms. The tenets of this fraternity are chiefly explained in parables. A physician came into a town, in which the plague prevailed; he discovered a remedy by which he cured a man; and by degrees he gained the confidence of the whole town. The physician is likened to a prophet. The duty of sacrificing one's self for the good of others, is illustrated by the story of Zopyrus: the hero, however, is a counsellor of the King of the Hayátilah, and the enemy is Fyroz, King of Persia. The authors conclude that the body is for the soul, what the egg is for the chicken, it must be destroyed before the soul can find life and freedom: we must, therefore, despise pain and death for higher objects. Examples of devotion are quoted from the life of Mohammed and his followers. The authors do not neglect to mention the great example of resignation: they give an outline of the life of our Saviour, which is exceedingly well worked out to illustrate the principle of their fraternity. They complain in several passages, that their contemporaries were devoid of a practical belief in the immortality of the soul; and they show that Abraham, Moses, and other prophets, as well as Plato, Aristotle, and most of the philosophers were actuated by the conviction of another life in their actions.

4 (44.) I give the first part of this chapter in a translation and in the original.

On the social intercourse of the brothers of purity; on the mutual assistance which they rendered each other in the spirit of true charity; on their benevolence, affection and kind-heartedness. The object of this treatise is to inculcate unity, and the duty of aiding each other in worldly and spiritual concerns.

“In the name of the most merciful God;—Know, O dutiful and

mild-hearted brother! (May God assist you and us, with his spirit!) that wherever our brothers may be, they ought to have a private place, where they assemble at fixed times, and from which strangers are excluded. They are to converse on their sciences and discuss their esoteric knowledge. They ought to dwell particularly on the science of the soul, sense, objects of the senses, reason, and the objects of reasoning, and speculation, and on the study of the mysteries of the divine books, and revelations, and of the sense of the divine law. But they ought not to neglect the four mathematical sciences, that is to say, arithmetic, geometry, astronomy and theory of music. They ought, however, particularly to occupy themselves with theology (and metaphysics) which is the great object of life. They ought not to be prejudiced against any science or book, nor ought they to be biased against any sect, for our sect comprises all sects and all sciences, in as much as it consists in speculations on all things, that exist from beginning to end, both those which form the subjects of our senses, and those which we can be comprehended only by our reasoning faculties, and both internal and external, natural and supernatural objects; but we penetrate into the essence of things deriving them from our common cause and origin; they emanate all from our world and soul with all the difference in the composition of their masses, and diversity of genera, species and varieties. We have already mentioned in the second memoir, that we derive our knowledge particularly from four books: first, the writings of sages and philosophers; secondly, revealed books as the Pentateuch, the Gospel, the Psalms, and the Qorán and other books of the prophet, the meaning (but not the expression) of which was revealed to them by angels. Thirdly, books on natural philosophy in which every thing is described, as it is now. The subjects of these books are the order of the spheres of the heavens, of the division of the zodiac, the motion of the stars, the disunion of this volume, the succession of the seasons, the metamorphosis of the elements, the diversity of natural bodies, viz. of animals, plants and minerals and the productions of art; these are phenomena and forms of existence. All these things contain a recondite meaning, but men see only the outside and do not penetrate into the mysteries of the works of the Creator. Fourthly, books on metaphysics (or mystics), which only the pure are to touch, and which were written by the hands of scribes honoured and just, Qorán 80, 15. They con-

tain effusions representing the essence, genera, species and varieties of the souls, and therefore, (I read *فقدتصريفها*) the soul is moved, carried away, guided, and regulated by them, and through them, and out of them.* Souls manifest their actions, and go through various conditions in the progress of time and during the periods of the conjunctions and revolutions of the heavenly bodies; some descend at times into the abyss of incarnation, others rise at times from the darkness of their union with a body; they awake from the period of thoughtlessness and neglect, they rise on the day of judgment and justice, they pass over the bridge, they enter into paradise, or hell, they are detained in the barzakh or remains in the *áráf*, as it is mentioned in the *Qorán* (22, 102.) Behind them is the barzakh to the day of judgment, † and (7, 44), “upon the *áráf* are men, who know every body by his mark,” &c. These are the men, who are “in the houses which God has permitted to be raised, and, that his name be commemorated therein, men celebrating praise in the same morning and evening, men whom neither merchandizing nor selling diverteth from remembering God, and the observance of prayers and the giving of alms,” (*Qoráu* 24, 36, 37.) This is the condition of our distinguished brethren, imitate them, O brothers, and you will find in these our memoirs every information which you require respecting these sciences.

Know, O brother, that the favors of God are innumerable, yet they may be brought under two heads, with several sub-divisions; the one is physical, and the other moral; to the former belongs wealth, and to the latter knowledge. Men fall under these heads into four classes, some possess wealth but no knowledge, others possess both; some possess neither, and some possess the latter and not the former. He who possesses both, ought out of gratitude pray to God that he may send him one of our brothers, who is without either, that he may comfort him; he ought to assist him with money to support his life and to instruct

* It is likely that “books,” has here a mystical meaning; in the dictionary of Sufi terms p. 42, the words *كتاب صديق*, “the manifest book,” are considered as equivalent with “universal soul,” *الذفس الكلية*.

† It would lead us into too long details to explain the mystical meaning of these allusions to Muhammadan mythology and the *Qorán*. Those who take an interest in the subject I must refer to the *Kashf-al-mahjub* or the *Ma'árif al-'awárif* or the *Fotúhát*.

him in order to insure his happiness in the life to come, but the donor ought never to reproach him for what he has received, nor treat him with hauteur, for he knows that He who made the poor made the rich ; he ought to make no distinction between a real son and a spiritual son ; he educates the former, spends money on him and makes him the heir of his fortune after his death. It is related of the prophet that he said to 'Aly : "I and you are the fathers of this nation."* Christ said in the same sense to the apostles : "I have come from my father and your father," and it is said in the Qorán, "the religion of your father Abraham." All these are allusions to spiritual paternity. The prophet says "every relationship ceases except that with the prophet." He also said "O children Háchim, don't act so that on the day of judgment other people bring forward their works and give your relationship to me, for I cannot do any thing for you." In this passage he means the relationship of the blood which ceases with our body, but the relationship of the mind continues ; for the soul remains after the dissolution of the body. And if any one thinks that the son whom he has begotten will keep up his memory after his death, he ought to recollect that if he leaves a spiritual son, he will keep up his memory in the assembly of the learned and of the good, when he may have acquired a name for his knowledge, and he will invoke the mercy of God upon him, whenever he may mention his name. We mention in this manner, our spiritual father much more frequently than the father who has begotten us, and we invoke the mercy of God upon him. If a man should think that his son by blood will be of use to him in his old age, and that he will support him, he ought to recollect that it frequently happens that a spiritual son, when he has come to maturity in wisdom and knowledge, will by his erudition improve the mind of his master and contribute to his salvation without his being aware of it. It is said in the Qorán : "You do not know who is more useful to you, your fathers or your sons."

* The prophet says : the faithful is the brother of the faithful by father and mother. Abraham said : who follows me is of me. God answered to Nuh when he said my son belongs to my family ; "he is not of thy family for he has misbehaved. It is said in the Qorán when the trumpet will be sounded there will be no relationship between them and none will intercede for the other." It is clear that relationship by blood is of no use for the world to come.

If any one of our brothers is rich but un instructed, it is his duty to seek one of his brothers who possesses knowledge and is poor, to take him into his house and assist him with his wealth. His well informed brother is to communicate to him his knowledge in return. Thus they help each other to improve their conditions in this world and in the life to come. But the rich ought never to let the poor feel his dependenee, nor to treat him with hauteur on account of his poverty ; for wealth is a worldly possession, by which the life of this body, during our stay in this world is sustained ; and knowledge is a spiritual possession, and the sustenance of the immortal soul in the world to come ; the soul is better than the body, and the life of the soul better than the life of this body ; for the former is finite, it diminishes and ends, whereas the life of the soul in the world to come is eternal. It is said in the Qorán, “ You suffer on that occasion only the first death.” The well informed brother must not envy the other for his wealth, nor despise him for his ignorance, nor must he boast of his knowledge, nor is he to expect a remuneration for imparting to him his knowledge. Their relation is like that of the hand to the foot : they are equally connected in one body and assist each other. The hands do not expect thanks or payment, if they put the shoes on the feet or extract a thorn from them ; nor do the feet expect a reward, if they convey the hands to the place which is conducive to their growth and rise, and where they escape the danger of being cut off ; for they are members of one body and must preserve and assist each other. In the same way the ear does not reproach the sight, if it hears the call, nor the eye reproaches the ear, for seeing the person from whom the voice comes ; for they are faculties of the same mind, and the welfare of the one, is the welfare of the other. In the same manner the brothers of poverty ought to assist each other in worldly and spiritual needs.

The assistance which the poor, who is possessed of knowledge, and the rich, who is ignorant, ought to afford to each other, may be illustrated by an apologue : Two men made in company a journey through a desert, one had his eyesight, but he was weak and had so many provisions with him that he was unable to carry them. The other was blind, but strong and without provisions. The former took the latter by the hand and lead him, and the blind man carried the burden of the seeing on his shoulder, and they both lived on these provisions. In this manner

they both arrived safely at the end of their journey. In the same manner our brethren ought not to reproach each other for having saved each other. Mutual assistance ought to be afforded between two and two, or more. The ignorant is like the blind, the poor is like the weak, and the rich like the strong, the well informed resemble the seeing, the journey may be compared to the union of the soul with the body, and the desert with the life of this world, and the safe arrival with salvation in the life to come.

Those of our brothers who are poor, but possessed of knowledge and cannot find a rich man who will enter in partnership with them, must be patient and wait for better times; for they may be certain that God will help them and will send them a comrade or a brother who will make easier to them the burthen of poverty, as he has promised it to his saints. For him who trusts in God, he will open an outlet, and he will help him when he does not expect it. It is also said in the Qorán God will facilitate to him who trusts in him his undertakings. He ought also to recollect that he who possesses knowledge is better than he who possesses wealth, as it has already been explained.

He who possess neither knowledge nor wealth ought to thank God for what he has, and thus to render himself worthy of more, as it is promised in the Qorán—"If you are grateful we are sure to better your condition." His mind will be pure, his morals good and he will be free from bad principles: he will love his family and what is good, and he will be patient and contented with what God has allotted to him. And he ought to remember that he who has good morals has a better lot than he who possesses wealth and knowledge; for there are instances that a man has wealth and knowledge, or one of the two, and yet he is defective in the above qualities, for it frequently happens that philosophers who write books on ethics are the most immoral characters, whereas simple-hearted men are generally the most moral. Good morals is one of the greatest gifts of heaven, as it is said in the tradition, good morals, sustenance and death are all the work of God, but He praises his prophet for his morals in the words of the Qorán, "thou hast good morals." It is also said in the Qorán:—"If thou hast bad morals everybody will avoid thee." It is said that a man with good morals will enjoy in paradise the same happiness as a man who fasts and spends the night in prayers. Morality is the characteristic of the

angels and of the blessed in paradise, as it is said in the Qorán : “ They (women) said by God, this (Joseph) is not a man, he is an exalted angel.” Bad morals are the peculiarity of devils and the tenants of hell, who envy each other, as it is said in the Qorán :—“ And the seduced shall say to their seducers, verily ye shall not be bidden welcome ; ye have brought it upon us ; and a wretched abode is hell.” They will be together in hell.

Know, O brother (may God help thee!) that the faculties or qualifications of the mind of our brothers with reference to the matter to which we allude, are four ; first, purity of the substance of the soul : the quickness of perception and impressiveness ; this qualification is necessary for the artisans of our republic as mentioned in the second book. This is the faculty of intellect which distinguishes between the objects observed by the senses ; it comes after the faculty of speaking at an age of about fifteen years ; an allusion is made to it in the Qorán : “ When your children have attained puberty they have no longer free access.” We call man of this class in our memoirs “ pure” and “ kind.” Above this class is the class called “ masters,” who are the rulers, that is to say, the guardians of the brothers. They treat them with mildness and kindness, this is the administrative faculty which is acquired after the intellectual faculty at an age of thirty years. God alludes to it in the words (28, 13.) “ And when Moses had attained his age of full strength and was become a perfect man, we bestowed on him wisdom and knowledge.” We call this class in our memoirs our “ distinguished and good brothers.” The third class is above this. It is the class of reigning kings who are able to defend themselves against opposition by kindness and mildness and by contributing to the welfare of their enemies. This is the religious turn of mind (administrative faculty or the talent of ruling) which develops itself after about the fortieth year of age. To this refer the words of the Qorán ;—“ And when he had attained the age of strength, that is to say, when he was forty years, he (Solomon) said, O Lord, bestow knowledge upon me that I may thank thee for the favour which thou hast conferred upon me and upon my parents, and that I may perform good works which thou shalt approve of.” We have called this class in our memoirs “ distinguished and honored brothers.” The fourth class is above this, and may one of our brothers in whatever class he may be aim at it. Men of this class are completely

resigned, they receive the assistance of God and behold truth, (i. e. the deity). This is the angelic condition of mind which is acquired after fifty years of age, and which prepares man for departing from this life. After this condition of mind follows the exstastic (death), the soul ascends into the heavenly empire, and beholds the resurrection, judgment, and the entering into paradise. To this allude the words of the Qorán (89, 27.) “O thou soul which art at rest, return unto thy Lord, well pleased with thy reward and well pleasing unto God, enter among my servants and enter my paradise.” Again “place me among the heirs of the delightful paradise!” Joseph alludes to it in his words (12, 102.) “O Lord, thou hast given me a part of the kingdom, and hast taught me the interpretation of dark sayings. The Creator of heaven and earth! thou art my protector in this world, and in that which is to come: make me to die a Moslem and join me with the righteous.” Christ alludes to the same in his words to the apostles: “When I have departed from this temple I shall stand in the air on the right side of the throne before my father and your father, and I shall intercede for you. Go to the kings in the different parts of the earth and call them to God, and be not afraid of them, for I am with you, wherever you may go with help and assistance.” Muhammad alludes to the same in his words “you will meet me (on the day of judgment) on the tank.” These traditions are well known among traditionists. Socrates alluded to the same fact on the day on which he had to drink the poison, he said, “I separate from you, but I go to honoured brothers who have preceded me, &c.” Pythagoras says in the same sense towards the end of his *golden verses*. “If you do what I have ordered you will reside in the air.” Molúhar (?) says in the same sense, “The king asked to his Wazyr, who holds this theory? He answered, “those who know the empire of heaven,” &c. We call the attention of all our brothers to this subject, God leads whomsoever he chooses on the right path. Many verses of the Qorán are in this sense, viz. all the verses in which paradise, its tenants and pleasures are described. The conditions for those who aspire to eternal happiness are four:—first, to profess the truth of it; secondly, to meditate on this subject illustrating it by similes and in other ways; thirdly, a firm faith thereon; fourthly, by actions which correspond with this belief. A man who believes in it without meditating believes blindly, and he who reflects on it without firm faith is a sceptic;

and if a man was to believe and not to act up to his faith, he does not do his duty, and if a man denies and disbelieves it, he is in ignorance. "As to those who believe not in the life to come, their hearts deny the plainest evidence and he proudly rejects the truth. There is no doubt but that the fire of hell is prepared for them, and that they shall be sent thither before the rest of the wicked." Know that a man who professes this doctrine, and reflects on it will find in his mind four qualities which he had not before:—first, elevation of the mind above the body; secondly, readiness to seek for purity which is in harmony with the mind; third, hope for happiness after this life; fourth, faith in God: on all these subjects he is strengthened.

Know that the believers in the Qorán and the books of the prophets may be divided into four classes which only they themselves know:—first, some profess their faith by their tongue, but do not believe it with their heart; second, they profess their faith with their tongue, and believe it with their heart, but they do not understand its meaning; third, they profess to believe and distinguish (understand), but do not act up to their faith. The first class of these has but little knowledge and understanding, and therefore though they exert their ingenuity, and reflect on the meaning of the books of the prophets, their intellect is insufficient to comprehend it, for they do not comprehend the literal meaning nor the recondite sense. This is the reason why they disbelieve it in their hearts and doubt on it. Those who profess and believe do reflect and know that a doctrine on which the prophets, the Imáms and the first Khalifs and all righteous Moslems, and every distinguished man agreed, must be true, yet their intellect is not strong enough to enter into it, and to *feel* its truth. Those who fully understand it, but do not act up to it, are guided by God, but they have not aid to enable them to do their duty; they stand alone, and every business cannot be performed by one man, on the contrary in some instances a combination of many individuals is necessary. This is particularly the case with the divine laws and nomos. A man must possess at least forty qualifications and there must be at least forty men united to attain this object.

The rest of this chapter treats on the choice of a friend, and on the choice of a Pyr or Teacher. The author is here even more verbose than usual which renders a translation almost impossible.

بسم الله الرحمن الرحيم

الرسالة الرابعة الاربعون من القسم الرابع من كتاب اخوان الصفا
 فى كيفية عشرة اخوان الصفا وتعاون بعضهم بعضا بصدق المودة
 والشفقة والتحنن والرحمة والغرض منها هو تاليف القلوب
 والتعاقد فى الدين والدنيا بسم الله الرحمن الرحيم اعلم ايها الاخ البار
 الرحيم ايدك الله وايانا بروح منه انه ينبغى لاخواننا ايدهم الله
 حيث كانوا فى البلاد ان يكون لهم مجلس خاص يجتمعون فيه
 فى اوقات معلومة لا يداخلهم فيه غيرهم ويتذكرون فيه علوهم
 ويتجاوزون فيه باسرارهم وينبغي ان يكون اكثر مذاكراتهم فى علم
 النفس والحس والمحسوس والعقل والمعقول والنظر والبحث
 عن اسرار الكتب الالهية والتزييلات النبوتية ومعاني ما يتضمنها
 موضوعات الشريعة وايضاً ينبغى ان يتذكروا العلوم الرياضيات
 الاربعة غنى العدد والهدى سته والتنجيم والتاليف واما اكثر
 عنايتهم قصدهم فينبغى ان يكون البحث عن العلوم الالهية التي
 هى الغرض الاقصى وبالجملة ينبغى لاخواننا ايدهم الله ان لا يعادوا
 علما من العلوم او يهجررو كتابا من الكتب ولا يتعصبوا على مذهب
 من المذاهب لان راينا ومذهبنا يستغرق جمع المذاهب كلها ويجمع
 العلوم جميعها وذلك انه هو النظر فى جميع الموجودات باسرها
 الحسية والعقلية من اولها الى اخرها ظاهرها وباطنها جليها
 وخفيها بعين الحقيقة من حيث هي كلها من مبدأ واحد
 وعلّة واحدة وعالم واحد ونفس واحدة بجميع جواهرها
 المختلفة واجناسها المتبانية وانواعها المفتنة وجزئياتها المغايرة
 وقد ذكرنا فى الرسالة الثانية ان علومنا ماخوذة من اربع كتب
 احدها الكتب المصنفة على السنة الحكماء والفلاسفة من
 الرياضيات والطبيعيات والاخر الكتب المنزلة التي جاءت بها الانبياء
 عليهم السلام من التوراة والانجيل والزبور والفرقان وغيرها من

صحف الانبياء الماخوذة معانيها بالوحي من الملائكة و ما فيها
 من الاسرار الخفية و الثالث الكتب الطبيعية وهي وصور اشكال
 الموجودات بما هي عليه الان من تركيب الافلاك و اقسام البروج
 و حركات الكواكب و مقادير اجرامها و تصاريف الزمان و استحالة
 الاركان و فنون الكائنات من الحيوان و النبات و المعادن و اصناف
 المصنوعات على ايدى البشر و كل هذه صور و كائنات دالات على
 معان لطيفة و اسرار دقيقة يرى الناس ظاهرها و لا يعرفون معاني
 بواطنها من لطيف صنع الباري عزوجل و النوع الرابع الكتب
 الالهية التي لا يمسه الا المطهرون الملائكة التي بايدى سفرة كرام
 برزة وهي جواهر النفوس و اجناسها و انواعها و جزوباتها و تصريفها
 و تحريكها لها تدبيرها و اياها تحكيمها عليها و اظهارا افعالها بها و منها
 حالا بعد حال في ممر الزمان و اوقات القرانات و الادوار و الخطاط بعضها
 تارة الى قعر الاجسام و ارتفاع بعضها تارة من ظلمات و الجحان و ان
 بذعاتها من نوم الغفلة و النسيان و حشرها الى الحساب و الميزان و
 جوارها على الصراط و وصولها الى الجحان او حبسها في دركات الهاوثة
 و النيران او مكثها في البرزخ او وقوفها على الاعراف كما ذكر
 الله تعالى فقال ومن ورايهم برزخ الى يوم يبعثون و في قوله
تبارك و تعالى و على الاعراف رجال يعرفون كلا بسيماهم و هم الرجال
 الذين في بيوت اذن الله ان ترفع و تذكر فيها اسمه يسبح له فيها
 بالغدو و الاصال رجال لا تهيهم تجارة و لا بيع عن ذكر الله و اقام الصلوة
 فهذا حال اخواننا الفضلاء الكوام فاقتدوا بهم ايها الاخوان تكونوا
 مثلهم وقد بيندنا في رسالنا كلما يحتاج اليه اخواننا من اهل هذه
 العلوم فضل و اعلم ايها الاخ بان مواهب الله جل اسمه كثيرة لا يحصى
 عددها الا الله عزوجل و لكن يجمعها جنسان تحت كل جنس انواع كثيرة
 احدهما يسمي قذيه جدانية و الاخر قذيه نفسانية فمن الفتنة الجسدانية
 احدها المال و من التقيح النفسانية احدها العلم و الناس في هاتين

الذمعتين العظمتين على منازل اربع فمفهم من رزق العلم ولم يوزق المال ومنهم من رزق المال ولم يوزق العلم ومنهم من رزقهما جميعا ومنهم من حرمتها فينبغي لاخواننا ممن قد رزق العلم والمال جميعا ان يودي شكر ما انعم الله عز وجل به عليه بان يضم اليه اخا من اخواننا فمن قد حرمتها جميعا وبواسيه من فضل ما اتاه الله من المال ليقيم به حياة جده في دار الدنيا ويزوده ويعلمه من علمه ليحيى به نفسه للبقاء في دار الآخرة فان ذلك من اقرب القرىات الى الله عز وجل وابلغ لطلب مرضاته ولا يندبغى له ان يمن عليه بما ينفق عليه من المال ولا يستحقه ويعلم ان الذي حرم اخاه هو الذي اعطاه وكما انه لا يمن على ابن له جسدي فيما يربيه وينفقه عليه من ماله ويورثه مما جمعه من المال بعد وفاته كذلك لا يجب ان يمن على ابنه النفساني لانه ان كان ذلك انذ الجسداني فهذا ايضا ابنه النفساني كما روى عن النبي صلى الله عليه وسلم انه قال لعلى رضى الله عنه انا وانت ابوا هذه الامة وقال المؤمن اخ المؤمن من ابيه وامه وقال ابراهيم عليه السلام فمن تبعني فانه مني وقال الله عز وجل لنوح عليه السلام حين قال ان النبي من اهلي وقال انه ليس من اهلك انه عمل غير صالح وقال تعالى فادفنح فى الصور فلا انساب بينهم يومئذ ولا يتساءلون فتبين ان النسب الجسداني لا ينفح فى الآخرة ولهذا لمعني قال الشيخ عليه السلام للجوارمير جيت من عند ابي و ابيكم وقال الله عز وجل ملة ابيكم ابراهيم فهذه الابوة نفسانية لا ينقطع نسبها كما قال النبي صلى الله عليه وسلم كل نسب ينقطع يوم الضيمة الانبدي وقال يا بني هاشم لا يا تونى الناس يوم القيامة باعمالهم وتاتوني بانسابكم فاني لا اعني عنكم من الله شيا انما اراد به النسب الجسدانية لانها ينقطع اذا اضمخت الاجسام وبقيت النسبة النفسانية لان جواهر النفوس باقية بعد فراق الاجساد وان كان يظن ان انذ الجسداني يحيى ذكره

بعد موته فهذا ايضاً ان عاش احيا ذكره في مجلس العلماء و مفاضر
اهل الخير اذا نشر علمه يتوجه الله و يرحم عليه كلما ذكره كما تذكر
نحن معلمنا و اوستنا ذينا اكثر مما تذكر ايانا الجسدانيين و نترحم
عليهم اكثر مما نترحم على آباينا و ان كان يظن ان ذلك الابن
الجسداني ربما ينفعه اذا كبر و يعينه على امور الدنيا فهذا ربما باغ
فى الحكمة و العلم و الخير و المرتبة عند الله تعالى ان يشفع بعلمه
لمعلمه فينجو بشفاعته و هو لا يدري كما ذكر الله تعالى بقوله اباؤكم
و ابناؤكم لا تدرون ايهم اقرب لكم نفعاً و اما من رزق من المال ولم يرزق
من العلم من اخواننا فينبغي له ان يطلب اخا ممن قد رزق العلم ولم
يرزق المال و يضمه اليه و يواسيه هذا من ماله و يرفده هذا من علمه
و يتعاوننا جميعا على اصلاح اموالدين و الدنيا جميعا فينبغي للاخ
ذى المال ان لا يمن على الاخ ذى العلم فيما يواسيه به من ماله و لا
يحتقره بفقره لان المال قنية جسدانية بquam بها حيوة الجسد في دار
الدنيا و العلم قنية نفسانية ليقيم بها حيوة النفس في دار الآخرة
و جوهر النفس خير من جوهر الجسد و حيوة النفس خير من حيوة الجسد
لان حيوة الجسد الى مدة مائت ينقطع و يضمحل و حيوة النفس
في دار الآخرة يتقى مدة مويده كما ذكر الله تعالى فقال لا يدوقون
فيها الموت الا الموتة الاولى و ينبغي للاخ ذى العلم و الحكم ان لا يحسد
اخا ذى مال لماله و لا يستحقره لجهله و لا يفتخر عليه بعلمه و لا يطلب
منه عوضاً فيما يعلمه لان مثلها في صحبتها و تعاونها هذا هذا
بماله و هذا هذا بعلمه كمثل اليد و الرجل في اتصالها بالجسد
و خدمتهما و تعاونهما في اصلاح الجملة و ذلك لان اليدين لا يطلبان
من الرجلين اذا اخذت لهما فعلا او اخرجت منها شوكة جزاء و لا
شكورا فكذلك الرجلين لا يطلبان من اليدين اذا بلغتهما الى الموضع
الذي منشاء تا و نشرتا و هربتا به من خوف القطع جزاء و لا عوضاً
لانهما الات جسد واحد و قوام احديهما بالآخري و صلاح كل واحد منهما

صلاح الآخر وهكذا أيضاً السمع لا يسمع على البصر اذا سمعه الذداء
والا البصر يسمع على السمع اذا اراد المندى لانهما قوتان لنفس واحدة
في اتصالهما وصلاح كل واحدة منهما صلاح الآخر في تعارفهما في
خدمته النفس وطاعتها في ادراكها المحسوسات وهكذا ينبغي
ان يكون تعارف اخوان الصفا في طلب صلاح الدين والدنيا وذلك
ان مثل معاونته الاخ ذى المال للاخ ذى العلم بماله ومعاونة الاخ
ذى العلم للاخ ذى المال بعلمه في صلاح الدين والدنيا كمثل رجلين
اصطحبا في الطريق في مفازة احدهما بصير ضعيف البدن معه زاد
ثقل لا يطيق حمله والاخر اعمى قوى البدن ليس معه زاد فاخذ
البصير بيد الاعمى يقوده خلفه واخذ الاعمى ثقل البصير يحمله على
كتفه وتواسيا بذلك الزاد وقطعا الطريق نجيا وجميعا فليس لاحدهما
ان يمشى على صاحبه وفي نجاته له من الهلكة في معارفته لانهما نجيا
جميعا بمعاونة كل واحد منهما صاحبه والمعاونة لا يكون الا بين اثنين
او اكثر والاخ الجاهل كالا عمى والاخ الفقير كضعيف البدن والاخ الغنى
كالقوى والاخ العالم كالبصير والطريق هو صحبة النفس مع الجسد
والمفازة هي الحياة الدنيا والنجاة هي الحياة الآخرة فهذا مثل
اخواننا المتعاونين في طلب صلاح الدين والدنيا واما من قد رزق
العلم ولم يرزق المال ولا يجد من نوا سبه من المال من اخواننا
فينبغي له ان يصبر وينظر الفرج فانه لا بد من ان يويده الله عز وجل
باس او باخ يخفف عنه ما يتحمله من ثقل الفقر كما وعد لا وليايه فقال
غرم من قائل ومن يتق الله يجعل له مخرجا ويرزقه من حيث
لا يحتسب وقال تعالى ومن يتق الله يجعل له من امره يسرا وينبغي
له ان يعلم ان الذي رزق من العلم خير من الذي رزق المال لان العلم
سبب نجاة النفس في الداء الدنيا والاخرة جميعا والمال سبب
لاقامة حياة الجسد في دار الدنيا فقط وفضل ما بين النفس والجسد
وشرف جوهرهما وفضل حياتهما وفضل دارتهما فقد تقدم ذكرها

وينبغي له ان يتفكر في الذي حرم من المال والعلم جميعا ليعرف
النعمة نعمة الله من الله تعالى عليه يشكوه على كل حال ليتوجب
المزيد كما وعد الله تعالى فقال لئن شكرتم لازيدنكم واما من ليس بذي
مال ولا يذني علم من اخواننا فيوالذي له نفس زكية جملة الاخلاق
سليم القلب من الآرا الفاسدة محبت للخير واهلة ضائرة راضيه بما
قسم الله عزوجل له من ذلك فيذبغي له ان يعلم ان الذي اعطي
من حسن الاخلاق وسلامته القلب ومحبة الخيرو الرضاء بما قسم له
خير من الذي أعطى من المال والعلم لاننا نجد في الناس من قد
أعطى العلم والمال واحدهما ولم يرزق بدين هذه الخصال التي ذكرناها
شيا وذلك انا نجدا قواما علماء متعلقين يصفون الكتب في تحسين
الاخلاق و يامرون الناس بها وهم اسوء الناس خلقا ونجدا قواما ليس
لهم علم كثير وهم مهذبا الاخلاق كما وصفنا فقد تبين أن حسن الاخلاق
من مواهب الله تعالى الطعام كما قال في الخبير قد فرغ الله تعالى
من الخلق والخلق والرزق والاجل وقد مدح الله تعالى عزوجل
نبيه محمدا صلى الله عليه وانه وسلم بحسن الخلق حيث قال
وانك لعلي خلق عظيم وقال تعالى ولو كنت قضا غليظ القلب
لانفضوا من حولك وقد قيل ان الانسان بحسن خلقه يدرك في
الجنة درجة الصائم القايم لان حسن الخلق من اخلاق الملائكة ويثمة
اهل الجنة كما ذكر في القران وقلن حاش لله ما هذا بشرا هذا ملك
كريم وسوء الخلق من اخلاق الشياطين واهل النار الذين يكسدون
بعضهم بعضا كما ذكر في القران كلما دخلت امته لعذت اختها
وقال لامر حبابهم انهم صالوا النار قالوا بل انتم لامر حبابكم انتم
قد متموه لنا فبيس القرار وقال فهم في عذاب مشتركون واعلم ايها
الاخ ايذك الله أن قوة نفس اخواننا في هذا الامر الذي نشير اليه
ونحث عليه اربع اولها صفاء جوهر نفوسهم وجودة القبول وسرعة
التصور وهي مرتبة ارباب ذوى الصنابع في حديثنا التي ذكرناها

فى مقاله الثانية وهى القوة العاقله المميزة لمعاني المجسوسات
 الواردة على القوة الناطقة بعد خمس عشرة سنة من مولد الجسد
 والى هذا اشار بقوله واذا بلغ الاطفال منكم الحكم فليستأنذوا وهم
الذين نسميهم في مخاطباتنا ورسائلنا الابرار الرحما بر وفوق هذا المرتبة
مرتبه الروساء ذوى السياسته وهى مراعاة الاخوان وسخاء النفس
واعطاء الفيض بالشفقة والرحمة والتحنن على الاخوان وهى القوة
الحكمية الواردة على القوة العاقله بعد ثلاثين سنة من مولد الجسد
واليه اشار بقوله تعالى ولما بلغ اشده واستوى آتيناها حكما وعاما وهم
الذين نسميهم في رسائلنا اخواننا الفضلاء الاخيار والمرتبة الثالثة فوق
هذه وهى مرتبة الملوك ذوى السلطان والامر والنهي والنصر
والقيام بدفع العناد عند ظهور المخالف المعاند لهذا الامر بالرفق
واللطف والمداراة في اصلاحه وهى القوة الشرعية الواردة
بعد مولد الجسد باربعين سنة واليه اشار بقوله ولما بلغ اشده
وباغ اربعين سنة قال رب ازرعنى ان اشكر نعمتك التي انعمت
على وعلى والدي وان اعمل صالحا ترضيه وهم الذين نسميهم في
رسائلنا اخواننا الفضلاء الكرام والرابعة فوق هذه وهى التي يدعوا
اخواننا كلهم في اى مرتبه كانوا وهى التسليم وقبول التأييد ومشاهدة
الحق وهى القوة الملكية الواردة بعد خمستين سنة من مولد الجسد
الممهدة للمعاد المفارقة للهيولي وعليها ترد قوة للمعراج وبها يصعد
الى ملكوت السماء فمشاهد احوال القيامة من البعث والنشور والحشر
والحساب الميزان ودخول الجنان ومجاورة الرحمن ذي الجلال والاکرام
والى هذه المرتبة اشار بقوله يا ايها النفس المطمئنة ترجعي الى
ربك راضية مرضية فان خلى في عبادي وادخلي جنتي واليه
اشار لقوله اجعلنى من ورثة جنته الذعيم واليه اشار يوسف بقوله
عزوجل رب قد اتيتنى من الملك وامننى من تاويل الاحاديث
فاطر السموات والارض انت وبيي فى الدنيا والاخرة توطينى مسلما

والْحَقْنِي بِالصَّالِحِينَ و اليها اشار المسيح بقوله للحواريين افي اذا فارقت هذا الهيكل فانا واقف في الهواء عن يمين العرش بين يدي الى وبيدكم اشفع لكم فانهبوا الى الملوك في الاطراف وادعوهم الى الله و لانها بولهم فاني معكم حيث ما نهبتم بالنصر و التأييد لكم و اليها اشار النبي محمد صلى الله عليه و سلم انكم تردون على الخوص و احاديث مروية كل هذه مشهورة عند اصحاب الحديث و اليها اشار سقراط يوم سقى السم ان كذت افارقكم اخوانا فضلا فاني ذاهب الى اخوان كرام قد تقدموني و حديث طويل و اليها اشار فيثاغورس في الرسالة الذهبية في اخرها انك ان فعلت ما ارضيتك تبقى في الهوا محلا و اليها اشار ملوهر حين قال ان الملك قد قال لوزيرة و من اهل هذه المقالة قال هم الذين يغرفون ملكوت السماء في حديث طويل و اليها ندعوا اخواننا جميعا والله يهدي من يشاء الى صراط مستقيم و ايات كثيرة في القران في هذه المعني وهي كل آية فيها صفة الجنان و اعلمها و نعمها و اعلم ان المطلوب من المدعويين الى هذا الامر اربعة احوال اولها الاقرار بالاسنة بحقيقته هذا الامر و الثاني التصور لهذا الامر بضروب من الامثال و الوضوح و البيان و الثالث التصديق بالضمير و الاعتقاد و الرابع التحقيق له بالاجتهاد في الاعمال المشاكلة لهذا الامر و اعلم ان المقربا للسان غير متصور له يكون متقلدا و المتصور له غير مصدق به يكون شاكا متحيرا و المصدق به غير متحقق له بالاجتهاد بالعمل المشاكل لهذا الامر يكون مقصرا مفرطا و للكذب باللسان لهذا الامر المنكر له بقلبه يكون جاحدا قال الله

الذين لا يؤمنون بالآخرة فلوبهم مذكرة و هم مستكبرون لا جرم ان لهم النار و انهم مفرطون و اعلم بان المقرب لهذا الامر بلسانه المتصور له بقلبه على حقيقة يجد من نفسه اربع خصال لم يعرفها قبل ذلك احدها قوة النفس و بالنهاوض من الجسد و الثاني النشاط في طلب الخلاص من الهيوالي الذي هو من جهته النفس و الثالث الرجاء و الاصل بالفوز و النجاة عند مفارقه النفس الجسد و الرابع الثقة

بالله واليقين بتمام هذا الامر وكما له واعلم ان كل مقر لهذا القرآن
وبكتب الانبياء واخبارهم عن الغيب فهم في ذلك على اربعة منازل
لم يعرفوها قبل احدها مقر بلسانه غير مصدق بقلبه او مقر بلسانه
ومصدق لقلبه غير عارف بمعانيه وبيانه او مقر ومصدق ومميز
ولكن غير قايم بواجب حقه فالمقر بلسانه غير مصدق بقلبه فهو الذي
قد رزق من الفهم والتمييز قليلا فاذا فكر بعقله وميز ببصيرته ما يدل
عليه الفاظ الكتب النبوية لا يقابله عقله لانه لا يتصور معانها اللفظية
واشاراتها الخفية فيذكره بقلبه ويشك فيها واما الذي قد اقر بلسانه
وصدق بقلبه فهو الذي يتفكر ويعلم ان مثل هذا الامر الجليل الذي
قد اتفقت على تحقيقه الانبياء والايمه المهديون والخلفاء الراشدون
وصالحو المومنين واقربه فضلاء الناس والمميزون والمستبصرون
لا يجوز ان لا يكون له حقيقة ولكن فهمه وتميزه وعقله يقصر عن ادراكه
وتصوره لها بحقايقها واما من عرف بيانه ولكن قصر في القيام
بواجبه فهو الذي وفقه الله وارشده واهتدى بحقايق الاسرار المذكورة
في كتب الانبياء عليهم السلام ولكن لا نجد المعين له على القيام
ببصيرتها وواجب حقيها لانه وحيد وليس كل امر يتم بواحد من
الناس بل اذا احتاج الى الجمع العظيم وخاصة امر الشرايع
والنواميس واقل ما يحتاج الى اربعين خصلة يجمع في
واحد من الاشخاص او اربعين شخصا متولفة القلوب ايدهم الله

في ماهية (45.) On faith and on the morals of the Moslems
الايمان وخصال المومنين.

6 (46.) On the divine law في ماهية الناموس الالهي.

7 (47.) On praying to God في كيفية الدعوة الى الله.

8 (48.) Phenomena of the spiritual world or of supernatural
beings في كيفية افعال الروحانيين.

9 (49.) On the different kinds of Government في كيفية انواع السياسة.

10 (50.) System of the whole world في كيفية نظام العالم بأسره.

11 (51.) On the magic and conjuring في ماهية السحر والعزائم.

12 (52.) Conclusion في اتمام اخوان الصفاء.

*Note on the motion of the Glacier of the Pindur in Kumaon. By Lieut.
R. STRACHEY, Engineers.*

In No. 181 (August 1847) of the Asiatic Society's Journal, I gave an account of the Glacier at the head of the Pindur River, in which it was noticed that I had been unsuccessful in an attempt to measure directly the motion of the glacier. In the past month (May 1848), I again visited this glacier, chiefly with the intention of making an accurate measurement of its motion; and the result of my operations I now propose to detail.

About 200 yards below the small tributary that enters the main glacier from the N. W. an old moraine, grown over with grass and bushes, which vouched for its present stability, offered a convenient station from which the motion of the ice could be observed. The moraine is heaped up against an almost perpendicular wall of rock, sufficiently high to command a view of the greater part of the surface of the glacier along the line on which observations were to be made. This line, which is nearly perpendicular to the general direction of the glacier, was marked by two crosses painted white, one on the rock in contact with the old moraine, the other on a cliff on the opposite side of the valley. A stake was driven into the moraine, at its highest point, close to the rock on the line between the two crosses, and a Theodolite was set up over it. Five other marks were also made on the glacier, at intervals along the same line, by fixing stakes in holes driven in the ice with a jumper. These marks, which were all carefully placed on the exact line between the crosses by means of the Theodolite, were completed at about 9h. 30m. P. M. on the 21st May.

On the following day the Theodolite was again set up on the same place as before, and being properly adjusted, the cross-wires of the telescope were directed to the cross on the cliff on the opposite side of the glacier. A stick was then set up near the first of the five marks that had been made the previous day, and was, by means of signals, moved up or down the glacier, till it appeared to coincide exactly with the cross-wires of the Telescope, and consequently to be exactly on the line between the two crosses painted on the cliffs. The distance between the centre of the stick and that of the fixed mark was then measured, which evidently showed the downward progress of the ice at that point

of the glacier since the marks was made the day before. The same process was repeated at each of the other marks.

On the 25th May the progress of the fixed marks was again measured in exactly the same way. The results of these measurements are as follows :

Time of observation.	Distances of fixed marks from standard line.									
	On the west moraine.		On the medial moraine		At east foot of medial moraine.	Near the middle of the clear ice.	On the eastern moraine.			
	0		0		0	0	0			
h m	ft.	in.	ft.	in.	ft.	in.	ft.	in.		
21 May, 0 30 p.m.	0	5½	1	0¼	1	0	1	0¼	0	6¾
22 May, 1 15 p.m.	0	5½	1	0¼	1	0	1	0¼	0	6¾
25 May, 8 45 a.m.	1	9½	2	9¾	2	11¾	3	1	1	5½

The motion in 24 hours of the several marks will also be found to be—

Date.	Mean motion of Ice in 24 hours, (in inches.)					
	On the west moraine.	On the medial moraine.	At east foot of medial moraine.	Near the middle of the clear ice.	On the east moraine.	Approx. mean Temperature.
21 to 22 May,	5.3	11.9	11.6	11.9	6.5	43°F.
22—25 May,	5.7	7.6	8.4	8.8	3.8	38°F.
General mean,	5.5	9.7	10.0	10.3	5.1	

The progress of the lower extremity of the glacier was likewise approximately measured by observing the apparent angular motion of a pole fixed on the top of the eastern moraine, and of a conspicuous rock lying not far from the middle of the glacier.

The results of these observations are :

Date.	Mean motion of Ice in 24 hours, (in inches.)	
	On the moraine.	Near middle of Glacier.
19th to 20th May,	3.0	..
20th to 23rd May,	6.2	8.1
23rd to 25th May,	5.3	10.8
General mean,	4.8	9.4

The comparison of the motion of the lower and upper parts of the Glacier is :

	Mean motion of Ice in 24 hours, (in inches.)	
	On the lateral moraines.	On the middle of the Glacier.
Lower part of Glacier.	4.8	9.4
Upper ditto.	5.3	10.0

At the time of my visit to the glacier hardly any of the last winter's snow remained on its surface. The weather, which was tolerably fine up to the 22nd May, after that day became very bad. Besides a good deal of rain, about 3 inches of snow fell on the 23rd, and as much on the 24th, and on the morning of the 25th, the clearer parts of the upper end of the glacier were still covered with snow, though it had melted on the moraines and open ground near the glacier. This bad weather appears to have had considerable effect in retarding the motion of the ice.

I may as well here mention that the motion of the Mer de Glace, as measured by Prof. Forbes, varied from 27 to 9 inches in 24 hours, in different parts of the glacier, and at different times between the months of June and September. The motion of the middle part of the glacier of the Aar is also stated by M. Martins to be about 71 mètres per annum, which amounts to about $7\frac{1}{2}$ inches in 24 hours.

The elevation of the foot of the glacier, where the Pindur leaves it, determined by the comparison of corresponding Barometrical observations, made there and at Almora (5586 ft.), is 11,929 feet above the sea. The elevation of the station where the Theodolite was fixed to measure the motion of the glacier, was similarly found to be 12,946 feet; and the elevation of the surface of the glacier near its lower end, at a distance of about 6000 feet from the Theodolite station, being about 12,140 feet; the slope of the surface of the glacier is about $7\frac{1}{2}$ degrees.

Notice on the Coleoptera of Hong Kong, by Capt. CHAMPION, 95th Regt. (Communicated by Dr. J. McLELLAND.)

It may not be generally known by Indian Naturalists, that a very complete collection of the insects of Hong Kong, especially its Coleoptera, has been made by John Bowring, Esq. a Member of the Entomological Society of London, who has been for some years a resident of the Island, and is an excellent practical Entomologist and Naturalist. As Mr. Bowring returned to England by the April Mail, it is to be hoped that he will not neglect the opportunity of publishing such of his collection as remain at present undescribed.

The insects made up for sale by the Chinese, and usually arriving in England in a very mutilated and unscientific state of preservation for the cabinet of the Entomologist, were described as far back as the time of Fabricius, and of Donovan in 1798; with this exception, there have been very scanty notices of other Chinese insects (consult Dejean's Catalogues of Coleoptera) until Mr. Hope, in March 1842, published half a century of the Coleoptera of Canton and Chusan, collected by Dr. Cantor, at a period when he was too much of an invalid to collect largely. An almost unexplored field thus lay open to Mr. Bowring on his arrival in China, and although his means of research have been almost entirely limited to the little Island of Hong Kong and neighbourhood of Macao, the result of his labours has been very successful. Part of his new Coleoptera and Homoptera have been published in the *Annals of Natural History*, Vol. IV. December, 1844, by Adam White, Esq. There is reason to believe that insular and mountainous Hong Kong is more productive in its Entomology than the opposite coast although the general features of the mountains there resemble those of Hong Kong, and produce a similar Fauna. Macao seems to differ more than would be expected from its distance from the Island. Already is Mr. Bowring in possession of upwards of six hundred Coleoptera from these two localities.

Mr. Bowring and myself paid much attention this winter to the collection of the Carabideous Genera, the rarer species of which, as in other countries, appear to frequent marshy localities or the summits of mountains. Several fine species were there captured in tolerable abundance, and possibly belonging to new genera. Amongst those whose genera

were recognised are a fine *Galerita*, several *Chlænii*, three species of *Hclluo*, a *Panagæus*, several large *Pherosphi* (*Brachinidæ*), a *Clivina*, *Dyschirius*, *Casnonia*, and *Agra* or *Leptotracheilus*. The beetles belonging to *Badister*, the *Amaræ* and *Harpalidæ*, are of small size. The largest *Carabideous* form has much the appearance of *Omaseus*—it is thirteen lines long. Including the *Tiger Beetles* and their allies, with *Carabideous Beetles*, Hong Kong cannot produce much under three score of species; a very large number for a small island, the geographical position of which is tropical. The *Carabideous* genera are the most abundant of all the insect tribes during winter in Hong Kong, some forms commencing to appear with autumn. In April they are very abundant, and I still find a few in May. They now however give place to the *Cicindelidæ*, none of which are found here during winter. Of *Cicindela* Mr. Bowring mentions ten species; *Colliuris longicollis*, is found at this season on the flowers of *Bauhinia Vahlî (?)* W. and A. *Tricondyla pulchripes* (White) on *Litchee Trees*, differing in habit from its congeners, by being found on trees, not at their roots. It is apterous, like other species. A small species of *Lebia* and of *Brachinus* is found on flowers. *Scarites* has not hitherto been found in the Island, and *Calosoma* and *Carabus* proper are probably confined to Northern China.

Water beetles are abundant in pools of water during the spring months, and comprise genera from the giant *Trochalus* to the more minute but still interesting forms. At the same season *Coprophagous* Insects are abundant. *Onthophagi*, armed cap à pie, yielding in interest to few of the Indian species, and so numerous that I believe fifty species in an estimate were no exaggeration. *Copris*, *Onitis*, *Hister* and *Aphodius*, as might be expected, and parhabs the largest known species of *Sisyphus* on record—the *S. Bowringii* (White), remarkable for the extraordinary spinal projections from its *coxæ*. Similar spines occur in *S. senegalensis*.

The *Brachelytreous* genera are far from abundant, and the forms small; one of the largest is a small *Emus*, 6 lines long.

Of other families of insects the mass are found at the commencement of summer and during the summer rains, between April and August. *Disselicus Cantori* is found in Hong Kong as well as in Chusan. There are many interesting species belonging to the *Melolonthideous* or *Cetoneidous* genera, and those soft-bodied insects, amongst which *Lampyris*, *Cebrio*, *Malachius*, &c. are classed. An *Atractocerus* is of very rare

occurrence. Elateridæ and Buprestidæ not very abundant. *Dorcus* on the mountain range above Victoria in June. I am not acquainted with any Chinese species of *Passalus*, a genus abounding over India and the Archipelago. The Mylabridæ few in species, but these abounding in numbers. The Heteromerous genera tolerably numerous, but principally found under stones on hills; not on the sea-shore as in the Mediterranean. *Cossyphus* has not been found. The Helopidæ which devour Agarics under bark are scarce, for trees are restricted to a few ravines in Hong Kong. Notwithstanding this there are numerous forms of the Longicorni and Curculionidæ. They are found on bushes if trees are wanting. Mr. Bowring had a true species of *Tetraglenes* (a Manilla genus) with the four eyes quite distinct. To one of the families which bring up the rear of the Coleoptera, belongs *Sagra purpurea*, found on *Euphorbia antiquorum* (*S. lugubris* in Ceylon, is found on the Castor Oil plant)—*Donacia* having been found in Ceylon* may possibly occur in other parts of India and China, but has not been found here. There are many interesting species of *Galeruca*, *Crioceridæ*, *Clythridæ*, the pretty *Platycoryne bifasciatus*, Tortoise Beetles, and some of our early favorites the *Vaches a Dieu*, one of which is a very large sized species.

A few days before Mr. Bowring's departure 9 specimens of three new species of *Paussus* were added to the Entomology of the Island. They were all found under stones, and two of the species in the nest of a small yellow ant. I believe this will prove the first notice of Alpine Paussi. I think Indian species have usually been recorded as being found in low ground, but all these had reached the highest elevation to be found in this Island: upwards of seventeen hundred feet. The three species all crepitate, and at least one of them has a discharge staining like that of a *Brachinus*. I am not certain that both sexes crepitate.

I must leave Mr. Bowring to tell his own tale of Coccoideous parasites found on the Dragon-fly and on the common *Fulgora Candelaria*, an inhabitant, but not illuminator, of the Pumplemos Trees.

* When at Point de Galle I observed that the leaves of a species of *Limnanthemum* (*L. Wightianum*) which grows in tanks, were devoured by a Carabideous larva, and a few months after found a species of *Donacia* on it. I cannot find any notice of *Donacia* as an Indian or Javanese genus.

The few remarks I have made on Hong Kong Coleoptera may possibly attract the attention of Indian Entomologists to the descriptions which I trust Mr. Bowring may find leisure and inclination to make when in London, where he will have access to the numerous Indian genera lately published. I have done far too little whilst abroad in Entomology to be more than a mere field collector, which must be my apology for the unscientific mode in which my notes are put together.

Out of the six hundred Sp. Mr. Bowring has collected of Chinese Coleoptera, at least five hundred require careful search amongst flowers, or under stones or other localities. Hong Kong is chiefly Indian in its forms, but the capture of so many Carabideous genera leads to the supposition that Northern China, where a true *Carabus* is found, must contain some interesting Beetles approaching to the European forms. The Chinese are a nation who, satisfied with the knowledge they acquired centuries back, remain stationary and have no turn for the advance which science has made in every branch in Europe. They are not likely to do much for the science.

Central China is nearly on the same isothermal line with the Mediterranean; although more southerly in latitude. Its climate and productions are however very different. Cold dry weather and northerly winds during winter, cold fogs during spring, extreme moisture accompanying the setting in of the South West Monsoon during May and June, after which there is excessive heat until autumn, when the weather becomes rainy and very changeable. In Southern Europe, rain in winter; dry heat from spring to autumn. In vain do we look on the sea shore of China for the *Scaritidæ* and *Pimeliæ* so abundant in the Mediterranean. The cold season is in no country very productive of Insects; that of Hong Kong produces numerous species of the only ones likely to be found during that season of the year—the Carabideous forms, whilst the China Pine, Dog Violets, Azaleas and Honeysuckles are in blossom. From all I know of Hong Kong Entomology I should say that the scanty notices hitherto published respecting China Proper give a very inadequate idea of its Entomological resources, and that when the time arrives that its interior can be explored, many novelties will reward the labours of the Naturalist.

Journal of the passage from the Dharee falls to the Hirnphal, by Captain FENWICK, (late of the Nizam's Service) in charge of 10 boats laden with coal, by order of R. N. C. HAMILTON, Esq. Resident, Indore. [Communicated by order of the LIEUT. GOVERNOR, N. W. P.]

SIR,—On receiving your instructions at Timmournee to examine the Nerbudda from Hindia to the falls of Dharee, I proceeded to the former place, where I arrived on the 29th of January, and have now the honor to lay before you the result of my expedition.

2nd. About Hindia the river does not appear to be applied to any useful purpose, and the only available boats or boatmen, are those employed at the different ferries or ghauts.

3rd. The boats are consequently unfitted for ascending and descending the more difficult parts of the river, being too broad and low-sided, and the boatmen are unskilful in their use.

4th. With some difficulty I succeeded in procuring from a village a few miles above Hindia, a boat that from its shape was more suited to my purpose, and having fitted it with mast and sail, and engaged boatmen, I started on the afternoon of the 30th January. The boat was flat-bottomed, 19 feet 9 inches long, and 4 feet 9 inches broad.

5th. I was accompanied from Hindia to Mundaar by two canoes lashed and manned by fishermen; these I found most useful, as they enabled me to precede the larger boat in places where from the shallowness of the water its progress was necessarily slow. From Mundaar I permitted them to return, as I found I could dispense with their assistance for the remaining part of the journey. For any purpose of traffic these canoes would be perfectly useless, as the waves in the rapid parts of the river completely fill them, and if laden they would sink.

6th. From Hindia to the junction of the Ajnal river the Nerbudda is unusually favorable for navigation; near the foot of Joga, we were delayed by some rapids, but to boatmen well acquainted with the river, they would be impediments of no moment.

7th. Commencing at the Ajnal river, the bed of the Nerbudda extends to nearly double its usual width, and is divided into many small shallow streams running between rocks and jungle, the inclination being so great as to give this part of the river more the appearance of a

collection of mountain streamlets than the course of an important river. At the junction of the Machneh river, these rapids cease, and the stream is concentrated into one large deep pool to the head of the Mundaar falls, a distance of 2 miles.

8th. The Mundaar falls are almost as high and the descent of water more perpendicular than the falls of Dharee, which in general character, they closely resembled. Towards the southern bank a smaller stream makes the same descent in a number of short drops, down which my boat was dragged by 30 men, but in places it was almost carried.

9th. From Mundaar to Basnia, opposite Chandghur, the river resumes its usual character of pools and shallows.

10th. From Basnia to within a few miles of Dharee, high abrupt rocks rise on each bank of the river, which flows between them, hemmed in to about $\frac{1}{4}$ its usual width with rapids almost every mile, at one place it narrows to 34 feet!

11th. I reached Dharee at noon on the 7th of February, having thus been 9 days on my way.

12th. From my personal observations and the enquiries I was enabled to make, I am of opinion that from the junction of the Ajnal river to the bottom of the Mundaar falls the Nerbudda is useless for navigation.

13th. From Basnia to near Dharee the river is only just passable, and I fear that the number of men who would be requisite to take a laden boat down it would make the cost of carriage equal to, if not greater than what it would be on land.

14th. It is impossible to conjecture how the rise of the river during the rains may affect this last portion of the stream. It appears to me that it would probably cover the difficulties, but the boatmen hold a contrary opinion, and until a trial has been made in that season the question must, I fear, remain undecided.

April, 1848—Dharee.—The boats being laden below the falls were loosened from their moorings at sunrise on this date.

5th. ($\frac{1}{2}$ mile)—*Ringaye "tur."** Not difficult; there is a good sandy beach or landing place here on the Poonase side, but the jungle must be cut for five or six hundred yards from the road to the landing place.

* *Tur*, a rapid.

(3½ miles) Deep water the whole way, detached rocks on the river, but not dangerous. At Kumla-tur 5 feet water with bad rocks in the channel. This is considered one of the worst places between Dharee and Mandhata. Laden boats are let or eased down with ropes, and empty ones dragged up.

(1 mile) A narrow passage near the right bank, 6 feet water, detached covered rocks here and there, to be carefully avoided.

(1 mile) Deep water, ruins of Kinchgurh on the right bank, and junction of the Kunnair river.

(2 miles) A fine, large, broad, deep pool all the way. Rocks here and there.

Buckutgurh.—A rock in the middle of the river, the point just appearing above the water.

(¾ mile)—*Chota Chokee "tur"*—4 feet water, not difficult.

(¼ mile)—*Motta Chokee "tur"*—4 feet water, but rocks in the channel, narrow passage, boats of more than 6 feet beam could not pass without great danger. Laden boats are let or eased down with the ropes, and empty ones dragged up.

(½ mile)—*Kote Keira*.—A deserted village on the left bank.

(¼ mile)—*Sillanee*.

9¾, *by the Natives 5 coss from Dharee*.—Some rocks from above Kote Khara hidden under water, to be carefully looked after.

6th. (2 miles)—*Byron purun "tur"*—4 feet water, passage narrow, with 3 turnings, difficult for laden boats, which are let down with ropes, and empty ones handed over through small outlets, with less than one foot of water.

On Karjee Mandhata.

(¼ mile)—*Markundee "tur"*—4 feet water, narrow passage.

(¾ mile)—*Kookaree "tur"*—4 feet water, narrow passage.

(½ mile)—*Bhallarow "tur"*—4 feet water, considered (and is) a very difficult one, extending for more than one hundred yards. Laden boats are carefully let down with ropes.

(4¼ miles)—A very deep and broad pool all the way from Kathar (or Kothoun) Ghat, some hidden rocks here and there, but not dangerous.

(½ mile)—*Choario "tur"*—4 feet water, rocks in the channel, passage, narrow as usual; Chorour river joins here on the right bank.

($\frac{1}{4}$ mile)—*Dherra Ghat*.

($1\frac{1}{2}$ mile)—*Kheiree ditto*.

(1 mile)—*Mylu Kheiru*.—A Goojer village on the right bank.

($\frac{1}{4}$ mile)—*Katghurra "tur"*.—This rapid extends about 600 yards, and is studded with rocks, channel dangerous. Between 4 and 5 feet water. Laden boats let down with ropes; it must in the present state of the river be always difficult.

($\frac{1}{2}$ mile)—*Bimlay Sur*.—Temple and Dhurrumsallah on the right bank.

($\frac{1}{2}$ mile)—*Alliagram*.—On the left bank, one Bunneeah.

($12\frac{1}{4}$ miles)—*By the Natives 6 coss from Sillanee*.—Fowls procurable with trouble.

N. B. It appears to me from the present state of the river between Dharee and Alliagam, that boats of more than 6 feet beam, 30 or 35 feet in length, with $2\frac{1}{2}$ feet wall sides, flat bottom 1, the bottom side planks of one log scooped out, would be the only one that could be generally used. During the very height of the river in the monsoons, I think no boats could live at some of the places where most dangerous whirlpools and high waves must be formed. The boatmen corroborate this opinion.

8th, *Sunset*. (1 mile)—*Semala*.—Right bank, left bank, just below Gowmookh Dhurrumsallah.

(1 mile)—*Pithnuggur*—left bank.

Kupas-thul—right bank.

($\frac{1}{4}$ mile)—*Wa ke "tur"*—5 feet water, 8 feet channel, in the middle, numerous rocks on either side. With one foot water, going over them, the boat struck constantly.

(1 mile)—*Krian*—right bank.

Khygam.—Left bank.

NOTE.—The Rapid "Vakee tur" may be said to extend almost the whole way. Channel in some places not more than 8 feet wide; in some parts very bad, only 1 foot water over the rocks. Boat let down with ropes.

(2 miles)—*Saugoor*.—Right bank, *Oomatter* left bank; fine broad and deep pool.

(1 mile)—*Rawere*.—Left bank, broad deep pool the whole way.

Setoke and Kowreea.—Right bank.

($\frac{1}{2}$ mile)—*Ditto*.—Rapids the whole way, very difficult and dangerous. In several places not more than 1 foot water over the rocks, with which the bed is studded.

($\frac{1}{2}$ mile)—*Surkaree* “*tur*”—300 yards, 6 feet water, but dangerous from high waves, side rocks, and a fall of 3 feet.

Bakawan—left bank.

($\frac{1}{4}$ mile)—*Bhandwarra* “*tur*”—5 feet water, in one place very bad.

($\frac{1}{4}$ mile)—*Murdana Ghat*.—Left bank.

Bysesan—right bank.

($7\frac{3}{4}$ miles)—*Ditto*.—4 Coss according to natives from Alligam; left at 11 A. M. arrived at sunset.

9th. Left Murdana Ghat at sunrise, and arrived at Mundlaiser at 2 P. M.

($\frac{1}{4}$ mile)—*Murdana* “*tur*.”—Extending 300 yards; channel, in some places, 8 feet wide, 2 feet water.

(1 mile)—*Puthrar*—Right bank. *Nagawan*—left bank.

(1 mile)—*Bhutyan*—left bank.

(2 miles)—*Soolgam*.—Rocks all the way and shallow in many places.

($7\frac{3}{4}$ miles)—*Mundlaisir*.—In many places very shallow, with rocks the whole way, but nowhere dangerous, though very tedious for laden boats, studded also with low grass islands.

13th. Evening at Myhesur.

(1 mile)—Shallow with rocks.

(3 or $2\frac{1}{2}$, $3\frac{1}{2}$ miles)—Fine deep pool and broad.

15th. Evening at Sasradarra.

(1 mile)—Fine deep broad pool.

Sasradarra falls and rapids extend for about 400 yards; *Surruh* falls of 314 feet, channel 8 to 10 feet wide, very bad rocks in the channel. Empty boats let or eased down with ropes with great difficulty.

16th. Left Sasradarra at 12 o'clock, and arrived at Akbarpore at 5 P. M. Here the Assa and Bombay road crosses the Nerbudda.

($\frac{1}{4}$ mile)—Channel narrow and deep, it would be very bad, I think, in the rains.

($\frac{1}{2}$ mile)—Channel widening to 100 yards, 18 inches water at one place; boats led over.

($\frac{1}{2}$ mile)—Broad pool, not very deep.

Zallemore.—Left bank.

($\frac{1}{4}$ mile)—Deep and broad pool.

Talkootee.—Right bank.

(1 mile)—Channel between rocky islands.

Lussungam.

Manwa Phal “*tur.*”—Channel 8 feet, 4 feet fall, 2 and 3 feet water, very bad rocks on either hand. The boats were half emptied, and let down with ropes, and men holding on each side. Re-laden at the bottom of the rapid, 30 or 40 yards. The rapid winds along for 30 or 40 yards, dashing against the rock on either hand with great force. The boatmen behaved remarkably well and the bildars were very useful.

($2\frac{1}{2}$ miles)—Shallow in a few places, but generally broad, open and deep.

Akbarpore.

(5 miles)—3 coss by the natives.

17th. Left Akbarpore at 9 A. M.; two of the boats changed, being old and in a leaky state; arrived at Kuthra at near sunset.

Moorgurree.—Opposite to Akbarpore.

(1 mile)—*Chota and Burra Khul.*—Right bank. River open and deep all the way.

Akbarpore “*tur.*”—50 yards, 15 inches water over the rocks, loose stones removed from the channel, rapid not dangerous but tedious. Boats handed over, or rather dragged along. Three hundred yards below there is a ford.

($\frac{1}{4}$ mile)—*A rapid.*—18 inches water over the rocks; boats let down with ropes about 50 yards.

($\frac{1}{4}$ mile)—*Peepulda.*—Right bank, a little above there are some rocky islands, but the channel is deep, and a pool the whole way from the last rapid.

($\frac{1}{2}$ mile)—*Chiklee.*—Left bank, many bad rocks.

Nimbalee.—Right do. Channel along the left bank.

($3\frac{3}{4}$ miles)—Pencil memorandum lost on board.

($1\frac{1}{4}$ mile)—*Adulpoor.*—Left bank, pool all the way from Cheklee.

Bhowa.—Right do.

Bhowns sur “*tur.*”—40 yards, 2 feet water over the rocks, 8 feet passage, channel winding, difficult and dangerous. Boats let down

with ropes with much trouble. This is one of the worst rapids in the river; at the bottom there is a fall of 3 feet, 7 feet passage; rocks on each hand, and a very bad and dangerous one in the middle of the outlet, to be feared the most. This rock should be removed.

(1 mile)—Pool, deep water, rocks here and there.

Burreea.—Left bank.

Kola "tur."—100 yards, 2 feet water and less, very bad and difficult at the end from a rock in the middle of the channel.

($\frac{1}{2}$ mile)—*Kathora*.—Left bank pool all the way.

($8\frac{1}{2}$ miles)—4 coss by the natives.

18th. Left Kuthora at 6 A. M. arrived at Kirmee at 5 P. M.

($\frac{1}{2}$ mile)—*Bilkeswar Pagoda*.—At the point of Dhurmapooree (Cheit island) 2 miles long. Right channel dry, left channel a broad pool, 6 feet deep, a rock in the middle opposite the temple.

Dhurmpooree.—Right bank.

Khoj Nuddee.

($\frac{1}{2}$ mile)—*Khojawan*.—Good pool, 6 feet water.

($\frac{1}{4}$ mile)—*Burreea*.—Left bank, good pool, Jhow jungle along the right bank.

($1\frac{1}{2}$ mile)—*Huthnawar*.—Left bank.

Kinkoto.—Right bank, pool all the way to this.

Huthnawar "tur."—Shallow rapids for 500 yards, boats dragged over the loose stones in several places.

Ghatmora "tur."—Fall of 3 feet, 7 feet passage, and very bad. Boats led down with ropes held on each bank, 4 feet water. This rapid is called Ghatmora tur.

($\frac{1}{2}$ mile)—*Ghatmora Phal*.—5 feet water, 10 feet channel: a fall of 2 feet, boats taken over with bamboo poles very dexterously.

($\frac{1}{2}$ mile)—Rocky island and shallow.

Khutargam.—Right bank.

Nundgaum.—Left bank.

($\frac{1}{2}$ mile)—*Soolgaum*.—Right bank.

Bahmongaum.—Left bank, river studded with rocks and low islands, shallow all the way.

($\frac{1}{4}$ mile)—*Viswanath Khera*.—Pool, with rocky islands. A narrow passage along the left bank, a small rapid with 4 feet water. Rocks in the channel.

(3 miles)—*Moharpur*.—Right bank, a small Pagoda. Good pool the whole way, with some rocks here and there.

($\frac{1}{4}$ mile)—*Nuktiaki Phal* “*tur.*”—Not bad, 5 feet water, 10 feet channel.

($\frac{1}{2}$ mile)—Deep pool, Checkly, left bank.

($\frac{1}{4}$ mile)—Bad rocks, some under water, some just appearing above, 6 feet water with a slight stream.

($\frac{3}{4}$ mile)—*Mân* River joins here on the right bank, pool with rocks here and there. A rapid with rocks of loose stones, 2 feet water.

($\frac{1}{2}$ mile)—*Neemla* “*tur.*”—Bad rocks in the channel, boats let down by the hand, 2 feet water, channel 8 feet.

($\frac{1}{2}$ mile)—Broad deep pool.

Nulwae.—Left bank. Deb Nuddee joins here on the left bank.

Kuthwa.—Right bank.

($1\frac{1}{4}$ miles) *Lohara*.—Left bank.

Mullingam.—Right bank. Broad, deep pool all the way.

($1\frac{1}{4}$ mile)—*Kirmee*.—Left bank.

Burdha Bagory.—Right bank. Deep and fine broad pool the whole way.

($12\frac{1}{2}$ miles)—6 coss according to the natives.

19th. Left Kirmee at 7 A. M. arrived at Lahna Burda at 5 P. M.

($1\frac{1}{2}$ mile)—Pool with sunken rocks and rocky islands.

($\frac{1}{2}$ mile)—Pool ditto ditto ditto.

Ansurpoora.—Left bank.

Surwapoora.—Right bank. River covered with sunken rocks, and rocky islands, deep channels in some places, and 2 feet water in others. Intricate passage, but not dangerous.

($\frac{1}{2}$ mile)—The same state of the river continued.

Cherasein “*tur.*”—Very winding and bad channel for 300 yards. In one place 15 inches water, boats let over by the hand.

A bluff high isolated rock in the middle of the river 150 yards below the rapid.

($\frac{1}{2}$ mile)—*Marrpoora*.—Left bank.

A small rapid.

Oordhumia.—Right bank.

Shallow continued.

A very shallow part, 9 inches water, a channel had to be made by removing the loose stones from the middle and piling them up on each side for 150 yards, to deepen the stream to 15 inches, when the boats were dragged over. Half the day taken up in the above work.

Another shallow 6 inches water. The stones removed as above, and a channel formed of 15 inches depth for 30 yards.

At 300 yards another similar shallow overcome in the same way.

A bad rapid to be worked through very cautiously, though deep, the channel being very narrow with rocks.

($\frac{1}{2}$ mile)—*Dunterwarah*.—Left bank.

(1 mile)—Pool full of rocks under water, the boats striking on them constantly.

Gollatta.—Left bank.

Peerkeira.—Right bank.

($1\frac{1}{4}$ mile)—Rocks and shallows and deep channels, intricate passage.

Lahna burda.—Left bank.

Semurla.—Right bank.

(6 miles)—3 coss by the natives.

The laden boats require 18 inches of water to float freely. The largest boat is 31 feet long and less than 5 feet wide, laden with $2\frac{1}{2}$ Manas.

20th. Left *Lahna burda* at 7 A. M., arrived at *Chikulda* at 2 P. M.

(1 mile)—*Achohta*.—Right bank.

Pool with rocks here and there.

($1\frac{1}{4}$ mile)—Fine deep pool, some rocks along the left bank.

Ekeelara.—Right bank.

Orohee.—Left bank; a ferry here; a tope of fine tamarind trees.

Five hundred yards, dangerous hidden rocks with some of their points just appearing in the middle of the river.

(1 mile)—Good pool.

Kawthee.—Right bank.

Shallow, 2 feet water, studded with rocks; no regular channel.

300 yards, *Keemana* "tur" (bow-shaped) 2 feet water deepest channel, with bad rocks in the middle, boats constantly striking on them.

In one place the boats were let down with ropes.

(1 mile)—Shallow with rocks and loose stones the whole way.

Boats continually striking on them; there is a ford here.

Ganglee.—Right bank.

Peeplohdh.—Left bank.

($\frac{1}{4}$ mile)—Shallows.

Domee Khul "tur."—A very bad rapid, 15 inches water, rocks in the channel, against which the current rushes with great force. A fall of 3 feet boats; dragged over, some loose stone being removed.

(1 mile)—Shallows and rocks; 15 inches water in some places.

Bhaboot.—Left bank.

Jowhoor.—Right bank.

($\frac{3}{4}$ mile)—A bad sunken rock in the middle of the river, one of the boats got over it, and was nearly rolling over. The rest of the river a fine broad pool with 5 or 6 feet water generally.

($\frac{1}{4}$ mile)—Pool, 5 feet water.

Kusrawath.—Left bank.

($1\frac{1}{2}$ mile)—Rocks and shallows; channel between irregular low rocks, &c. &c.

Chikulda.

($8\frac{1}{2}$ miles)—4 coss by the natives.

22nd. Left Chikulda in a boat 30 feet by $4\frac{1}{2}$ feet.

($1\frac{1}{4}$ mile)—Pool, 6 to 8 feet water.

Bilkhera.—Left bank; 4 feet water.

Shallow, 18 inches water.

Rocks.

A small rapid, 1 foot water.

($1\frac{1}{4}$ mile)—Shallow in some places with less than 1 foot water, little rapids and rocks.

Nand gavm.—Left bank.

Kaper Khera.—Right bank.

($\frac{1}{2}$ mile)—Shallow the whole way, boat stroved along. In some places not 6 inches water sandy bed all across the river.

($\frac{1}{2}$ mile)—Ditto.—A nice little pool, 5 feet water, no rocks.

Rocks scattered all across the river with irregular channels of 4 and 5 feet water.

($\frac{1}{2}$ mile)—A bed of rocks, narrow channel, 3 and 4 feet water.

($\frac{1}{2}$ mile)—River spread with rocks, a small pool, 4 feet water.

Kutora.—Left bank.

($\frac{1}{2}$ mile)—A fine broad, deep pool. River spread with low detached rocks. Channels between deep water.

($\frac{1}{2}$ mile)—The same as above.

Sonearil.—Left bank.

Kuronje.—Right bank.

($1\frac{1}{2}$ mile)—Fine deep pool. A small bed of rocks in the middle of the river, dangerous.

— ($\frac{1}{4}$ mile)—*Kotra*.—Right bank.

Pool continued.

Oorce Nuddee joins here on the right bank.

Pool continued.

Rocks on the right hand.

($\frac{1}{2}$ mile)—2 feet water, low sunken and some appearing rocks spread all over.

($\frac{1}{4}$ mile)—*Megnaik* “*tur*.”—9 inches water, full of rocks in the channel. Scarcely any passage at all. The laden boats could not have got over a fall of 3 feet.

A small old pagoda on the right hand, exactly opposite the fall. My boat was literally lifted over.

Another similar rapid, but not so bad.

Gooec Nuddee joins here on the left bank.

($1\frac{1}{2}$ mile)—Deep pool, two or three boats just above the water.

($\frac{1}{4}$ mile)—*Goulia* “*tur*” —4 feet water, bad rocks in the channel, and at its outlet.

($\frac{1}{4}$ mile)—A small rapid, 9 inches water, no regular channel.

($\frac{1}{4}$ mile)—Bluff peak of the first hill on the immediate banks of the river; right bank.

Fine deep and broad pool.

($\frac{1}{4}$ mile)—Pool continued, sunken rocks, some just showing themselves above the surface of the water.

Ruins of the Gurhec of Deheir on a hill on the right bank.

Deheir.—Right bank.

(1 mile)—Pool continued broad and deep.

Beyasein Phal.—A shallow; stones to be removed; not 6 inches water.

($\frac{1}{4}$ mile)—*Peyasein*.—Left bank.

(1 mile)—Deep broad pool with numerous sunken rocks; Jhow jungle on the right hand, resort of tigers.

Moorgutta "tur"—3 and 4 feet water, echannel winding and bad with rocks.

($\frac{1}{4}$ mile)—*Moorgutta*.—Left bank.

($1\frac{1}{2}$ mile)—Pool with sunken rocks, shallow ; no regular echannel.

"Tur" shallow, &c., good for $\frac{1}{2}$ mile.

Dhurrray.—Right bank.

($14\frac{1}{2}$ miles)—According to natives 7 eoss.

23rd. Left Dhurrray at 6 A. M. for the Hirnphal.

Dharm Ray "tur."—Considered the head of the Hirnphal passage, 18 inches water, had rocks for 200 yards.

(1 mile)—Small pool with rocks, 4 feet water, a rapid, 18 inches water, 6 feet channel.

River full of rocks ; deep water.

Hirnphal.—Deep echannel, 8 feet wide, eurrent not strong, no fall ; two bluff rocks in the middle of the river, one on either hand from the Phal.

($\frac{1}{2}$ mile)—Deep channel between rocks, 10 or 12 feet wide.

($\frac{1}{4}$ mile)—Deep narrow pool, slight current.

Hirnphal Ghat.—A fall of 6 feet in our passage, 8 or 10 feet, with projecting pointed rocks on each side, very bad and dangerous, 100 yards rapid.

Fall 3 feet, not so bad as the first, but difficult from the water dashing on a projecting rock on the right hand ; echannel 10 or 12 feet.

100 yards rapid.

Fall 4 feet, much like the above.

Deep echannel below the rapid.

Left hand echannel from Hirnphal.

300 yards deep and clear ; echannel between rocks, deep and clear.

Channel between rocks, deep water.

($\frac{3}{4}$ mile)—Fine deep broad pool, no rocks.

The bed of the river covered with low, sunken and small isolated rocks. No regular channel, in some places 6 inches water, over the rocks, and then suddenly deep ; no passage at all.

At 10 A. M. returned to Dhurm Ray, and at 11 o'clock set sail for Chikulda, with a fresh westerly breeze ; arrived at 3 P. M.

MISCELLANEOUS.

Tibetan type of Mankind.—By B. H. HODGSON, Esq.

Pénjúr of Lhasa, 30 years old.

Total height,	5	9	$\frac{1}{2}$	} Rectilinear measurements.
Length of head,	0	9	$\frac{1}{2}$	
Girth of head,	1	10	$\frac{1}{4}$	
Crown of head to hip,	2	5	0	
Hip to heel,	3	4	$\frac{3}{4}$	
Breadth of chest only,	1	4	0	} by curve.
Sh. point to Sh. point,	1	5	0	
Arm and hand,	2	6	$\frac{1}{8}$	} Rectilinear measurements.
Girth of chest,	3	0	0	
Girth of arm,	0	11	0	
Girth of forearm,	0	9	$\frac{3}{4}$	
Girth of thigh,	1	6	$\frac{1}{2}$	
Girth of calf,	1	1	$\frac{1}{2}$	
Length of foot,	0	10	0	
Breadth of foot,	0	3	0	
Length of head,	0	7	$\frac{3}{4}$	
Breadth of head,	0	4	0	

A fine young man but low in flesh from sickness, and the muscles flaccid. Colour a clear ruddy brownish or brunet rather deep hued, as dark as any of the Cis-Himálayans, and as most high caste Hindus. No red on cheeks which are sunk and hollow. Hair moderately coarse, black, copious, straight, shining, worn long and loose, divided from the top of head. Moustache very small, black. No symptom of beard nor any hair on chest: sufficient on mons martis where it is black and on armpits also. No whiskers. Face moderately large, sub-ovoid, widest between angles of jaws, less between cheek-bones which is prominent but not very. Forehead rather low and narrowing somewhat upwards; narrowed also transversely and much less wide than the back of head. Frontal sinus large, and brows heavy. Hair of eye brows and lashes, sufficient. Former not arched but obliquely descendant towards the base of nose. Eyes of good size and shape but the inner angle decidedly dipt or inclined downwards, though the outer not curved up. Iris a fine deep clear chestnut brown. Eyes wide apart but well and distinctly separated by the basal ridge of nose, not well opened, cavity

being filled with flesh. Nose sufficiently long and well raised even at base, straight, thick and fleshy towards the end, with large wide nares nearly round. Zygomæ large and salient, but moderately so. Angles of the jaws prominent, more so than zygomæ, and face widest below the ears. Mouth moderate, well formed, with well made closed lips hiding the fine regular and no way prominent teeth. Upper lip long. Chin rather small, round, well formed, not retiring. Vertical line of the face very good, not at all bulging at the mouth, nor retiring below, and not much above, but more so there towards the roots of the hair. Jaws large. Ears moderate, well made, and not starting from the head. Head well formed and round but larger à parte post than à parte ante or in the frontal region, which is somewhat contracted cross-wise and somewhat narrowed pyramidally upwards. Body well made and well proportioned. Head well set on the neck, neither too short nor too thick. Chest wide, deep, well arched. Shoulders falling, fine. Trunk not in excess of porportionate length compared with the extremities, nor they compared with the trunk and whole stature. Arms rather long, within 4 inches of knees. Legs and arms deficient in muscular development from sickness. Hands and feet small and well formed with instep hollow and heel moderate. Toes not spread, nor splay foot. Mongolian cast of features decided, but not extremely so, and expression intelligent and amiable.

Darjeeling, 30th April, 1848.

The Gum Kino of the Tenasserim Provinces.—By the Rev. F. MASON.

In a valuable article by Dr. Royle on Gum Kino, reprinted in the *Journal of the Agricultural and Horticultural Society of India*, which ostensibly enumerates all the various regions from which it has been imported into England, there is no mention of this article being imported from this Coast. Yet long before Dr. Royle compiled that communication, more than one consignment had been made by parties in Maulmain to houses in London of Gum Kino to the amount of a thousand pounds.

It was brought to Maulmain by an English merchant from the Shan States, and stated by him, as our Commissioner at the time informed

the writer, to be the production of the *Pa-douk*, the same tree as the one in Maulmain thus denominated by the Burmans. Several years before I had directed attention to this tree as producing an astringent Gum resembling Gum Kino, but the Medical Officer to whom I submitted specimens of the Gum, said it was "a kind of Dragon's blood;" but after it was known that the Gum of the *Pa-douk* had been sold in London for the veritable Gum Kino, another medical gentleman tried in his practice the exudation of the tree in his compound in the place of the Gum Kino in his stores, and reported the effects the same; that their medical virtues were alike.

The next inquiry that arises is for the genus and species of the *Pa-douk*. When I first came to the Coast, all the English residents of my acquaintance called it "Burman Senna," and the surgeon of the station told me that he believed it was a species of Senna. The Rev. H. Malcom, D. D. President of Georgetown College Kentucky, who came out to India a dozen years ago in order to go back again and write a book, has stereotyped in his travels, "*Pa-douk*, or Mahogany, (*Swietenia Mahogáni*) is plenty in the upper provinces, especially round Ava, found occasionally in Pegu. In a native Pali Dictionary, found in the Burmese monasteries, *Pa-douk* stands as the definition of *Pe-tá-thá-lá*, and the corresponding Sanscrit word in Wilson's Dictionary, पौतशाल, is defined *Pentaptera*; but the *Pa-douk* does not belong to that genus. In Piddington's Index, however, *Peetshala* stands as the Hindue name, and in Voigt's Catalogue, *Peet-sal* as the Bengalee name of *Pterocarpus marsupium*; and this brings us nearer the truth, for *Pa-douk* is a name common to two different species of *Pterocarpus*, but which look so much alike that they are usually regarded as one species. Undoubtedly one species is *P. Indicus* and the other, I presume, is the one named by Wight, *P. Wallichii*, but which was marked in Wallich's Catalogue, *P. Dalbergioides*, from which differs in no well marked character excepting that the racemes are axillary and simple, while in that they are terminal and "much branched." Wight says, of *P. Wallichii* in his Prodrum, "stamens all united or split down on the upper side only;" so they are sometimes in our tree. In the figure that he gives in his Illustrations they are represented as diadelphous, nine and one, and so they are seen occasionally in our tree; but the more common form is that of being

split down the middle into two equal parts, of five each, as in *P. Dalbergioides*. The wood two resembles it. "Not unlike Mahogany, but rather redder, heavier, and coarser in the grain." It is often called "red wood" at Maulmain, and from the color of the wood, some of the natives distinguish the species "red Pa-douk" being *P. Dalbergioides*, and "white Pa-douk," *P. Indicus*.

Both these trees produce an astringent gum, which has been exported for Gum Kino, or whether it was a mixture of both it is not possible to say. Probably the latter, as the native collectors would not probably make any distinction. Possibly it is the production of neither. It may be that *P. marsupium* is found in the Shan States, for it grows, I believe in Assam, and the man that did not distinguish the two species, in Maulmain, would not distinguish them from a third, at Zimmay. Be that as it may, this is certain, that these provinces can furnish the commercial world with a large quantity of Gum Kino. If the result of the experiment which was made be correct, we have a great abundance of it within our own borders, for the Pa-douk is one of the most common forest trees in the provinces from the Tenasserim to the Salwan. It furnishes a considerable portion of the fuel that is sold in Maulmain. But if not it is certainly abundant in the neighbouring provinces, whose only avenue to market is through our territories.

To enable the Members of the Society to detect any errors into which I may have fallen, accompanying this paper are three packages, viz.

No. 1. A flowering branch, and young fruit of *P. Wallichii*.

No. 2. A flowering branch of *P. Indicus*.

No. 3. A specimen of the Gum Kino brought from the Shan States and exported from Maulmain.

To the Secretaries of the Asiatic Society.

SIRS,—I had recently the honor to transmit to you the last relics of the Library of the Catholic Mission in Tibet. I have now the honor to forward to you transcripts and translations of those grants of land by

virtue of which the Mission, after its expulsion from Lassa, was established at Pátan, in the valley of Nepal, under the late or Névári dynasty of that kingdom.

The original deeds are inscribed on copper, and they were put into my hands recently by Doctor Hartman, the Catholic Bishop of Patna, (who is also superior of the Nunnery here,) with the observation that, though frequently shown to learned Pandits and Europeans, the Mission since its ejection from Nepal had never been able to gain the least inkling of the meaning of these documents. The fact is that the deeds are in the Névári language, or that of the aborigines of the great valley of Nepal proper; and, as I believe the Society possesses no sample of that tongue, I fancy that the two transmitted may be acceptable, though interlarded with a deal of Sanserit; the circumstances of the ease giving the deeds an interest for Europeans, which most of them in India will probably recognise. I am glad to hear that the books forwarded to His Holiness the Pope have been graciously accepted, and I apprehend that transcripts or printed copies of the present communication will be likely to prove an acceptable addition to those singular relics of the once famous Christian Missions of China and High Asia.

I have the honor to be,

Sir,

Your most obedient servant,

B. H. HODGSON.

स्वस्ति श्रीमत्पशुपतिचरणकमलधूलिधूसरितशिरोरुह श्रीमन्मा-
नेश्वरीयदेवतावरलब्धप्रसाददेदीव्यमानमानोन्नत श्रीरघुवंशावतार
रविकुलतिलकहनूमद्वजनेपालेश्वरमहाराजाधिराजराजराजेन्द्रसकल
राजचक्राधीश्वरनीजेयदेवदेवेश्वरीकृपाकटाक्षबलितविक्रमोपार्जितपा
लनकर समुद्रूत गजेन्द्रपति श्रीश्री जयजयप्रकाश मह्लदेव-
परमभट्टारकानां सदा समरविजयिनाम्। प्रमूधाकुलसन वन-
रयत सचोडं पाद्रिकापूचिनि आक्राक्तत्रोचिबने नाम प्रसादोक्तं
श्रींतुटोलतोलसिथलिनत्ताजाबगृहनाम संज्ञकं जयधर्मसिंहया-
गहनपश्चिमतः धंजुशूर्यधन पुर्णे श्वरखपतिस्यङ्गस्यागृहन दक्षिणतः

मार्ग नृ पूर्वउत्तरतः एतेषाम्मध्येथ्वतेचात्राघातनदुसप्तांगुलि सार्द्धघोड-
 षहस्ताधिक चतुःखापरिमितं चूकपाताल सार्द्धद्वादशहस्ताधिक
 त्रिपादपरिपरिमित लवोपाताल द्वाविंशति हस्ताधिक त्रिपादपरि-
 मित पुष्पवाटिका चतुरस्रंगुलि त्रिहस्तत्रिपादाधिक त्रयोदश
 खापरिमितं अंकतोविच्छेखा ४ कु १६ अंगुल ७ चुकपाताल चूल ३
 कु १२ लवोपाताल चूल ३ कु २२ कवखा १३ चूल ३ कु ३ अंगु
 ४ तुथिसोवोगुलो ॥ प्रत्तैत श्रीश्रीनवकसीसप्रसन्नजुया ॥ अत्रपत्रार्थे
 दृष्टसाक्षि श्रीश्री राजप्रकाश मल्लदेव सम्बत् ८६२ मार्गशीर शुदी
 १० शुभं ॥

स्वस्ति श्रीमत्पशुपतिचरणकमलघूलिधूसरित शिरोरुह श्रीमन्माने-
 श्वरीष्टदेवतावरलब्धप्रसाददेदीयमानमानोन्नतरविकुलतिलक हनू-
 मद्भजनेपालेश्वरसकलराजचक्राधीश्वरमहाराजाधिराजश्रीश्री जय-
 राजप्रकाशमल्लदेवपरमभट्टारकानां सदा समरविजयिनाम् । प्रमू-
 थाकुरसन बनरयत सचोडं पात्रिकापुचिनि श्वाक्राङ्गये गोच्छिबने
 नाम्ने प्रसादीकृतं तानिग्रटोलईतिफुसचाकलंचौताजाव गृहसंज्ञकं
 रथमार्गनपश्चिमतः तबवाहारश्रोने मार्गन उत्तरतः कचिंग्लका-
 यद्यया भूम्या पुर्वतः अस्वरसिं वावुया गृहभूम्या दक्षिणतः एतेषां
 मध्येथ्वतेचात्राघातन दु अस्तत्रिसहस्ताधिक षष्ठखापरिमितं पुष्प-
 वाटिका एक विंशतिहस्ताधिक चतुर्दशखा परिमितं । अंकतोपि
 छेखाषु ६ कुसुयच्चा ३८ केवखाश्वरमपि १४ कुनीयाक्के २१ बते युलो ॥
 प्रतीत श्रीश्रीनवकसीसप्रसन्नजुया अत्र पत्रार्थे दृष्टसाक्षि श्रीचन्द्रशेखर
 मल्लथाकुर सं ८७४ चैत्रवदि ६ दैवज्ञकोटिराजेनलिखितं ॥ शुभं ॥

Translation of two Tumbapatras granted to the Catholic Church in Nepal by the late or Névár dynasty of that country:—

(Titles omitted.)

Rajya Prakás Malla Deva, Princee of Nepal, hereby grants for the Padri's establishment a beautiful garden situated in unappropriated ground without and above the Dhára (fountain) of Tánigal Tol, and also an open quadrangled house of four stories. The boundaries of the location are as follows: West from road of Matsyéndra's Rath,* North from the Tavo Bahál road, East from the land of Kachingal Káyasth, South from the house and land of Amersinh Bábú. And the following is the extent of the grant, viz., for the house, the measure of six house allotments,† and thirty-eight eubits square in excess, and for the garden, fourteen house measures and twenty-one eubits in excess thereof. Such are the boundaries and extent of which the above illustrious Princee has been pleased to give, whereof is eye witness Chandra Sékar Mall, and the inseriber of the deed of gift is Kotiráj Jóshi,‡ and the date of gift, 874 of the Névár æra,§ dark half of the mouth of March, 6th day.

(Titles omitted.)

Jaya Prakása Malla Deva, Prince of Nepal, is pleased to assign for the establishment of the Padri, a beautiful garden situated in Talsithali of Wóntú Tol, in an unoccupied place,|| and also a two stories openly quadrangular house. The bouuds of the location are, West from Jaya Dharma Sinh's house, South from the houses of Dhanjú, Súryadhan, and Púranésvar, East and North from the main road. The subjoined is the extent of land assigned, viz., for the house itself, the fixed measure for four houses and 16 eubits, 7 fingers' breadth in excess; and, for the open quadrangle within the house, three quarters of one house allowance and twelve and half eubits in excess, exclusive of a private road or access of three quarters of one house measure with twenty-two eubits over. For the garden or grounds the space assigned, is the

* See note to transcript, in Roman letters.

† Khá in the original. It is the quantum of land allowed for an ordinary house in a town; a house and land measure in towns.

‡ Daivagya in Sanerit, is Jóshi in the vernacular of Nepal.

§ 104 years back.

|| That is, without infringement on private property, which is, and was then, perfectly respected, the Government tax being not $\frac{1}{4}$ of the net produce, and the land selling for 25-30 years purchase, even beyond the limits of house building.

allowance fixed for 13 houses, and $\frac{3}{4}$ and 3 cubits and 4 fingers' breadth in excess,* such are the boundaries and extent of the gift of the above named illustrious Prince. Eye witness, Raj Prakas Malla Deva; date, 862 of the Nepal æra, November, 10th dark half of the month.

True translations.

B. H. HODGSON.

Transcript in Roman characters of one of the deeds.

Swasti srimat† Pasúpati charana kamala dhúli dhúsarita sirárúha sriman manéswaríshta dévatá baralabdha prasáda dédibyémán mánónmata ravikúla tilaka hanúmáddhaja nepalésvara sakalarája chakrádhísvara mahárájáddhirája srí srí Jaya Rája Prakása Malla Deva paramabhat-tarakánáng sadá samara vijayináng. Prabhú thakúra sana banarayatasa chongno Pádríká púchini sákrakwóngre gócchiwané namné prasádi krittam tániglá tóla itiphúsá chákalang choutajawo griha sangyakang rathamárgéna‡ paschimatah Tawo Báhár oné márgena úttartah kachingla káyashthayá bhumyá púrba tah Amar sinh Bábúyá griha bhumyá daksinatah étesang madhyé thótéchatra ghatana dú ashta tringsa hastadhika shashta khá parimitang pushpya batiká ékving sati hastádhika chaturdasa khá parimitang ánkatopi ché khalshú kúsúyé-ehmá kebo khá slaramapí kú nýéchi§ vaté yulo Pratita sri sri ná bak-sish prasanna júyá atra patrárthe drishta sákshi sri Chandra Sekara Malla Thákúra sambat 874 Népálya chaitra badi 6 Daivágya kótirájena likhitang subham.

B. H. HODGSON.

Darjeeling, 1st July, 1848.

* This extreme precision may seem remarkable. But it is the mere indication of what is still more remarkable, viz. an admirable system of land measurement and of public record and registry which prevailed under the Népári dynasty and which would do honour even to the British Government of India. The professional land measurers, called Dóngú or Dóngúl, were a separate craft, carefully instructed and exceedingly jealous of intrusion on their mystery. The institution is still to be found under the present or Górkháli dynasty, but in a state of decadence.

† Pasúpati is the great orthodox Deity of Nepal, whose symbol is the four-faced Ling or Phallus.

‡ Matsyédranáth is the great heterodox or Búddhist Deity. His car festival or Rathyátra, is so famous that in the above deed the street is designated, as that through which the car annually passes (rathamárg) without even specification of the name. Nullius in sceudus is the Matsyéndra of Pátan.

§ In the original the ciphers as well as the names of the Népári numbers are inserted. I have omitted the former, which are those in use in the plains.

*Temperature of the hot springs at Peer Mungul, or Munga, or Mungear.**

The following means of Temperature was taken from Major Baker's note-book, and were taken by him, Lt. Maclagan, and myself.

Temperature of 1st Spring.

4th	Sept. 1844.	11.30	A. M.	Temp. of water,	119° F.	Temp. of air,	89° 25' F.
—	Do.	4.45	P. M.	Do.	118-25'	Do.	86.
—	Do.	9.5	—	Do.	117.	Do.	86.
5th	Do.	5.45	A. M.	Do.	119.	Do.	78.
—	Do.	9.5	—	Do.	119.	Do.	83.

Temperature of 2nd Spring.

4th	Sept. 1844.	11.45	A. M.	Do.	127.5	Do.	91.
—	Do.	4.55	P. M.	Do.	126.25	Do.	86.5
—	Do.	9.25	—	Do.	126.05	Do.	80.
5th	Do.	5.50	A. M.	Do.	128.25	Do.	78.
—	Do.	9.15	—	Do.	128.	Do.	83.

2° 25' hotter than the hottest Spring of Switzerland.

Temperature of 3rd and principal Spring which is the saint's shrine, and which feeds the Alligator ponds.

4th	Sept. 1844.	5.30	P. M.	Temp. of water,	99. F.	Temp. of air,	85.5 F.
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The water of these springs, where it first issues, has a slightly sulphureous smell and taste, but after a short exposure to the air, becomes perfectly sweet and pure; it leaves a slight blackish deposit on the pebbles. The rocks in the vicinity are found in ridges nearly concentric curves. The strata appear to dip from the centre of the curves at an angle varying from 50° to 80°. They consist of an upper cap of coarse limestone overlaying coarse soft sandstone, below which the strata is hidden by debris. The rocks abound with exuviae of zoophites, eehini and pectines, a few coats of small spiral and bivalve shells are met with, but in no abundance, till nearing the Hub or Pub river beyond the basin formed by the curved ridges, small fossil crabs and other fossils similar to the Kurrachee fossils are met with in abundance, but none of the rarer sort that distinguish the Kurrachee bed from all the other formations in Seinde. There are a few other springs in the neighbourhood of these hot springs, but they are cold

* All three names were given me.

and chiefly salt. The other hot springs of Scinde that I am acquainted with, are the Lukkee and Gazee Peer springs; the latter I have not myself seen, but Lt. Maclagan gave me the following account of it. "There is a hot spring on a considerably elevated plateau upon the hill called Bhil, above Gazee Peer, a saint's shrine, a few miles west of Shah Hus-sun, on the Munchar Lake. Temperature of the spring not observed; I could not hold my hand in it for any length of time. The water fills a small reservoir under a clump of trees, then escapes in a narrow stream which flows along to the edge of the plateau, and throws itself over the rock in a white cascade." I was unable to visit it, as I had intended doing, but the sulphur springs near the village of Lukkee, I visited; the following is a memorandum of their temperature. Like the springs a Mungul Peer, they are three in number, but are much more highly impregnated with sulphur, but their temperature is not so great.

Temperature of sulphur springs near Lukkee pass, lower Scinde.

1st Spring at 12 A. M. Temp. of water 102° Fahr. of air in shade 82° Fahr.

2nd Spring at 1212 A. M. Do. Do. 103° " Do. in sun 86 Fahr."

3rd Spring at 2 P. M. Do. Do. 105° " Do. in shade 68 Fahr."

Water boiled at third spring by my Thermometer, at 212° 75', and at Kurratchee by same Thermometer at 214°—Difference, 1° 25'.

Nos. 1 and 2 might almost be called one spring, as they are separated only by a foot or two of rock. No. 3, being some little distance from them at the foot of left hand, and largest cleft, but the waters of all unite and flow through the lower range or rather ridge of rocks, and are then lost in the sandy bed of what must, during the rains, be a mountain torrent; the water collected in the pools, while I was there had an azure hue: there is a great deal of sediment contained in it on first issuing from the rocks, which is deposited, as it flows along the margins of the stream and on the stones at its bottom in a red, yellow and white, and all three combined crust-like congealed froth, but what it contains I know not, I had no means of analysing the water properly, for I had no scales to weigh the water experimented upon, or the residuum after evaporation; but on adding a little nitrate of silver to about a wine glass full of the water, a considerable flaky white deposit fell immediately to the bottom, which shortly after acquired a violet hue, and on exposure to the sun's rays became

almost black ; on adding a few crystals of Barytes to another glass full, the water in which was perfectly clear, it at once became like milk and water, but shortly after it settled, a considerable white deposit falling to the bottom of the glass. On addition of a little potass to another glass of water, a few minute bubbles of air or gas escaped from the crystal, but eventually the water became slightly turbid, and on clearing, a slight white deposit, but very slight indeed, on the bottom of the glass, but I had no means of weighing the deposits, and have since lost them. The high range of rocks in their vicinity are a kind of soft limestone, at least the parts exposed to the weather and air are soft and white, almost like chalk, but with small crystals of I think sulphur in it. The lower range or rather ridge is coarse sandstone, capped with lime ; the strata in some parts is almost perpendicular, and in others curved. I scrambled up to the top, the view from which was most curious, a jumble of hills of all sizes, shapes and colours ; the lower ones, apparently full of beds of gypsum, as the continuation of them beyond the Lukkee pass, which I examined, was full of that substance. Nasseer Khan attempted to work the sulphur here, but found it a losing speculation owing, I fancy, to his not having descended deep enough, through the blue marl at the base of ridge.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL,
FOR AUGUST, 1848.

At a meeting of the Asiatic Society, held at the Town Hall, on Wednesday, 2nd August, 1848,

J. W. COLVILE, Esq. President, in the Chair.

The Proceedings of the former meeting were read and confirmed, and the accounts and vouchers were laid on the table.

Mr. Edward Colebrooke, having been duly proposed and seconded at the July meeting, was ballotted for and elected a member of the Society.

Cudbert Bushy Thornhill, Esq. was proposed for election at the September meeting by J. H. Batten, Esq. and seconded by H. M. Elliot, Esq.

Babu Gobind Chundra Sen, proposed by Raja Satya Churn Sen, seconded by Mr. Colvile.

Read notes, intimating the withdrawal of Jas. Hume, Esq., E. Lindstedt, Esq. and Major Goodwin, from the Society.

Read a letter from H. M. Elliot, Esq. Secretary to Govt. of India, forwarding, by order of the Governour General in Council, copy of a letter from Lieut. W. H. Parish, with the specimens of rocks and plants therein alluded to.

From the same, forwarding, by order of Government, the Diary of a trip to Pind Dadun Khan and the Salt Range, by Andrew Fleming, Esq. M. D.—Ordered for publication in the Society's Journal.

From M. Luzac, Netherlands minister for Home Affairs, dated Hague, 17th April, 1848, announcing the despatch to the Society's address of

the Zoological, Geographical, and Ethnological portions of the work recently published on the Natural History of the Netherlands Foreign Possessions.

Ordered, that the marked thanks of the Society be returned to M. LIZAC for this handsome donation.

From Dr. Cantor, a Catalogue of Malayan fishes, collected principally at Penang.—Ordered for publication in the Journal.

From the Rev. John Barlow, M. A. Secretary to the Royal Institution, Albemarle Street, acknowledging receipt of the Society's Journal, Nos. 185, 186.

From Messrs. Allen & Co. announcing receipt of 77£ 10s. from the Paris Agency, and the shipment of the spare volumes of the Researches.

From Dr. McClelland, communicating a note on the Coleoptera of Hong Kong, by Capt. Champion.

From Dr. Albrecht Weber, dated Berlin, 3rd May, 1848, regarding the contemplated Oriental Publications of the Society, with a note from Dr. Roer on the same subject. Referred to the Oriental Section.

A note on the Singapore Rock inscription, of which fragments had been forwarded by the Hon. Col. Butterworth, and Lieut.-Col. Low, by Mr. Laidlay.

From S. G. T. Heatly, Esq. presenting for the Society's Library, a set of the "Repository of Arts," in 50 vols.

Mr. Heatly being present at the meeting, the thanks of the Society for this handsome donation were tendered him in person by the President.

Read the following communications from the Council of the Society.

Council of the Asiatic Society.

An application having been made by Mr. Frith, for the presentation to Charles Hufnagle, Esq. Consul of the United States of America, and a member of the Society, of one of the specimens of Flexible Sandstone in the Museum, the Council, having referred to the Section of Mineralogy and Geology for their advice, have the honor to present the report of the Section, in which the Council concur.

W. B. O'SHAUGHNESSY,
Secy. of the Asiatic Society.

July 28th, 1848.

Resolved, that one of the specimens of Flexible Sandstone be presented to Dr. Huffnagle.

Council of the Asiatic Society.

The Council of the Asiatic Society unanimously recommend that Dr. McClelland be elected a member of the Sections of Natural History and of Mineralogy and Geology: Dr. McClelland's consent has been obtained to this proposition.

W. B. O'SHAUGHNESSY,

July 29th, 1848.

Secy. of the Asiatic Society.

On the question being put to the vote, Dr. McClelland was unanimously elected a member of the Sections of Natural History, and of Geology and Mineralogy.

Council of the Asiatic Society.

The Council submit a report from the Oriental Section, regarding the proposed publication by the Society of two Arabic MSS., the one containing definitions of Grammatical terms, the second a brief Cyclopædia of all the sciences cultivated by the Arabs. The Council concur in the recommendations of the Oriental Section.

W. B. O'SHAUGHNESSY,

July 29th, 1848.

Secy. of the Asiatic Society.

To Dr. W. B. O'SHAUGHNESSY, *Senior Secretary of the Asiatic Society,*

Dated, Asiatic Society, the 21st July, 1848.

SIR,—By direction of the Oriental Section I have the honour to transmit to you a letter from Dr. Sprenger to the address of Mr. H. M. Elliot, dated the 30th May last, forwarding two Arabic MSS. which he proposes to be published in the Oriental Journal.

2. The Section beg to support the proposition and to recommend, that the Society should also avail themselves of the kind offer of Dr. Sprenger to superintend the printing of the text at Allahabad. They would at the same time suggest, that agreeably to the scheme laid down for the publication of Oriental works by the Society, Dr. Sprenger be requested to favour the Society with a translation of the text.

3. Should the Council approve of the proposition, I will lose no time in making such arrangements with Dr. Sprenger as to secure uniformity of paper, title page, &c. of his work, with the preceding number of the Bibliotheca Indica.

I have the honour to be, Sir,

Your most obedient servant,

E. ROER,

Secy. of the Oriental Section of the Asiatic Society.

Lucknow, 30th May, 1848.

MY DEAR SIR,—I take the liberty of enclosing two small Arabic works which the Asiatic Society might perhaps consider worthy to form part of the proposed Bibliotheca Indica. The smaller contains definitions of grammatical terms, and is tolerably correct the larger is a short Encyclopædia of all the sciences cultivated by the Arabs. It gives a definition of each science, its subject, and the names of the principal works thereon. The MS. is unfortunately not free from clerical errors. To form a good octavo volume I would recommend that Jusy's Bibliography of Shiah Literature and Shah-rashub's appendix to the same, be added; they are both very small, useful and so rare that, as far as I am aware, not even their name is known in Europe. I have an old copy of both, and can obtain the loan of one or two copies.

It would be necessary to edit these four treatises with great care, and I would have great pleasure in superintending the printing. It would be cheaper to have them printed at Allahahad or Agra, than at Calcutta. Paper might be sent up by the Society in order to maintain uniformity of shape.

I take this opportunity to recommend two works of Kalkachardy (of the 9th century of the H.) which would form one good volume, and which appear to me to be of the highest importance; one is called *نهاية الأرب في انساب العرب* and the other *فلا يد الجمان في التعريف بقبايل عرب الزمان*. They both treat on the Genealogy and history of the Arabic tribes, and are the ground-work of Arabic history. Two copies of these two works are available here, and I am very anxious to publish them. I am certain they would be well received in Europe. The latter is the smaller and rarer of the two; if the Society should not like to undertake both at once, they might first publish this alone.

I am your's very faithfully,

A. SPRENGER.

Resolved unanimously, that the proposal of the Oriental Section be adopted, and measures taken immediately for the publication of the Arabic Works as suggested by Dr. Sprenger.

To Dr. W. B. O'SHAUGHNESSY, Senior Secretary of the Asiatic Society.

Dated, Asiatic Society, the 21st July, 1848.

SIR,—By direction of the Oriental Section I have the honour to forward to you the accompanying list of works selected by Babu Hurry Mohun Sen from the list of lithographed and printed books which Moulavee Abdullahi submitted to the Society.

2. The Section do not attach much value to the greater portion of these works, but as they are offered in exchange of our publications, of which a

great number of superfluous copies is on our shelves, the Section have approved of the selection, and beg to recommend the exchange of these works for those publications of the Society which the Moulavee has mentioned in his letter.

3. The original application of Moulavee Abdullah is herewith returned.

I have the honour to be, Sir,

Your most obedient servant,

E. ROER,

Secy. of the Oriental Section of the Asiatic Society.

The above recommendations are approved of by the Council of the Asiatic Society.

W. B. O'SHAUGHNESSY,

July 29th, 1848.

Secy. of the Asiatic Society.

Resolved that the recommendation of the Section be adopted.

Read the following communication from the Oriental Section, recommending the purchase of 50 copies of Mr. B. H. Hodgson's work on the Aborigines of India.

To Dr. W. B. O'SHAUGHNESSY, Senior Secretary of the Asiatic Society.

Asiatic Society, August 1st, 1848.

SIR,—I have the honour to acknowledge the receipt of your letter of the 30th ult., forwarding for the examination of the Section a copy of the first part of Mr. Hodgson's work On the Aborigines of India.

2. The Section recommend the purchase of 50 copies of this very interesting work by the Society, the expense to be borne by the Oriental Publication Fund,

3. The copy of the Aborigines is herewith returned.

I have the honour to be, Sir,

Your most obedient servant,

E. ROER.

Secy. of the Oriental Section of the Asiatic Society.

On the question being put, Mr. Laidlay moved as an amendment, which was seconded by Mr. Mitchell, and carried, that the Society subscribe for 100 copies of the work, paying for the same from the Oriental Fund.

The communications for the Council and the Sections having been disposed of, Mr. Mitchell brought forward a proposition to the effect that a Sub-committee be formed, consisting of Dr. McClelland, Dr. Falconer, Mr. Blyth, and Mr. Piddington, for the purpose of arranging and cataloguing the fossils. As this proposition were not seconded, it was not put from that chair.

Mr. Laidlay submitted specimen plates of a proposed work in folio, entitled "Illustrations of the Archaeology of India." It is proposed to issue this work in *occasional* numbers, affording the means of publishing in a more satisfactory manner than can be done in the Journal, the results of Antiquarian Researches undertaken under the patronage of Government or otherwise. The plates submitted were prepared from the beautiful drawings of Lieut. Herbert, and were much admired. Referred to the Council of the Society.

J. W. COLVILLE, *President.*

J. W. LAIDLAY, *Secretary.*

LIBRARY.

The following books have been received since the last meeting.

Presented.

Bishop Burnet's History of his own Time: from the restoration of Charles II. to the treaty of Peace at Utrecht, in the reign of Queen Anne. London, 1840, 2 vols. Rl. Svo.—PRESENTED BY J. W. GRANT, ESQ.

An Analytical Digest of all the reported Cases decided in the Supreme Courts of Judicature in India, in the Courts of the Hon. East India Company and on appeal from India, by Her Majesty in Council. By W. II. Morley. London, 1848, 6 parts.—BY THE GOVERNMENT OF BENGAL.

The Journal of the Indian Archipelago, Vol. II, Nos. VI, VII.—BY THE SAME.

Ditto ditto.—BY THE EDITOR.

Meteorological Register kept at the Surveyor General's Office, Calcutta, for the month of July, 1848.—BY THE OFFICIATING DEPUTY SURVEYOR GENERAL.

The Calcutta Christian Observer, for September, 1848.—BY THE EDITOR.

The Oriental Baptist, No. 21.—BY THE EDITOR.

The Upadeshaka, No. 20.—BY THE EDITOR.

The Oriental Christian Spectator. Vol. IX. No. 7.—BY THE EDITOR.

Tatwabodhini Patricā, No. 61.—BY THE TATWABODHINI SABHA.

Nityadharmannranjicā, Nos. 62—65.—BY THE EDITOR.

Madras Journal, No. 33.—BY THE EDITOR.

On the Aborigines of India, by B. II. Hodgson, Esq. being Essay the first, on the Kocch Bodo and Dhimal Tribes.—BY THE AUTHOR.

The Pilgrimage of Fa hian, presented by J. W. LAIDLAY, Esq.

Exchanged.

Journal Asiatique, No. 53.

The London, Edinburgh and Dublin Philosophical Magazine, Nos. 217—18.

The Picnic Magazine, No. VI.

The Athenæum, Nos. 1073—5.

Purchased.

Lectures on the Physical Phenomena of Living Beings. By Carlo Matteucci. London, 1847, 12mo.

Waterhouse's Mammalia, Vol. II.

Journal des Savants, Jan. to Avril.

The Quarterly Journal of the Geological Society, No. 14.

The Annals and Magazine of Natural History, No. 6, N. S.

Comptes Rendus, Hebdomedaires des Séances de l'Academie des Sciences. Tome XXVI. Nos. 18—20.

The History of Hyder Shah. By M. M. D. L. T. Calcutta, 1848, Svo. 2 copies.—PRESENTED BY PRINCE GHOLAM HYDER.

Karom i Hydari, in Persian. 4to. 2 copies.—BY THE SAME.

Meteorological Register kept at the Surveyor General's Office, Calcutta, for the Month of August, 1848.

Lat. 22° 33' 23". 33 N. Long. 88° 23' 42". 81 East. Mag. Variation 2° 23' 36" East. Mag. Dip. 27° 45'.

Days of the Month.	Observations made at sunrise.				Maximum Pressure observed at 9h. 50m.				Observations made at apparent noon.				Observations made at 2h. 40m. p. m.				Minimum Pressure observed at 4 p. m.				Observations made at sunset.				Maximum and Minimum Thermometer.				Rain Gauges.				
	Temperature.		Wind.		Barometer reduced to 32° Fahrenheit.	Temperature.		Wind.		Barometer reduced to 32° Fahrenheit.	Temperature.		Wind.		Barometer reduced to 32° Fahrenheit.	Temperature.		Wind.		Barometer reduced to 32° Fahrenheit.	Temperature.		Wind.		Maximum.	Mean.	Minimum.	Maximum.	Minimum.	Elevations.			
	Of the Mercury.	Of the Air.	Of Wet Bulb.	Direction at sunrise.		Of the Mercury.	Of the Air.	Of Wet Bulb.	Direction at 9. 50.		Of the Mercury.	Of the Air.	Of Wet Bulb.	Direction at noon.		Of the Mercury.	Of the Air.	Of Wet Bulb.	Direction at 2h. 40m. p. m.		Of the Mercury.	Of the Air.	Of Wet Bulb.	Direction at 4 p. m.						Of the Mercury.	Of the Air.	Of Wet Bulb.	Direction at sunset.
1	70	78	72	W	29.700	82.0	82.0	80.0	N. W.	29.655	83.2	81.3	81.0	W. S. W.	29.588	80.1	84.2	82.2	S.	29.589	86.0	85.9	80.0	W.	Cumuli.	81.2	89.9	78.4	80.5	0.00	0.17	1	
2	72	80	74	W	29.644	84.6	86.0	82.0	W.	29.628	84.0	87.2	82.0	W.	29.572	80.7	86.0	82.0	S. W.	29.576	84.5	85.0	81.0	W.	Cumuli.	81.8	85.3	80.8	80.0	0.00	0.10	2	
3	74	82	76	W	29.674	87.0	86.6	82.0	W.	29.654	86.7	89.6	82.8	W.	29.596	80.2	86.0	82.8	S. W.	29.539	85.8	86.0	82.4	W.	Cumuli.	82.4	87.9	81.0	80.2	0.00	0.16	3	
4	76	84	78	W	29.717	86.3	86.2	81.2	S. W.	29.691	87.2	86.8	81.2	W.	29.543	87.0	86.6	80.7	S. W.	29.521	87.0	86.8	80.8	S. W.	Cumuli.	83.4	85.5	83.0	80.8	0.00	0.17	4	
5	78	86	80	W	29.758	83.6	87.1	81.8	N. W.	29.730	81.6	84.3	81.2	W. S. W.	29.672	80.7	86.6	81.2	W.	29.614	82.0	80.9	79.0	W.	Cumulo strat.	87.5	86.5	81.4	100.0	0.50	0.58	5	
6	80	88	82	W	29.801	81.6	83.5	82.2	S. W.	29.783	80.2	84.7	81.0	W. S. W.	29.729	80.9	88.3	81.2	W. S. W.	29.670	87.6	81.4	82.2	80.3	S. W.	Rainng.	81.0	85.5	80.0	101.4	0.74	0.62	6
7	82	90	84	W	29.844	81.6	84.3	81.8	W. S. W.	29.826	87.9	85.9	82.0	W.	29.772	80.4	85.0	81.5	S. W.	29.714	81.1	81.9	105.6	80.5	S. W.	Cumuli.	87.2	81.1	81.0	105.6	0.40	0.46	7
8	84	92	86	W	29.887	84.6	83.3	80.7	S. W.	29.869	84.6	83.4	81.2	W.	29.811	81.8	86.1	81.0	S.	29.753	80.4	83.9	80.0	S.	Cumuli.	87.0	86.7	81.3	119.8	...	...	8
9	86	94	88	W	29.930	81.7	86.8	84.1	S.	29.912	87.3	86.4	83.0	S.	29.854	80.2	89.8	82.0	S. W.	29.796	81.4	84.0	84.2	79.6	S.	Cumuli.	88.8	81.9	81.0	...	0.28	0.34	9
10	88	96	90	W	29.973	86.5	85.7	85.2	E.	29.955	89.2	87.6	81.9	S. S. W.	29.897	81.0	85.1	86.8	S.	29.839	81.5	86.2	82.0	89.6	85.1	80.5	10
11	90	98	92	W	30.016	87.0	87.3	84.9	W.	29.998	88.7	87.9	81.8	S.	29.940	81.4	88.8	82.0	S.	29.882	88.4	85.1	...	...	...	90.3	86.2	82.0	...	0.52	0.62	11
12	92	100	94	W	30.059	81.7	85.8	81.6	S. W.	30.041	87.5	86.8	81.3	S.	30.023	81.2	88.1	80.0	S.	29.964	84.0	85.1	...	...	...	91.7	86.2	82.0	...	...	...	12
13	94	102	96	W	30.102	86.3	80.8	80.3	S.	30.084	81.9	81.9	79.5	W. S. W.	30.026	81.9	81.9	79.5	W. S. W.	30.008	81.9	81.2	78.4	S. W.	Rainng.	82.7	82.1	79.5	...	...	...	13
14	96	104	98	W	30.145	86.3	86.7	80.3	S. E.	30.127	87.4	84.4	80.4	S.	30.069	88.5	86.2	80.2	S. W.	30.011	88.5	86.2	80.2	90.3	86.2	82.0	...	0.18	0.26	14
15	98	106	100	W	30.188	86.3	86.7	80.3	S. E.	30.170	88.1	84.8	80.4	S.	30.112	89.1	86.8	80.4	S.	30.054	89.1	86.8	80.4	91.2	86.4	81.5	15
16	100	108	102	W	30.231	86.3	86.7	80.3	S. E.	30.213	88.7	85.8	80.4	S. E.	30.155	89.7	88.0	81.2	S. E.	30.097	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	16
17	102	110	104	W	30.274	86.3	86.7	80.3	S. E.	30.256	89.3	86.4	80.4	S. E.	30.198	89.3	86.4	80.4	S. E.	30.140	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	17
18	104	112	106	W	30.317	86.3	86.7	80.3	S. E.	30.299	89.9	87.0	80.4	S. E.	30.241	89.9	86.4	80.4	S. E.	30.183	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	18
19	106	114	108	W	30.360	86.3	86.7	80.3	S. E.	30.342	90.5	87.6	80.4	S. E.	30.284	89.9	86.4	80.4	S. E.	30.226	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	19
20	108	116	110	W	30.403	86.3	86.7	80.3	S. E.	30.385	91.1	88.2	80.4	S. E.	30.327	89.9	86.4	80.4	S. E.	30.269	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	20
21	110	118	112	W	30.446	86.3	86.7	80.3	S. E.	30.428	91.7	89.3	80.4	S. E.	30.370	89.9	86.4	80.4	S. E.	30.312	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	21
22	112	120	114	W	30.489	86.3	86.7	80.3	S. E.	30.471	92.3	90.9	80.4	S. E.	30.413	89.9	86.4	80.4	S. E.	30.355	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	22
23	114	122	116	W	30.532	86.3	86.7	80.3	S. E.	30.514	92.9	92.5	80.4	S. E.	30.456	89.9	86.4	80.4	S. E.	30.398	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	23
24	116	124	118	W	30.575	86.3	86.7	80.3	S. E.	30.557	93.5	93.1	80.4	S. E.	30.499	89.9	86.4	80.4	S. E.	30.441	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	24
25	118	126	120	W	30.618	86.3	86.7	80.3	S. E.	30.600	94.1	93.7	80.4	S. E.	30.542	89.9	86.4	80.4	S. E.	30.484	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	25
26	120	128	122	W	30.661	86.3	86.7	80.3	S. E.	30.643	94.7	94.3	80.4	S. E.	30.585	89.9	86.4	80.4	S. E.	30.527	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	26
27	122	130	124	W	30.704	86.3	86.7	80.3	S. E.	30.686	95.3	94.9	80.4	S. E.	30.628	89.9	86.4	80.4	S. E.	30.570	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	27
28	124	132	126	W	30.747	86.3	86.7	80.3	S. E.	30.729	95.9	95.5	80.4	S. E.	30.671	89.9	86.4	80.4	S. E.	30.613	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	28
29	126	134	128	W	30.790	86.3	86.7	80.3	S. E.	30.772	96.5	96.1	80.4	S. E.	30.714	89.9	86.4	80.4	S. E.	30.656	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	29
30	128	136	130	W	30.833	86.3	86.7	80.3	S. E.	30.815	97.1	96.7	80.4	S. E.	30.757	89.9	86.4	80.4	S. E.	30.699	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	30
31	130	138	132	W	30.876	86.3	86.7	80.3	S. E.	30.858	97.7	97.3	80.4	S. E.	30.800	89.9	86.4	80.4	S. E.	30.742	88.8	87.7	...	...	...	91.2	86.4	81.5	...	...	...	31
Mean	29.585	80.2	80.8	79.3	29.623	86.3	85.3	80.9	29.596	84.1	87.3	81.3	29.547	87.4	87.2	81.3	29.533	87.0	83.1	80.8	29.516	84.1	81.0	80.1	99.6	Difference.	13.51	15.691	6.54	6.13.			

Mean of the 1st intervening month of last year. 29.630 86.6 86.3 81.5

29.604 86.9 87.6 81.7

29.547 87.4 87.1 81.7

29.533 87.0 83.1 80.8

29.516 84.1 81.0 80.1

99.6 Difference. 13.51 15.691 6.54 6.13.

These Observations have been made for the most part, with a supply of new and first rate Instruments received into the Observatory, by orders of the Hon'ble Government, a brief description of the Instruments seems necessary.

1st.—The Barometer is a standard Instrument by Newcom, diameter of the tube 0.504 Inches. The following is the comparative showing of this Instrument and those Barometers which were in use at the Observatory prior to 1st of June, 1844

2nd.—The Thermometer is a Standard Instrument by Newcom, on metal Scale and graduated to 1/4 of a degree.

3rd.—Wet Bulb Hygrometer by Newcom, graduated to single degree divisions, the difference between Standard Thermometer and Dry Thermometer of the Instrument is + 0.2, the Temperature of the dry Bulb is taken from the Standard Thermometer, and to the extent of the quantity moisture, dew point, or dryness, being required, it is necessary the difference adverted to be taken into calculation.

4th.—Maximum and Minimum Barometer by Newcom. The difference between these instruments, and the Standard Thermometer is + 0.1 for the former and - 0.23 for the latter.

5th.—The temperature shown in Column 47 of a Thermometer, in sun's rays, is acquired by means of a Newcom's Maximum Thermometer having a black bulb. The above Interventions, excepting the Thermometer placed in the sun's rays, are fixed at above 1/2 feet from the ground, to a post, in a thickly chopped hedge, and are freely exposed to the air and sheltered from any influence of Solar reflection.

The height of the Surface of the Mercury in the Cisterns of the Standard Barometer in the Observatory attached to the Surveyor General's Office above the Mean Level of the Sea, having been deduced from a Series of Tide Observations taken from a Register kept at Kyd's Dock Yard, the result is recorded for general information.

Lowest Monthly Average of Mean Tides in the Months of February and March, above the Zero of Gauge at Kyd's Dock Yard Calcutta, 8.88

Difference of Level between the Zero of Tide Gauge at Kyd's Dock Yard, and the Standard Barometer in the Observatory, 26.59

Height of Standard Barometer above the Level of the Sea, 18.21

Total Quantity of Rain which fell in 1847 was 72.59 Inches

Do Ditto up to the 1st September 1848, 48.18

Barometer by Traugottien used prior to the 1st of June 1844 Observations reduced to 32° Fahrenheit, 29. 493

Ditto Ditto Co. Everest used from 1st of June to 31st of August 1844, ... Ditto ... 29. 637

No. 52 Standard Barometer by Newcom used from 1st of September 1844, ... Ditto ... 29. 654

No. 85, ... Ditto, ... Ditto, ... from 31 of April 1847, ... Ditto ... 29. 667

H. L. TOULLIER, CAPTAIN,
Officiating Deputy Surveyor General,
in charge Surveyor General's Office.



SKETCH MAP

showing the positions of the different Temples in

KASHMIR.

Scale of British Miles - Furlongs



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