

Basin of the Nile, by Dr. G. Schweinfurth. Map of the Balkash Lake, &c., by Babkow and Golubew. All presented by A. Petermann.

H.R.H. the PRINCE OF WALES and suite honoured the meeting with their attendance, and remained to the end of the discussion.

The PRESIDENT opened the meeting by saying that, before the paper was read, he was sure the Fellows of the Society would feel that it was the duty of their President to express the sincere gratification of the meeting that their Vice-Patron the Prince of Wales had been pleased to honour them with his presence. As a veteran in the pursuits of science he well remembered what real interest the lamented Prince Consort took in attending scientific meetings, and how justly he appreciated the importance of the discussions which arose at them. It was most gratifying therefore to find the Prince of Wales treading in the footsteps of his illustrious father. The presence of his Royal Highness at one of their ordinary meetings was not inappropriate, inasmuch as he had himself travelled more extensively than any former heir to the crown of England, and they might feel certain that he has formed a high estimate of that predominant feature in our national character, the keen desire to explore distant lands. As geographers they might feel proud that another son of our beloved Queen, the Duke of Edinburgh, already enrolled as one of their honorary members, was making the grand tour of the British colonies, and would have seen, when he happily returned, more of the earth's surface than the great majority of practised travellers.

The following Paper was read :—

*Report on the Trans-Himalayan Explorations, in connexion with the Great Trigonometrical Survey of India, during 1865-7 : Route-Survey made by Pundit —, from Nepal to Lhasa, and thence through the upper valley of the Brahmaputra to its Source.* By Captain T. G. MONTGOMERIE, R.E., F.R.G.S.

[Extracts.]

A EUROPEAN, even if disguised, attracts attention when travelling among Asiatics, and his presence, if detected, is now-a-days often apt to lead to outrage. The difficulty of redressing such outrages, and various other causes, have, for the present, all but put a stop to exploration by Europeans. On the other hand, Asiatics, the subjects of the British Government, are known to travel freely without molestation in countries far beyond the British frontier; they constantly pass to and fro between India and Central Asia, and also between India and Tibet, for trading and other purposes, without exciting any suspicion.

In 1861 it was consequently proposed to take advantage of this facility possessed by Asiatics, and to employ them on explorations beyond the frontier. The Government of India approved of the project, and agreed to support it liberally.

With a view to carry out the above, Colonel Walker, the Superintendent of the Survey, engaged two Pundits, British subjects, from

one of the upper valleys of the Himalayas. Such promising recruits having been secured, they were at once sent to the head-quarters of the Great Trigonometrical Survey, in order to be trained for Trans-Himalayan exploration.

On Colonel Walker's departure for England, these Pundits were put under Captain Montgomerie, who completed their training. They were found to be very intelligent, and rapidly learnt the use of the sextant, compass, &c., and before long recognised all the larger stars without any difficulty. Their work, from actual practice, having been found to be satisfactory, Captain Montgomerie directed them to make a route-survey from the Mansarowar Lake to Lhasa, along the great road that was known to exist between Gartokh and Lhasa. From Lhasa, they were directed to return by a more northerly route to Mansarowar. The route to Lhasa was selected by Captain Montgomerie, because it was known, from native information, to be practicable as far as the road itself was concerned. If explored, it was likely to define the whole course of the great river known to flow from near the Mansarowar Lake to beyond Lhasa. Hitherto the sole point on the upper course of this great river, the position of which was known with any certainty, was a point near Teshooloomboo, or Shigátze, as determined by Captain Turner in 1783. The position of Lhasa, the capital of Great Tibet, was, moreover, only a matter of guess, the most probable determination having been derived from native information as to the marches between Turner's Teshooloomboo and Lhasa. In fact, the route from the Mansarowar Lake to Lhasa, an estimated distance of 700 or 800 miles, was alone a capital field for exploration.

An attempt was made by the Pundits to advance direct from Kumaon, *viâ* Mansarowar, to Lhasa, but they did not find it practicable. The attempt by the Mansarowar Lake having failed, it appeared to Captain Montgomerie that the best chance of reaching Lhasa would be through Nepal, as the Nepalese Government has always maintained relations of some kind with the Government of Lhasa. Traders from Nepal, moreover, were known to visit Lhasa, and Lhasa traders to visit Nepal.

The Pundits were consequently ordered to go to Kathmandû, and from thence to try and make their way to the great road between the Mansarowar and Lhasa. Their instrumental equipment consisted of 2 large sextants,\* 2 box sextants, prismatic and pocket compasses, thermometers for observing temperature of air and of boiling water, pocket chronometer, and common watch, with apparatus, the latter reduced as much as possible.

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\* Only one large sextant was taken to Lhasa.

The Pundits started from Dehra, reached Moradabad on the 12th January, and Bareilly on the 23rd January, 1865. They crossed the Nepalese frontier at Nepalgunj, Jung Bahadur's new town, and from thence went by the Cheesaghurri road to Kathmandú, reaching the latter place on the 7th March, 1865.

In Kathmandú they made inquiries on all sides as to the best route to Lhasa; they found that the direct one by Kúti (or Nilum), across the Dingri plain (or Tingri Maidan, as it is called), was likely to be very difficult, if not impassable, owing to the snow at that early season (March, April). They consequently determined to try the route by Kirong, a small town in the Lhasa territory, as that route was said to be passable earlier than the Kúti route. Having made their arrangements, the Pundits started full of hope on the 20th March, 1865, accompanied by four men, whom they had hired as servants.

On the 26th they reached Medangpodo village, and here they changed their mode of dress to one better known to the people of Lhasa. They also gave out that they were Bisahiris,\* and were going to buy horses, at the same time to do homage at the Lhasa shrine. The character of Bisahiris was assumed because they knew that those people had from time immemorial been privileged to travel in the Lhasa territory without question. On the 28th March they reached the neighbourhood of Kirong, but, much to their disappointment, they were stopped by the Chinese officials, who questioned them as to the object of their journey, and searched their baggage. Fortunately the instruments (which had been ingeniously secreted in a false compartment of a box) escaped detection; but still, though nothing suspicious was seen, the plausible reasons given for the journey did not satisfy the jealousy of the Chinese authorities. In spite of everything urged, they were not allowed to pass until a reference had been made to the Kirong governor. The Kirong governor seems at once to have noted the weak points of their story, and having pointed them out with inexorable logic, declined to let them pass on any consideration; they were therefore reluctantly forced to retrace their steps to Shabrú. At Shabrú the wily Pundit managed to persuade a high official that they were no impostors, and induced him, moreover, to certify that in a letter to the Kirong governor. Armed with this letter, they returned towards Kirong, with hopes of better luck, and no doubt, under ordinary circumstances, would have succeeded; but on the road they fortunately discovered that the Kirong governor was an individual who

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\* From the British valley of that name north-east of Simla.

had known the Pundit's brother personally, when he was chief of Taglakote, near Mansarowar; his brother had in fact been frequently in close and friendly relations with him. This at once put a stop to all hopes of his advancing by the Kirong route, as the governor well knew he was no Bisahiri. The other Pundit thought of proceeding by himself, but, being able to devise no feasible method, he gave up the idea, and the party consequently marched back, reaching Kathmandû on the 10th April. Here they made fresh inquiries as to some more promising way of getting to Lhasa. At last they heard of two opportunities, the first by accompanying the camp of a new agent (vakeel) that Jung Bahadur was about to send to Lhasa, and the second by accompanying a Bhot merchant. In order to increase their chances of success, they decided that one should go with the Nepal agent, and the other with the merchant. The vakeel at first agreed to take one of them with him, but ultimately refused.

Failing with the vakeel, it was impossible for the Pundit, who was known to the Kirong governor, to go with the Bhot merchant, as he intended to take the Kirong route; he consequently decided to try a more circuitous route, by Muktináth, but in this he failed, owing, according to his own account, to loss of health and the unsafe state of the roads, but, no doubt, in a great measure due to his own want of determination. After a long journey through the upper parts of the Nepal territory, he returned to British territory. The account of his proceedings is referred to separately. The other Pundit, at first, was not much more successful with the merchant than his brother had been with the vakeel. The merchant, Dawa Nangal, promised to take the Pundit to Lhasa, and on the strength of that proceeded to borrow money from him. The merchant, however, put off starting from day to day, and eventually the Pundit had to start with one of the merchant's servants, the merchant himself promising to follow in a few days. The Pundit assumed the dress of a Ladáki, and, to complete his disguise, added a pig-tail to his head. This change was made because he was afraid that the Kirong officials who stopped him the first time might recognise him again.

By this means he reached Tadûm monastery, a well-known halting-place on the great road between Lhasa and Gartokh. Starting on the 13th August from Kirong, he reached Lue on the 23rd. From Kathmandû up to this point vegetation and jungle had been abundant, but, beyond, the mountains were throughout bare and all but barren.

On the 24th August the Pundit joined a large trading party, travelling *viâ* Tadûm to Mansarowar, and was allowed to accompany

them. On the 30th he reached Talla Labron, and there first caught sight of the great river\* that flows towards Lhasa. His first acquaintance with this river was calculated to inspire him with respect for it, as three men were drowned in front of him by the swamping of a ferry-boat. Alarmed by this occurrence, the party marched a short distance farther up the river to a better ferry, by which they crossed in safety to the Tadúm monastery on the 6th of September. At Tadúm the Pundit feigned sickness as a reason for not going on to Mansarowar, and he was accordingly left behind. Continuing to feign illness, he at last found an admirable opportunity of going to Lhasa, viz., by accompanying a Ladák merchant in the employ of the Kashmir Maharaja, who was that year going to Lhasa, and was to pass through Tadúm. On the 2nd of October the merchants' head man, Chiring Nirpal, arrived, and on hearing the Pundit's story, at once consented to take him on to Lhasa. Starting on the next morning with the Ladáki camp, he marched eastward along the great road, reaching the town of Sarkajong on the 8th October. So far everything had gone smoothly, but here the inquiries made by the authorities rather alarmed the Pundit, and as his funds, owing to the great delays, had begun to run short, the two combined made him very uneasy. However, he manfully resolved to continue his journey. He became a great favourite with Chiring Nirpal and the whole of the Ladáki camp. On the 19th October they reached Ralang. From Tadúm to this point no cultivation was seen, but here there was a little, and a few willow-trees, and onwards to Lhasa cultivation was met with nearly every day.

On the 29th October they reached Digarcha, or Shigátze, a large town on the Penanangchú River near its junction with the great Nárichú River. The only incident during their long stay there was a visit that he and the Ladákis paid to the great Tashilumbo monastery. This monastery lies about half a mile south-west of the city, and is the same as that visited and fully described by Turner. The Pundit would rather not have paid the Lama a visit, but he thought it imprudent to refuse, and therefore joined the Ladákis, who were going to pay their respects to him. The Pundit confesses that, though personally a follower of Brahma, the proposed visit rather frightened him, as, according to the religion of his ancestors, who were Budhists, the Lama ought to know the secrets of all hearts. However, putting a bold face on the matter, he went, and was much relieved to find that the Lama, a boy of 11, only

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\* The Brahmaputra.

asked him three simple questions, and was, according to the Pundit, nothing more than an ordinary child, and did not evince any extra intelligence. At Shigátze the Pundit took to teaching Nepalese shopkeepers the Hindoo method of calculation, and thereby earned a few rupees.

The great road, which had hitherto been more or less close to the great Náríchú River, from Shigátze goes considerably south of that river. On the 25th December they reached the large town of Gyangze, on the Penanangchú River, which was then frozen hard enough to bear men. Crossing the lofty Kharola mountains, they arrived on the 31st December at Nang-ganchejong, a village on the Yamdokcho Lake, with the usual fort on a small hill. For two days the Pundit coasted along the Great Yamdokcho Lake.\* On the second day he nearly fell a prey to a band of robbers, but, being on horseback,† he managed to escape, and on the 2nd January reached Demálang, a village at the northern angle of the lake. From Demálang the lake was seen to stretch some 20 miles to the south-east. The Pundit estimated the circumference of the lake to be 45 miles, but, as far as he saw, it was only 2 to 3 miles in width. He was informed that the lake encircled a large island, which rises into low rounded hills 2000 or 3000 feet above the surface of the lake. These hills were covered with grass up to the top. Between the hills and the margin of the lake several villages and a white monastery were visible on the island. The villagers keep up their communication with the mainland by means of boats. The Pundit was told that the lake had no outlet, but, as he says its water was perfectly fresh, that is probably a mistake; if so, the Pundit thinks the outlet may be on the eastern side, where the mountains appeared to be not quite so high as those on the other sides. The evidence as to the lake encircling a very large island is unanimous. Almost all former maps, whether derived from the Chinese maps made by the Lamas, or from native information collected in Hindustan, agree in giving the island a very large area, as compared with the lake in which it stands. This is, however, a very curious topographical feature, and as no similar case is known to exist elsewhere, it might perhaps be rash to take it for granted, until some reliable person has actually made the circuit of the lake. Meantime the Pundit's survey goes a considerable way to confirm the received theory. The lake, from the Pundit's observations, appears to be about 13,500 feet above the sea;

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\* The margin of the lake was frozen.

† With reference to this, the Pundit, on being questioned, said that the paces of this portion, and of one or two other parts, were counted on his return journey.

it contains quantities of fish. The water was very clear, and said to be very deep.

The island in the centre must rise to 16,000 feet above the sea, an altitude at which coarse grass is found in most parts of Tibet.

From the basin of the Yamdokcho Lake the party crossed over the Khambala mountains by a high pass, reaching the great Nárichú (the Brahmaputra) at Khambabarche; from thence they descended the river in boats to Chusul village. Near Chusul they again left the great river, and ascending its tributary, the Kichu Sangpo or Lhasa River, in a north-easterly direction reached Lhasa on the 10th of January, 1866.

The Pundit took up his abode in a sort of caravanserai with a very long name, belonging to the Tashilumbo monastery; he hired two rooms that he thought well suited for taking observations to stars, &c., without being noticed. Here he remained till the 21st of April, 1866. On one occasion he paid a visit to the Golden Monastery, two marches up the great road to China, which runs from Lhasa in a north-easterly direction. He also attempted to go down the Brahmaputra, but was told that it was impossible without a well-armed party of a dozen at least. His funds being low, he was obliged to give up the idea, and indeed, judging from all accounts, doubted if he could have done it with funds. The Pundit's account of the city of Lhasa agrees, in the main, with what has been written in Messrs. Huc and Gabet's book as to that extraordinary capital, which the Pundit found to be about 11,400 feet above the sea. He particularly dwells upon the great number, size, and magnificence of the various monasteries, and the vast number of monks, &c., serving in them.

Having been so long away, the Pundit's funds had arrived at a very low ebb, and he was obliged to make his livelihood by teaching Nepalese merchants the Hindoo method of accounts. By this means he got a little more money, but the merchants, not being quite so liberal as those of Shigátze, chiefly remunerated him by small presents of butter and food, on which he managed to subsist. During his stay in Lhasa the Pundit seems to have been unmolested, and his account of himself was only once called in question. On that occasion two Mahomedans of Kashmiri descent managed to penetrate his disguise, and made him confess his secret. However, they kept it faithfully, and assisted the poor Pundit with a small loan, on the security of his watch. On another occasion the Pundit was surprised to see the Kirong governor in the streets of Lhasa. This was the same official that had made so much difficulty about letting him pass Kirong; and as the Pundit had (through Chúngh

Chú) agreed to forfeit his life if, after passing Kirong, he went to Lhasa, his alarm may easily be imagined. Just about the same time the Pundit saw the summary way in which treachery was dealt with in Lhasa: a Chinaman, who had raised a quarrel between two monasteries, was taken out and beheaded without the slightest compunction. All these things combined alarmed the Pundit so much that he changed his residence, and from that time seldom appeared in public.

Early in April the Pundit heard that his Ladáki friends were about to return to Ládak with the tea, &c., that they had purchased. He forthwith waited on the Lopchak, and was, much to his delight, not only allowed to return with him, but was told that he would be well cared for, and his expenses paid *en route*, and that they need not be repaid till he reached Mansarowar. The Pundit, in fact, was a favourite with all who came in contact with him.

On the 21st April he left Lhasa with the Ladáki party, and marching back by the great road as before, reached Tadúm monastery on the 1st of June.

From Tadúm he followed the great road to Mansarowar, passing over a very elevated tract of country from 14,000 to 16,000 feet above the sea, inhabited solely by nomadic people, who possess large flocks and herds of sheep, goats, and yaks. On the road his servant fell ill, but his Ladáki companions assisted him in his work, and he was able to carry it on. Crossing the Mariam-La mountains, the watershed between the Brahmaputra and the Sutlej, he reached Darchan, between the Mansarowar and the Rakas Tál, on the 17th of June. Here he met a trader from British territory who knew him, and at once enabled him to pay all his debts, except the loan on his watch, which was in the hands of one of the Ladákis. He asked his friends to leave the watch at Gartokh till he redeemed it.

At Darchan the Pundit and his Ladáki companions parted with mutual regret; the Ladákis going north towards Gartokh, and the Pundit marching towards the nearest pass to the British territory, accompanied by two sons of the man who had paid his debts.

The Pundit's servant, a faithful man from Záskar in Ladák, who had stuck to him through the journey, being ill, remained behind. He answered as a sort of security for the Pundit, who promised to send for him, and at the same time to pay all the money that had been advanced. Leaving Darchan on the 20th June, the Pundit reached Thájung on the 23rd, and here he was much astonished to find even the low hills covered with snow in a way he had never seen before. The fact being that he was approaching the outer Himalayan chain, and the ground he was on (though lower than



much of the country he had crossed earlier in the season) was close enough to the outer range to get the full benefit of the moisture from the Hindustan side. The snow rendered the route he meant to take impracticable, and he had to make a great *détour*. After an adventure with the Bhotiyas, from whom he escaped with difficulty, he finally crossed the Himalayan range on the 26th June, and thence descended into British territory after an absence of 18 months. As soon after his arrival as possible, the Pundit sent back two men to Darchan, with money to pay his debts, and directions to bring back his servant. This was done, and the servant arrived all safe, and in good health.

The Pundit met his brother, who, failing to make his way to Lhasa, had returned by a lower road through the Nepalese territory. This brother had been told to penetrate into Tibet, and, if possible, to assist the Pundit. The snow had, however, prevented him from starting. He was now, at the Pundit's request, sent to Gartokh to redeem the watch, and to carry on a route-survey to that place. The Pundit handed over his sextant, and told him to connect his route with the point where the Bhotiyas had made the Pundit leave off. The brother succeeded in reaching Gartokh, redeemed the watch, and after making a route-survey from the British territories to Gartokh and back, he rejoined the Pundit, and they both reached the head-quarters of the Survey on the 27th of October, 1866.

During the regular survey of Ladák, Captain Montgomerie had noticed that the Tibetans always made use of the rosary and prayer-wheel,\* he consequently recommended the Pundit to carry both with him, partly because the character of a Buddhist was the most appropriate to assume in Tibet, but, still more, because it was thought that these ritualistic instruments would (with a little adaptation) form very useful adjuncts in carrying on the route-survey.

It was necessary that the Pundit should be able to take his compass bearings unobserved, and also that, when counting his paces, he should not be interrupted by having to answer questions. The Pundit found the best way of effecting those objects was to march separate, with his servant either behind or in front of the rest of the camp. It was of course not always possible to effect this, nor could strangers be altogether avoided. Whenever people did come up to the Pundit, the sight of his prayer-wheel was generally sufficient to prevent them from addressing him. When he saw any one

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\* The mani-chuskor, or prayer-wheel.

approaching, he at once began to whirl his prayer-wheel round, and as all good Budhists whilst doing that are supposed to be absorbed in religious contemplation, he was very seldom interrupted.

The prayer-wheel consists of a hollow cylindrical copper box, which revolves round a spindle, one end of which forms the handle. The cylinder is turned by means of a piece of copper attached by a string. A slight twist of the hand makes the cylinder revolve, and each revolution represents one repetition of the prayer, which is written on a scroll kept inside the cylinder.\* The prayer-wheels are of all sizes, from that of a barrel downwards; but those carried in the hand are generally four or six inches in height by about three inches in diameter, with a handle projecting about four inches below the bottom of the cylinder. The one used by the Pundit was an ordinary hand one, but instead of carrying a paper scroll with the usual Budhist prayer "Om mani padmi hom," the cylinder had inside it long slips of paper, for the purpose of recording the bearings and number of paces, &c. The top of the cylinder was made loose enough to allow the paper to be taken out when required.

The rosary, which ought to have 108 beads, was made of 100 beads, every tenth bead being much larger than the others. The small beads were made of a red composition to imitate coral, the large ones of the dark corrugated seeds of the udrás. The rosary was carried in the left sleeve; at every hundredth pace a bead was dropped, and each large bead dropped, consequently, represented 2000 paces. With his prayer-wheel † and rosary the Pundit always managed one way or another to take his bearings and to count his paces.

The latitude observations were a greater difficulty than the route-survey. The Pundit required to observe unseen by any one except his servant; however, with his assistance, and by means of various pretences, the Pundit did manage to observe at thirty-one different places. The Pundit had invested in a wooden bowl, ‡ such as is carried at the waist by all Bhotiyas. This bowl is used by the Bhotiyas for drinking purposes; in it they put their water, tea,

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\* This prayer is sometimes engraved on the exterior of the wheel.

† The Pundit found this prayer-wheel free of all examination by custom-house or other officials. In order to take full advantage of this immunity, several copper prayer-wheels have been made up in the workshop of the Survey, fitted for compasses, &c.: these will be described hereafter.

‡ The Tibetans are very curious as to these drinking bowls or cups; they are made by hollowing out a piece of hard wood, those made from knots of trees being more especially valued. A good bowl is often bound with silver. The wood from which they are made does not grow in Tibet, and the cups consequently sell for large amounts.

broth, and spirits, and in it they make their stirabout with dry flour and water, when they see no chance of getting anything better. The Pundit, in addition, found this bowl answer capitally for his quicksilver, as its deep sides prevented the wind from acting readily on the surface. Quicksilver is a difficult thing to carry, but the Pundit managed to carry his safely nearly all the way to Lhasa, by putting some into a cocoa-nut, and by carrying a reserve in cowrie-shells closed with wax. At Piáhtejong, however, the whole of his quicksilver escaped by some accident; fortunately he was not far from Lhasa, where he was able to purchase more. The whole of his altitudes were taken with the quicksilver.

Reading the sextant at night without exciting remark was by no means easy. At first a common bull's-eye lantern answered capitally, but it was seen and admired by some of the curious officials at the Tadúm monastery, and the Pundit, who said he had brought it for sale, was forced to part with it, in order to avoid suspicion. From Tadúm onwards a common oil-wick was the only thing to be got. The wind often prevented the use of it, and, as it was difficult to hide, the Pundit was at some of the smaller places obliged to take his night observation, and then put his instrument carefully by, and not read it till the next morning; but at most places, including all the more important ones, he was able to read his instrument immediately after taking his observations.

The results of the expedition delivered at the head-quarters consist of—

1st.—A great number of meridian altitudes of the sun and stars, taken for latitude at thirty-one different points, including a number of observations at Lhasa, Tashilumbo, and other important places.

2nd.—An elaborate route-survey, extending over 1200 miles, defining the road from Kathmandû to Tadúm, and the whole of the Great Tibetan road from Lhasa to Gartokh, fixing generally the whole course of the great Brahmaputra River, from its source near Mansarowar to the point where it is joined by the stream on which Lhasa stands.

3rd.—Observations of the temperature of the air and boiling water, by which the heights of thirty-three points have been determined, also a still greater number of observations of temperature, taken at Shigátze, Lhasa, &c., giving some idea of the climate of those places.

4th.—Notes as to what was seen, and as to the information gathered during the expedition.

The latitude observations were taken with a large sextant of 6-inch radius, and have been reduced in the Computing Office of

the Survey. There is no doubt but that the Pundit is a most excellent and trustworthy observer. In order to see this it is only necessary to look at the accompanying list.

Between the Mansarowar Lake and Lhasa the Pundit travelled by the great road called the *Johng-lam* \* (or *Whor-lam*), by means of which the Chinese officials keep up their communications, for 800 miles along the top of the Himalayan range; from Lhasa, north of Assam, to Gartokh, north-east of Simla. A separate memorandum is given hereafter as to the stages, &c., on this extraordinary road. Starting from Gartokh on the Indus, at 15,500 feet above the sea, the road crosses the Kailas range by a very high pass, descends to about 15,000 feet in *Nari Khorsum*, the upper basin of the *Sutlej*, and then coasting along the *Rakas Tâl*, the *Mansarowar*, and another long lake, rises gradually to the *Mariham-la Pass*, the watershed between the *Sutlej* and *Brahmaputra*, 15,500 feet above the sea. From the *Mariham-la* the road descends gradually, following close to the north of the main source of the *Brahmaputra*, and within sight of the gigantic glaciers, which give rise to that great river. About 50 miles from its source the road is for the first time actually on the river, but from that point to *Tadúm* it adheres very closely to the left bank: Just before reaching *Tadúm* the road crosses a great tributary, little inferior to the main river itself. The *Tadúm* monastery is about 14,200 feet above the sea.

In many parts there appears to have been considerable danger of losing the road in the open stretches of the table-land, the whole surface looking very much like a road; but this danger is guarded against by the frequent erection of piles of stones, surmounted with flags on sticks, &c. These piles, called *lapcha* by the Tibetans, were found exceedingly handy for the survey; the quick eye of the Pundit generally caught the forward pile, and even if he did not, he was sure to see the one behind, and in this way generally secured a capital object on which to take his compass bearings. The Tibetans look upon these piles partly as guide-posts, and partly as objects of veneration; travellers generally contribute a stone to them as they pass, or, if very devout and generous, add a piece of rag; consequently, on a well-used road, these piles grow to a great size, and form conspicuous objects in the landscape. Over the table-land the road is broad and wide enough to allow several travellers to go abreast; in the rougher portions the road generally consists of two or three narrow paths, the width worn by horses, yaks, men, &c., following one another. In two or three places these dwindle down to a single track, but are always passable by a horseman, and,

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\* *Lam* means road in the Tibetan language.

indeed, only in one place, near Phuncholing, is there any difficulty about laden animals. A man on horseback need never dismount between Lhasa and Gartokh, except to cross the rivers.

The road is, in fact, a wonderfully well maintained one, considering the very elevated and desolate mountains over which it is carried. Between Lhasa and Gartokh there are twenty-two staging places, called Tarjums, where the baggage-animals are changed. These Tarjums are from 20 to 70 miles apart; at each, shelter is to be had, and efficient arrangements are organised for forwarding officials and messengers. Each Tarjum is in charge of an official, called Tarjumpá, who is obliged to have horses, yaks, and coolies in attendance whenever notice is received of the approach of a Lhasa official. From ten to fifteen horses, and as many men, are always in attendance night and day. Horses and beasts of burden (yaks in the higher ground, donkeys in the lower) are forthcoming in great numbers when required; they are supplied by the nomadic tribes, whose camps are pitched near the halting-houses.

Though the iron rule of the Lhasa authorities keeps this high road in order, the difficulties and hardships of the Pundit's march along it cannot be fully realised, without bearing in mind the great elevation at which the road is carried. Between the Mansarowar Lake and the Tadúm monastery the average height of the road above the sea must be over 15,000 feet, or about the height of Mont Blanc. Between Tadúm and Lhasa its average height is 13,500 feet; and only for one stage does the road descend so low as 11,000 feet, whilst on several passes it rises to more than 16,000 feet above the sea. Ordinary travellers with laden animals make two to five marches between the staging-houses, and only special messengers go from one staging-house to another without halting. Between the staging-houses the Pundit had to sleep in a rude tent that freely admitted the biting Tibetan wind, and on some occasions he had to sleep in the open air.

Bearing in mind that the greater part of this march was made in mid-winter, it will be allowed that the Pundit has performed a feat of which a native of Hindustan, or any other country, may well be proud.

From the Mansarowar Lake to Tadúm (140 miles) glaciers seem always to have been visible to the south, but nothing very high was seen to the north; for the next 70 miles the mountains north and south seem to have been lower, but further eastward a very high snowy range was visible to the north,\* running for 120 miles parallel

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\* With a very high peak at its western extremity, called Harkiang. A very high peak was also noticed to the south, between the Raka and Brahmputra valleys.

to the Raka Sangpo River. From Janglache to Gyangze the Pundit seems to have seen nothing high, but he notices a very large glacier between the Pennang Valley and the Yamdokcho Lake.

From the lofty Khamba-la Pass the Pundit got a capital view. Looking south he could see over the island in the Yamdokcho Lake, and made out a very high range to the south of the lake; the mountains to the east of the lake did not appear to be quite so high. Looking north, the Pundit had a clear view over the Brahmaputra; but all the mountains in that direction were, comparatively speaking, low, and in no way remarkable.

About Lhasa no very high mountains were seen, and those visible appeared to be all about the same altitude. Hardly any snow was visible from the city, even in winter.

*Extracts from the Pundit's Diary.*

"Jan. 26th, 1866.—Reached Lhásá. It was my wish now to follow the course of the Brahmaputra River, but I was informed that unless I went with a well-armed party of at least a dozen, it would be dangerous to proceed.

"The city of Lhásá is circular, with a circumference of  $2\frac{1}{2}$  miles. In the centre of the city stands a very large temple, called by three different names. The idols in it are richly inlaid with gold and precious stones.

"The city stands in a tolerably level plain, surrounded by mountains, the level or open ground extending about 6 miles on the east, 7 on the west, 4 on the south, and 3 on the north. I accompanied the Ladák merchant, called Lopchak, on the 7th of February, to pay homage to the Gewáring-bo-che (the Great Lámá of Tibet), in the fort, ascending by the southern steps. A priest came out to receive us, and we were conducted into the presence of the Gewáring-bo-che, a fair and handsome boy of about thirteen years, seated on a throne six feet high, attended by two of the highest priests, each holding a bundle of peacock feathers. To the right of this boy, and seated on a throne three feet high, was the rajah Gyálbo-Khuro-Gyágo, his minister. Numbers of priests in reverential attitudes were standing at a respectful distance from them. We were ordered to be seated, and after making offerings of silks, sweets, and money, the Lámá Gúrú put us three questions, placing his hand on each of our heads: 'Is your king well?' 'Does your country prosper?' 'Are you in good health?' We were then served with tea, which some drank, and others poured on their heads, and after having a strip of silk, with a knot in it, placed by the priests round each of our necks, we were dismissed, but many were invited to inspect

the curiosities that were to be seen in the fort. The walls and ceilings of all the chief houses in the fort, and all the temples that contained images in gold, were covered with rich silks.

“The Lámá Gúrú is the chief of all Tibet, but he does not interfere with state business. He is looked upon as the guardian divinity, and is supposed never to die, but transmigrates into any body he pleases. The dead body from which the Lámá Gúrú’s soul has departed is placed in a gold coffin studded with the finest gems, and kept in the temple with the greatest care. The belief of the people is that the soul of one Lámá Gúrú is privileged to transmigrate thirteen times. The present Lámá Gúrú is now in his thirteenth transmigration. Churtans are placed over the coffins containing the Lámás’ bodies, and it is said that these dead bodies diminish in size, while the hair and nails grow.

“The rajah, or gyalbo, is next to the Lámá Gúrú in rank; below him there are four ministers, called kaskak, who conduct all state business, under his orders. The Chinese vakeel at Lhasá, who is called ambán, has the power of reporting against either the rajah or the four ministers to the king of China, and, if necessary, can have them removed from office.

“The general belief of all the Tibetans is, that no sooner is the Lámá Gúrú born, than he speaks, and all withered plants and trees about his birthplace at once begin to bear green leaves. The moment news gets to the Lhasá court of such an occurrence, then the four ministers repair to the house, in order to ascertain the truth by the following method:—Articles of all descriptions are placed before the child, and he is requested to tell which belonged to the late Lámá Gúrú, and which did not. Should he be able to select from the articles put before him such of those that belonged to the Lámá Gúrú, then he is pronounced to be no impostor, and is forthwith carried away to the fort of Potoláh, and placed upon the throne as Lámá Gúrú.

“The Mahomedans of Lhasá gave me the following account as to the selection of the future Lámá Gúrú:—From the day of the death of a Lámá Gúrú all male births are recorded by the Lámás about the city, and the ministers are secretly informed of them. Names are given to the children, and on the thirtieth day after the decease of a Lámá Gúrú, slips of paper, each bearing the name of a child born within the month, are placed in a vessel; the chief of the four ministers then draws out one of the slips with a pair of pincers, and whichever child’s name that bears, he is pronounced to be the future Lámá Gúrú. He is then taught all that is required of him by the priests, and when they think he has come to years

of discretion, the previously-narrated ceremony of the choosing of articles is conducted. The people of Lhásá are kept in the dark as to this method of adopting a Lámá Gúrú. The Lhásá people are, by strangers, supposed to adopt a Lámá Gúrú, in order to prevent the government of the country from falling entirely into the hands of the Chinese.

“ I observed that there was but little order and justice to be seen in Lhásá.

“ The new year of this people commences with the new moon appearing on or about the 15th of February; they call it Lohsar. On New Year's Eve an order from the court goes round to have every house in the city cleaned; the houses are swept and white-washed, and the streets are cleaned. On the day following, each household displays as many flags, &c., from the house-top as it can afford. Throughout the day and night singing, dancing, and drinking are kept up. On the second day of their new year all the people of the city assemble before the Potoláh fort, to witness the following feat, performed generally by two men:—A strong rope is fastened from the fort walls to strong rivets in the ground, 100 yards distant from the base of the fort. The two unfortunate men then have to slide down this rope, which very often proves fatal to them; should they, however, survive, they are rewarded by the court. The Lámá Gúrú is always a witness of the performance from the fort.

“ From the commencement of the new year, whoever pays the highest sum is considered the judge of the rajah's court, and for twenty-three days he exercises his authority in the most arbitrary manner possible, for his own benefit, as all fines, &c., are his by the purchase. The purchaser of such authority must be one of the 7700 priests attached to the Debang monastery; the successful priest is called Jalno, and announces the fact through the streets of Lhásá in person, bearing a silver stick.

“ The priests attached to all the temples and monasteries in the neighbourhood assemble in the fort, and offer homage. This assembling of the priests is called Molam Chambo, and the holidays go by the same name. The Jalno's men are now seen to go about the streets and places, in order to discover any conduct in the inhabitants that may be found fault with. Every house is taxed in Lhásá at this period, and the slightest fault is punished with the greatest severity by fines. The severity of the Jalno drives all the working classes out of the city, till the twenty-three days are over. The profit gained by the Jalno is about ten times the purchase-money. During the twenty-three days all the priests of the neighbourhood



congregate at the Máchindránáth temple, and perform religious ceremonies. On the fifteenth day of the new year all the priests, assembling about Máchindránáth temple, display hundreds of idols in form of men, animals, trees, &c., and throughout the night burn torches, which illuminate the city to a great distance. The day on which the authority of the Jalno ceases, the rajah's troops parade through the streets, and proclaim that the power of the rajah has again been assumed by him. Twenty-four days after the Jalno ceases to have authority, he again assumes it, and acts in the same arbitrary manner as on the first occasion, for ten days, after which authority is once more assumed by the rajah. These ten days are called Chokchut Molam.

"On the first day the Lámás all assemble, as before, at Máchindránáth temple, and after a religious ceremony, invoke the assistance of their deities, to prevent sickness, &c., among the people, and, as a peace-offering, sacrifice one man. This man is not killed purposely, but the ceremony he undergoes often proves fatal. Grain is thrown against his head, and his face is painted half white, half black.

"On the tenth day of this vacation, all the troops quartered at Lhásá march to the temple, and form line before it. The victim, who has his face painted, is then brought forth from the temple, and receives small donations from all the populace assembled. He then throws the dice with the Jalno, and if the latter loses, it is said to forebode great evil, and if not, and the Jalno wins, then it is believed that the victim, who is to bear the sins of all the inhabitants of Lhásá, has been permitted by the gods to do so. He is then marched to the walls of the city, followed by the whole populace, and troops hooting and shouting, and discharging volleys after him. When he is driven outside the city, then people return, and the victim is carried to the Sáme monastery. Should he die shortly after this, the people say it is an auspicious sign, and if not, he is kept a prisoner at Sáme monastery for the term of a whole year, after which he is released, and is allowed to return to Lhásá.

"The day following the banishment of the man to Sáme, all the state jewels, gold and silver plate, &c., are brought out from the fort, and carried through the streets of Lhásá, protected by the troops armed, and followed by thousands of spectators. Towards evening everything is taken back to the fort, and kept as before. The day following, immense images of the gods (formed of variegated paper, on wooden frame-work) are dragged by men through the city, protected by armed troops. About noon the whole populace, great and small, assemble on the plain north of the city, and publicly carouse, race, and practise with the gun at targets. I was informed that

the Molam Chambo and Chokchut Molam vacations, with all the religious ceremonies and observances, were instituted from time immemorial, but that the business of putting to the highest bid the powers of sole and chief magistrate, dates from the tenth transmigration of the soul of the present Lámá Gûrû.

“One crop only is raised here in the year. Seed is sown in April, and the crop is cut in September. There is no jungle hereabouts, and excepting one thorny bush, called Sia, the hills are absolutely barren.

“A very few of the rich men’s houses are built of brick and stone, all others are of mud. Some few are built of sun-dried bricks. The manufactures of Lhásá are woollen cloths, felt, &c.

“The water supply of Lhásá is from wells, and a tax of two annas on every house is imposed monthly on the inhabitants for the use of the wells.

“During the month of December, merchants from all parts bring their merchandise here (from China, Tartary, Darchando, Chando, Khan, Tawang, Bhotan, Sikkim, Nepal, Darjiling, Azimabad and Ladák). From China, silks of all varieties, carpets and Chinaware. From Jiling, in Tartary, is brought gold-lace, silks, precious gems, carpets of a superior manufacture, horse-saddles, and a very large kind of Dumba sheep, also valuable horses. From Darchando immense quantities of tea—(Darchando is said to be situated north-east of Lhásá, and to be distant two months’ journey). From Chando city, in the Kham territory, an enormous quantity of the musk perfume is brought, which eventually finds its way to Europe, through Nepal. Rice, and other grain that is foreign to Lhásá, is brought from Tawang, in Bhotan. From Sikkim, rice and tobacco; and from Nepal, Darjiling, and Azimabad, broad-cloth, silks, satins, saddles, precious stones, coral, pearls, sugar, spices, and a variety of Indian commodities. Charas and saffron (késar) come from Ladák and Kashmir. The merchants who come here in December, leave in March, before the setting in of the rains renders the rivers impassable. The inhabitants use ornaments of coral, pearls, and precious stones, and occasionally of gold and silver, which are more especially worn by women on their heads. Coats lined with the skins of sheep are generally worn.

“During the month of December, at nights and early in the mornings, the mercury in the thermometer sank below 32°, and during the days never rose over 40° to 45°. The River Kichu was frozen at that time of the year, and water kept in the warmest parts of a house, froze and burst the vessels holding it.

“The chief divinity worshipped is that of Budh.

“The food of the inhabitants consists chiefly of salted butter,

tea, mutton, beef, pork, and fowls. Rice is not much eaten, owing to its high price, and because it is considered a fruitful source of disease. Other edibles, such as wheat, barley, and kitchen produce, &c., are cheap.

"To the north-east of Lhasá, distant about one month's journey, there is a country called Kham or Nyahrong. Thousands of the inhabitants of this country annually pay Lhasá a visit, some under the plea of wishing to worship, while others come with the ostensible reason of trading, but all really come with the object of robbing and stealing whatever they can. These people are held in terror by all the peaceable inhabitants of the Lhasá territory, who have named them Golok Khamba. Highway robbery and murder are perpetrated by them without compunction. They appear to be exempt from the wrath or punishment of the Lhasá chiefs. The Lhasá Government never takes notice of any complaints brought against this marauding tribe, and the reason I heard for this silence was that the Lhasá vakeel with government merchandise, on his annual journey to Peking, has to pass through the territory appertaining to this tribe, and to insure a safe journey for these, the Government connives at the mischief done by them in the Lhasá territory. Another reason I heard was, that in case of a war, this Khamba tribe would render good service.

"North of Lhasá, and four miles distant, is situated a long hill, stretching from east to west, reported to contain immense quantities of silver; but a government order prohibits anyone from working the metal. The Government itself refuses to work the metal; for the general belief is, that the country will be impoverished, and the men will degenerate, should the metal be worked.

"Regarding the disposal of their dead, the Lhasá people of the poorer classes bind the corpses tightly with ropes, and place them erect against the inner walls of their houses for two or three days, while the richer and well-to-do classes detain the corpses in their houses for a length of fourteen days: after which time priests are invited, who pretend to read from their ritual the manner in which these corpses are destined to be disposed. Sometimes their decision is to cut the corpse into pieces, and scatter the fragments to the birds and beasts of prey, and sometimes to bury them. The reason assigned by them for detaining the bodies springs from the belief that they may become demons if disposed of without the blessings of the priests."

The Paper will be printed entire in the 'Journal,' vol. xxxviii.

The PRESIDENT said that the communication was, doubtless, one of great importance to geographers; for although they had all from their boyhood

known something of the great country of Tibet, and it had been visited at intervals by Europeans during the last two or three centuries, yet no account of its real geographical features, or of the exact position or altitude of any place, had ever been brought before the Society prior to the present journey of the Pundit. Missionaries reached the country in the 17th century, but no astronomical observations were made as to the position of places. In the time of Warren Hastings's presidency over our Indian Empire an expedition reached Tibet, but it brought back no observations for the accurate determination of positions. Even in so recent a time as Lord Canning's government in India, that excellent administrator determined upon an expedition into this region, but it was never carried into effect. It had been an opprobrium to Englishmen, that though this interesting region lay at no very great distance beyond the Himalaya Mountains, which had been admirably explored by English surveyors, they had never yet reached Tibet. The difficulties of penetrating the country had been forcibly described by Captain Montgomerie, without whose admirable and ingenious contrivance of instructing an intelligent native, and sending him in disguise, the Society would never have had this account of the country brought before them. The latitude of Lhasa had now been accurately determined, and this was one of the many geographical results of the exploration. Dr. Thomson, who had received a medal from the Society for his adventurous explorations in Ladak and the Karakorum Pass, and Dr. Campbell, the companion of Hooker, who had, from great elevations in Sikkim, looked over into the great region of Tibet, would be able to offer some important observations on the subject of the paper. Lord Strangford and Sir Henry Rawlinson, Asiatic scholars, who had studied the subject for a long time, would afterwards make some observations which would throw light not only upon this particular region, but upon the course of the great Brahmaputra River which flowed through the central portion of the country. Although that river was at so short a distance from the north of our Indian possessions, its course in passing through the Himalayan chain into Assam was not yet defined. This was one of the great geographical problems which remained to be solved.

DR. THOMSON said that he could add very little to the excellent remarks made by the President, who had appreciated the paper in a manner which must be most gratifying to all Himalayan travellers. He regarded with a feeling almost of envy the success of the Pundit in exploring a region from which Englishmen had, unfortunately, been debarred by the jealousy of the Chinese Government. English travellers had not been prevented from penetrating into Chinese Tibet by a want of enterprise, but entirely by the anxious desire of the Chinese Government to keep them out. For a long time the whole Himalayan chain, from Cashmere on the westward to Bhotan on the eastward, was independent of the British Government. It was only since the beginning of the present century that certain parts of it had become British territory; and even now Nepal, which constituted nearly half of the whole extent of the chain, was, as much as Chinese Tibet, forbidden ground to English travellers,—Englishmen not being allowed to travel farther than the capital, Kathmandu; and it was only persons belonging to the embassy and one or two privileged persons who might be allowed to accompany it. Travellers had, however, been “nibbling” at Tibet in all directions; and, fortunately, about the year 1784—before the jealousy of the Chinese Government had been excited by the increasing power of the English Government in Hindustan—two official Englishmen were permitted to cross the Himalayan chain from Bhotan and to penetrate into Tibet as far as Shigatze and Gyanze. The observations made by them were the only careful explorations of Tibet Proper on record until the present account was given by the Pundit. Two distinguished travellers had, however, succeeded in penetrating a few

miles into the southern portion of the country. These were Dr. Hooker, whose journey through Sikkim was so difficult and at the same time so successful, and Dr. Campbell, who accompanied him. These gentlemen were able, from the high elevation of Donkia and the mountains immediately to the north, to look over the whole of the enormous and comparatively flat country of the valley of the Brahmaputra; and as nearly as they could, without knowing the absolute distance, they measured the elevation of the immense mountains which lay to the north of the river, and now again seen by the Pundit. The President had commented on most of the points of interest in the paper. The curious lake Yamdokcho was still a vexed question; for as the Pundit had travelled only along one side of it, he had, as Captain Montgomerie well remarked in the paper, not satisfied us of the nature of the island which was said to occupy nearly its whole area. There was another lake marked to the westward, but about which there was also some doubt. It was evidently put down from native observations.

DR. CAMPBELL expressed his admiration of the extraordinary courage, perseverance, and zeal of the Pundit traveller. When he (Dr. Campbell) entered Tibet he was nearly murdered, having been seized, beaten, and imprisoned by order of the Sikkim chiefs, who had political objects of their own; but the officials who carried these intentions into effect had used violence with the desire of propitiating the Chinese authorities at Lhasa, with whom they were always intriguing. He travelled with Dr. Hooker over a pass, the elevation of which was 18,500 feet, and went twenty miles beyond into the interior of Tibet. The country was perfectly bare and nearly level. They ascended the hill called Bhomtso, and from that elevation they could distinctly see the beautiful mountain of Chomalari to the east, which was described by Turner, who penetrated as far as Shigatze. To the north and west they could see a very high range of mountains, which he believed had never before been noticed; but their observations on this subject were recorded in Dr. Hooker's journal. The Pundit said that this elevated range ran for 120 miles parallel to his route. Dr. Hooker, from the elevation on which he stood (at 18,500 feet), estimated it to be at least 24,000 feet. It must be gratifying to Dr. Hooker now to find the Pundit had confirmed his conjectural geography. There was one point in the Pundit's account which was of great scientific interest, but still rather obscure. He stated that on approaching the Yamdokcho Lake he was informed the island which it contained occupied nearly the whole area of the lake, and he put it down at 16,000 feet high, giving the elevation of the lake itself at 13,000 feet above the level of the sea. The diameter of the island he stated to be two miles. He (Dr. Campbell) did not know what angle would be formed by a peak rising 3000 on a base of two miles diameter; but the information which he had obtained from native travellers at Darjeeling—hundreds of whom he had questioned—did not quite correspond with the statement of the Pundit. The island, according to them, did not fill the whole lake, only a corner of it. The island was frequently visited by pilgrims and others. Travellers also asserted that the water of the lake was brackish and dangerous to drink, but the Pundit maintained that it was sweet and good. In reference to the description of the election of the Grand Lama, it was scarcely credible that such an event should be so simply determined as by the throwing of the names of children into a hat, and the drawing of one name. He had known the office in less important monasteries than Lhasa to be vacant for years, in consequence of the whole body of Lamas being unable, through motives of self-interest or policy, to arrive at a decision.

Lord STRANGFORD said that Dr. Campbell had anticipated the chief portion of what he had to say. He had been for some time acquainted with the excellent paper which Dr. Campbell had written in the Journal of the Asiatic Society of Bengal, which gave an account of the country between Lhasa and

Bhotan. Dr. Campbell had not visited the country himself, but his account of it was one of the best instances which he (Lord Strangford) knew of rigorously critical exposition of merely hearsay information. It gave a most accurate delineation of the country, as was shown by the map annexed to the paper—the lake, however, being represented without that island girt with the ring now fully verified by the Pundit. The general impression of Tibet was that of a country ending two or three degrees eastward of Lhasa, and differing in its physical features from the country to the east: its table-land being there broken up by a succession of rivers and mountain ranges running north and south. There was no longer a system of plateaux and valleys bounded by low mountain ranges rising from an enormously high level; but, so far as was known, there were precipitous and frightful mountain ranges in a parallel series bounding the upper streams of great rivers flowing into China, or due south into Cambodia, or the Brahmaputra. This general impression is more or less correct as regards the physical geography of that country; ethnologically, however, or rather socially and politically, the whole of the country lying to the westward of China might more properly be divided by a line from east to west than one from north to south. The entire north of that line was Tibetan in language, but was inhabited by wild tribes and robbers; while the south was in just the same category as Tibet Proper, and its social condition was precisely analogous to that of the Lhasa country. The capital of this country is called Tsiamdo, corresponding to the Pundit's name of Chando, and its distance from Lhasa, given by him as a month's journey, corresponds with the thirty-five days' journey assigned it by the Chinese and Nepaulese itineraries. The province is called Kham, and it falls into the two divisions of settled and nomadic in just the same way as the province of U, or Tibet Proper, of which Lhasa is the capital. He had thought a great deal over the place mentioned as Jiling, without being able to identify it, and he could only suppose that the articles of trade mentioned in connection with it indicated that it belonged to a civilised country. He could not understand anything about that place, unless it were some part of China Proper,\* the only country in the neighbourhood capable of manufacturing articles such as described.

In explanation of these statements he would refer to what had been before communicated to the world on this subject. The first authority was a Chinese work which appeared to have been written about the year 1780, and purported to be a detailed description of Tibet. It was translated into Russ by the Archimandrite Hyacinth. It had never appeared in an English form; but it had been translated into French by the celebrated traveller Klaproth, and had been printed in the French 'Journal Asiatique.' It had formed the pocket companion of the missionaries when they retraced the southern road; and they stated that they found it accurate. Their text would give the reader to understand that they travelled with the Chinese original in hand, which had been presented to them on their journey; and no doubt they did; but entire passages which they quote are given *verbatim* in Klaproth's words, as translated in the 'Journal Asiatique.' It was thus adopted and vouched for by Huc and Gabet, but then there arose the question, "Who will vouch for Huc and Gabet?" The necessary link was supplied by Mr. Bryan Hodgson, who was for some time resident in Kathmandu, in a most valuable contribution to the 'Journal of the Bengal Asiatic Society.' His paper was given him by the Maharajah of Nepal as a keepsake, the donor knowing that it would be more appreciated

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\* Dr. Campbell suggested to the speaker that there was a Chinese town, called Tchiling-foo, on the north-western frontier of that country. In this case Jiling, or Tchiling, could hardly be other than the city of Sininfoo, close to the Koko Nor, on the Himalayan frontier—the north-eastern entrance of China from Tibet, as the city of Tachindo is the due eastern.

by a man of science than any more material gift. It was an account of two embassies between Peking and Kathmandu. It was a dry enumeration of the stages, the names of places, stations, bridges, fords, and mountains, and gave in a general way the features of the country. He (Lord Strangford) had gone through this paper and compared it throughout with the Chinese document translated in the 'Journal Asiatique,' and he found that the bulk of the names of the places described in the two papers were virtually identical. This was the more wonderful because the names were transcribed, on the one hand, from Chinese, which was a very difficult language for the expression of proper names, and, on the other hand, from Nepalese. Huc and Gabet took thirty-five days on their journey to Chando in Kham, for example, while the Embassy route specified thirty-six stages; the various points being as regularly laid down as the stations of the North-Western Railway. The Chinese terminus of this road, so utterly unknown and unfixed as it is when taken as a whole, yet so minutely specified in its details, is the city called by the Embassy Tachindo, by the Chinese itinerary 'Ta-t sien-leu, and evidently the Pundit's Darchando. His Darchando is clearly this western frontier town of China, where there is a custom-house for arrivals from Tibet, and a fair held once a year as a tea-mart. Huc and Gabet described an iron bridge which was crossed at a certain time of the year. During the other portion of the year boats were used. In all these details there was a sort of omnilateral verification, and they constitute a very curious case of coincident information. The name of Golok Khamba, which was given to the robbers, was identical with the name which Huc and Gabet gave to the robbers on the north-east road. These robbers were called Kolo by Huc and Gabet, and were described as a most formidable impediment to trade. Khamba means people of Kham, the province due north of which would be the haunt of these robbers, who appear to infest the whole of these countries everywhere, if it be the case, as the Pundit says, that they flock to Lhasa in thousands in disguise as worshippers, and steal right and left. The Pundit's Nyahrong is the name of a tribe which was placed in exactly the same locality by Mr. Bryan Hodgson under the name of Gyarung. Hodgson was fortunate enough to meet with some natives of those inaccessible regions in Nepal, where he measured the men from top to toe, and chronicled the colour of their hair and eyes and other features. He also took down their language, and compiled a very full grammar of it. The names by which the Tibetans knew the neighbouring countries, as yet impervious to us, helped to illustrate the ethnology of those countries. The Turks were there known by the name of Hor-pa, and the Mongolians by that of Sok-pa. The extent of the Mongolian settlements was known by the prevalence of the names significant in their language. Huc and Gabet mentioned that they crossed what he thought might be the Eastern analogue of the great Pamir plateau on the west, which appeared, when seen from the south, to be a high snowy range; but only after travelling about ten or twelve days were they able to clear it. They thus described it as a plateau rather than a range, and also as being, in their belief, the highest level ground on the earth. That opinion was also expressed by many other authorities. He (Lord Strangford) highly appreciated the praiseworthy sagacity and energy of Captain Montgomerie in conceiving and carrying out such a brilliant scheme as the special education of natives for the purpose of visiting countries which were inaccessible to Europeans; and he congratulated the Society upon the splendid and fruitful harvest of scientific result which had been yielded at the first sowing of the good seed.

Sir HENRY RAWLINSON said he re-echoed the tribute of gratitude and admiration which Lord Strangford had expressed as due to Capt. Montgomerie. The value of native assistance was recognised from a very early period of our Indian empire; and native agency in the East had been employed from the time of Sir John Malcolm and Mr. Elphinstone for the purpose of acquiring

political and statistical information. It was, however, reserved for Capt. Montgomerie to utilise the native element in another direction. It was he who first appreciated the capacity of the natives as scientific observers, and discovered that they could use a sextant and a theodolite as well as Europeans. That was really a most valuable discovery, which would enable geographers to make great advances in knowledge, by placing at their disposal surveyors who could be employed along our whole northern frontier in the solution of otherwise insoluble problems. There were in the paper a few points which he thought it desirable to explain popularly to the meeting. In the first place, he was constantly asked, "What is a pundit?" A pundit was not a very mysterious personage. The word simply meant one who had read the "shasters" or sacred books of the Hindoos. A pundit was simply then an educated Hindoo. He would be very valuable for the Buddhist countries, but he would be utterly useless in Mahomedan countries. When Capt. Montgomerie had to explore Mahomedan countries he very properly made use of a Mahomedan assistant in his survey. Last year the Society had from Capt. Montgomerie a very valuable communication, showing how by the aid of a Mussulman attached to the survey he had been able to connect Yarkand with the trigonometrical survey. At present all that had been done—and this was a very great step in advance—had been to survey the immediate line beyond our northern frontier; but in process of time they would extend their explorations and survey an outer line. The only considerable part of Asia which was now unknown, and which was unknown not only to the English and to the Russians, but even to the Chinese, was the country intervening in a direct line between Khotan and Lhasa. He hoped that the exploration of that country was reserved for English enterprise, or native enterprise directed by English intelligence. There was also another very interesting problem which must be solved sooner or later, and the sooner the better, namely, the course of the River Brahmaputra. It had been followed down carefully from its source in the Mansarowar Lake to Lhasa; but the part below Lhasa, where it turned to the south and descended through the mountain range to the plains of India, was still a mystery. It had never been visited. The Pundit would have attempted the journey if he had had a proper supply of money; but for want of funds he was unable to obtain an escort, and without that it would have been quite impossible to perform the journey. The route of the Pundit was not an absolutely new line, that is he was not the first traveller who had passed from Ladak to Lhasa. The line was partly travelled indeed by Andrada in the seventeenth century, and it was completely followed from one end to the other by Father Desideri in A.D. 1715; but the accounts of those travellers were sadly wanting in geographical interest. The most important feature, for instance, in Desideri's account was his description of the way in which he crossed the rivers, by holding on to a cow's tail. Having nothing else to commemorate, he filled pages of his narrative in insisting on the absolute necessity of cows to enable travellers to cross the rivers. Such was the style of geographical record and description with which the Jesuit accounts teemed. It was different with the English officers who were sent to Tibet by Warren Hastings. Mr. Bogle unfortunately died before he could publish the narrative of his journey; but his assistant, Mr. Stuart, communicated some details; and Major Turner, who led a subsequent mission to Tibet, had left a very valuable record of his observations, which were of the greatest importance both to geography and science. He (Sir Henry Rawlinson) had sometimes heard such explorations as those of the Pundit characterised as a useless and unjustifiable risk of life for the mere gratification of curiosity. He protested against any such doctrine; he maintained that the geographical discovery which was encouraged by the Society was not a mere dilettante object, or one pursued merely for the purpose of producing a sensation at the Geographical Society.



On the contrary, they encouraged explorations in Central Asia or Central Africa for a tangible purpose. Geographical discovery led to the spread of civilisation and general intelligence, and even to material advantage in the advancement of commerce and trade. He thus honestly believed that the Pundit's travels in Tibet had paved the way for the extension of our trade in that direction, and might hereafter prove of very great importance. There was, indeed, at the present time before the Geographical Society a paper by Mr. Forsyth, which pointed out the immense value of the countries beyond where the Pundit had been travelling in regard to the export and import trade of India. All that part of Asia formerly belonged to China, and was subjected to the same rigorous exclusiveness which was now practised in Tibet; but during the last three or four years Turkestan had become independent, and the intercourse with China was cut off. Now in that country they were desperate tea-drinkers, and drank that beverage morning, noon, and night; but since their rupture with China they were at their wit's end how to procure their tea. At the present time, indeed, tea grown in China, and intended for the country of which he was speaking, was first taken down to the coast, then round India to Bombay; thence it went to Kurrachee; thence up the Punjab to Lahore; from Lahore it passed to Bokhara; from Bokhara it went on to Kashgar; and in that way only did it arrive at its destination. Now if Tibet and the neighbouring countries were thoroughly explored and civilised the tea might penetrate from India, if not from China, into Turkestan, by a hundred different channels. In return for the tea again there might be exported the *Turfan* wool which was produced in that country. It was the finest wool in the world, and was far better fitted than the produce of Tibet for the looms that wove the Cashmere shawls. It was almost impossible now to get the genuine wool in India, and consequently the weavers of the Punjab diluted their wool with a Persian material from Kerman, which was much inferior, and the Cashmere shawls had in consequence greatly deteriorated in quality. Under the auspices of British geographers both trades might be improved. We might be able to supply the Turkestanis with tea, and they might be able to supply us in exchange with Turfan wool. He mentioned this case to show that there were practical advantages attending geographical exploration, and that it was not pursued in a mere dilettante spirit or for a mere visionary object. It would in reality prove of very great value in improving the social state of the East. The Pundit had further remarked upon the long stages of the road between Ladak and Lhasa, and had stated that the Tibetans kept up a very regular and rapid communication. It appeared, however, that they took 35 days to travel 800 miles, a rate of progress which any Eastern traveller who had been accustomed to ride post in Turkey and Persia would regard as perfectly childish. The regular Tartar rate of travelling was 100 miles a day, and this rate was kept up for fourteen or fifteen days in succession if necessary. Sir Henry had himself on several occasions ridden "Tartar" between Baghdad and Samson, and between Teheran and Meshed at this rate, and there was on record an instance of a famous Turkish courier, named Mustafá, having ridden from Constantinople to Demawend, beyond Teheran, a distance of 1700 miles in fourteen days, bringing to Sir Henry Willcock the intelligence of Napoleon's escape from Elba. In these journeys the courier is never allowed to take any regular sleep, though he dozes sometimes on horseback. As to the use of the "prayer-wheel," he might explain that the prayer to be offered was pasted inside the wheel, so that turning round the wheel was equivalent to saying the prayer, and in this way an entire service might be got through in five minutes. The practice was an illustration of the ordinary tendency of the Tibetans to avoid trouble as far as possible.

MR. CRAWFORD said that he agreed entirely with the eulogium which had

been passed upon the Pundit, and more particularly with that upon Captain Montgomerie, who educated him for the work. A pundit meant simply a learned man. But he must be a Brahmin. He (Mr. Crawford) had read that morning an account, written by a pundit, of the greatest native battle ever fought in India, that of Paniput. He strongly recommended its perusal. It was to be found in vol. iii. of the 'Transactions of the Asiatic Society of Bengal.' He was at a loss to understand where the commerce of Tibet was to be found. The country was a very poor and very sterile one. The only valuable thing which it produced was a shawl-wool, and of this the Brahmin took no notice. The wool which Sir Henry Rawlinson had mentioned as being of an excellent quality was only goat's hair. Their tea had been mentioned as being produced somewhere in Tartary. It was Chinese and horrible trash, and would produce a wash that would turn the stomach of a hog. He did not consider that the route which was described by Sir Henry for the transport of tea would be superior to the existing one.

MR. T. SAUNDERS stated that there was now no difficulty in obtaining the consent of the Chinese Government for any European to pass the British frontier into Tibet. He gave that information on the authority of Mr. Consul Morrison, who was thoroughly familiar with Chinese matters, and who had assured him that the restrictions existing on the Chinese frontier were only such as would exist on any frontier where passports were demanded. Passports might be readily obtained at Peking simply for asking. That fact was important, as it might spare the Pundit the necessity of risking his life in future explorations.\* The latitude ascribed to Lhasa by the Pundit cor-

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\* The following memorandum on this subject has been communicated to the Secretary by Mr. Morrison:—"It is to be regretted that the Topographical Department in India, under a mistaken supposition that the Chinese Government dislike foreigners to travel in their country, have thought it necessary to send agents across the Chinese frontier to make surveys in a clandestine manner, instead of openly. . . . Travelling in China and Tartary is now perfectly easy and safe for British subjects provided with passports, and in their proper characters; but the want of passports must generally cause the detention of travellers, while the assumption of false characters (especially on the part of surveyors) must tend to excite suspicions in the minds of the Chinese, injurious to the friendly and confidential relations which have now subsisted for seven years between the British and the Chinese Governments.

"Since 1861 many British subjects, Americans, Frenchmen, Germans and Russians, have every year travelled over a large extent of eastern and central China and Tartary without meeting the slightest hindrance or molestation.

"The friendly disposition towards foreigners, equally of Chinese, Tartars, and Tibetans, is abundantly described in the books of Turner, Huc, Fortune, and others.

"Although persons may travel safely in China or Tartary without knowing the language of the country, the knowledge of at least a few words would be useful to enable travellers to dispel groundless fears, which sometimes are a cause of difficulty. This was exemplified in the case of Mr. Bickmore, whose paper was lately read before the Geographical Society.

"The stoppage at the frontier of travellers without passports need not be considered to indicate hostility to foreigners. It is done simply in compliance with municipal regulations, which are enforced more strictly against Chinese themselves than against foreigners. The restrictions on Europeans have been imposed, not by the Chinese, but by their own governments, in the interest of order, and to prevent a trade of very great value being jeopardised by the misconduct of evil-disposed persons.

"That the Chinese Government does not entertain towards foreigners the jealousy often ascribed to it, is proved by its readiness to employ foreigners in positions of trust, and where scientific qualifications are demanded. The present chief of the Chinese Maritime Customs is a British subject, having under him a staff of

responded within three minutes of that reported by Williams. The course of the great Sampu River in the maps by D'Anville and the Jesuit missionaries, was well confirmed by the labours of the Pundit.

The PRESIDENT, in concluding the Meeting, stated that he could not more appropriately close the proceedings than by reading portions of a letter which he had received a few days ago from Captain Montgomerie. He wrote as follows:—

“MY DEAR SIR RODERICK,

“Camp, Jugboorn, 29th Jan., 1868.

“I hope, by the time this reaches London, you will have received a copy of my Report on Trans-Himalayan Explorations, which Colonel Walker promised to send to you when ready.

“The explorations have been made on the plan which I initiated a few years ago, and of which I gave you the first results in the expedition by which the position and height of Yarkund were determined. The fruits of the present expedition are, I think, an improvement on those of the last, as they embrace a much larger tract of country.

“I hope the route surveyed will form a fairly accurate basis for the whole of Tibet, or of Great Tibet, as it is generally applied to the Lhasa territories.

“I wish I could present the Pundit to you in person. I am sure he would make a good impression anywhere, and I can quite understand his being an immense favourite with the Ladakis who convoyed him into the Sacred City. Without their assistance he would have found it a very much more difficult matter than he did, though it was difficult enough in every way. The Pundit, I think, deserves all praise; his work has stood every test capitally. The latitude observations are undeniably good, and in that respect the position of Lhasa is well within half a minute of the correct value. The longitude may be said to be true within about a quarter of a degree, and the height, 11,700 feet, some 200 or 300 feet probably in defect. Considering the great distance traversed, the longitude could hardly be much closer. The height has never been determined before; the latitude, even in Mr. Keith Johnston's last atlas, was given about one degree and a half in excess, if I remember right; while the longitude derived from the side of British India was nearer the mark.

“The old maps of Great Tibet give a great deal of detail, and they were supposed to be relatively correct in longitude, and to be tolerably correct in latitude. The Pundit's work, however, shows that this view was incorrect, and the old maps are not even tolerably correct in latitude. Some geographers had come to this conclusion a good many years ago, as they found that they could not reconcile the positions of Shigatze and Lhasa, as derived from Turner, with the positions assigned to those places in the old maps. The consequence was they omitted all details north of the Himalayas. This was going to the other extreme: for, judging by the Pundit's work, we may conclude that the old maps do, in a general sort of way, represent the large features,

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several hundreds of Europeans. The arsenal at Nanking and the dockyard at Foochow are respectively under British and French officers. One hundred and fifty years ago the great survey of the empire (an admirable one for the period) was made for the Chinese Government by European (chiefly French) mathematicians, who were allowed to send copies of it freely to Europe.

“It cannot be doubted that the Chinese Government would now be perfectly willing, if the proceeding were suggested to them, to undertake conjointly with the British Government an exploration to discover practicable routes between the Chinese territories and British India. They would no more object to an overland traffic by such routes than they have ever done to the traffic with Russia through Mongolia, or to that with Corea, Cochinchina, and Burmah.—*M. C. Morrison, March 23.*”

though the accuracy, even relatively, is very small. The old maps, in fact, appear to have been compiled from eye-sketches supplied by the Lamas, and put together by other people as they received them, without any means of supplying accuracy. I should very much doubt if there was any attempt to determine the latitudes by the Lamas, and, as far as is known, no observations were taken in Tibet by any of the Jesuit missionaries; the said missionaries did, however, take the latitudes of several of the cities of Eastern Turkistan, and hence it was naturally concluded that they had done the same for Tibet.

"The shape of the Great Yamdokcho Lake was always a puzzle to me, but the Pundit saw more than half of it, and vows that it is of much the same shape as shown in old maps, viz. a narrow ring of water encircling a very large island. I am not aware of any other lake like it, and, as the Pundit did not go all the way round, it may be urged that it is doubtful; but all evidence on the subject is unanimous, or very nearly so.

"The road along the top of the Himalayas, at an average height of say 14,000 feet for 800 miles, is not a line which people would imagine commerce to be carried along; yet it is said to have been in use for centuries. The Pundit's ancestors were Buddhists, and hence you can easily imagine his feelings when ushered into the Great Lama's presence, with his prayer-wheel stuffed with survey-notes and an English compass in his sleeve. Fortunately, he was not very closely examined; and, finding that his thoughts were not divined, he regained his nerve, and managed to take the dimensions of the Great Lama's residence and fort as he returned from the audience. I have given the Pundit's observations and measurements in full, so any one that wishes can examine into the merits of the work themselves.

"I have concluded my Report with a separate memorandum on the Brahmaputra River, which you may perhaps think worth discussing separately. I am trying to extend the explorations northward into the great blank between the Himalayas, Russia, and China Proper; and some day I hope to get a route carried down the great river from Lhasa to well-known parts of the world.

"Hoping the Pundit's labours may prove acceptable to the Geographical Society,

"I am yours very truly,

"T. G. MONTGOMERIE."

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*Tenth Meeting, April 27th, 1868.*

SIR RODERICK I. MURCHISON, BART., K.C.B., PRESIDENT, in  
the Chair.

ELECTIONS.—*Captain W. B. Colvin; Lieutenant A. Combe; the Right Hon. Lord F. H. Kerr; Lieutenant W. S. A. Lockhart, 14th Beng. Cav.; Lieutenant Cecil W. E. Murphy, R.A.; Brigadier-General William L. Merewether, C.B.; William C. Scott, Esq.; Lieutenant-Colonel Harvey Tower; William Richard Winch, Esq.; F. T. Worsely-Benson, Esq.*

ACCESSIONS TO THE LIBRARY, MARCH 23rd to APRIL 27th, 1868.—*Tod's 'Travels in Western India,' 1839. Boisgeslin's 'Malta,' 1805. Wicquefort's 'Voyages,' 1727. Olearius's 'Voyages Célèbres,' 1727. Mendez Pinto's 'Historia Oriental,' 1627. 'Voyages of M. Pinto,' 1645. Russell's 'Aleppo,' 1794. Thevenot's 'Voyages,'*