

to the north-west of the barometric maxima. The great evaporating power of the trade-winds depends on the fact that they start dry in a cool region, and pass during their course always from colder to hotter regions; so that, as they proceed, although taking up more moisture, their capacity for taking it up continually increases, until the equator is approached, where the change of temperature is slight, and evaporation ceases along with the steadiness of the wind. The westerly winds of the north and south temperate regions, which take their rise in the same regions of barometric maxima, do not develop any remarkable evaporating power, because, travelling from warmer to colder regions, they are very rapidly saturated with moisture. In fact, the saltness of the water at any place becomes ultimately a function of the *relative dryness* of the atmosphere in the locality; that is, the further the air is removed from saturation with moisture the greater will be its evaporating power, and, consequently, the more marked will be its effect in the resultant saltness of the water exposed to its action. The regions, therefore, of high specific gravity of ocean water will coincide with those of high atmospheric dryness, and those of low specific gravity of the water with those of low atmospheric dryness. Thus, in the trade-wind regions we find the highest specific gravity of the water associated with the greatest dryness of the air, and in the region of the equatorial calms we have a low specific gravity of the water associated with heavy rains and a damp atmosphere.

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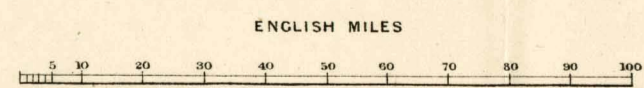
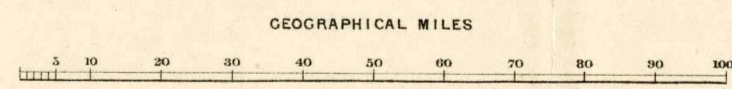
V.—*Account of the Pundit's Journey in Great Tibet from Leh in Ladákh to Lhása, and of his Return to India viâ Assam.*  
By Captain H. TROTTER, R.E.

[Read, May 14th, 1877.]

NAIN SINGH, the explorer who undertook this journey, is the original Pundit whose journey to Lhása in 1865 from Katmandhú, the capital of Nepál, was described at length by Captain Montgomerie, R.E., in the Trigonometrical Survey Reports for 1866–67. The Pundit had been in the service of the brothers Schlagintweit, while they were carrying on magnetic and other scientific observations in Ladákh and Kashmir in 1856 and 1857; he was subsequently appointed head-master in a Government Vernacular School in his native district of Milam in Kumaon, and remained in the Education Department until 1863, when, at the instance of Colonel J. T. Walker, R.E., the



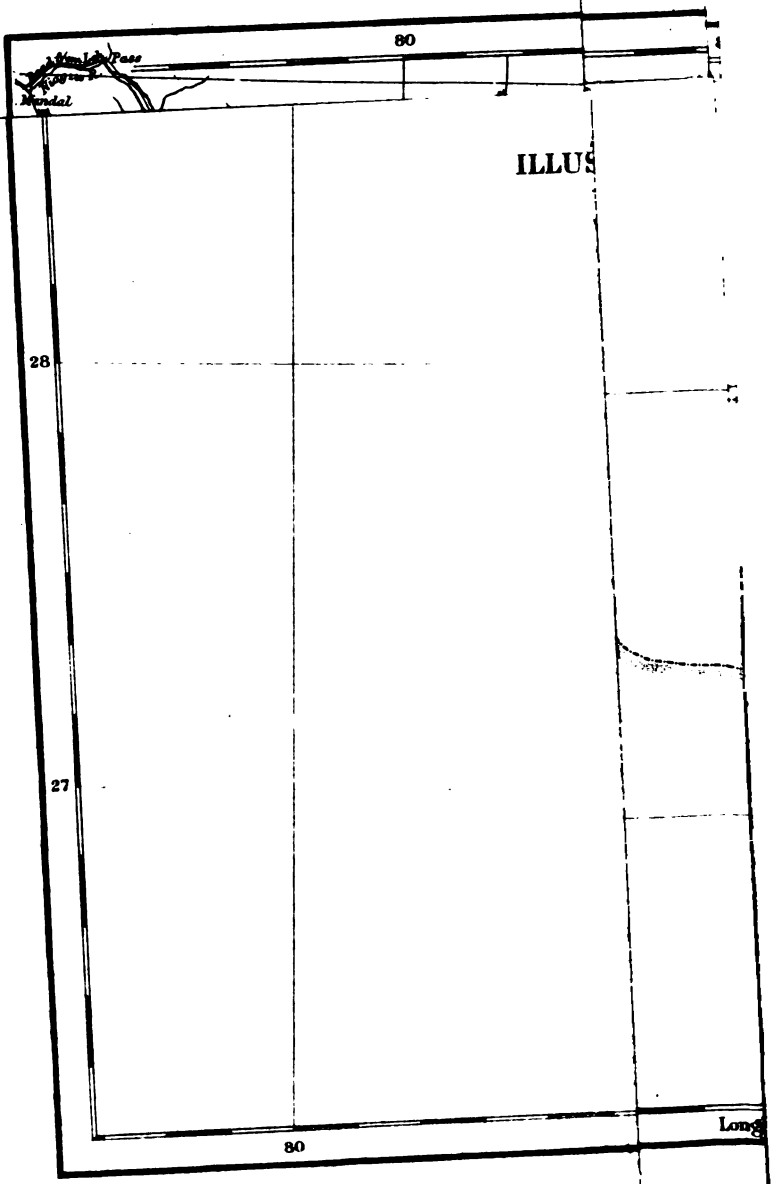
Map  
ILLUSTRATING THE JOURNEY OF THE PUNDIT NAIN SINGH  
through  
**GREAT TIBET**  
FROM LADÁKH TO ASSAM  
to accompany the Paper  
by  
Capt. H. Trotter R.E.



REFERENCES			
Chaká	Salt Lake	Gangri	Stony Mountain
Chingmá	Northern	Lei	Pass
Cho	Freshwater Lake	Lhomá	Southern
Chu	River	Sungpo	Large River
Chumik	Spring	Samdo	Junction of Streams
De	District	Thok or	Gold Fields
Gombá or Gompá	Monastery	Sarká	

The Pundit's route is colored Red

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Superintendent of the Great Trigonometrical Survey, he was entertained for employment as a Trans-frontier explorer, and duly trained. From that time to the present he has been constantly engaged either in carrying on explorations himself or in training other natives to follow in his footsteps. In 1865-66 he made the famous journey, alluded to above, from Katmandhú to Lhása, and thence to the Manasarowar Lake and back to India.\* This exploration earned for him the present of a Gold Watch from the Royal Geographical Society of London, which unfortunately was subsequently stolen from him by one of his own pupils. In 1867 he went in charge of a party of natives, and did excellent service in exploring and surveying the head-waters of the Sutlej and the Indus Rivers.† In 1870 he was deputed to accompany Mr. (now Sir Douglas) Forsyth's first mission to Yárkand, but shortly after the Mission left Leh he was sent back to India. In 1873 he was sent under my own orders with Sir Douglas Forsyth's second mission to Yárkand, in connection with which he did much good service. In July 1874, while I was at Leh, after the return of the Mission, the Pundit having volunteered to make a fresh exploration, I was authorised by Colonel Walker, B.E., to despatch him on a journey to Lhása, now to be described.‡ His instructions were to proceed by a much more northerly route than the one he had previously followed. From Lhása he was to endeavour to get attached to

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\* See 'Journal Royal Geographical Society,' vol. xxxviii., 1868.

† *Idem*, vol. xxxix., 1869.

‡ It appears that ever since the conquest of Ladákh some 150 years ago by the Sokpo Gyalpo Galdán Cháng, the Rájá of Lhása, it has been customary for a large caravan to leave Leh for Lhása once in every three years. The leader has the honorary title of Lopchák,<sup>1</sup> and is generally one of the leading officials of Ladákh. The party leaves Leh in July and August, and proceeds viâ Gartokh, Manasarowar, Tádum, and Shigátzé to Lhása, where they generally arrive the following January. Lengthened halts are made on the journey at the above-mentioned places for the sake of trade. The caravan remains at Lhása till June or July, and then returns by the same route to Leh, which place they reach in December, i.e., after an absence of one and a half years.

While in Tibetan territory the districts through which they march are bound to furnish gratuitously 300 yáks for the carriage of merchandise, as well as supplies and food for the travellers. As the quantity of merchandise sent with the caravan rarely attains the full amount for which carriage is sanctioned, the Lopchák in charge receives from the villages he passes *en route* some equivalent for the balance of carriage not required. As the Lopchák thus has his goods carried gratis, and receives in addition considerable payment in lieu of carriage, he is naturally well able to make a large profit on his venture. He is provided by the Kashmir authorities before starting with 15,000 rupees' worth of goods, chiefly silks, shawls, and saffron. On his return he is expected to pay into the treasury double the amount of the advance that was made to him. This he does from the proceeds of the tea, wool, turquoises, and silver bullion which he obtains from Tibet in exchange for the wares taken from Ladákh.

<sup>1</sup> The Tibetan official, who heads a similar caravan which goes every three years from Lhása to Ladákh, is termed Jung Chongpen or Cha-aba.

the caravan which proceeds thence every three years to Peking. If he failed in accomplishing this, he was to endeavour to return to India by an easterly route from Lhása, down the course of the Brahmapútra if possible.

On the 15th of July, 1873, the Pundit and his companions left Leh. On the 21st they reached Tánksé, three marches further on; at Chágra they found a summer encampment of shepherds, the last inhabited spot on the road to Yárkand.

From Chagra they followed the Changchenmo route to Yárkand, halting at the foot of the Lankar or Marsimik LÁ\* (Pass). On the following day they crossed the pass (18,420 feet high), and then quitted the Yárkand road and turned off to the east; crossed the Kiu LÁ, still higher than the Marsimik, and encamped for the night at Pángur Gongma, after a march of 9 miles.

The Pundit was obliged to travel slowly, as the whole of his worldly possessions, including tent, bedding, and commissariat for the whole party, had to be carried on the backs of sheep. It is astonishing what admirable beasts of burden these animals make in a pastoral country. The Pundit started with twenty-six sheep from Tánksé. Of these some were eaten on the road, some became ill and were exchanged for fresh ones; but four or five of the original lot reached Lhása, having in less than four months carried loads of from 20 to 25 lbs. each, over a distance of more than 1000 miles. Throughout the journey they never received a single ounce of food beyond what they could pick up for themselves on the road and at the camping-grounds.

On the 28th of July the party descended the stream from the Kiu Pass to Ningri,† a camp which takes its name from a large heart-shaped mountain which overhangs it. On the following day, after descending the same stream to Mandal, they reached its point of junction with the Niágzu stream, up which they proceeded as far as Niágzu Rawang, encountering *en route* a large party of Tánksé villagers returning from Rudokh with wool and salt.

At the camp were a number of men collecting saltpetre, who stated that the Jongpon or Governor of Rudokh had ordered them to pay their taxes for the current year in that article. It is obtained by digging up the soil, which is placed in brass vessels; hot water is poured over it; the water dissolves the saltpetre, and is then decanted off into another vessel; after a time the water cools and the saltpetre is precipitated. One man can manufacture a sheep-load, or about 20 lbs. weight of saltpetre, in the same number of days.

\* LÁ is the Tibetan word for *Pass*.

† *Ning*, heart; and *ri*, mountain.

At Niágzu Rawang is the boundary between Tibet and Ladákh;\* the right bank of the stream belongs to the latter and the left bank to the former. A day's halt was made here to rest the sheep, and the Pundit made an excursion a few miles up the Rawang stream to Rawang Yokmá, a winter encampment belonging to Tánksé, in the neighbourhood of a favourite grazing-ground, where, in addition to abundant supplies of grass, there is also—a rare thing in Ladákh—a large supply of jungle wood.†

From Niágzu, six short marches brought our travellers to Noh. The country through which they passed was almost uninhabited; a few solitary tents belonging to Noh shepherds and a single hut at Gonu Chowki, occupied by a small frontier guard, were the only habitations passed *en route*.

[As an Appendix is given, describing at considerable length each day's march throughout the whole of the journey from Leh to Lhása and thence on to India, it is unnecessary here to describe the road in detail. Maps of the country about the Pangong Lake, up to within a few miles of Noh, have already been published by the Great Trigonometrical Survey Department; the Pundit's route from that point is shown on the map accompanying this narrative, which has been carefully constructed from the Pundit's route-survey, based on his astronomical observations for latitude and his hypsometric observations for height above sea-level.]

Noh is a small village in the Rudokh district, containing about twenty huts, built of stones cemented by mud. It has a small permanent population, which is increased largely in the winter months by numerous shepherds, who during the summer are scattered in tents in twos and threes in whatever parts of

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\* According to the Indian survey maps, the boundary line between Ladákh and Tibet is a good deal to the west of the line as given by the Pundit. The latter states that the stream of the Niágzu Valley which flows southwards near the meridian of  $79^{\circ}$  from Mandal to the Kharnak Fort is the true boundary. The one given on the survey map, viz. the watershed to the west of the above-mentioned stream, is derived from Major Godwin-Austen's plane-table survey of the country to the north of the Pangong Lake in 1863. This survey extends to within a few miles of Noh, and the details of it generally agree most satisfactorily with the Pundit's route survey from Lukong to Noh, although there is this discrepancy in the position of the boundary line.

I find on a reference to Mr. Walker's map of the Punjab and Western Himalayas, which accompanies General Cunningham's well-known work on Ladákh, that Niágzu is there also given as the boundary between the two countries, but that south of Niágzu the watershed to the east of the Niágzu or Chang Parma River is shown as the boundary. The Ruang (or Rawang) stream which enters the main valley north of Niágzu is there shown as belonging to Tibet, but it appears from the text of the Pundit's narrative that he ascended the Ruang stream and found there huts and a grazing-ground belonging to the people of Tánksé.

† The wood is of three kinds; *changma*, willow; *shukpa*, pencil cedar; *songhu*, ? tamarisk.

the district grass and water are to be found in sufficient abundance for their numerous flocks of sheep and goats. The chief man of Noh, Changkep by name, whose official title is *Lhámba*, was at the time of the Pundit's visit at a camp called Pángdá, about three days' journey north-west from Noh.

The *Lhámba* is under the immediate orders of the Jongpon or Governor of Rudokh, whose jurisdiction extends over that portion of North-Western Tibet which lies to the north of the Singh-gi Chu branch of the Indus, as far east as the Thok Jálung gold-fields.

The Jongpon of Rudokh is in his turn subordinate to the Gárpon of Gártokh, who has also under his orders the Jongpons of the large districts of Gugi (Dubá) and Purang, as well as other independent Pons (or Rájás) of Western Tibet. The Gárpon is under the immediate order of the Gyálpo or Rájá of Lhása. The office of Gárpon is only tenable for three years, and is always held by a native of Lhása, who is appointed by the Gyálpo. The Jongpons are also generally changed every three or four years.

The province of Western Tibet is frequently termed Nari Khorsum. The inhabitants of the northern portion, *i.e.* the district through which the Pundit travelled, are called by the settled population to the south Champas or *Changpas*, *i.e.* literally *North-men*. By the inhabitants of Turkistán they are called *Tághlik*, or mountaineers. The Champas encountered by the Pundit were, contrary to the generally received opinion of them, quite inoffensive people, of the same class as the people of Rudokh and the more civilised districts farther south.\* They are all Buddhists, but religious edifices are scarce in their country. On the Pundit's route through this portion of Tibet he came across no *Gonpa* or monastery, although he occasionally encountered *Mánis* and *Churtáns*.†

The road from Noh skirts the Pangong Lake, which at Noh is joined by a stream from the north-east, up which goes a good road to Khotan, *via* Polu and Kiria.

The distance to Khotan by this road is about 450 miles. For a distance of 40 miles from Noh it gradually rises to a height

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\* I have myself encountered Champas in the Rupshu district of Ladákh to the west of Chinese Tibet. The habits and customs of these people appear to be just the same as those of the same class who live over the border.

† A *churtan* or *churtan* is defined by Cunningham as a "holy receptacle" or "offering repository." It is a pyramidal-shaped building erected in honour of some of the holy Buddhas. A *máni* is an oblong dyke or pile of stones 4 or 5 feet high and from 10 to 12 feet broad, varying in length from 20 feet to nearly a mile. They are entirely composed of stones said to be deposited one by one by travellers passing by. On each surface stone is generally inscribed the well-known Buddhist formula, "*Om maní padmí hung.*"



of 15,500 feet, and then for about 160 miles as the crow flies, crosses, in a north-easterly direction, a series of elevated plains and ridges, before it descends somewhat suddenly to the plains of Eastern Turkistán. The average height above sea-level of the halting-places on the elevated plain to the north of Noh is 16,500 feet.\* This vast highly-elevated plateau over which the road passes is the eastern continuation of the Ling-zi Thang and Áksu Chin plains, which lie at a similar, or in places even a higher, elevation in a north-westerly direction from Noh, between the Changchenmo River and the Kuen Luen Range, and have to be crossed by the traveller who adopts the Eastern (or Changchenmo) route between Leh and Yárkand. To the north of the Kuen Luen there is a rapid fall into the plains of Eastern Turkistán.

This Tibetan plateau extends eastward, as we shall see in the course of this narrative, as far as the head-waters of the great rivers which water China,—in fact for a distance of more than 800 miles to the Bourhan Búda Mountains (south-west of the Koko-nur Lake on the road between Lhása and Pekin), where we still find, according to the Abbé Huc and the still more recent researches of the Russian Captain Prejevalski, a tableland rising from 14,000 to 15,000 feet above the sea-level, above which tower gigantic snow-covered mountains.

Seven miles to the east of Noh is the eastern termination of the series of lakes known to us as the Pangong, but better known to the Tibetans as the *Chomo Gna Laring Oho*, which, being literally interpreted, means "Female narrow very long lake." Its extreme length from the west end at Lukong is exactly 100 miles, while the breadth probably nowhere exceeds six or seven.†

At its eastern extremity it is entered by a small stream, 3 paces broad and 1½ foot deep. Although the greater portion of this lake has been previously surveyed and described, its eastern limit has now been determined for the first time. It is a curious fact that the water at the eastern extremity is sweet and good to drink, while that at the west end is very brackish. It has been conclusively shown by Major Godwin-Austen that this lake once upon a time drained into the Shyok, but at present it forms the most western of a numerous series of inland lakes with no outlets, which we shall find stretch for a considerable distance across the elevated plateau of Central Tibet.

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\* For details of this road see Route XIV. of Section G of Geographical Appendix to the Report on the Survey Operations in connection with the mission to Yárkand and Káshgar in 1873-74.

† The depth of the Pangong Lake at its west end was found by soundings that I made in 1873 to be nowhere greater than 136 feet.

*Noh to Thok Daurákpa.*

From Noh the Pundit toiled on for many weary marches over this Tibetan plateau; his road lay eastward along a wide, open, grassy valley varying in width from 6 to 10 miles, bounded on the north and south by low grass-covered hills, through which occasional openings gave a view of extensive plains stretching away as far as the eye could reach. Beyond the hills sometimes appeared snow-capped mountains, while an occasional shepherd's tent in the foreground, and the frequent appearance of large herds of wild asses, antelope, and gigantic wild sheep,\* helped to relieve the monotony of the journey. In almost every day's march large sheets of water were passed, generally salt, but occasionally fed by fresh-water springs. At the latter the Pundit and his companions would fill their waterskins,† as they rarely knew from day to day whether or no they would be able to obtain a fresh supply on the road. More than once their supply of this precious fluid was exhausted, and on one occasion the whole party were more than twenty hours without fresh water. For fuel, also a traveller's necessary, they were better off; the *argols* or dung of the numerous flocks of wild animals were a never-failing source of supply, while occasionally, but rarely, firewood was obtained in considerable quantities. At Tháchap Cho, a fresh-water lake, eight days to the east of Noh, and the 27th halting-place from Leh, a large stream flowing from some snow-covered hills to the north-east of the lake was found to be covered on both banks with a dense forest of willow, tamarisk, and other trees and shrubs.‡ For the first thirty marches from Noh the heights of the camping-grounds varied between 13,700 and 15,000 feet, and for the rest of the journey to Namcho the ground was somewhat higher, but there was no considerable rise or fall throughout this portion of the Pundit's route. The large, flat, open valleys traversed by the Pundit, locally termed *Sangs*, appear to be much of the same nature as the *Pámírs* between Eastern and Western Turkistán and the *Jilgas*§ of Northern Ladákh. These *Sangs* of Tibet, however, would seem to have more of plain and less of precipitous mountains than either the *Pámírs* or the *Jilgas*.

The road for the first ten marches from Noh passes through the Rawang *Changma* or *Northern* Rawang district, and is

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\* The *Ovis Ammon*.

† Made from sheep's stomachs; two of them would be slung across the back of a sheep.

‡ Termed *Pena*, *Birhá*, and *Dámd* (furze).

§ *Jilga* is the Turki word for a broad open valley.

nearly parallel to, and north of, at a distance in places of only a few miles from, the route followed by another Pundit on a former occasion while on his way from Rudokh to Thok Jalung through Rawang Lhoma or the Southern Rawang district, which is separated from the northern one by a low range of hills.

The Pundit passed *en route* the salt marshes of Khai Cháká and Dakdong Cháká, from which the people of the surrounding country collect large quantities of salt, which they carry for sale to Ladákh. He states that the salt forms a crust lying like a sheet of ice on the surface of the mud. The salt-seekers sink through this crust up to their loins in mud and water, and remove the salt, which they subsequently wash, clean and dry in the sun.

At Chabuk Zinga or *village* (14,400 feet above sea-level) were two huts built of wood, and in the neighbourhood some twenty tents of shepherds were visible. Here there were a few fields where barley is grown, the first signs of cultivation that had been seen since leaving Noh. The Pundit is of opinion that were the country more thickly populated, there would be no difficulty in finding plenty of ground fit for cultivation. The Champa inhabitants appear, however, to care but little for grain, and live almost entirely on meat, milk, butter and cheese, the produce of their numerous flocks and herds. One sheep-load, *i.e.* 20 lbs., of flour, affords an ample supply for the consumption of eight or ten men for a couple of months. At the permanent camps they had large caldrons, generally made of stone; in these they used to make a very weak soup, into which they threw a handful of flour. This constituted the dinner for a large party. At their movable camps they cook in smaller vessels made of stone or copper (both of which are imported from Ladákh). All articles of copper or iron are very much valued, and a small axe of the Pundit's, which he kept for the purpose of breaking up ice, he might at any time have exchanged for two or three sheep.

The only articles that these people themselves manufacture are tents and very coarse woollen clothing. The former are black, and are made from yák's hair, and the latter from the fleeces of their sheep, which also produce the material for making the bags in which they take salt for sale in Ladákh.

Their wealth consists of their horses, flocks, and herds, from the products of which they are mainly supported; also in salt which they carry for sale to Ladákh, and in return for which they obtain flour, copper, stone vessels, and hardware. Most families possess a matchlock, generally of Nepál manufacture, and the men of the Rudokh district seldom move about without

either a gun or a bow and arrows, in the use of which latter they are very expert. Like the inhabitants of other parts of Central Asia, they fire their guns while lying at full length on the ground, the muzzle being supported by a prong about a foot long, generally made of antelope-horns. Each gun has a piece of white bunting attached to the barrel, which is thus converted into a flag. Gunpowder is very scarce, and is generally preserved for special occasions.

The Pundit states that on a former journey, when he visited a large fair at Gártokh, the young men, who are all expert horsemen, used to practise very successfully at a mark while going at full speed on horseback.\* Each competitor carried two guns and a bow and arrows, and having fired off his gun used to discharge his arrows.

The Champas are keen in the pursuit of game, which they kill in large quantities, partly with firearms and bows and arrows, but chiefly with a kind of trap called Redokh Chum,† very similar in principle to an English rat-trap. It consists of a ring made of rope, to whose inner surface are attached elastic sharp-pointed slips of wood converging towards the centre of the ring, where a space is left sufficiently large to allow the passage through it of an animal's foot. Small holes are dug in the ground near the water which the wild animals are known to frequent. These traps are placed at the top, hidden from view by a covering of earth, and attached by a strong rope, also concealed from view, to a stout peg, which is driven into the ground at a considerable distance off. The animals on their way to the water pass over the holes, and the weight of the body drives the foot through the ring. Once through, it is impossible for the animal to free his foot from the trap, and he soon falls a victim to the sword and spear of the hunter, who lies concealed somewhere in the neighbourhood. Great numbers of wild horses, sheep, and antelopes are killed in this manner.

For ten marches from Chabuk Zinga to Hissik Cháka the country was uninhabited; the road lay over a plain way similar to what had already been traversed between Noh and Chabuk. The Champas at the latter place had given our travellers general instructions as to the line of road to be followed; but it appears that the latter had diverged too much to the north, and missed the encampment of Gargethol, which the Pundit had been previously told lay on the route to Lhása, and which he had intended visiting, as one of his servants had a friend there

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\* This is an amusement I have often myself seen in Eastern Turkistán.

† Literally *animal-catcher*.

through whose influence they hoped to receive assistance in prosecuting the onward journey. The Pundit had now entered the Khámpa or Kampa district, renowned for the bad character of its population, and on arrival at Hissik Cháka (on the 25th of August) was greatly disturbed in mind at seeing men approaching them from a distance with yáks and ponies. Not knowing what to expect, he immediately concealed in the earth his instruments, the greater part of his clothes, and a few bags of grain, and remained behind, while he sent on two of his men to reconnoitre and make inquiries.

The strangers fortunately turned out to be residents of Gargethol, the place the Pundit was aiming at reaching, and which lay about a day's march to the south-west of Hissik Cháka. On the following day (August 25th) they travelled together to Gargethol, where they found a large encampment of Khámpas, and had the good fortune to encounter the man they had been looking for. It appears that in years gone by the Pundit's servant had struck up a great friendship in Ladákh with a medical practitioner, who was now a man of great influence amongst the Khámpas. It was in order to find him that the Pundit had turned back to Gargethol. When found, he did not deny his old friend, but, on the contrary, was of the greatest assistance, as he gave letters to the Pundit for the *Gombo*\* or headman of Garchethol, another Khámpa district several marches further east.

The Khámpas who inhabit these two districts of Gargethol and Garchethol must not be confounded with the Changpas or Champas, an entirely different race. The Khámpas originally came from the country of Khám, which lies to the north-east and east of Lhása.† They number in Gargethol about seventy tents, with a population of 600 or 700 souls. In Garchethol there are about one hundred tents.

These Khámpas had migrated from their own country (near Ziling,‡ to the east of the Koko-nur Lake) about twenty-five years prior to the Pundit's visit. They travelled viâ Lhása and the Manasarowar Lake, near which place they plundered a caravan, and fled with their booty to their present camping-grounds, which, prior to that time, were uninhabited. Soon after settling

\* *Gombo* is the Tibetan term for headman, and corresponds to the Ladákhí *Goba*. The equivalent word in Nari Khorsum is *Gadpu* or *Ganpu*.

† Mr. Cooper, the traveller, in his attempt to ascend the Brahmapútra River came across a tribe called *Khám-tis*, who were said to have formerly emigrated from the country about the head-waters of the Irawaddy. It is, I should think, not impossible that Khámpas and Khám-tis both come of the same stock.

‡ According to the Abbé Huc, the capital of the Khám district is *Tsiando* or *Chhámdo*, a well-known place on the road between Lhása and Pá or Bachang. *Ziling* is the Tibetan pronunciation of *Sining-fu*, a Chinese town in Kansu.

there, they were called on by the Garpon of Gártokh to pay tribute, which they now do annually to the extent of 5000 Nák-tang, or tankas, *i. e.* about rupees 2000 (200*l.*), or its equivalent in gold, ghi,\* horses, and cattle. This tribute is paid in Gártokh, and a punctual payment doubtless secures a certain immunity from their peccadilloes being inquired into. They possess large herds of cattle, &c., each tent having from 10 to 60 horses, and from 500 to 2000 sheep. They despatch annually to a fair at Gáni-ma, near Manasarowar, large quantities of sheep and goats' wool, salt, and gold; and, according to their own account, when they have finished their mercantile transactions, they send on the cloths, &c., that they have purchased, under the escort of the older and less active members of the tribe, while the young men start on some marauding excursion, the victims of which are generally travellers, and strangers to the country. The Khámpas are well armed with guns and swords, which latter are constantly worn even by boys. The scabbards are often handsomely ornamented with gold, turquoises, and coral.

The men are fine, large, broad-shouldered fellows. They wear, both in summer and winter, *postins* made of sheep-skins, the hair being turned inside. These coats are worn short, extending to the knees only, and are fastened round the waist by a woollen girdle, above which the coat is roomy and capacious, affording ample space for the storage of their goods and chattels when on a journey. They have felt hats, resembling in shape a broad-brimmed English *wide-awake*, and leather boots with woollen tops and pointed toes. They have no hair on the face, and that of the head is plaited, Chinese fashion, into pigtails. The women dress very much as the men, but their *postins* are longer and less roomy. They wear round leather caps and very long hair, to the plaits of which are fastened long pendants nearly reaching the ground, profusely ornamented, chiefly with silver coins, of which the favourite is the British *rupee*. Both men and women are always in the saddle; they ride large, powerful horses, and both sexes are skilful riders. They are great sportsmen, and kill large quantities of game, chiefly wild horses, sheep, and antelope. They either employ fire-arms or kill their prey with swords and spears when caught in the Redokh Chum trap before described. Their capacity for eating meat appears to be unbounded, and they are apparently naturally somewhat bloodthirsty, as the Pundit states, that on several occasions when an animal had been killed, he saw the Khámpa boys kneel down and lick the blood off the ground. This fond-

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\* Clarified butter.

ness for blood would appear to be derived from a still earlier age, as the food given to infants, when their mothers can no longer support them, consists, in the entire absence of grain in the country, of pounded cheese mixed up with butter and blood. They are of the Buddhist religion, but their language is quite different to that of other Tibetans,\* and only one man of the Pundit's party, who had resided some years at Sining-fu (to the east of the Koko Nur), was able to understand it and to make himself understood.

Between Gargethol and the Champa district of Shankhor, on the south, is a place called Gegha, where a large fair is annually held in July and August.

On the 29th of August the Pundit returned to Hissik Chaká, where he saw a large herd of *hiánga*s, wild horses, fully 200 in number. He continued his route over uninhabited level plains, till the 1st of September, when, at a camp called Huma Cho, he met on the road the Gombo of Garchethol, a gentleman who was distinguishable from his followers, in that he wore a pair of golden earrings, of such length as to rest on his shoulders. The presentation of the letter of introduction from their medical friend at Gargethol secured our party a civil reception.

The following night there was a sharp frost, the first sign of the approach of winter.

On the 3rd of September they reached the village of Mango, the head-quarters of the Gombo, who had gone on ahead of the travellers. The Pundit paid him a formal visit in his tent—a large one made of yák's hair—and gave him a small present of sandal-wood. The Pundit was kindly treated, and on intimating to the Gombo that he was on his way to visit a celebrated monastery near the Nameho Lake, Chiring Dunduk (the Gombo) said he was himself about to move his camp several days' march in that direction, and proposed that they should perform the journey together. The Pundit gratefully acquiesced. On returning to his own tent, he found himself besieged by a host of curious Khámpas, who were all most anxious to become possessors of the various little articles of hardware he had with him, but he resolutely refused to part with anything.

Among other visitors was an old man named Sonám Darka, about eighty years of age, a native of a country near Lhása, who had been living as a servant amongst the Khámpas for several years, and had gradually accumulated a good deal of property. The Pundit, when he found that this man could speak good

\* According to the Pundit many words are identical, but the affixes and prefixes are entirely different to those of Tibet. The only point he could recollect is that the suffix *Mu* is the sign of the interrogative. This, curiously, is identical with the interrogative in the Turki language as spoken in Kashgar, and may perhaps indicate a common origin for the two languages.

Tibetan, succeeded in securing his friendship by the present of a couple of common sewing-needles, and obtained from him the following information about the neighbouring countries:—

The district to the north of Garge and Garchethol is a large uninhabited plain, called Jung Pháyil Puyil, meaning literally "the desert country in which the father and son have wandered," so called from a tradition that two men of the Shankhor country had, many years previously, entered this desert tract for the sake of hunting; but, after wandering about for a lengthened period, they both died there for want of water.\* Some thirty or forty years before the Pundit's visit, and prior to the occupation of Garchethol by the Khámpa tribes who now dwell there, there used to be considerable traffic between the inhabitants of Nakchang (a district to the east of Garchethol) and a place called Nári Tháru, some 20 days' journey to the N.W. of Thok Daurákpa. To Nári Tháru merchants used to come from Nurla, a place 8 or 10 days' journey off in the Yárkin country, and the Tibetans used there to barter gold for grain and cotton cloths. The traders from Nurla were a people who used to shave their heads (on which they wore large folded cloths), and who used to cut the throats of sheep instead of strangling them, as is done in Northern Tibet. Sonám Darka also recollected a few words of their language, which the Pundit, who had only recently returned from Yárkand, at once recognised as Túrki. The road from Thok Daurákpa is said to traverse for 20 days' journey extensive plains, and then crosses a snowy range, at the foot of which lies Nári Tháru, where a considerable stream, the only one encountered on the journey, flows from east to west.† Sonám had in his youth made the journey several times, but the road had now been

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\* Curiously enough, another Pundit on a former exploration brought intelligence of the existence of an *inhabited* country called Jung Pháyil Puyil in the direction now indicated; the name he had got correct, but it now appears to represent a desert tract, as the name itself proves.

† It is clear that Yárkin stands for Yárkand, and it is nearly equally certain that Nurla is a place called Núra in my map of Eastern Turkistán, on the direct road between Khotan and Polú. I find in a manuscript note in my possession that Sai Neurla, a place about one march to the east of Ganjutágh, and which is probably identical with Núra, is known as a place of export of grain towards Tibet. From Sonám's description of the road, and the knowledge that in clear weather a snowy range is said to be continuously visible along the road from Kiria to Charchand, I infer that Nári Tháru occupies a position at the foot of the northern bounding ridge of the Great Tibetan plateau, somewhat similar to that held by Polú and Sorghák, and probably lies approximately in latitude 36° by longitude 84°. The stream mentioned probably flows into the Great Desert, and may possibly be the same that passes by Charchand.

The Pundit mentions that amongst the sheep in Northern Tibet were some with large tails said to have been bred from some that had been brought many years before from Nári Tháru. The large-tailed sheep, or "Dumba," is the universal breed in Yárkand.



closed for at least thirty years, the reason given being that since the discovery of borax, or rather since borax has become a considerable article of trade between Tibet and Hindustan, the inhabitants of Nakchang now find a good market for it in the Nari Khorsum district, from which place they derive their supplies of grain instead of, as formerly, from Turkistán.\*

Sonám Darka had also on one occasion, some thirty years ago, made a journey from Thok Daurákpa to Ajan, a country about two months' journey in a north-easterly direction. The road lay throughout over an extensive plain, no large mountains being seen, or streams encountered *en route*. Drinking-water was obtained from a succession of small fresh-water lakes, mostly supplied from rain-water. Shortly before reaching the Ajan country, the road traverses a bare rocky range of mountains. Ajan itself was inhabited by the Sokpo Kalmucks, a nomadic pastoral people who obtained grain (rice and flour) from the neighbourhood of Karka, a large monastery said to be ten or twelve days' journey beyond the southern frontier of the Ajan country. Near Karka is a large city called Kokod, the residence of the Sokpo Gyalpo, the ruler of the Sokpo districts, while Karka itself contains several monasteries, one of which is the residence of the Yapchan 'Thám̄ba (or Ringboché), the spiritual head of the Sokpo Kalmucks. The road just described is never now made use of, probably for the same reason which has led to the abandonment of the before-mentioned route to Nári 'Tháru, as well as on account of the difficulty of insuring a certain supply of water *en route*; no one would venture to travel by it unless after an unusually heavy rainy season. Wood and grass are said to be plentiful throughout.

Karka† is a name about which I have for some time past been endeavouring to obtain authentic information, but I can hardly venture to claim any great success in the attempt. It is first mentioned, as far as I am aware, by Major Montgomerie, R.E., in his discussion of the work of the Pundit who explored the Namcho Lake in 1872. On the present occasion the Pundit had been specially instructed to make inquiries about it. He saw in Lhása some men who were pointed out to him as from Karka, tall, copper-complexioned, fine-looking men, but unfortunately he could not understand their language, and his stay in Lhása was so short that he was unable to learn anything definite about them.

\* Grain is, as may be imagined, not over-plentiful. A sheep's load of flour, say 20 lbs., is about the equivalent in value of a large sheep.

† *Karkha* was the name of one of the metropolitan sees of the Nestorian Church. Is it possibly the same place as the modern Karka or Karkha? See p. cxxiv. of Colonel Yule's preliminary essay to 'Catlay and the Way thither.'

As far as I can gather from inquiries made at Yárkand and from the information collected by the Pundits, Karka is situated about one and a half month's journey to the north-west of Nák Chu Kha, a large village situated on a river of the same name a few marches to the north-east of the Tengri Nur or Namcho Lake. At this village it is said that two roads diverge, one to Karka, passing in a north-westerly direction, and the other to Koko Nur, and Pekin in a north-easterly direction. The position of Karka thus obtained would agree approximately with an account I heard from a Kalmuck in Kashgár, which located Karka about a fortnight's journey to the south-east of Lake Lob. It probably lies somewhere between Lakes Lob and Koko Nur, and I think it not improbable that the country of Ajan to the south of it may be the same as the country of Anj Si, which is mentioned by Uspenski in the Russian 'Isvestia' as a country lying in a westerly direction from the Zaidan plain, which is to the west of Koko Nur.\*

On the 4th of September the Pundit left Mango, in company with Sonám Darka, and the Gombo Chiring Dunduk, the headman of Garché, together with their flocks and herds; there were about six tents of Nomads in all. For four days they kept company, advancing slowly at the rate of about 8 miles a day. It is the habit of these people, when they have exhausted the pasturage near any one camp, to shift bodily to fresh ground; they were now on one of their customary moves. On the fourth day they reached Kezing, in the neighbourhood of which place are very extensive pastures sufficient for the subsistence of the Gombo's large flocks for a couple of months.

Some idea of the wealth of this people may be inferred from the fact that Chiring Dunduk was himself the fortunate proprietor of 50 horses, 400 yaks, and 2000 sheep. Other members of his tribe were said to be even more wealthy than he.

These Garché Khámpas, numbering in all about 100 tents, had only been settled in the country for about fourteen years. They are under the jurisdiction of the Gyalpo of Lhása, and are very much better off than their neighbours the Gargé Khámpas (who are under Rudokh), as they only pay what must be to

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\* I at one time thought that Karka might be merely a corruption of the word Kalka, and that the *Yapohan Tamba* of Karka might be the same individual as the *Kalka Yezun Dampa* (of Shaw), the *Guison Tamba* (of Hue), and the *Kutuchia Gyon* of Urga (of Uspenski), the chief Lama of the Kalka country which lies on the southern confines of Siberia. It appears, however, from a study of Mr. Uspenski's notes in the 'Isvestia' that Urga is 3250 versts (more than 2000 miles) from Lhása, the road from which place passes by Nák Chu Kha, Koko Nur, and Sining-fu. The last-mentioned place is 4 long marches east of Koko Nur and 44 long marches south of Urga. These bearings and distances place it, I think, beyond a doubt that Karka and Kalka are not identical.



them an almost nominal tribute (in gold) of the value of about 20*l*. This gold is obtained at Thok Daurákpa, to the east of Garchethol, in exchange for the produce of their flocks, and for borax, extensive fields of which exist at Noring Cho, which were passed by the Pundit *en route* to Kezing.

The Pundit appears to have ingratiated himself most successfully with the Gombo Chiring, for that chief very kindly made arrangements that he should travel onwards with two other men, servants of a merchant from the neighbourhood of Shigátzé, who were travelling with some spare yáks in advance of their master from Thok Jálung to Shigátzé; these men, for their own sakes, were only too happy to travel in company with the Pundit and his party.

From Kezing eastward for a distance of 80 miles, up to Thok Daurákpa, the country was uninhabited when the Pundit passed through it; but it is occupied by the Khámpas of Garché at certain seasons of the year. There is capital grazing, and an abundant supply of water and fuel (argols) throughout. The road lies the whole way in one of the broad open *sangs* before described, lying between ranges of hills running east and west. South of the Tashi Bhup Cho, the southern range runs off in a south-east direction, rising rapidly in height, and forming a massive group of snow-covered peaks, known as the Shyalchi Káng Jáng, the positions of several of which were fixed by the Pundit, although at a distance of from 30 to 40 miles south of his road.

From this snowy group flows northwards a very considerable stream, the Shyal-chu, which was crossed by the Pundit in three separate branches, nowhere more than a foot in depth, but said to be passable only with very great difficulty during the floods caused by the melting of the snow in the summer months. This stream flows into the Tashi Bhup Lake, whose southern shore is about 2 miles to the north of the Pundit's road. From the eastern end of the lake a stream issues, whose waters are said ultimately to drain into the Chargut Lake, from which they emerge under the name of the Ná-k-chu-khá River, and flow eastward to the village of the same name which lies on the northern road between Lhása and Pekin. At the point where the Shyal-chu was passed by the Pundit, his road was crossed by another track going from Manasarowar to Ná-k-chu-khá, which passes south of the Tashi Bhup Lake, and then follows throughout its course the stream which emerges from the east end of the lake, and flows to the Chargut Lake and Ná-k-chu-khá. This road is said to be perfectly easy, and to abound with grass and water, but the country it passes through is uninhabited throughout.

The Pundit, who had been forewarned that the neighbourhood of the crossing of the two lines of road was a notorious place for robbers, took the precaution of pitching his camp 2 miles off the road. It is said that the custom of the Khámpa robbers who infest this country is to cut at night the ropes supporting the tent of the traveller, whom they fall upon and cut down while attempting to escape from the folds of his tent.

While under the immediate protection of the Gombo Chiring the Pundit had felt pretty safe, but he appears, not without good reason, to have passed several sleepless nights before he again reached inhabited country.

Travelling as a Láma he had affected great poverty, and throughout the journey he kept his rupees concealed here and there in the most out-of-the-way places imaginable. His chief repository was a very old and ragged pad carried on the back of a donkey, that had accompanied him from the west, and which animal, in consequence of the riches he bore, obtained amongst our travellers the *soubriquet* of *Sarkári Khizánchi*, or Government Treasurer.

The Pundit reached the gold-fields at Thok Daurákpa on the 17th of September, having taken on the latter part of the journey a somewhat difficult road over hills, in order to avoid the easier road to the south, which passes round the foot of the hills, but where he thought he was more likely to meet with robbers. He had now quitted the Khámpa country and had entered the Nákháng Pontod district, in which he passed two or three abandoned gold-mines before reaching Thok Daurákpa.

The Pundit found that the gold-fields in this portion of Tibet were of much less importance than those he had visited at Thok Jálung in Western Tibet on a former exploration. At Thok Daurákpa the diggers mostly dwell in caves excavated in the earth. These habitations, which are locally termed *phúkpá*, are thirty-two in number, and contain from five to twenty-five individuals in each, according to the wealth of the proprietors, who do not appear to select these buildings from choice, but rather from necessity, caused by the proximity of the Khámpa robbers, whose habit of cutting down first the tents and then the owners has been already mentioned. These underground caves are naturally far more secure than tents would be, and one man well armed could defend one of them against a large number of assailants. Besides these caves there were also some seven or eight tents belonging to travelling merchants and recent arrivals. The diggers were mostly Changpas from the Nákháng district to the east and south-east of the gold-fields; but there were also others from Western

Tibet and from Janglaché, a large town on the Brahmaputra, five or six days west of Shigátzé.

The proprietors of each *phúlepá* have also their own gold-pit,\* in which they work (in the day-time only). One or two men are generally employed in quarrying the stone in which the gold is found. The pieces of stone are lifted up in baskets to the brink of the pit, and are there pounded into small fragments, which are deposited on a cloth, which is arranged on a slight slope and kept down by a number of stones so as to make the surface uneven. Water is then poured over it, and carries away the lighter portion of the soil, leaving the gold in the uneven receptacles that have been made for it. The largest piece of gold seen by the Pundit at Daurákpa was about one ounce in weight.

Unfortunately for the diggers, water is not found within a mile of the gold-fields, and has to be brought that distance in skins on donkeys which are specially kept for the purpose. These donkeys were the only animals of the kind seen by the Pundit between Ladákh and Lhása. It appears that they do not stand the cold well, and although their bodies were covered in profusion with the *pashm* or wool, which grows under the hair of nearly all animals in these very cold and highly-elevated regions, it was always found necessary at night to allow them to take refuge in the *phúlepás* inhabited by their masters.

Gold-finding does not appear to be a very lucrative occupation, and although the tax paid by the diggers to the *Sarpon* or Gold Commissioner of Lhása, viz. one *sarshia* (one-fifth of an ounce) per man per annum, is decidedly small, yet the profits appear to be but little more than is necessary to keep body and soul together. According to the Pundit, the pastoral population are far more prosperous than the gold-diggers, and lead a much freer, pleasanter, and more independent life.

The gold of Thok Daurákpa is said to be whiter and of better quality than what is found farther west. It is, however, more difficult to obtain, both on account of the soil, or rather rock, in which it is found being much more difficult to break up than the softer soil of Thok Jálung, and on account of the distance from which water has to be brought. At Jálung a stream runs through the gold-fields. The Pundit believes that there are enormous tracts of land where gold is to be obtained by digging, but where the absence of water would render the working of them unremunerative.

The Thok Daurákpa and Thok Jálung gold-fields are under

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\* At Thok Jálung the arrangement is different: there the whole of the diggers work in one large excavation.

the same *Sarpon* who makes the round of all the Tibetan gold-fields once a year to collect the taxes.

It would appear that the importance and value of the Tibetan gold-fields have been considerably overrated. The Pundit states that, besides the half-dozen places where gold-digging is now carried on in the neighbourhood of Thok Jálung, the only other gold-fields now being worked in Northern Tibet are at Thok Daurákpa, and two other places, of even less importance, at Táng Jung and Sarká Shyár, both of which are about six days' journey farther east. He believes that nearly the whole of the gold collected in Western Tibet finds its way to Gártokh, and ultimately through the Kumaoni merchants to Hindústán. He estimates the value of gold brought annually into Gártokh at about 80,000 rupees (or about 8000*l.* sterling).

The gold-diggers at Daurákpa dispose of most of their gold either to the Khámpas of Garchethol on the west, or the Champas of Nákcháng Pontod on the east, in exchange for the products of their herds and flocks. The rest of the gold is taken by merchants who bring tea from Lhása and from China.

A brick (*parka*) of tea, which weighs about five pounds, and in Lhása is worth say seven shillings, and in Ladákh twelve shillings (or more, according to quality), sells at Daurákpa for one *sarshia* of gold (one-fifth of an ounce).\*

#### *Thok Daurákpa to Lhása.*

The Pundit only halted one day at the gold-fields and continued his journey on the 19th of September. His route lay over precisely the same kind of country that he had previously traversed; it crossed several streams, all flowing to the north, and ultimately finding their way into the Nák-chu-khá River. For the first three marches the country was uninhabited, but after leaving Lhung Nakdo numbers of Chángpa tents were almost daily seen from the line of march.

Although the plain he was now traversing was more than 16,000 feet above the level of the sea, the Pundit does not appear to have suffered very much from the great elevation; the weather was mild, and he speaks of the whole of the journey over the plains of Tibet as a delightful pleasure excursion, when compared with his experiences over the Karakorum and other passes on the road from Leh to Yárkand. The sheets

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\* At Thok Jálung on a former occasion the Pundit purchased one *tola* of gold =  $\frac{1}{16}$  of an ounce (avoirdupois) for eleven rupees, i.e. the modern equivalent for an English sovereign. At Thok Daurákpa the price of the same amount of gold would have been about fourteen rupees.

of velvet turf covered with countless herds of antelope must indeed have formed a pleasant contrast after the equally elevated but bleak and uninhabited bare plains of Ling-zi Thang and Dipsang, in Northern Ladákh. The Pundit (who is fond of statistics) asserts that on one occasion he actually counted two thousand antelopes (*cho* and *gwa*) which resembled in appearance a regiment of soldiers, with their horns glistening in the sun like bayonets. The horns frequently found lying on the ground served him in lieu of tent-pegs.

In the Nákháng Pontod (Northern and Southern) district, which extends for several marches east of Thok Daurákpa, there are altogether about a hundred and fifty families of nomads, all wealthy in horses, yáks, sheep and goats. Throughout Nákháng the sheep are very large and strong, and are almost all black—a peculiarity of this district alone, those in Western Tibet and in Lhása being nearly all white. Yáks are used almost exclusively as beasts of burden, and on one occasion the Pundit met a caravan with two hundred of these animals carrying tea towards the west.

Nákháng Pontod is under an official, a native of the country, the Garpon Durje Puntchok, whose dignity is hereditary. He collects the tribute for the Lhása authorities and remits it to Senja Jong, farther east. The tribute paid is almost entirely *ghi* (clarified butter).

The Changpas of Nákháng, who are also promiscuously termed *Horpas* and *Dogpas*, speak a language which differs but little from that of Lhása, and the Pundit had no difficulty in carrying on conversation with them.

In the 8th march from Thok Daurákpa the Pundit encountered a lofty range of mountains which was crossed by a high but easy pass called Kilong, 18,170 feet above sea-level. This range runs southward and culminates in some enormous peaks known by the name of Tártot Lhá, from which extends eastward a snowy range, numerous peaks in which were fixed by the Pundit, along a length of 180 miles, up to where the range terminates in a mass of peaks called Gyákharma, which also lie to the south of and very near the Pundit's road. The highest of these Gyákharma peaks was ascertained by measurement\* to be 22,800 † feet above sea-level, and the Pundit estimates that the highest of the Tártot peaks (which lay too far off the road for vertical measurement with a sextant) is at least 2500 feet higher than the highest of the Gyákharma group.

\* By double altitudes taken with a sextant from points whose altitudes have been determined by hypsometrical measurements.

† Between 21,000 and 22,000 feet in itinerary (p. 129); also 21,100 feet on map.—Ed.

Tárgot Lhá was seen from the Chapta Pass at a distance of over one hundred miles, and is believed by the Pundit to have been the highest mountain seen by him on his journey.

This range is probably not the watershed between the basin of the Brahmputra and the lake country of Hor,\* for the Pundit was informed that to the south of the range, running parallel to it, is a large river, the Dumphu, or Hota Sangpo, which ultimately changes its course and flows northwards into the Kyáring Lake.

The highest peak of the Tárgot Lhá group is called Tárgot *Yap* (or father), while an enormous lake which lies at the foot of its northern slope is called *Dágrá Yum* (or mother); these two, according to local tradition, are the progenitors of the whole world.† The circuit round the mountain and lake combined is a common pilgrimage not only for the people of the Hor country, but for their more distinguished co-religionists from Lhása. Similar circuits are made round the sacred mountain of Kailás, near the Manasarowar Lake.

The circuit round the lake alone occupies from eight to twelve days, the distance being about 200 miles, but the complete circuit of lake and mountain takes up nearly a month. The country people believe that if they make the complete circuit (termed locally *kora*) once, they will be absolved from ordinary sin; for a man to be cleansed from murder requires two *koras*; but if the round is completed thrice, even the murder of a father or mother will be atoned for. The Pundit did not feel much comforted on learning that this is all implicitly believed by the country people.

The district surrounding the *Dágrá Yum* and another smaller lake to the north of the road is called *Nákcháng Ombo*. It is enclosed by snowy mountains, and contains several villages, *Nákcháng*, *Táng Jung*, *Kisum*, *Ombo*, *Sásik* and *Chaksá*; each village contains twenty or thirty houses, built of stone, and surrounded by richly-cultivated fields which produce a profusion of barley. The harvest was not quite gathered in on the 28th of September, the date of the Pundit's arrival at *Ombo*, the chief village of the district.

The existence of this cultivated *Ombo* plain enclosed by mountains, which in their turn are surrounded by boundless extents of pasture land, is a very curious feature.

The Pundit had not seen a single field of grain of any description since leaving *Chabuk Zinga*, thirty-five marches to the

\* The general name of the district through which the Pundit had been travelling.

† The group of *Shyálchi Káng Jáng* Mountains to the west is said to be one of the daughters of this union.



west, nor did he again meet with cultivation until reaching Tulung village, near Lhása, thirty-nine marches beyond Ombo. The height of the plain (15,240 feet above sea-level) is not less than that of the surrounding country, and although somewhat protected from the wind, it is no better off in this respect than the district of Nákcháng Gomnak, which borders it on the east, which is also well watered and has apparently a richer soil, but is nevertheless totally devoid of cultivation.

According to local tradition, the Ombo country was once upon a time thickly populated and covered with villages. Two thousand years ago it is said to have been ruled over by a very powerful Rájá, the Limúr Gyalpo, who resided in a fort called Kiung Jung, on the banks of the lake (close by Thungrú), the ruins of which were pointed out to the Pundit. The Gyalpo Limúr was the ruler over the whole of the Hor country, and his wealth was said to be boundless. Amongst other riches he was the possessor of a golden saddle, and a turquoise as large as a goat's liver. He was overcome in battle by Digung Chanbo, the Gyalpo of Lhása, who, however, failed to possess himself of the saddle and turquoise, which were cast into the middle of the lake, where they are said to remain at the present day.

The Pundit is of opinion that the Dángrá Yum Cho, and the smaller lake of Táng Jung to the north, were formerly connected together in one vast expanse of water. The Dángrá Lake is even now so large, and the wind sometimes raises such violent waves, that the Pundit compares it to the ocean. The inhabitants of the Ombo or Pembo country, as it is sometimes called, although speaking the same language as the other Changpas or Dogpas who live in other parts of Hor, curiously enough, have considerable differences in their religious ceremonials. Instead of the usual well-known Buddhist formula, "*Om máni padmi hung*," they inscribe in their prayer-wheels and on their mánis the words "*Om máte moyé sálendo*." They moreover twist their prayer-wheels in the reverse direction to what all other Buddhists do, and in making circuits round religious edifices they travel from right to left instead of from left to right, as is the invariable custom amongst all other sects. Others of their peculiar sect are said to reside in the Kham country east of Lhása.

The origin of the custom arose thuswise. When Sákya Múni,\* the great founder of Buddhism in Tibet, first came to the country, he was residing near the famous sacred mountain Kailás. Nárú Punchuk, a native of Khám, having heard

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\* It is believed that Sákya Múni Buddha himself never went to Tibet, which was converted to the faith by later missionaries. The above and subsequent traditions must refer to some of these.

rumours of his arrival, went on a pilgrimage to see him. Having arrived there, he found that the devout Sákya was constantly passing his time in circumambulating the sacred mount, and this at such a pace that his would-be disciple was unable to overtake him, although he followed him round and round for several circuits. As Sákya Múni followed the orthodox course (moving like the hands of a watch), the brilliant idea at last struck Nárú Puchuk that if he were to go round in the reverse direction he would soon meet him. This he did, and secured an interview, and, subsequently becoming a favourite disciple, he received in commemoration of this event, permission to found the sect who are now known as "Pembos," who make their religious circuits and twist their prayer-wheels in the opposite direction to that adopted by the orthodox Buddhists.

Near the ruins previously alluded to on the banks of the lake is a large natural cavern, containing the impress of the palm of Nárú Puchuk's hand. It is an object of worship to the people of the country.

Thus far on his journey the Pundit states that a cart might be driven all the way from Noh without any repairs being made to the road; but in crossing the range which bounds on the east the Pembo country, the path was steep and difficult. There is an alternative road, however, lying to the north, by which it is said a cart (supposing there to be such a thing in the country) might easily travel from Thok Daurákpa to the Namcho Lake without meeting a single obstacle *en route*.

The country to the east of the Pembo district is of a precisely similar nature to what the Pundit had already passed through on the west. It is inhabited as far as the Namcho Lake by pastoral Changpa nomads, who live mostly on the produce of their flocks and herds. No grain whatever is grown, but large quantities are imported from the Shigátzé and Lhása districts to the south. The inhabitants are well off, as, in addition to the produce of their flocks, they sell to the merchants of the south large quantities of salt, which is obtained from numerous *chákás* or salt lakes which lie at from eight to twelve days' journey to the north of the Pundit's road.

The country is subdivided into districts, designated successively from west to east Nákcháng Gomnák, Nákcháng Dóbá, Yákpá Ngocho, Yákpá Jagro, Dé Cherik, Dé Tabáraba, and Dé Taklung, which latter lies immediately to the north of the Namcho Lake. Each of these, as well as the district of Nákcháng Ombo, before described, has its own ruler or *Pon*, who decides the disputes of his subjects, and collects the revenue from them. The whole are subordinate to the two Jongpons of

Senja Jong, a place of considerable importance lying to the east of the Nákcháng Dóbá district, and containing from eighty to a hundred houses. These Jongpons are officials appointed from Lhása, and are changed every two or three years. Their chief business appears to be to collect the revenue and remit it to Lhása, and to act as a sort of court of appeal against the decisions of the hereditary *Pons* who rule over the smaller divisions. They do not seem to have a very difficult task, as their executive and administrative functions are carried out with the assistance of two or three writers only, and a couple of dozen guards sent from the Gyalpo's forces in Lhása. The revenue sent to Lhása consists entirely of *ghi*.

One of the most influential of the local *Pons* is the Garpon Changba Gyalpo, who resides at Kátárnár in Nákcháng Gomnak; he appears to exercise considerable influence in the neighbouring districts, both east and west; and when the Pundit was passing through, had collected a considerable force of Changpas armed with guns and bows and arrows, with the object of settling a dispute (which was, however, subsequently diplomatically arranged) with another chief, who lived some distance to the east of the Namcho Lake.

A detailed account of the route followed appears in the Itinerary which accompanies this Paper, but a better idea of the nature of the country will perhaps be obtained from the map. The height of the plateau traversed appears to vary but little between 15,000 and 16,000 feet above the sea-level. The plain is, as a rule, confined between mountains which run parallel to the direction of the road, but a few transverse ridges of considerable elevation are crossed *en route*. The drainage all tends to the north, the streams from the snowy range to the south finding their way into numerous large lakes, which either lie in the *sangs* traversed by the Pundit, or are enclosed in similar *sangs* to the north. These lakes are the characteristic features of the country, and the Pundit may well be proud of the discovery and survey of such a numerous and extensive system. Of the whole series, extending from Noh to Lhása, the only one that has hitherto been known to geographers is the Nam Cho or Tengri Nur at the extreme east, which, although its position with regard to Lhása was approximately known, and was marked on the old Chinese maps, yet it is only within the last few years that its position and extent have been determined with anything like accuracy; this was done by another Pundit, a pupil of the veteran explorer whose discoveries I am now relating.

The largest of these newly-discovered lakes, the Dángrá Yum Cho, is about 45 miles in length, by 25 in breadth at its widest

part; another large lake, the Kyáring Cho, is 40 miles in length, and from 8 to 12 across. The waters of the former are slightly brackish, but those of the Kyáring Cho, and nearly all the lakes to the east, are beautifully fresh, and, as well as the streams which feed them from the south, contain abundance of fish, and are covered by myriads of wild-fowl. Unfortunately for themselves, the Changpas have a prejudice against killing and eating either fish or fowl.

On the occasion of the former exploration of the Namcho Lake it was frozen over, and although the Pundit made the complete circuit of the lake, he was unable to discover any stream flowing from it. On the present occasion, however, our Pundit, having visited it in the autumn, before its waters were frozen, distinctly traced a stream issuing from its north-western extremity, and flowing in a westerly direction. Although, at the time he saw it, the stream was not more than a few feet in width, the watercourse was broad and deep, and in the summer months must give exit to a large river.

It appears that the drainage from nearly all these lakes finds its way either into the Chargut Cho, a large lake said to be twice the size of any with which we are as yet acquainted in these parts, or into the Nák-chu-khá, or Hotá Sangpo, a large river which issues from the Chargut Cho and flows eastward. The southern banks of this river are said to be inhabited at certain times of the year by shepherds from the Dé Namru district (north of Dé Cherik). The country to the north of the Nák-chu-khá is believed to be uninhabited.

The largest river crossed by the Pundit in this section of his travels was the Dumphu or Hotá Sangpo, which receives the drainage of the southern slopes of the Tárgot-Gyákharma range of mountains, and flows into the Kyáring Cho, forming one of the numerous sources of the Nák-chu-khá.

The subsequent course of this last river, of which some of the head-waters have now been traced, must, I fear, remain a mystery. The account which was given to the Pundit is inconsistent with the existing ideas of the geography of the country. It is to the effect that after passing the village of Nák-chu-khá (Na Ptchu of the Abbé Huc), which is on the road between Lhása and the Koko-nur Lake, the river flows in a south-east direction to Chámdo or Tsiamdo, a well-known place on the road from Lhása to Bathang (Pá) and Pekin. Thence it is said to flow south-east and east through Ámdú to China, under the names of Máchu and Konkong. If this statement were reliable it would prove the Nák-chu-khá to be a branch of the famous Yang-tse-Kiang; but after a very careful examination of the whole of the data I possess bearing on the subject, I have come

to the conclusion that the evidence in its favour is not sufficiently strong to justify my entering into the subject at length.

It appears on the whole not improbable that the first part of the Pundit's statement may be correct, viz. that the Nák-chu-khá River flows to Tsiamdo; if so, it bears successively the names of La-chu, Lo-chu, and Lantsang-Kiang, which, according to most modern authorities, is afterwards known as the Camboja or Mekhong River.

If, however, Klapproth's well-known map is to be relied on,\* the Nák-chu-khá (whose Mongol equivalent, Khara-úsú, is there given), does not flow to Tsiamdo, but forms the head-waters of the Nou or Lou KIÁng, which we now identify with the Salween River, entering the Indian Ocean at Moulmein.

To show the deficiency of correct data about these subjects, I may note that the map accompanying the French edition of Huc's book shows the Na Ptchu River as flowing west into a large lake, while Tsiamdo is not shown as on a river at all; but on the other hand from Huc's own letterpress we learn that † "Tsiamdo is protected by two rivers, the Dzá-chu and the Om-chu, which, after flowing one to the east and one to the west of the town, unite on the south, and form the Ya-long-Kiang, ‡ which traverses from north to south the province of Yunnan and Cochin China, and finally throws itself into the China Sea." On looking at other maps for a further confirmation of Huc's account, I was much surprised at finding that Keith Johnston in his map of China in his 'Handy Royal Atlas' of 1871 places Tsiamdo on the head-waters of the Brahmapútra.

The general features of the ground between Lhása and Bathang, as shown on Klapproth's map, are fairly consistent with the account given by Huc of his journey between those places.

One piece of collateral geography brought back by the Pundit appears to agree so well with Klapproth's map, that it seems desirable to reproduce it.

The Pundit states, "A road passes from the Nák-chu-khá village for six days' journey in a north-eastern, and thirteen days in an eastern direction, through the *Ho-suk* § country to

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\* In one important instance at least, viz. the identity of the great river south of Lhása with the Irawaddy, modern geographers entirely disagree with him.

† Page 461, vol. ii.

‡ Huc appears to have made a mistake about the name.

§ In Klapproth's map the *Sok-chu* is shown as a northern tributary of the Nák-chu-khá, falling into the latter river near Rabdan temple. The position in latitude of the Nák-chu-khá River agrees very nearly with the Pundit's estimate as shown on the map accompanying this paper.

Jákának Sumdo, where it crosses the Jháchu \* River, which is 300 paces across, and which is said to join the Nák-chu-khá River at Tsiando; from Jáká the road passes east for ten days through the Kháwá country, and for fourteen days through the Cheki country, where the road crosses a river flowing south, the Di-chu,† which is said to be larger than the Brahmapútra River near Lhása, or than the Ganges at Hardwar—it is crossed in boats; after sixteen days in an easterly direction, another large river flowing south is crossed, also called the Jháchu;‡ twenty days' journey more in a south-east direction, passing by Chang-thang, brings the traveller to the Amdo country to a place called Chering Chitshum on the banks of the Máchú River, which afterwards flows to China."

It is this Máchú River which the Pundit believes, erroneously I think, to be the same as the Nák-chu-khá.

The Pundit took the same route along the northern shore of the Námcho Lake which was followed by his predecessor in 1872, and was described by Lieut.-Col. Montgomerie in the survey reports for 1873-4.§ From the east end of the lake towards Lhása the routes are identical down to the village of Dam. From Dam, Nain Singh followed the river of the same name in a south-west direction, instead of striking across the hills to the south-east, the direct route which was followed by the other Pundit.

It was not till the 12th of November that the Pundit quitted the higher table-lands of Tibet, and, after crossing the Baknak Pass, 17,840 feet above sea-level, descended into the bed of the Tulung, an affluent of the river of Lhása, where for the first time for several months he found himself at the comparatively low elevation of 13,000 feet, from which a steady descent for five short marches brought him to Lhása, at an elevation of 11,910 feet. His pleasure was great on reaching the Tulung valley, where he found cultivated fields replacing pastures, and grain in abundance, vegetables, *chang*, || and other luxuries to

\* In the map the Sá-chu, afterwards the Tea-chu, joins the Om-chu River at Tsiando.

† The Dza-chu of Klaproth's map, afterwards the Má-chu, afterwards the Yalung, and the Ta-tchung, one of the largest tributaries of the Yang-tse-Kiang.

‡ Called by Klaproth the Bri-chu, the veritable Yang-tse-Kiang. This river where crossed higher up by Huc on his journey to Lhása was called Mou-roui-úsf or "tortuous waters." Its Mongol name being Bri-chu and its Tibetan name *Polei-chu* or *River of the Lord*; lower down in its course it is also known as the *Kin-cha-kiang* or *River with the golden sand*; still lower in the province of Szechuen it is the well-known *Yang-tse-Kiang* or *Blue River*. It is also known in China as the *Ta-kiang* or *Great River*. It was in this Mou-roui-úsf that Huc found a herd of 50 yaks frozen hard in the ice. After a course of more than 3000 miles, during which it receives two tributaries from the north, each more than 1000 miles in length, it falls into the Yellow Sea.

§ Also in 'Journal Royal Geographical Society,' vol. xlv., 1875.

|| A kind of beer brewed from barley.

which he had long been a stranger. Ordinary cattle and donkeys now took the place of yáks as milk-suppliers and beasts of burden. Fowls and pigs were seen for the first time since leaving Ladákh. The more civilised Bodhpas replaced the Changpas, and the Pundit was looking forward to a pleasant stay at Lhása.

But unfortunately for him the approach of civilisation brought him considerable anxiety. On nearing Lhása he heard a report that it was currently stated there that an English agent was on his way there from India, and that a *bonâ fide* Chinaman who had recently arrived from India *viâ* Nepál had been arrested and kept in confinement until an interview with the Chinese Ambán had enabled him to prove that he was not the man they were in search of.

The Pundit, on hearing this, halted a day at Lang-dong, and sent one of his own servants (Nendak, a native of Lhása) on ahead to engage a room in a traveller's serai, and to inquire whether any news had been received of the caravan from Leh. The man returned and reported that nothing had been heard of it; the following day (the 18th of November) the Pundit entered Lhása.

#### *Lhása to Tawang.*

On the occasion of the Pundit's first visit to Lhása he remained there three months, and wrote a good description of the place. His present hasty visit of two days only has not added to our existing store of information. He left it on the 20th of November, accompanied by his two servants. Prior to starting, he collected the most bulky and least valuable articles of his property, tied them up in an old blanket, carefully sealed the parcel, and handed it over to the owner of his lodging-house, whom he informed that he was going on a pilgrimage to a monastery ten days' journey to the north of Lhása, whence he expected to be back in about a month to reclaim his goods. He started accordingly in the afternoon in a northerly direction, but as soon as evening came on he wheeled round and commenced his return journey to Hindústán.

The first night he halted at Kumbu Thang, only 2 miles out of Lhása; the following day he reached Dhejen, a flourishing town with a large monastery on the left bank of the Lhása River. His route for the first stage was along the high-road to Pekin.

From Lhása to Pekin there are two roads; the one generally used, and which is believed to be open all the year round, goes at first nearly due east from Lhása to Tsiamdo, the capital of the Khan country; it then takes a southerly direction and

passes through Pá or Bathang and the Chinese province of Sze-chuen, crossing *en route* numerous snow-covered passes across the ranges which divide the streams which rise in Tibet and flow southwards either into the sea or into the great Kin-sha-Kiang, afterwards the Yang-tse-Kiang. From Lhása to Pekin by this route is 136 caravan marches, and the distance about 2500 miles.

The other or northern route, which is generally preferred by travellers in the hot season, is probably easier, and there is much less snow encountered *en route*. It goes by Nák-chu-khá, and crosses the head-waters of the Yang-tse-Kiang, from which there are two alternative roads to the Koko Nur. Thence the road passes by Sining-fu (Ziling) to Pekin. It was followed by the Abbé Huc in his journey to Lhása, and he was fifteen days in reaching Lhása from Na Ptchu (Nák-chu-khá). Another account gives us Nák-chu-khá as sixteen days' march from Lhása, each march averaging probably about 23 miles. The same itinerary\* gives thirty-four marches of similar length from Nák-chu-khá to Lake Koko-nur, whose position is now known with tolerable accuracy, as it has been recently visited by a Russian officer, Captain Prejevalski.

At Dhejen the Pundit quitted the Pekin road, and turning south crossed by the Gokhar Pass (16,620 feet), the range that separates the Lhása River from the Brahmapútra. The pass was covered with fresh snow. From it he obtained a very extensive view, embracing the Yalá Shimbo snowy peaks 60 miles south-east, and the Ninjinthanglá peaks at a still greater distance on the north-west.

On the 27th of November he reached the Sama-yé monastery, which lies on the right bank of a small tributary of the Brahmapútra about 2 miles before it falls into the great river.

The Sama-yé Gomba is a very ancient, famous, and beautiful monastery, and is said to have been built by the Great Sákyá Múni himself. It is surrounded by a very high circular stone wall,  $1\frac{1}{2}$  mile in circumference, with gates facing the four points of the compass. On the top of this wall the Pundit counted 1030 *chhartans*† made of burnt bricks. One very large *lakhang* or temple occupies the centre of the enclosed space, and is surrounded by four smaller, though still very large, temples, which are placed half-way between the doorways.

The idols and images contained in these temples are many of them of pure gold richly ornamented with valuable clothes

\* By M. Uspenski; originally published in the 'Investigia.'

† See note on page 90.



and jewels. The candlesticks and other ecclesiastical utensils are nearly all made of gold and silver. The interiors of the (stone) walls of these temples were covered with very beautiful writing in enormous Hindí (Sanskrit) characters, which the Pundit was able to decipher, although he could not understand their meaning. They are supposed to be the handwriting of Sákyá Múni himself, and are objects of worship to all visitors to the monastery.

This monastery also contains the *Tanguir* and the *Kanguir*, or sacred books of Buddha. The latter are 108 in number.

Tradition says that in the reign of Tajung Dundjak,\* the Gyálpo of Lhása, the country was without religion and without gods. During his reign Sákyá Múni was born in Hindustán, and came to Tibet, and amongst his early converts were Gyálpo Sumzen, the son, and Biru the grandson, of Tajung Dundjak. These two, in company with Sákyá Múni, commenced to build the monastery at Samá-ye; but whatever was raised by day was thrown down by evil spirits at night. At last Sákyá be-thought him of summoning from Hindustán one of his spiritual pupils, Labban Padmi, who was very skilful in the management of evil spirits. He came and was presented to the Gyálpo, to whom, however, he refused to pay any marks of respect. The Gyálpo, somewhat angered, remonstrated with him, where-upon fire issued from Labban's nails and burned the Gyálpo's head-dress. The wicked demons were soon overcome and the monastery was completed. On the decease of the Gyálpo, his son Biru abdicated, and went to Hindustán as a religious mendicant, resigning his authority to Sákyá Múni, who is still supposed to be alive in the person of the Gewa Ring-boché, or Grand Láma of Lhása.†

From Samá-ye the Pundit travelled down the course of the Brahmápútra for two marches, passing several small tributaries *en route*. He crossed the great river in a boat on the 30th of November. In this portion of its course it is known either as "Tsanpo" or "the river," or by the name of Támjun Khá. At this, now the lowest known part of the course of the Brahmápútra in Great Tibet, the Pundit estimates the width of the river at 500 yards. The stream was very sluggish, its current near

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\* The son of Gyálpo Ramba, who was the son of Gyálpo Ghojá.

† The term "Delai Láma," by which the Grand Láma of Lhása has always been known to us, from the writings of Turner, Huc, and others, is curiously enough absolutely unknown to the Pundit. Gewa Ring-boché, Galdan Phutong, Kuiggon Ring-boché, are the sole names by which, according to the Pundit, the Grand Láma is known in Tibet. Similarly the great Láma of Shigátzé is known to the Pundit as Panchhen (or Panjen) Ring-boché instead of Teshu Lámba, the name by which he is more familiarly known to us.

the banks being no more than two-thirds of a mile per hour.\* Its depth was nowhere more than 20 feet.†

The valley through which the river flows was here several miles across; on the left bank of the stream was a stretch of sand fully  $1\frac{1}{2}$  mile in breadth, the whole of which is said to be under water in the months of May, June, and July, during which season the river is much flooded, both on account of the increase of water from the then rapidly melting snows, as well as from the rain which falls in considerable quantities from April to June. The river is here no longer used for irrigation, as above Shigátzé, but all the smaller streams which issue from the mountains on the north and south are thickly bordered with cultivated land.

The Pundit left the river near Chetáng, from which point he states that its general course is visible due east for a distance of 30 miles, after which it encounters a range of mountains which causes it to diverge in a south-easterly direction. By taking bearings to, and fixing the positions of, some peaks, on this side of which the river was said to flow, he defined the course of the river approximately for a very considerable distance below where he quitted it. The course of the river thus determined is very fairly accordant with that shown on Du Halde's map of Tibet. After leaving Gyála, the approximate position of which is about 130 miles below Chetáng, the river is said to flow for fifteen days' journey through the rice-producing country of Lho-khálo, reputed to be under a ruler who is quite independent of the Lhása authorities. Its inhabitants are said to carry on trade with the people of the Kombo district, which lies between it and Lhása, but they have no communication with the people on their south, the Shiár Lhóba, a wild race (probably the people who are known to us as the Mishmis) who inhabit the country through which the great river flows to Gyá (Assam). In the Lho-khálo country the Brahmapútra is said to be joined by two large rivers from the north.

The Pundit has thus been able to throw a little more light on the lower course of the Tsanpo or the Great River of Tibet. It is unnecessary to follow Wilcox, Montgomerie, and others, who appear to have clearly proved that the Tsanpo must be the large river which, under the name of Dihong, enters Assam near Sudiya, where it is joined by the Brahma-kúnd. We may, I think, safely admit that this is the case; and although the name

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\* The Pundit found that a piece of wood which he threw in from the bank was carried along a distance of 50 yards in two minutes and forty seconds.

† The poles which were exclusively used in punting the boats across were measured by the Pundit, and found to be 24 feet in length: from this he estimates a maximum depth of 18 or 20 feet.

Brahmapútra is doubtless derived from the Brahma-kúnd of the Assam valley, geographers have, in consideration of the wide-known celebrity of the name Brahmapútra, bestowed it on the Tsanpo, the upper and most important source of the great river.

Chetáng is a large town on the right bank of the Yálung, a considerable affluent of the Brahmapútra, on its right bank. It contains two large monasteries, in which reside 700 Lámas. From Chetáng the Pundit's road lay up the Yálung, through a rich and fertile valley, which contains numerous villages and monasteries scattered about on both sides of the stream. The country is very productive, and contains numerous fruit-trees, principally apricots and pears; wheat and barley are abundant, as well as peas, and many other kinds of vegetables. There is good grazing on the mountains which border the valley, but the breed of sheep is very small.

From Chetáng to the Dálátang plain at the head of the valley is 36 miles. In addition to numerous scattered villages of ten or twelve houses each, the large towns of Naitong and Chukyá Phutáng are passed *en route*. From the Dálátang Lá to the Karkang Lá the road traverses for 15 miles a grassy plateau between 15,000 and 16,000 feet above sea-level, through which flows a stream which takes its rise in springs, and ultimately finds its way into the Brahmapútra below Chetáng. On this elevated region, which extends for a considerable distance to the west, the Pundit again found himself amongst the Dogpas or nomad population. It is by the Karkang Pass to the south of the plain that the main Himalayan watershed is crossed. On reaching it the Pundit states that a magnificent view presented itself. The whole of the foreground was occupied by gently undulating grassy plains, over which, on the north-west, at a distance of but a few miles, rise the very conspicuous group of snowy peaks called Yála Shimbo. Other snowy peaks beyond the Brahmapútra appeared topping the plateau to the north, while east and west and south snowy peaks rose in every direction, but at great distances off.

From the watershed, which is 16,210 feet above sea-level, the road to the Kyá Kyá Lá, a pass about 70 miles further south, traverses a high undulating plateau which is bounded on its west by a well marked snowy ridge, which runs nearly due north and south, and contains numerous glaciers. The drainage of this country is most irregular. The Pundit's road for the first 20 miles from the pass followed a stream which, under the name of Sikung Sângpo, flows for 40 miles nearly due east, through the Chahuil country, and ultimately turning south-east, runs nearly parallel to the upper course of the Brahmapútra, which

river it is said to join in Assam. After leaving the main stream the road ascends a branch valley for a distance of 20 miles to the Serása Pass (15,300 feet), and thence descends into a stream which flows due south for 40 miles, and subsequently, under the name of Táváng-chu, takes a westerly course, and flows round the southern extremity of the snowy range which has been mentioned as bounding the plateau on the west.

That portion of the plateau which contains the head-waters of the Sikung River is from 13,000 to 15,000 feet above sea-level. It is a very flourishing, well-cultivated country, covered with numerous small villages containing settled inhabitants, who are under the immediate rule of the Jongpon of Chahuil, a district situate lower down the course of the Sikung River.

The road itself after leaving the Serása Lá goes nearly due south, crossing in succession several spurs from the western range, and after reaching the Kyá Kyá Pass rapidly descends into the Chukhang (Shyu) valley, which is separated from that of the Táváng by a very high ridge, which is crossed by the Mila Khatong, a pass which was covered with fresh snow.

Between the Sikung district and Chona Jong, the summer residence of the Táváng Jongpon, the country is uninhabited. Near the Serása Pass the Pundit passed a lake about 6 miles long by 4 broad, entirely frozen over, but the waters of which in the summer months doubtless help to feed the Táváng stream. South of this lake the road followed by the Pundit is joined by another which comes from the Hor country and Shigátzé.

Chona Jong is a place of considerable importance, and is a great exchange mart where salt, wool, and borax from the Hor country; and tea, fine silks, woollen cloths, leathern boots, and ponies from Lhása, are exchanged for rice, spices, dyes, fruits, and coarse cloths\* from Assam. Of these articles rice is a monopoly of the Lhása Government, and at Chona Jong there is a *De-Rang* (or rice-house) in charge of a Lhása official, the *De-Rang-pa*, who purchases the whole of the rice that is imported from Assam, and at whose warehouses only can rice be purchased either wholesale or retail.

This market must be one of considerable importance, and contains 300 or 400 shops. The Pundit is of opinion that although the import and export trade is not nearly so valuable as that of Leh (the great exchange mart for India and Eastern Turkistán), yet that the number of traders and animals and men employed in carrying loads is somewhat larger. The merchants who import the articles from Assam are mostly

\* A kind of silk, according to the Pundit, termed *emdi* in Assam and *bhu-re* in Lhása. The Chinese silk is called in Lhása *go-chen*, or warm cloth.

natives of Táwáng, who are called Monhpas; but the goods imported from Hor are brought in by the Dogpas or Changpas. The goods from Lhása are brought by merchants from that place.

There is free trade (with the exception of the rice monopoly before mentioned) between Hor, Lhása, and Chona Jong; but on all goods to and from the south a duty of 10 per cent. is levied at the *Chukhang* or custom-house, one long day's march to the south of Chona Jong. Arrangements are made by the collector of taxes that merchants shall not have to pay both ways. The taxes go to the Jongpon, and are remitted by him to Lhása.

The road from Chona Jong to Táwáng Chukhang is closed by snow from January to May or June. An alternative road lies down the Lhobra and up the Táwáng rivers.

This Chukhang is not only a customs boundary, but separates the Bodhpa country on the north from the Mon-huil district to the south. The Monhpas who inhabit the Táwáng district differ materially in language, dress, manners, and appearance from the inhabitants of Tibet, and resemble, according to the Pundit, in many respects the Dhukpas of the Bhotán country on the west. Instead of allowing their hair to grow behind, and arranging it in plaits as is done in Tibet, they cut it to an even length all round the head. On the top of it they wear a small skull-cap made either of woollen cloth or felt. Instead of the long gown of Tibet, a short coat is worn, which only reaches to the knee. It is fastened by a woollen girdle, in which is invariably fastened a long straight knife.

With the exception of a very large and important monastery at Táwáng, the whole of the villages in the Táwáng valley are under the jurisdiction of the Jongpon of Chona Jong.

This Táwáng monastery is entirely independent of the Jongpon and of the Lhása Government. It contains 600 Lamas, and although not owning much land in the immediate vicinity of the monastery, they are (with the single exception of the village of Singi Jong, which is a *jagir* of the Chona Jongpon) the proprietors and rulers of the whole country to the south of the range of hills which separates the Táwáng from the Dhirang valley; their territory extends right up to the British frontier near Odálguri, which latter place is said, prior to its occupation by the British, to have formed a portion of the Táwáng *jagir*, which now includes the Dhirang and Phutung valleys.

The affairs of the Táwáng district are managed by a sort of parliament termed *Kato*, which assembles in public to manage business and to administer justice. The *Kato* is composed entirely of Lamas, the chief officials of the principal monastery. These comprise—

1st. The *Kanbu*, whose duty it is to punish and maintain discipline amongst the Lámás.

2nd. The *Lab-ban*, or teacher, who is at the head of the educational establishment.

3rd. The *Gelongs*, four or five in number, who look after the revenues and government of the country.

4th. The *Nerbas* or *Nerpás*, also four or five in number; these assist the Gelongs in their various duties.

The whole of these, together with a few of the older Lámás, form the parliament and have the supreme direction of affairs. Claimants attending their court present their petitions folded up in *khataks*, or silk scarves, and prostrate themselves with great reverence.

These Táwáng Lámás are an independent lot, and are well armed with guns, bows and arrows, &c. In Dhirang and other places they keep a regular armed force of Lámás to enable them to cope not only with the independent *Daphla*, *Duffla*, or *Lhoba* tribes who inhabit the lower course of the Dhirang valley, and with whom they have frequent feuds; but also with the neighbouring and more powerful country of Bhotán on the west, the various districts of which, when not (as is generally the case) engaged in internal hostilities, are always ready to pick a quarrel with the people of Táwáng. The village of Lih, in the valley above Dhirang, appears to owe a double allegiance to both Lámás and Daphlas. The Pundit on his march down the valley was overtaken by a party of fifteen or sixteen of these Lhobas, who were carrying away from Lih some cattle, sheep, and pigs which they had received as their share of the tribute, and which they were taking off to their own country two days' journey to the east of Dhirang. The Pundit was much struck with the appearance of these men, and especially noticed the enormous development of their arms and the calves of their legs, which far exceeded in size any he had seen elsewhere. They wore cylindrical-shaped hats made of bamboos; their only garment was a long blanket folded somewhat after the fashion of a Scotch plaid, and fastened round the waist by a cloth girdle, which is used as a quiver for their arrows, which all carry, as well as a bow slung over the left shoulder. The greater part of their arms and legs were bare. They wore no boots, but ornamental rings made of rope were fastened very tightly both on their wrists and on their legs below the knee.\* They had high cheek-bones and Chinese-looking eyes; wore no hair on their faces, but allowed that on the head to grow to a

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\* The people of Táwáng have it that the wearing of the rope-rings is a punishment inflicted by Sákyá Múni upon the Lhobas on account of their irreligion.

great length; this was drawn together behind and then allowed to hang down.

The Pundit reached Táváng on the 24th of December, and was detained there till the 17th of February, having been unable to get permission to proceed to the south. It appears that some few years ago the Táváng Lamas had represented to the Lhása officials that their subjects suffered much in pocket from the Lhása merchants being allowed to trade direct with Assam, and they at last succeeded in getting an order from Lhása that traders from that place should not be permitted to proceed beyond the limit of the Chona Jongpon's jurisdiction. The Távángpas have thus succeeded in keeping in their own hands nearly the whole of the trade with Assam, and they systematically prevent all strangers from passing through their country.

Leaving Táváng on the 17th of February, the Pundit reached Odálguri in British territory on the 1st of March, the road being often deep in snow, while four passes had to be crossed *en route*; of these the passage of the Sai Lá and the Menda Lá were somewhat difficult on account of snow. Details of the road are given in the Pundit's itinerary at the end of the Paper.

At Odálguri the Pundit put himself in communication with the Assistant Commissioner of the Darrang district, who kindly made all the necessary arrangements for forwarding him to Gauháti, whence he went by steamer to Calcutta, which place he reached on the 11th of March, 1875.

Before closing this Paper it may be well to recapitulate the chief results of the Pundit's last exploration.

In addition to the general information acquired, which has been communicated in the narrative, the Pundit has made a very careful and well-executed route survey of the whole line of country traversed, viz. 1013 miles from Lukong (west end of Pangong Lake) to Lhása, and 306 miles from Lhása to Odálguri. Of this total distance of 1319 miles, throughout which his paces and bearings were carefully recorded, about 1200 miles lie through country which has never previously been explored. Numerous lakes, some of enormous size, and some rivers, have been discovered; the existence of a vast snowy range lying parallel to and north of the Brahmapútra River has been clearly demonstrated, and the positions of several of its peaks have been laid down, and their heights approximately determined.

The Brahmapútra has been followed for a distance of 30 miles in a portion of its course, 50 miles lower down than the lowest point previously determined; and as its approximate direction for another 100 miles has been laid down, the absolutely unknown portion of that mighty river's course now re-

maining has been very materially reduced. The route between Lhása and Assam *viâ* Táwáng, of which next to nothing had hitherto been known, has been carefully surveyed, and the daily marches described.

As a framework for the map, no less than 276 double altitudes of the sun and stars have been observed with a sextant for the determination of latitude, and the close accordance of the results *inter se* and with the mapping of the route by the pacings and bearings prove incontestably the general accuracy of the work.

The temperature of boiling water has been observed on nearly every pass and at nearly every camping-ground (497 observations in all), adding materially to our knowledge of the physical conformation of the region.

Frequent observations of the temperature of the air and the direction of the wind have given us some further addition to the knowledge of the Tibetan climate.

The Pundit suffered much in health during the latter portion of the journey, and his eyesight has become seriously injured from exposure and hard work in most trying climates throughout a long series of years. He is now anxious to retire from active work, and will probably receive a grant of land in his native country; and thus, having happily survived the perils and dangers of the road, it is hoped he may spend the declining years of his life in comfort, and with a due appreciation of the liberality of the British Government.

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### THE PUNDIT'S ITINERARY.\*

FROM LEH TO NOH.—*Distance 173 miles.*

1. *Tikshe*, 10 miles.—Good road up the Indus valley. The village of Tikshe contains about 600 inhabitants.

2. *Chimray* (*height 11,890 feet*), 15 miles.—Up the Indus valley for 10 miles; road indifferent; after leaving the Indus the road goes up a well-cultivated branch valley to the north, to Chimray, a village with about 500 inhabitants. Bad camping-ground.

3. *Zingrál* (*height 15,780 feet*), 8 miles.—Up the valley for about 3 miles, until it forks; road then passes for  $1\frac{1}{2}$  mile up the eastward branch to the village of Sakti; beyond this the ascent to Zingrál is steep; no village; good camping-ground.

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\* The description of the first eight days' marches, *i.e.*, as far as Chágra, are taken from the routes published in the appendix to the Geographical Chapter in the volume of reports on Sir Douglas Forsyth's Mission to Yárkand and Káshghar, 1873-74.



At Zingrál two roads separate, one going over the Chang Lá and the other over the Kay Lá; the road to Tánksé by the latter route is shorter by 6 miles than by the former, but it is more difficult for laden animals.

4. *Tsultak* (height 15,950 feet), 8 miles.—Up the most northerly of the two valleys. An easy but stony ascent of 2 miles to the top of the Chang Lá Pass (17,600 feet). A very gradual descent of 4 miles, after which the road turns abruptly to the east. At Tsultak is a small lake; no village; good camping-ground. Though the road over the pass is not very steep, it is difficult for loaded animals on account of the badness of the road, which is a mere track, winding through rocks and boulders.

5. *Tankse* (height 12,900 feet), 14 miles.—Down a valley for  $6\frac{1}{2}$  miles of easy road; across the shoulder of a hill (into a valley which drains into the Shyok River) to Dúrga, a small village in the Tánksé valley; ascend the valley to the large village of Tánksé; the residence of the headman of the district of the same name; supplies of all sorts procurable. Behind the village is a valley up which runs the road to the Kay Lá.

6. *Chakar-taláb*, 14 miles.—Valley above Tánksé narrows for 6 miles, and then turns to the south and opens out; 2 miles further on is Muglib, a very small village; for 3 miles the bottom of the valley is a grassy swamp, then narrows for 2 miles of gentle ascent among rocky boulders. At Chakar-taláb is a small pond, sometimes dry in summer; coarse grass on farther side of it.

7. *Lukong* (height 14,130 feet),  $7\frac{1}{2}$  miles.—Five miles up valley to north-west end of Pangong Lake; water salt; 2 miles due north from end of the lake to Lukong, where is a small patch of cultivation with a stream running into the lake.

8. *Chágra* (height 15,090 feet), 8 miles.—A summer pasture-ground of Tartars; one or two stone huts; grass plentiful, and fish in the stream.

9. *Churkong*, 6 miles.—A ruined rest-house at foot of the Lankar or Marsimik Lá; road good up-stream all the way; grass and búrtsi at camp.

10. *Pangúr Gongma* (height 17,670 feet), 9 miles.—The road crosses the range (which separates the Lake Lukong drainage from that of the Chang Chenmo River) by the Marsimik Pass (18,420 feet), and instead of following the Yárkand route to the Chang Chenmo valley, the road passes over elevated ground to the east of the pass into the head of another valley which drains into the Pangong Lake; the road then crosses by the Kiu Lá, a high spur from the main range, and descends to camp. There was snow in July lying on the surrounding hills, but none on the pass itself.

11. *Ningri or Rongnak* (height 16,250 feet), 5 miles.—Road follows down a large stream which flows to Pangong Lake, and in summer is difficult to cross; grass and búrtsi at camp.

12. *Niágzu or Rawang Yokma* (height 15,390 feet), 8 miles.—Road passes for 8 miles down-stream to Mandal, and then turns up a branch valley (Tsokiok) containing abundance of grass and jungle wood. The camp is at the junction of three streams, and is on the frontier between Ladákh and Tibet.

13. *Kaisarpo* (height 16,000 feet), 12 miles.—Good road along Tsokiok stream. Three tents of Noh shepherds at camp.

14. *Gonu*, 6 miles.—Road continues up valley, near the head of which two passes (17,300 feet and 17,700 feet high respectively) have to be crossed: a frontier guard stationed here.

15. *Chuzan* (height 15,840 feet), 11 miles.—Road down valley, which opens into a grassy plain. Several springs near camp, from which a plentiful supply of good drinking-water is obtained.

16. *Pal*, 15 miles.—Road down valley. Several springs near camp. *Pal* is on the northern bank of the Pangong Lake, the water of which is brackish.

17. *Dobo Nákpó* (height 14,020 feet), 8 miles.—Road skirts the northern edge of two small lakes, the Cho Rum and the Cho Nyák, the water from which flows westward into the Pangong Lake through a deep channel not more than 20 paces wide. The water in these lakes is quite fresh, and is used for drinking.

18. *Gangra* (height 13,970 feet), 13 miles.—Good road over a flat plain, passing about  $1\frac{1}{2}$  mile to the north of the lake, which is here called Rudokh Cho. At 9 miles passes the village of Noh, containing about 15 houses. A stream from the north-east, 40 paces wide and 3 feet deep, here joins the Pangong Lake. Up this stream is a road to Khotan *viá* Polú and Kiria; camp beyond the river; abundance of grass. Yaks' dung in great quantities used as fuel; opposite Gangra a stream flows into the Pangong Lake from Rudokh.

#### NOH TO THOK DAURAKPA.—Distance 377 miles.

19. *Zinga* (height 13,960 feet), 11 miles.—At  $4\frac{1}{2}$  miles from Gangra is the termination of the series of lakes known to us as Pangong, and to the natives of the country as Cho Mo Gna Laring Cho, } a small stream 8 paces broad and  
Lake woman narrow very long Lake, }  
 $1\frac{1}{2}$  foot deep enters it at the east end. From this point to Zinga the road passes along a broad and nearly level plain about 6 miles in width, and bounded on north and south by grass-covered mountains. At camp were four tents of shepherds.

20. *Khai Chaka* (height 13,960 feet), 6 miles.—Road continues along grassy valley (locally termed Sang) to camp, which is on the north side of a salt-water lake about 7 miles in circumference. Water from springs, and many wild *kiang*. About 5 miles south-east of the lake is another salt lake, the Dakdong Chaka, to the north of which is a very conspicuous black stony mountain called Gyai I,\* which the Pundit was informed contains numerous caves, in which are blocks of crystal (Silkár) the size of a man. These are objects of worship to the people of the neighbourhood. From this camp a large open valley extends in an easterly direction as far as the eye can reach.

21. *Lumadodmo* (height 14,210 feet), 13 miles.—Road good and over level plain. To the south several small salt-lakes are passed. Dung of cattle (*chío*) used for fuel here and throughout the rest of the journey to Lhása, except where otherwise specified. There are warm springs in the neighbourhood, said to possess medicinal properties, which are frequented in winter by the surrounding population.

22. *Bujúng* (height 14,290 feet), 14 miles.—Road continues along a level grassy valley, varying from 6 to 10 miles in width, and bounded on the north and south by grassy hills. Camp on north edge of a fresh-water lake about 10 miles in circumference, and tenanted by numerous wild-fowl. The banks of the lake are covered with shells. A stream enters the east end, and there is one outlet at the opposite end of the lake through which a stream passes to the salt-water lake on the west. A view of the Alung Gangri peaks was obtained from here.

23. *Chabuk Zinga* (height 14,400 feet), 16 miles.—Road continues along course of stream, which still runs in a broad open valley; at camp two small huts and four or five tents. Two miles to the north-west was another encampment of fifteen tents.

24. *Kangni Chumik* (height 15,300 feet), 14 miles.—At 3½ miles a road goes off in a south-east direction to Tingche and Thok Jálung. No fresh water on this march or at camp, which was in the neighbourhood of an extensive salt-marsh. North of the camp are some bare red-coloured mountains, and the water and mud of the marsh was of the same colour, as also is the salt which is extracted therefrom. Another view of the Alung Gangri peaks was obtained from here.

25. *Mindum Cháka* (height 14,860 feet), 20 miles.—Road as usual.

26. *Mindum Cháka*. East end, 7 miles.

27. *Thachap Cho* (height 15,130 feet), 14 miles.—Came across fresh water about half-way to camp. The plain along which

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\* Gyai I = country of snow.

the road lies was covered with numerous large herds of kiang and antelope, which exhibited but little fear. Thachap Cho is a fresh-water lake, and into it flows a large stream, which comes from a mass of snow-covered hills lying to the north-east of the lake. This stream is bordered on both sides by an extensive jungle, containing willow, tamarisk, and other trees and shrubs. Many wild flowers seen in full bloom.

28. *Thachap*.—*River-bank*, 10½ miles.—Road along bank of river, the water of which occasionally disappears underground and reappears lower down. This stream flows in a south-east direction.

29. *Chumik* (height 14,690 feet), 12 miles.—Several small lakes to east of road; east of the camp is a very extensive plain, extending as far as the eye can reach. Good water at camp from springs. Fuel from dung of wild horses.

30. *Chodol Sangpo* (height 14,550 feet), 11½ miles.—Camp on stream 24 paces wide and 2 feet deep, with sluggish current. Near it is the Purang Cháka salt-lake, where the Pundit observed quantities of borax, which is locally termed "bul."

31. *Purang Cháka* (height 14,270 feet), 13 miles.—Camp on north edge of lake; wood plentiful; grass scarce.

32. *Purang Cháka*, 2nd camp, 6 miles.—Camp at springs surrounded on all sides by "bul,"\* which lies in beds from 2 to 8 or 10 feet in depth, and which, being of a light, loose consistency, gives way under the weight of man or beast.

32a. *Pang Bhup* (height 15,030 feet), 13 miles.—No water on road, but abundance of grass. Springs at camp and Tibetan *Mánis*; it is a favourite camping-ground of the nomads in the cold weather, but was uninhabited at the period of the Pundit's visit. A large plain extends eastwards from this camping-ground. Several snowy peaks visible towards the north.

33. *Hissik Cháka* (height 14,310 feet), 12 miles.—Small salt-lake; road as usual over level ground.

34. *Hissik Cháka* 2nd, 7 miles.

35. *Nimcho Cháka* (height 14,000 feet), 17 miles.—No drinking-water on road, but many fresh-water springs, and abundance of fire-wood near camp; road perfectly level.

36. *Nimcho Cháka*, 5 miles.—Fuel, grass, and water in abundance; south of camp a snowy range is visible running east and west.

37. *Huma Cho* † (height 14,270 feet), 12 miles.—Several Buddhist *Mánis*, and two large fresh-water lakes; no mountains visible on the north, but an extensive level grassy plain studded with wild animals, extending as far as the eye could reach.

\* In Kashmir called "Puli." It is a kind of borax.

† i. e., Milky Lake.

38. *Yugár* (height 14,460 feet), 16 miles.—Grass, fuel, and water from a tank which is supplied by rain-water only. This tank dries up at certain times of the year.

39. *Mango* (height 14,230 feet), 8½ miles.—Six tents of Garché Khámpas; grass plentiful; cow-dung for fuel; water from a small stream.

40. *Noring Cho*, south bank of (height 13,750 feet), 10¼ miles.—Twelve tents of Khámpas; water from springs; grass and fuel plentiful.

41. *Jakár* or *Yakár* (height 13,770 feet), 8¼ miles.—Camp on south bank of the Noring Cho Lake; ten or twelve tents of Khámpas; water from springs; grass and fuel plentiful.

42. *Sakti* (height 14,380 feet), 10¼ miles.—Water from springs; grass and fuel plentiful.

43. *Kezing* or *Phalung Yakdá* (height 14,690 feet), 5 miles.—Water, grass, and fuel; seven or eight Khámpa tents.

44. *Kyáng dhui Chú\** (height 14,780 feet), 10 miles.—Small tank; good water; grass and fuel plentiful.

45. *Jom Marú†* (height 15,700 feet), 11½ miles.—A small stream of water at camp; grass and fuel plentiful; an old gold-mine at a distance of 5½ miles.

46. *Tárnjuk* (height 14,810 feet), 13 miles.—Pass at 5½ miles, at Thok Amár, an old gold-mine with an area of about one square mile. Camp inhabited during the cold season only; a large salt-lake, called Tong Cho Cháka, lies to the north-east, at a distance of 5 miles. Lofty mountains (black) visible on north, and a very high snowy peak called Shyalchí Káng Jáng, visible towards the south-east; a large plain extends to the east.

47. *Choring Golip* (height 14,230 feet), 16½ miles.—The road is here crossed by another track, which leads from Manasarowar to Nák-chu-khá and the Khám country.

48. *Thok Márshera* (height 14,830 feet), 18 miles.—Cross *en route* the Shyal Chu, a large river which flows in three channels from a mass of snowy peaks called Shyalchí Káng Jáng, about 30 miles south of the road. This river is traversed with great difficulty in the summer months, although nowhere more than a foot deep at the time of the Pundit's visit; it flows into the Tashi Bhup Lake, whose southern shore is about 2 miles north of the road. From the east end of the lake a stream is said to issue towards Nak-chu.‡ The lake is about 13 miles in length by 8 miles in breadth.

49. *Thok Daurákpa* (height 15,280 feet), 12½ miles.—Road somewhat hilly; pass *en route* the deserted mine of Thok Dák-char. The direct road from Shyál Chu passes over a level

\* Literally, lake dug by the wild horse.

† Literally, horse's mane.

‡ The Napt Chu of the Abbé Huo.

plain, but the Pundit took a difficult and circuitous route over the hills, in order to avoid robbers. A long range of red-coloured hills, running east and west, lies to the north of the camp.

Thok Daurákpa is a large gold-field, containing 32 houses and tents of diggers. Changpas belonging to the Nákcháng Pontod Changmá country : grass, fuel, and water scarce.

THOK DAURÁKPA TO SENJÁ JONG.—Distance 262 miles.

50. *Nále* (height 15,960 feet), 10 miles.—Road level ; water, grass, fuel (búrtsi and dung).

51. *Diokar Karpo* (height 16,090 feet), 12 miles.—Cross a low pass, otherwise the road is level—as usual, passing over an extensive grass-covered plain.

52. *Beda Nákchúk* (height 16,330 feet), 14 miles.—Camp on left bank of Chuzan Sangpo, a small river flowing east.

53. *Lhung Nakdo* (height 16,140 feet), 10 miles.—Passed several Changpa tents *en route*. A high snowy peak, called Mongá Gangri, visible over the plain to the north-east. A large encampment of shepherds (12 tents) and residence of a district official at Gobrang ; 2 miles from camp a road is said to go from here to Nák-chu-khá (north of Lhása), a distance of at least 600 miles, over a nearly level plain. The road keeps in the *Sang* of the same stream the whole way.

54. *Ragú* (height 15,970 feet), 8½ miles.—Passed several tents of shepherds ; enormous herds of antelope were seen from the road.

55. *Gipu Khára* (height 15,840 feet), 16 miles.—Passed *en route* the Bogchang stream, 20 paces wide and 1 foot in depth, an affluent of the Chuzán.

56. *Gára-dong-kung* (height 16,560 feet), 14½ miles.—Camp near the abandoned gold-field of Chigimili. Water, grass, and fuel in abundance.

57. *Náwá Chhidmo* (height 15,720 feet), 12½ miles.—Road ascends with an easy slope for 7 miles to the Kilong Lá (height 18,170 feet), after crossing which it follows a stream which subsequently flows northwards to the Táng Júng Cho. There was no snow on the pass, although much snow was lying on some peaks to the north, which rise to an average height of 20,000 feet,\* and which forms a portion of a lofty range which extends in a southerly direction to the west of the Dángra Yum Cho, and culminates in some enormous peaks known as the Tártog Lhá, from which, again, a snowy range extends eastward for a distance of 180 miles. The positions of many of the principal peaks in this latter range were fixed by the Pundit. The range comes to an end at the Gyákhárma peaks at the east end of the

\* The double altitudes of some of these peaks were measured by the Pundit with his sextant ; their height has been roughly determined trigonometrically.

Kyáring Cho. The highest mountain in this eastern group was between 21,000 and 22,000 feet above sea-level, and the Pundit estimates the height of the highest of the Tárgot peaks at about 25,000 feet.

58. *Yomo Zinga* or *Ombo* (height 15,240 feet), 12½ miles.—A large village containing a monastery and 35 houses, surrounded by cultivation. This was the first time the Pundit had seen signs of cultivation since leaving Chabuk Zinga (the 23rd halting-place). Enormous lakes to north and south of the road.

59.—*Thungru* (height 14,770 feet), 11 miles.—Here are the ruins of an old stone fort, said to have belonged centuries ago to the Rájá who at that time ruled over the whole of the Hor country. Road follows the northern shore of the Dángra Yum Cho.

60. *The Chuku Larcha*, 4½ miles.—The road ascends for 2 miles to the Naithung Pass (15,710 feet) up a steepish incline; road good.

61. *Mobáding* (height 16,160 feet), 6 miles.—Cross the Chúkú Pass (16,530 feet); ascent 2 miles; descent to plain 1½ mile. Several shepherds' tents scattered about the banks of the Dungche Lake, which is 28 miles long by 10 broad.

62. *Ngorai* (height 15,320 feet), 12 miles.—Five tents of shepherds at camp, and several others passed *en route*; large flocks of sheep scattered over the plain, which extends as flat as a table from the Chúkú Lá (march 61) to the Chapta Pass (68th march), a distance of over 60 miles. Its breadth from north to south, at its widest part, is little less than 30 miles. It is a beautiful pasture watered by numerous streams and fresh-water lakes.

63. *Gyardo* (height 15,360 feet), 10 miles.—A good road goes from here to Shigátzé. The first portion of the road is through the Dóbá country, inhabited by nomads. Between Dóbá and the Che-huil country is a lofty range which is crossed by a high pass, to the north of which is the Hota Sangpo, which flows east and north-east, and was crossed by the Pundit in his march. Beyond the Hota Sangpo is the Che country, which contains many villages, and where much barley and wheat are grown.

64. <i>Tákdong</i>	(height 15,400 feet),	13 miles.	{ Road passes over level plain and crosses several streams. Many snowy peaks visible from the road.
65. <i>Jhiaktá</i>	( " 15,260 " ),	14½ "	
66. <i>Kátmár</i>	( " 15,200 " ),	10½ "	
67. <i>Lomá Karmo</i>	( " 15,360 " ),	6 "	

68. *Kyá Kyá Rafka* (height 14,770 feet), 11 miles.—Cross *en route* by the Chapta Pass (16,900 feet) a range which separates two streams which flow into the Chikut Cho to the north of the road. Camp at west end of Kyáring Cho. From this lake a river \* flows to the Chikut Cho, 111 paces broad and over 3 feet

\* The Pundit sent one of his men across it in order to get its correct dimensions.

deep, but with a slow current; the largest stream hitherto met with on the journey.

69. *Kyáring Cho*, 10 miles.—Camp on south edge of lake.

70. *Denák* (height 15,480 feet), 12 miles.—Cross *en route* the Rikú River, flowing from the south in three channels, each branch being about 40 paces in breadth and 1 foot in depth; 15 tents of the Nákchang Dóbá at camp, and a house belonging to the Debon, a high official in Shigátzé.

71. *Ngobo Lé* (height 15,330 feet), 11½ miles.—Road lies along the south edge of the Kyáring Cho. Camp on the borders of the lake.

72. *Dojam* (height 15,380 feet), 11½ miles.—Camp near the east end of the Kyáring Lake.

73. *Senjá Jong* (height 15,550 feet), 8½ miles.—The first considerable village met with since leaving Tánksé in Ladákh. It contains 80 houses built of bricks and stones, and 100 tents. It is one of the largest places in the Hor province, and is the residence of two Jongpon officials from Lhása. The district is watered by the Dumpho or Hota Sangpo, which flows in three channels, the largest of which was 73 paces broad and 1½ foot deep. There is no cultivation, and the population, like the greater part of Hor, get their supplies of grain from the Shigátzé and Lhása districts to the south. From Senjá Jong roads go to Shigátzé and to Lhasá (direct).

SENJÁ JONG TO LHÁSA.—Distance 283 miles.

74. *Chupgo* (height 15,680 feet), 5 miles.

75. *Kaisar or Singhyá* ( " 15,790 " ), 7¼ "

76. *Náwgongo* ( " 15,720 " ), 10½ "

77. *Yungchen* ( " 14,790 " ), 10¾ "

78. *Dhejen* ( " 15,350 " ), 11½ "

79. *Kerák* ( " 15,360 " ), 11 "

80. *Bul-chu* ( " 15,460 " ), 14 "

81. *Langmá Jung* ( " 15,240 " ), 14½ "

82. *Bákyám Dongpá* ( " 15,340 " ), 13¼ "

Road passes through the Dóbá Shingkun and Yakpá districts belonging to the Shigátzé Government.

The country is level and well watered. The Pundit counted 130 shepherds' tents while passing through this district. No cultivation.

Road, as usual, over rich pasture land; with no cultivation; about 100 shepherds' tents passed *en route*. The district is under the Garpon of De-Cherik, a subordinate of the Lhása Government. Water, grass and fuel everywhere plentiful. All the streams passed *en route* flow to lakes in the north.



83. *Thuigo Chumik* (height 15,440 feet), 16 miles.—At 4 miles cross the Nák Chû River, which flows westward from the Námcho Lake into another large lake north of Lángma Jung, from which it is said to issue and flow north to the Nák Chû Khá\* River. The bed of the Nák Chû River, where crossed by the Pundit, was 100 paces wide and of great depth; but the actual stream was not more than enough to turn one mill. In the summer months the river-bed is said to be filled with a violent torrent. Camp on the northern edge of the Námcho or Tengri Nur Lake.

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|---------------------------|-----------------------|----------|--|
| 84. <i>Jádor Gomba</i>    | (height 15,400 feet), | 7 miles. | { Two large monasteries near the banks of the Námcho Lake.<br>Road and camps on north edge of Námcho Lake. Pass a few tents of Dogpa shepherds and two small monasteries. Abundance of grass, water, and fuel. |
| 85. <i>Arká Bagú</i>      | ( " 15,430 " ),       | 9 "      |  |
| 86. <i>Dulúti</i>         | ( " 15,460 " ),       | 10½ "    |  |
| 87. <i>Dakmar Chuchán</i> | ( " 15,580 " ),       | 16½ "    |  |

88. *Bagú Karmo* (height 15,710 feet), 16½ miles.—At 8 miles crossed the Nya Chû, a small river that flows west into the Námcho Lake; several snowy peaks visible about 25 miles to the east of the road.

89 *Goblung Yokmá* (height 14,510 feet), 10 miles.—At 2½ miles cross the Dam Lhargan (or Níárgan) Pass (16,900 feet) by an easy road, which, however, for a mile lay through freshly-fallen snow about 1 foot in depth.

90. *Kiáng lung* (14,320 feet), 4½ miles.—Road passes through the Dam plain, which is scattered over with houses in twos and threes; excellent pastures supply grazing for numerous herds of yáks. Through a gap in the hills to the east of this plain lies a road which joins at Phendo Chaksam (6 marches from Lhása) the caravan route from Lhása to Pekin viâ Taklung (Talung), and Nák-chu-khá. From Dam there is a more direct road to Lhása viâ Taklung than the one followed by the Pundit.

91. *Chinbo* (height 14,340), 10½ miles.—Road lies parallel to the Dam River. At Chinbo this river changes the direction of its course and flows through a gap in the hills to the south-east of Chinbo; through the same gap runs a direct road to Lhása.

92. *Camp on bank of Lháchu River*, 8½ miles.—Road passes up the Nindung valley, through which flows the Lháchu, a river which flows by a circuitous course to Lhása. There are several

\* *Nák* is the Tibetan word for *black*; *khá*, mouth.

scattered hamlets in the Lháchu valley, which is bounded on the north by the Ninjintháglá snowy mountains, at the southern foot of which is a thick belt of low forest.

93. *Jung Chu* (height 14,240 feet), 10 miles.—Camp near the head of the Lháchu valley.

94. *Jyálung* (height 14,700 feet), 6 miles.—Road lies up a tributary of the Lháchu. Pass *en route* the small village of Bákhnák.

95. *Yulo-Gongma* (height 14,800 feet), 8½ miles.—Between 4 and 5 miles of ascent to the Bákhnák Pass (17,840 feet). The last part very steep; road good, and no snow on the pass; rapid descent to camp.

96. *Tulung Dingá* (height 13,020 feet), 7 miles.—Steady descent down-stream to the village of Dingá, containing a monastery and 20 houses. Cultivation met here for the first time since leaving Ombo (58th march from Leh).

97. *Yungjuk Village* (height 12,630 feet), 9½ miles.—Pass *en route* the town of Dhejen Jong, the residence of a Jongpon. The direct road to Lhása from Senga Jong, in the Hor country, passes through Dhejen.

98. *Nai Village* (height 12,510 feet), 8 miles.—Road passes through a well-cultivated and thickly-inhabited country.

99. *Saibu Village*, 6 miles.—Pass several small villages *en route*. Between Nai and Saibu a stream enters the Tulung valley from the west, a long day's journey up which lies the large monastery of Tulung Chúrbu (or Chubuk) containing 200 Lamas.

100. *Lángdong Village* (height 12,100 feet), 6 miles.—Pass several hamlets and the monastery of Kimulung, which contains about 100 Lamas, all from the Nari Khorsum district of Western Tibet.

101. *LHÁSA* (height 11,910 feet), 14 miles.

TOTAL DISTANCE, LEH to LHÁSA, 1095 miles.

LHÁSA to TÁWÁNG.—Distance 213 miles.

1. *Dhejen Jong*, 14 miles.—Road lies up the Lhása River (Kíchú Sangpo) and passes *en route* several villages. Dhejen itself contains about 500 houses and a large monastery with 300 Lamas; here is a large fort on high ground outside the town. Dhejen Jong is the first halting-place on the high-road to Pekin.

2. *Chángjiú Village* (height 13,650 feet), 8 miles.—Road ascends an affluent of the Kíchú River. The latter part of the road occupied by Dogpas: no cultivation, but abundance of jungle.

3. *Camp on south side of Gokhar Lá*, 10½ miles.—Road good,

but ascent 5 miles to the Gokhar Pass (16,620 feet) very steep; descent easy. From the pass, which is on the watershed between the Rivers Kichú and Brahmapútra, there is a very extensive view embracing the Ninjinthangla peaks (south of the Námcho Lake), and a very conspicuous peak nearly due north, about the same distance off, and the same height as the Ninjinthangla (i.e. about 24,000 feet). Other snowy peaks (the Yálá Shimbo) were visible to the south-east.

4. *Samáye Gomba* (height 11,430 feet), 10½ miles.—A very large and ancient monastery, situate about 3 miles to the north of the Támjun Khá or Brahmapútra River. The road is good, but deep in sand, which overlies the whole of the surrounding country.

5. *Dhomdá Village* (height 11,350 feet), 12½ miles.—Road passes over a sandy plain along the northern bank of the Brahmapútra.

6. *Chetáng City* (height 11,480 feet), 6½ miles.—At Gerpá Dugá, 2 miles from Dhomdá, is a ferry over the Brahmapútra. The river is about 350 yards across, 20 feet in depth, and has a very sluggish current. The road here leaves the main valley, and goes up the branch valley of Yálung. Where the Brahmapútra River was quitted, it trends due east, a direction which it maintains for about 30 miles, after which it turns off to the south-east. Chetáng contains 500 houses and two very large monasteries, which give shelter to 700 Lámas.

7. *Wombá or Ombu Village* (height 11,620 feet), 7½ miles.—Road good up the Yálung valley. Several monasteries are passed *en route*, from one of which, Tamtuk Gomba, a road passes up-stream and meets, several marches farther on (at Tángshu), the Pundit's line of march. This alternative road passes through an uninhabited pastoral country.

8. *Chúkya Phutáng*, 3½ miles.—A large town with a fort, 400 houses, and a large monastery (Tákché). Up to this point from Lhása the road is first-rate.

9. *Pisa Dokpo* (height 11,890 feet), 9 miles.—Road still up the Yálung valley. Numerous villages and monasteries passed *en route*.

10. *Karmá Lhákhang* (height 13,190 feet), 10½ miles.—Up the Yálung valley. Several small villages passed *en route*.

11. *Dálátang* (height 16,020 feet), 6 miles.—A large rest-house, with good accommodation for travellers, on the plain which forms the watershed between the Yálung and a more eastern tributary of the Brahmapútra. This plain was covered with cattle, although the cold was very severe. High snowy peaks to the north and south-west of the camp.

12. *Karkang Village* (height 15,200 feet), 9½ miles.—A small village on a highly-elevated plain, which is said to be covered with snow after January. It was bitterly cold when the Pundit

was there (December), although there was then no snow on the ground.

13. *Lhákchang Village*, 13½ miles.—Crossed on this day's march the main watershed by a high but easy pass (the Karkang, 16,210 feet), from which a very commanding view was obtained in a north-east direction.

14. *Yúbi Village* (height 13,120 feet), 11½ miles.—Descend the stream from the pass, and eastward camp on the right bank of the Sikung River, which flows through a highly-elevated but thickly-inhabited and well-cultivated plain (the Chá-huil country), and ultimately finds its way to the Duffla country. Several conspicuous snowy peaks visible over the Chá-huil plain, between 40 and 50 miles east of camp.

15. *Serása Village* (height 14,220 feet), 11½ miles.—Road lies up the Jumbi branch of the Sikung River; road good through scattered villages. Hot springs at camp (temperature 91° Fahrenheit), a few hundred yards above which were other hot springs with a temperature of 170°.

16. *Tang-shú*, 17 miles.—After 5 miles' ascent by a good road, traverse for 3 miles an elevated grassy plain, elevation 15,300 feet, where it is said that travellers often perish from cold and snow; descend to the frozen Nára-Yum Cho, which is 6 miles in length by 4 in breadth. A large *Chukháng* (or Government bungalow) at camp, in charge of watchman from Lhása. Many snowy peaks visible to the west and south-west. At this camp the alternative road (stage 7) from Wombá is met; the road is much used by traders from the Hor country.

17. *Gaíbá Village* (height 13,250 feet), 15 miles.—Road passes over very elevated but tolerably level plain, covered with fresh snow to a considerable depth.

18. *Chóná Jong Town* 3½ miles.—A strong stone fort, the residence of two Jongpen from Lhása; about 300 houses; numerous hot springs; snow on road.

19. *Mondo Village*, 3½ miles.—Ten houses.

20. *Chyámo Karmo* (height 14,620 feet), 5½ miles.—Pass a small lake, from which a river flows in a south-west direction to Bhotán.

21. *Chukháng*, 9 miles.—Cross the Kyá Kyá Lá. The journey very laborious on account of the deep snow lying on the ground. Road good. A toll-house at Chukháng, where taxes are levied by the Lhása authorities, 1 in 10 on all exports and imports.

22. *Pang Khang*, 10½ miles.—Cross the Mila Khátong Pass, 14,210 feet, after which cross two spurs. Camp in a forest. The whole of the country south of the Mila Khátong Pass is designated *Mon-huil*, and is inhabited by a race of people whose language differs very considerably from that of Lhása.

23. *Táwáng* (height 10,280 feet), 3 miles.—Road descends to the Táwáng River, the valley of which contains numerous villages, and constitutes the district of the same name. At Táwáng is a large monastery containing 500 Lámás. It is surrounded by a fortified wall.

From Táwáng there are three roads to Hindustán—

1st. The eastern route *viá* the Sai Pass to Odálguri; this is the route followed by the Pundit.

2nd. The middle route *viá* the Makto *Cháksám* or Iron Bridge, and the country of Mirastán (belonging to Bhotán).

3rd. The western route down the Táwáng River *viá* Jáká Sámbar\* and Tashi Kang. The two last routes emerge at Dewángiri.

TÁWÁNG TO ODÁLGURI.—Distance 97 miles.

24. *Okar Village*, 4 miles.—Road through deep snow the whole way.

25. *Pekhang Village* (height 8010 feet), 2 miles.—A village with about 40 houses and a large monastery.

26. *Jang-huñ Sambá* (height 6690 feet), 3 miles.—Cross by timber bridge over the Táwáng River, which is a rapid stream about 40 paces in width and 5 feet in depth.

27. *Pang Kháng Yokma*,† 4 miles.—A steep ascent through heavy snow the whole way (February). Pass near the river the large village of Jang-huñ (300 houses).

28. *Pang Kháng Lharcha* (height 12,830 feet), 5½ miles.—Road up slight ascent along a path that had been beaten down through very heavy snow. Thick jungle on both sides of the road.

29. *Pang Kháng Nyungma Dong*, 8 miles.—A rest-house near the village and fort of the same name. Two miles of ascent through heavy snow to the Sai Pass (14,260 feet), from which there is said to be a very extensive view; at the time of the Pundit's passage it was unfortunately obscured by clouds. Four miles south of the pass is the village of Singi Jong, belonging to the Chona (or Táwáng) Jongpon. The snow only extended for 1½ mile south of the pass, and its depth was very much less than on the north.

30. *Jyápshang Village* (height 3930 feet), 11 miles.—The road passes down the Dhiráng Valley, near the stream of the same name, which takes its rise in the Sai hills on the north. Several large villages passed *en route*. Nyungmá (60 houses), Lih (100 houses), and Chepjang (100 houses).

31. *Camp north of Menda Pass*, 5 miles.—Very steep ascent

\* Jáká Sámbar is situated near the junction of the Lhobrá and Táwáng rivers and is the boundary between Táwáng and Bhotán.

† A *pang kháng* is a wooden rest-house.

up the range which separates the Dhiráng from the Phutung valleys. The northern slopes of this range are covered with enormous deodar-trees. Pass *en route* the village of Dhiráng, containing about 250 houses, and a fort or barrack several storeys high, the residence of two Jongpen. About 25 miles down the river from Dhiráng is the boundary of the independent Lhóba or Dáphla \* country.

32. *Phutung Sámba* (height 6270 feet), 8 miles.—Four miles of steep ascent through deodar forest to the Menda Lá (9290 feet). Snow was lying about 1 foot deep at the top. Descent to the Phutung River very steep, especially the lower portion near the river; road good. Pass the village of Phutung, containing about 150 houses.

33. *Táklung Jong* (height 6940 feet), 9 miles.—Cross the river by an excellent wooden bridge; ascend for 2½ miles to the Phutung Lá (7040 feet); cross it, and then ascend to Táklung, the summer residence of two Jongpen, who spend the winter months at Khálak Tang, and Amrá (or Ambá) Tála, near the British frontier.

34. *Khalák Tang* (height 3000 feet), 9 miles.—A village of 30 houses. The road ascends for 2 miles to the Chimo Lá (8170 feet), from which is a commanding view of the Assam plains to the south, and from which the Brahmapútra River is said to be visible in clear weather.

35. *Amrá Tála* (height 630 feet), 14 miles.—Road down-stream and through thick jungle the whole way. To the west of the road is the village of Chingmi. The river is crossed no less than fifty-five times on this march by temporary bridges, which are always carried away in the rains and replaced in the cold weather. The road is quite impassable in the rainy season, prior to which the Táwáng residents of Amrá Tála retire to their villages to the north. In the cold season there are about 200 temporary grass-built huts at Amrá Tála, which is at that time a great rendezvous for merchants from Assam and Táwáng.

36. *Odálguri* or *Káriapára*, 15 miles.—Road carried along the stream to its junction with the Sangti Chu; the two streams form the Dhansiri River. The Saugti River is crossed by a wooden bridge, near which is the frontier between British and Tibetan territory.

*Odálguri* (450 feet) is in the Darrang district of Assam, and is about 26 miles from Mangaldai, whence Gauháti can be reached by boat in 1½ day.

TOTAL DISTANCE, LHÁSA to ODÁLGURI, 310 miles.

\* Commonly written *Duffla*.