REPORT

ON

THE TRANS-HIMALAYAN EXPLORATIONS

IN CONNECTION WITH THE

GREAT TRIGONOMETRICAL SURVEY OF INDIA,

DURING 1868.

DRAWN UP BY

MAJOR T. G. MONTGOMERIE, R.E.,

IN CHARGE TRANS-HIMALAYAN EXPLORING PARTIES.

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NARRATIVE REPORT OF THE TRANS-HIMALAYAN EXPLORATIONS MADE DURING 1868, DRAWN UP BY MAJOR T. G. MONTGOMERIE, R.E., G. T. SURVEY OF INDIA, FROM THE ORIGINAL JOURNALS &c., OF THE TRANS-HIMALAYAN EXPLORING PARTIES.

Early in 1868 preparations were made for sending an exploring expedition beyond the eastern watershed of the Upper Indus river.

The explorations of the Pundits during 1867, had supplied tolerably certain information as to various Tibetan districts lying between Rudok and the Thok-Jalung gold field, and between the latter and the Tadum monastery, on the great Lhasa road; more vague information had also been received, as to an upper road running from Thok-Jalung through various gold fields to the great Tengri-noor, or Nam-tso-Chimbo lake, and thence to Lhasa: several traders had been met with who had actually travelled along this upper road, but they were all rather reluctant to tell the Pundits much about it, being afraid of spoiling their market. Having the above information to go upon, Major Montgomerie decided upon sending the exploring party to Rudok, and thence through the districts of Rawung and Tingche, to the north of the great Aling-Gangri group of peaks, which were discovered last year.

From Thok-Jalung the exploration was to be carried, if possible, along the upper road to the Tengri-noor lake and thence to Lhasa; failing that, to take the route through Majin and Shellifuk towards the Tadum monastery.

The Chief Pundit required a rest after his last expedition, and the 3rd Pundit was consequently selected for the work.

This Pundit assumed the character of a Bisahiri, and taking a few loads of merchandize started in April with a party of real Bisahiris, (or men of Koonoo), whom he had induced to accompany him. He made his way from Spiti, through the upper part of Chumurti and Ladak, to Demchok on the upper Indus. Here the 3rd Pundit measured the velocity of the Indus by throwing a piece of wood into it and then noting how long it took to float down 300 paces. The velocity turned out to be $2\frac{3}{10}$ miles per hour with a depth of 5 feet, and a breadth of about 270 feet in the month of July. From Demchok he went northwards through Churkang and Rooksum, (or Rokjung), to Rudok—vide the map accompanying the report of 1867.

Churkang was found to be a favorite place for holding monthly fairs. Rooksum turned out to be a large standing camp where one great annual fair only is held, but that a very large one, the Jongpon (or Zongpon) always attending it in person.

Rudok has hitherto never been actually visited by any European, for although Captain H. Strachey reached a point about 12 miles to the east of the Fort, and Captain Austen another point about the same distance to the north, they were neither of them able to advance any farther, and could never get an actual view of the place itself, owing to the jealousy of the Jongpon who resides there, and governs this most north-westerly district of Tibet.

Though there was but little doubt that the position assigned to Rudok was nearly correct, it was hardly satisfactory not to have a trustworthy account of the place, and the 3rd Pundit was ordered to get all information about it, and to take observations for its latitude and height, and this he succeeded in doing.

He found that the Fort was built on a low rocky hill, rising about 250 feet above the flat ground at its base, having the Budhist monasteries of Sharjo, Lakhang, Marpo and Nubradan close up to it on the east, south, and west with about 150 scattered houses along the foot of the hill.

A stream called the Chuling-chu passes the Fort, and flowing in a north-easterly direction for 3 or 4 miles, joins the Churkang-chu, another large southern feeder of the great Pangkong lake which is about 9 miles from the Rudok Fort.

The 3rd Pundit heard that there is a small lake, about 2½ miles north of Rudok, which has not hitherto been shown on any map; it swarms with wild fowl and is celebrated on account of a place called Kalpee Mhai, on its north-eastern shore, where the ground is so intensely hot that it smokes, and readily burns any wood, &c. that may be thrown into it. This place is much resorted to for the purpose of worship. The three monasteries round the Fort contain about 150 Monks.

The 3rd Pundit remained a couple of days at Rudok, and in his assumed character as a Bisahiri, he and his party excited no suspicion though they were summoned before the Jongpon.

Leaving Rudok on the 22nd of July the party marched back to Rooksum, and then turning eastward by a new road, advanced through the districts of Rawung and Tingche to Dak-korkor, a large standing camp, where an annual fair is held. Several small lakes and a large salt lake called Rawung-Chaka, or Phondok-cho, were passed on the way. These lakes supply salt to Bisahir, Spiti &c.

During the last three marches to Dak-korkor no water of any kind was met with, and the party were forced to carry a supply in skins. In this arid part of the country the soil was of a dazzling white, a peculiarity which extended as far as the Pundit could see.

The Pundit was informed that 5 days march to the north there was a large district called Jung Phaiyu-Pooyu, and that throughout its whole extent the earth is of the same white kind as that they were crossing over, so white in fact that the eyes of people who are unaccustomed to it get inflamed from its glare, just as if they were suffering from snow-blindness. The district is inhabited by Dokpa people, it is under Lhasa but said not to form part of Narikhorsum, having a separate Sarpon, or gold commissioner, of its own. The largest encampment in it is called Thok-daurapa said to have at least 200 tents. The district abounds in small tarns. It must be very elevated as the inhabitants are said to eat very little if any grain.

A large river is said to flow from Jung Phaiyu-Pooyu northwards and then to the east towards China. The district is said to take its name from some high snowy peaks which are probably those at the eastern end of the Kiun-Lun range.

The Whor (or Hor) country is said to be due north of the district, and from information gathered elsewhere there is little doubt but that Whor (or Hor) is the Tibetan name for eastern Turkistan.

As to the district of Phaiyu-Pooyu, with its river flowing towards China, it is difficult to decide whether it is known by any other name, but it probably lies considerably to the east of north, communicating with Lhasa by the Tengri-noor lake district. A similar white soil has been noticed to the east of the Chang-chenmo, and Mr. Johnson, when seven marchs to the north of that valley at a place called Yangpa, reported that "on looking down from a height the whole plain has the appearance of being covered with snow." He attributed this to saltpetre. Mahommed Ameen, in the route he supplied, said that "beyond the pass (north of Chang-chenmo) lies the Aksai-Chin, or as the term implies the great Chinese white desert or plain. It is sandy and gravelly and covered with brush-wood. Its breadth here from south to north may be reckoned to be about sixty kos." "It extends into Chinese Territory, to the east. There are several lakes and gold mines in it &c." This quite answers to the accounts that the 3rd Pundit heard, a separate gold Commissioner proving the existence of many gold fields. No high peaks were seen to the east of the Chang-chenmo, Mr. Johnson having noticed from the peaks he ascended large plains to the east and south-east, which are believed to merge into the Chang-thang plains of Rudok. Whilst he also gathered that the Kiun-Lun range only ran about 100 miles east of the Karakash river and then terminated on an extensive plain also communicating with the Chang-thang plains.

The Pundit whilst marching from Rudok to Thok-Jalung saw no high peaks to the north or east, evidence which all tends to prove the existence of a large plain in that direction, the term Chang-thang meaning moreover the great plain.

According to modern maps this plain extends a great way east, nearly up to the end of the great wall of China near the city of Sewchoo, to which place the Chief Pundit appears to have got a rough route when in Lhasa. In his first journal he referred to a place, which he called Jiling, about one month's journey north of Lhasa. This turns out from farther inquiries made by Major Montgomerie to be the same as Siling. The Chief Pundit says that the Lhasa people call it Jiling, but he heard others calling it Siling, and from what he says it is evidently identical with Siling or Sining in North Latitude 37°, East Longitude 102°, which Astley describes as "a great and populous city, built at the vast wall of China, through the gate of which the merchants from India enter Katay or China."

Lord Strangford, who took great interest in the travels of the Pundit, and was able to identify nearly all the places mentioned by him, was greatly puzzled by the Pundit's description of Jiling, given in his first journal, where it is said to be in Tartary and to produce gold lace, silks, carpets, and other products of a tolerably civilized country. At first the Pundit understood that it was a month or two month's journey to the north of Lhasa, but from farther inquiries during his second expedition, he made out that it was considerably to the east of north, and having this hint, there was no great difficulty in identifying it with the large town of Sining on the borders of China proper, the only place from which such civilized products were likely to reach Lhasa from the northwards.

The Dak-korkor Camp, which the 3rd Pundit reached, lies about 20 miles to the north of the Aling Gangri peaks, on the right bank of the Aling-chu river and not very far from the Thok-Nianmo gold field. He arrived just as the annual fair was commencing; about 150 tents were already pitched and both the Jongpon and Sarpon were present; but in spite of their presence a band of mounted robbers came down upon the camp and threatened to loot it. These robbers seem to be numerous all over Tibet. This particular band was said to come from the great Namtso lake district. The men actually began to rob, but the Jongpon told them to stop, and he would make each tent contribute something as black mail. The Jongpon then made out a list of those assembled and ordered each tent to contribute a parcha (of about 5 lbs.) of tea, and each trader to give from 1 to 2 rupees according to their means. This arrangement was agreed to, and the proceeds having been collected were handed over by the Jongpon to the robbers who took their departure.

The Chief Pundit in describing the above, expressed an opinion that the Jongpon was in some mysterious way benefited by the contributions, possibly retaining a considerable share, as it is well known that the robbers never succeed in looting his camp nor that of the Sarpon; both of them perfectly understanding how to defend themselves against all comers on the plateaux of Tibet.

The 3rd Pundit paid his contribution and saw the robbers depart, but he came to the conclusion that they might appear again at any time, and that it would not be safe to take his merchandize with him, he consequently, after consultation with his Bisahiri friends, decided upon sending the greater part of his goods back by the Indus so as to meet him at Lhasa, or on the great road to that place. One of his men was despatched for this purpose; his adventures will be adverted to.

The 3rd Pundit, starting again from Dak-korkor, continued his march eastward down the Aling-chu river till it fell into the Hagong-cho, a large brackish lake which appeared to have no exit for discharging superfluous water, though the Aling-chu river which feeds it was found to be 150 paces in width with a rapid stream just before it fell into the lake. The shores of the lake had marks which showed that it had once been more extensive. Continuing his journey the Pundit passed the Chak-chaka salt lake from which the greater part of the Tibetan salt, which goes down to Almorah, Nepal &c., is extracted. The salt from Tibet is preferred by the people of Kumaon and most hill men, though the salt from the plains is to be had at much the same price.

The Pundit heard of another salt lake to the east of Chak-chaka, which with other similar lakes probably supplies a portion of that which is generally understood to come from Chak-chaka.

The next place of importance seen by the Pundit was Thok-Sarlung which at one time had been the chief gold field of the district, but had been in a great measure abandoned on the discovery of the Thok-Jalung gold field. The Pundit passed a great excavation, some 30 to 40 feet deep and 200 feet in width and two miles in length, from which the gold had been extracted. He heard of another gold field to the west, but his route took him direct to the Thok-Jalung gold field, which he found in much the same state as when visited by the Chief Pundit. The Pundit and his party excited no particular notice, and they were consequently able to march on after halting a day to rest.

From Thok-Jalung they passed through the Majin country, partly undulating, and partly quite level, but all about the same altitude, viz:—15 to 16,000 feet above the sea. The drainage sloped towards the east, and nothing but comparatively low rounded hills were visible in that direction; whilst on the west the party skirted a large plain of a yellowish clour said to be drained by the Upper Indus.

The party passed numerous lakes producing salt and borax, and after 9 days' journey in a south easterly direction, found themselves at Kinglo, a large camp on the banks of a river called the Chu-sangpo, which is so large that it cannot be forded during the summer. This river flows eastward and falls into the lake called Nala-Ring-cho or Cho-Sildu, said to be about the same size as the Mansarowar lake; it has a small island in the centre. The lake is reported to receive a large stream from the south, another from the east, and a third from the north, the latter draining part of the Phaiyu-Pooyu district. Though receiving so many streams, (one of which, as noted above, is a large one), the lake is nevertheless said to have no exit.

To the south of the lake there is a well known monastery called Shellifuk, the residence of a great Lama. Still farther to the south there are some high snowy peaks, and a district called Roonjor, while to the north are the districts called Gyachun and Girke, the latter probably adjoining Phaiyu-Pooyu. To the east he heard of another district called Shingwar.

From Kinglo the Pundit wished to march on to Lhasa by the northern route past the Tengri-noor lake, but the Chief of Majin (Kinglo) would not permit it, and the party were consequently obliged to take a south-westerly route to the Mansarowar lake.—They followed the course of the Sangpo-chu nearly to its source, crossing one very high range called Nak-chail, and another called Riego, and finally descending to the Mansarowar lake. The Nagchail and Riego ranges are evidently off-shoots of the Kailas peak. The Nagchail peaks appeared to be very high both on the east and west.

When crossing the range the Pundit saw a very large herd of wild yaks; his party counted over 300 of all sizes before the herd ran off: the yaks were all black. These wild yaks are called "Dong"; they were mostly seen between Majin-Kinglo and the Mansarowar lake. Great herds of wild asses were seen throughout; sometimes as many as 200 were in sight at the same time when the plateaux were extensive. The Hodgsonian antelope, wild goats, and sheep, (the latter including the gigantic ovis ammon), were all seen in numbers. Large grey wolves were constantly seen but never more than two or three at a time, though packs of them were often heard yelling at night. Numbers of reddish hares and a kind of fox were seen on every march. Marmots were very numerous, their subterranean villages being met with wherever grass and water were at hand. Quantities of geese, ducks, and storks were seen on the lakes. Eagles and vultures appeared to be the same as those in the Himalayas, and were seen every where.

Whilst marching from Rudok to Thok-Jalung the Pundit heard minute descriptions of no less than 7 seperate gold fields, viz: those of Thok-Sarkong, Thok-Dikla, Thok-Ragyok, Thok-Thasang, Thok-Maroobhoob, Gunjee-Thok and Thok-Nianmo, besides those of Thok-Sarlung and Thok-Jalung which he actually visited, and those of Phaiyu-Pooyu of which he heard vaguely. The Pundit understands the word Thok to mean a mine.

Several salt lakes were passed and others heard of. He describes the celebrated Chak-chaka salt lake as being all but connected with the Hagong-cho lake, and stated that an area of about

20 miles by 10 is all about on a level with those lakes. This space is filled with salt, the water having evidently at one time covered the whole.

Borax fields were seen at Rooksum and Chak-chaka, and numbers of people were working on them. No gold or salt mines were seen or heard of between Thok-Jalung and the Mansarowar lake; but numerous borax fields were seen, at one of which about 100 men were at work near a camp of some thirty tents. The other fields were not being worked when the Pundit passed. The borax generally was said to find its way down to Kumaon, Nepal &c. Altogether this portion of the third Pundit's route has brought to light the positions of a large number of gold, borax, and salt fields, testifying to an amount of mineral wealth, as to the value of which we have hitherto had no information. In marching south from Thok-Jalung the Pundit appears to have left the gold bearing rocks, and from the information he received, the line of gold fields is continued more to the north; but it is evident that this part of Tibet contains an inexhaustible supply of gold.

As to borax, there appears to be any amount of it to be had for the digging, the Lhasa authorities only taking a nominal tax of about 8 annas (or a shilling) for ten sheep, or goat loads, probably about 3 maunds or 240 lbs. Borax sufficient to supply the potteries of Staffordshire and all Europe would be forthcoming, if the supply from Tuscany should ever run short.

The salt fields appear to be the source from which the hill population from Nepal to Kashmir draws the greater part of its supply of salt.

Throughout his march, the Pundit was at an elevation of over 15,000 feet, and yet an encampment was met with nearly every day. Thieves were numerous, and threatened the party several times; but on seeing that the Pundit's party were armed, they invariably went off again, not liking the look of an English gun. The party arrived at Mansarowar in safety; and the Pundit decided upon waiting for the Ladak Kafila, which was known to be on its way to Lhasa. Whilst there, the Pundit made a careful traverse of the Mansarowar lake, with bearings to the peaks north and south. A map of the lake will be given hereafter. Though the water was sweet no exit was seen: at one point on the west the ground near the Ju monastery was low, and looked as if water had perhaps at one time flowed through, towards the Rakas Tal lake, though it is now too much above the lake to admit of it.

The Pundit was unable to join the Ladak Kafila; but made his way by himself along the great road to Shigatze, where he was stopped. This he found was by an order of the Gartok Garpon, sent after him by the couriers. He was unable to advance farther. Whilst marching between the Mansarowar and Shigatze he was able to take bearings to various peaks north and south of the road, which no doubt will add considerably to our knowledge of the mountains on either side of that route; but as the Pundit has only just returned, there is no time to give any further account of his route and adventures in the present report.

His servant, who was sent back from Dak-korkor, managed to join part of the Ladak Kafila, and reached the Tadum monastery; but the mounted messengers of the Gartok Garpon found him out there and prevented him from advancing farther. He very narrowly escaped being sent back to Gartok, and would have been lucky to have escaped severe punishment. The Ladak merchant fortunately remembered his old friend the Chief Pundit, and on being told that the man was carrying merchandize on his account, did what he could to protect him; and though he said it was impossible to take him to Lhasa, he managed to get him released, and ultimately the man was allowed to cross over the Himalayas by a southerly road past Muktinath into Nepal. In this way he was able to join on to the route the 2nd Pundit traversed during their first explorations. The permission to take a new route, is surprising, as the Lhasa officials are always careful to make suspected individuals return by the road they entered, so that they may at any rate not get fresh information as to the country. Their carelessness in the present instance was probably due to the humble and rather stupid look of the man, but it has supplied an important link between the Tadum monastery and the Muktinath shrine on the Saligrami, a great feeder of the Gunduk river. The man, an inhabitant of Zaskar, in spite of his appearance, has a shrewd idea of distances and of the points of the compass; he was able to give a very intelligible though rough route between the two points, which agrees very fairly with the positions assigned to them by the 1st and 2nd Pundits.

When this Zaskari found that he would not be allowed to go to Lhasa, he told the Ladak merchant that an agent of the Chief Pundit had gone on ahead, to whom he was to have delivered some goods, and requested that he would see that they were delivered to the agent: the merchant promised to do this and took charge of the packages. The Zaskari then put his own baggage on a couple of sheep and started off south. Though early in December he was able to cross the Brahmaputra river on the ice, which was then strong enough to bear laden yaks. The first day he reached the Likche monastery, where he found two men from Lohba in the Mustang district north of Muktinath. These men had gone beyond, to the north of Tadum, for salt and were returning with it. The Zaskari managed to make their acquaintance, and on hearing that he was a Bisahiri (or man of Koonoo) going to worship at Muktinath, they agreed to take him with them. Their salt was laden on about sixty yaks, each carrying from 1½ to 2 maunds (120 to 160 lbs). The two men were able to manage this large number of yaks as the road was a good one.

From Likche they ascended gradually over a great plain or plateau, with plenty of grass and scrub; the latter making good fuel even when green. Three easy marches took them over this plain and landed them at Lohtod, four or five miles beyond or south of the Himalayan watershed. The plain had a few small knolls on it, but was otherwise flat or undulating. The ascent, even up to the watershed, was very slight indeed. From the pass, which the man hardly thought worthy of calling a pass, there was a slight descent for four or five miles. He got a good view of Lohtod, a village of sixty houses surrounded by a number of scattered houses, which he thought might make a total of several hundreds: the houses were all built of sun-dried bricks. He noticed a great many fields, and found that they cultivated barley, buckwheat, mustard, radishes, and a small proportion of wheat, all indicating a moderate altitude, though the only trees visible were two or three poor willows. This is confirmed by the easy slope of the ground to Muktinath, which the 2nd Pundit found to be 13,100 feet. The next day the Zaskari reached Loh-mantang, where the Loh Gyalbo (or Raja) lives in a stone fortlet, near a small town of some 200 houses, surrounded by a great deal of cultivation.

Erom Loh-mantang three days' easy march landed the Zaskari at Muktinath. On the route he passed a large village called Asrang, where the Gyalbo has a house, and at every three or four miles he saw a group of a few houses, mostly to the west of his road, but he met with no tents south of the Himalayan watershed.

Muktinath (or Lohchumik) stands in an open spot, with 4 villages of about 50 houses each, lying a mile to the south of the shrine.

The Zaskari has given some farther routes which are new and will no doubt prove useful hereafter. The route given above is more especially interesting, as giving another line across the Himalayas: it makes the crest very much as given in the map with the first report of the Pundit's explorations, and shows how very far behind, or north of the great peaks, the Himalayan watershed actually lies, and what a great breadth the highest parts of the range cover.

Another explorer was employed to the east, who made a route-survey of 1,190 miles in length, advancing by one route 640 miles and returning by another 550 miles in length.

A small portion of this man's route was quite new, as he managed to penetrate behind or north of the great Mont Everest peak. His progress in that direction was checked by the obduracy of the Lhasa officials on the Tingri-maidan. As far as it goes this portion of the route is however interesting, insomuch as it gives another determination of the Himalayan watershed, and throws a little more light on that part of the mountains which lies behind or north of the great peaks seen from the Hindustan side.

The remainder of the route is in a great part new; but some of the former explorations went over portions of the same ground, and the positions of several places have been entered on published maps from various information, though hitherto without any regular connection. These new routes will supply the necessary connection, and when combined with former explorations, will add much towards the elucidation of the Eastern Himalayas. A map will be

prepared on this basis, but no reference can for obvious reasons be made to names &c., whilst the work is in progress, the explorers having been somewhat impeded by the publicity given to the results of former expeditions.

On the north western frontier of India a Mahommedan gentleman, generally known as the Mirza, has been employed for some time in exploring the countries beyond the Hindoo-Koosh, the Mustagh, and Karakoram ranges. The Mirza was regularly trained, and having acquired the necessary facility in the use of a sextant, and in the method of route-surveying practised in these explorations, was started on an expedtion viâ Afghanistan. He made his way to Candahar; but there his progress was for a time arrested owing to the war which resulted in re-seating the Amir Ali on the Cabul throne.

The Mirza, it may be as well to state here, was one of the lads brought originally from Herat by Pottinger, and had received a partial English education, by which he has benefited considerably. Being a native of Afghanistan he has kept up his acquaintance with that country, and though for some time in the British service, has spent the greater part of his life in that country. His former residence in Cabul more especially favored him, and he was at once able to accompany the Amir. He witnessed various actions that took place during the Amir's advance from Candahar, and supplied our Government with accounts of them and the general state of affairs; accounts which at the time were rather valuable, as it was difficult to get any other accurate information. The Mirza was detained for some time at Cabul, owing to the disturbed state of the country, but ultimately was able to pass over to Badukshan, thence he ascended, through the Upper Valley of the Oxus, to Lieutenant Wood's Sirikul (or Victoria) Lake. From this lake he made his way through a part of Sirikul district to Tashkurgan, crossing the watershed which divides the Oxus from Eastern Turkistan. At Tashkurgan he was placed in a sort of open arrest, being allowed to do what he pleased, though always watched. From Tashkurgan he made his way over the mountains direct to Kashghar, still accompanied by men from Tashkurgan, who insisted upon seeing him into Kashghar; fortunately they did not interfere with his using his instruments, and he was able to continue his route-survey.

At Kashghar he was detained for some time by the Koosh-Begie, or Atalig Ghazi. He asked for permission to go on to Kokhan, but it was refused; and he was ultimately glad to be allowed to return viâ Yarkund and the Karakoram pass to Ladak, and thence into British territory.

The Mirza has just returned, and there has only been time to roughly plot his routes, which are complete from Cabul to Kashghar, and from the latter to the vicinity of the Karakoram.

His route from the Sirikul lake to Kashghar, is entirely new, and promises to be the most interesting portion of his work. It may perhaps throw some light on Marco Polo's route from Europe to China, as that traveller stated that he went direct from Budukshan to Kashghar without passing through any larger town.

No particulars can be given as to the Mirza's work, but the whole of his route-surveys, &c. will be reported on as soon as they have been worked out and tested.

With reference to farther explorations, an attempt will be made to advance farther along the margin of the Aksai Cheen, or great white desert, and if possible to cross it, and generally to explore farther east towards the end of the great wall of China; but the jealousy of the Chino-Tibetan officials renders success very doubtful.

Expeditions are being organized to carry the explorations still farther to the north of the Hindoo-Koosh, so as to account for the geography of the upper branches of the Oxus, of the Pamir Steppe, &c.; and there is some chance that in the present state of Afghanistan it will be possible to carry out these projects, and thus to reduce the absolutely unknown ground in that direction to a small area within a reasonable time.

Further routes will be made with a view to complete our knowledge of the geography of the Eastern Himalayas; and it is hoped that the obstacles in that direction may be surmounted within a short time.

The total length of route-surveys amounts to 1,820 miles with 66 latitudes and 61 heights of various places. The area of altogether new ground of which the geography has been determined, is about 20,000 square miles, irrespective of a very large area of partially new country, for the geography of which improved materials have been collected.

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DRAWN UP BY

MAJOR T. G. MONTGOMERIE, R.E.,

IN CHARGE TRANS-HIMALAYAN EXPLORING PARTIES.

Memorandum on the Trans-Himalayan Explorations made during 1868-69, by Major T. G. MONTGOMERIE, R.E., Deputy Superintendent G. T. Survey of India, in charge of the Trans-Himalayan Exploring Parties.

(1.) The explorations made during 1868-69 have already been briefly referred to, the explorers having returned just as my last report for 1868 was being sent to the press. The present report will be chiefly confined to the explorations made by the Mirza in Central Asia, beyond the Hindoo Koosh, Mustāgh and Karakoram ranges, which may be considered as a continuation of the great Himalayan system.

(2.) In carrying out my plan for exploring beyond the frontiers of British India by means of Asiatics, I have always, as proposed in my original memorandum, endeavored to secure the services of men who were either actually natives of the countries to be explored, or who had at any rate the same religion as the people, and who had been in the habit of travelling or trading in the said countries. Acting on this principle when the exploration of the Upper Oxus and Pamir Steppe was proposed, a search was made for a suitable native of some part of Central Asia. After a search in the Peshawur Bazaars, where men of nearly every tribe in Central Asia are to be found, and after applying to several of our frontier officers, it was found to be by no means an easy matter to get a proper man ; any number of men are willing to volunteer for such a service, and if their own accounts are to be believed they are all well fitted for the task, but a very little inquiry however reduces the number of likely men nearly down to zero: many cannot write, others are too old, most have no ideas beyond those of trade, and nearly every one has special ideas as to what pay and rewards they are to get, and generally have special stipulations to make; all however apparently thinking nothing of the risks and exposure involved. The subject having been once broached, these men are difficult to get rid of, and fortunately in this present case negotiations were not entered into with any particular individual until a final decision was arrived at.

(3.) An itinerant silversmith seemed to be a likely man, as he was in the habit of making a round from Peshawur through Central Asia, starting *viâ* Cabul and returning through Yarkund, passing from city to city, and supporting himself by working up silver and gold into ornaments. Owing to the demand for men of his craft, there is no difficulty in their moving through Central Asia, but before any proposal could be made to this man he had started off on another trip, and it was consequently decided that a trial should be made with a former employé of the survey, generally known as the Mirza, who was qualified in some respects. He had, as before stated, a partial English education, his father was a Turk of Meshed engaged in trade, his mother a native of Persia; the Mirza himself was born in Persia, and understands both the Persian and the Turkish languages. His father's trade took him to Herat, and there he was in some way connected with Major Pottinger when defending that city. His son, the Mirza, made his way down to India, and managed to get some education through the kindness of various British officers. He was consequently in many ways fitted to carry on explorations, and at one time he had moreover been employed on survey work near Peshawur. Subsequently he had spent a good deal of his life in Caubul, &c.

(4.) Returning to India when the Amir Sher Ali was dethroned, the Mirza had nothing to do, and was consequently glad to get employment on a surveying expedition. He was brought down to the Survey Head Quarters, and having done nothing in the way of surveying for many years, was put through the regular course of training for explorers, and then sent up to Peshawur at the end of 1867. He was directed to make his way into Badukshan by the Chitral route, if possible, or by any other route that was feasible, and from thence to explore the Upper Oxus, the Pamir Steppe, the routes to Kokan, Kashgar, &c. Owing to the lateness of the season he was unable to go by Chitral, and for various reasons was unable to get to Caubul by any of the ordinary routes. After trying

several routes he had to go down the Indus to Sukkur and thence by the Mālā Pass to Khelat in Beloochistan.

(5.) From Khelat he made his way to Candahar, arriving there just as the Amir Sher Ali's forces captured the place. He was allowed to accompany the Amir's army during its successful advance upon Caubul.

(6.) Owing to the disturbed state of the country the Mirza was greatly delayed, and had much difficutly in getting out of Caubul. After many disappointments he succeeded in starting for Badukshan in October 1868.

(7.) From Caubul he made his way Northwards over the Hindoo Koosh range by the ordinary route to Bamian, and thence down to Kulm Tashkurgan, a town about 20 miles from the river Oxus. From Kulm he marched Eastward through Badukshan, following the route that runs 20 to 30 miles south of the Oxus as far as Rustak. Thence he followed the course of the Kokcha river, a great tributary of the Oxus, then crossing from the head of the Kokcha valley, he passed over into the valley of the Upper Oxus, first meeting that great river at Ishkasiun, from thence marching up the stream nearly due East he reached the Punja fort in Wakhan.

(8.) His march up to Punja had been trying as it was made during midwinter. Snow fell very often and added not a little to the Mirza's troubles, but as villages were forthcoming at each halting place, none of the party were much the worse for the journey. The Mirza's servants had however got rather mutinous, and he consequently was subjected to the usual fate of explorers in having to contend with a course of camp intrigues, and all its resulting annoyances. Up to this point Punja, on the Upper Oxus, the Mirza's journey can be followed and tested by the route of the intrepid explorer Lieutenant Wood of the Indian Navy. Nearly every point can be identified, and with the exception of some few variations near Faizabad, the routes are identical. The Mirza's work agrees pretty closely with Lieutenant Wood's, and his positions of the chief places differs but little from those of Wood; Punja itself being by the latter in latitude 37° 2′ and longitude 72° 41′* and by the Mirza in Latitude 37° 5′ and Longitude 72° 39′; a very close agreement, bearing in mind that the points referred to may have been some miles apart, there being no means of determining exactly the respective points where the observations were taken.

(9.) In referring to the Mirza's explorations at the end of my last year's report, I stated that he had made his way from Badukshan through the Upper Valley of the Oxus to Wood's Sirikul Lake. This, however, as will be seen below was a mistake, it should have been to the Pamir-kul-Lake, on the Southern branch of the Upper Oxus. Wood's Sirikul Lake being on the more northerly branch of the same river. The mistake arose from the Mirza stating that from Punja he had gone to a lake a few marches beyond Punja, and then on to Kashgar. As soon as his work was compiled it was evident that it was another lake.

(10.) At page 331 of Wood's Oxus he states that, "the valley of the Oxus may be said to terminate at Issar, to which point from Ish Kashm, in latitude 36° 42′ 32″ N., its direction is East by North ½ N. The latitude of Issar is 37° 2′ 10″ N., and its height above the sea 10,000 feet. Here the main valley divides into two, which when a little beyond Kila-Panj, bore respectively E. 20° S. and N. 40° E. The former we were told conducted into Chitral, Gilgit and Kashmir, and the latter across the table land of Pamir to Yarkund in China. I had now to ascertain, if possible, which of the two streams I was to trace. One of them it was certain must lead to the source of the Oxus, but which of the two was a question of difficulty. The Kirghiz had unhesitatingly told us that the object of our search was to be found in a lake upon the "Bam-i-duniah," or roof of the world in Pamir, and that the road to it was up the durah of Sir-i-kol; but though the Northerly direction of that valley, and of the countries to which it led was when compared with the Mastuch, as the Chitral durah is some times called, almost sufficient evidence in favor of Sir-i-kol, I thought it prudent to visit the junction of their respective waters. To my eye the stream of Sirhad, as the river from Mastuch is frequently called, appeared the larger, but the Wakhanis held

* From his last set of Chronometric Observations.

a different opinion. That from Pamir was divided into several channels, and frozen, so that its aggregate volume could not be well ascertained, though from a clearing in its principal stream I inferred its velocity to be double that of the Sirhad, while its temperature was five degrees lower, being 32° and that of the other 37°. It seemed a singular circumstance, but certainly confirmatory of the superior height of the source of the river of Pamir to that of the other stream, that it should be sheeted with ice to the very point of their junction, whilst the Sirhad was unfettered by the frost, and had a slower current and a higher temperature. According to my informant, the Pamir branch in summer brings down much more water than the Sirhad, though the latter has many tributaries, and the former but two trifling rills, those of Langer Kish and Zeryamen."

(11.) The Upper Oxus, which flows past Punja, is formed by two streams which meet just to the East of Punja. From Punja onwards the Mirza's route diverges from that of Lieutenant Wood, who took the Northern branch of the Oxus, whilst the Mirza followed the more Southerly branch.

(12.) Lieutenant Wood, from looking at the two branches had, as will be seen above, come to the conclusion that the Southern branch was the larger of the two, and from the Mirza's route it would appear that Wood's eye had judged correctly. The Southern branch is considerably larger than the other, and it is fed by several large tributaries, whilst the Northern one has hardly any, and those all small. Wood's guides, however, insisted that the Northern was the main branch, and it appears that its source is higher than that of the Southern one, and hence probably the reason why the northern branch was frozen and the Southern one not frozen when Wood saw them. Whichever may have the honor of being the main source of the Oxus, there is no doubt but that the two combined form the Upper Oxus river, and as Wood had explored the Northern, it is fortunate that circumstances should have made the Mirza explore the Southern. We have now got both, and can account for nearly all the drainage of the Upper Oxus.

(13.) At Punja the Mirza had great difficulty in arranging for crossing the Pamir Steppe, the Mir of Wakhan gave him a pass, and ordered certain men to accompany him, but it was only after bribing this petty Mir and his officials that he could get the order acted on. Then his guides frightened his servants by the worst stories they could invent as to the cold and hardships of the route, and the danger of being caught by either the Kirghiz or Kunjūti robbers. The Mirza was now at about 10,000 feet above the sea, and being winter, snow was constantly falling. This alone was sufficient to make his servants troublesome, and what with the intrigues of the Mir's officials, and the guides stories, they became very mutinous; but at last, after dismissing these old guides, the Mirza was able to make a start on the 14th January, 1869. For three marches, as far as the village of Patoor, the party did not suffer much from the cold, as they could always get shelter in a village. Beyond Patoor they were informed there were no villages for eight marches, and provisions had to be carried with them.

(14.) Fortunately the extreme cold enabled them to carry meat on their ponies, and as far as food was concerned they were pretty well off. The party however suffered very much from the cold, it snowed every day, and they had generally to sleep on the snow. After the 4th day they reached the watershed of the Pamir Steppe, between Wakhan and Eastern Turkistan. The rivers were all frozen, and the source was evidently a small frozen lake called Pāmir-kul or Barkōt Yāsseen. The ice of the lake and the flat ground around were covered with snow, and the Mirza could not consequently decide exactly where the lake ended and the land began; however not very far to the East of the lake the fall of the country to the Eastward was quite perceptible.

(15.) This Pamir Lake is about 13,300 feet above the sea, the Mirza thinks that some of its water flows to the West and some to the East, but as all the streams were frozen this cannot be considered as established. As far as my experience goes, no lake in the Himalayas has two exits, nor do I think that it is common elsewhere, and indeed I know of but one case of the kind where a small pool has two exits, and it is obvious that if there is any great flow of water, one exit will probably be cut quicker than the other, and eventually became the sole channel.

(16.) The watershed of the Pamir Steppe is however close to the Pamir Lake, the Mirza descended gradually from it, and after four long marches found himself at Tashkurgan (stone fort), the capital of Sirikul, which is only 10,986 feet above the sea; the stream which he had followed down had became very large, and was clearly flowing Eastward towards Yarkund.

(17.) The last four marches were an improvement, but there was still a great deal of snow on the ground, even round Tashkurgan. The Mirza was now in the Atalik Ghazi's territory, his troops having however only taken possession of it about ten days before the Mirza arrived. The Governor in command decided to send the Mirza on to Kashgar under a Kirghiz escort, but fortunately a certain amount of liberty was allowed him, the Kirghiz knowing very well that he could not run away.

(18.) From Sirikul the Mirza marched down to the main Sirikul river which he crossed on the ice, he then made his way over the Chikchik Dawān range by a very high and steep pass, covered with snow and ice, probably about 15,000 feet above the sea. After five very hard marches over snow the party arrived in the Keen Valley, each day they halted at a Kirghiz encampment and got shelter in one of the tents. From Keen three more long marches over snow took them to the mall town of Yangi Hissar, and two marches farther North brought them to the new town or Yanga Shahr of Kashgar, about five miles S. E. of the old city of Kashgar.

(19.) The Mirza arrived at Kashgar on the 3rd of February, 1869, after a most trying march, snow actually falling during the last two days, and lying pretty heavily on the ground.

(20.) The Mirza had carried on a route survey from Caubul to Badakshan and thence to Kashgar. The bearings being taken with a good prismatic compass and the distances measured by pacing; the Mirza and two or three of his men relieving one another in doing so. They carried a string of beads in their hands, dropping one at every 100 paces, and having a large bead at every 10th to represent a thousand feet.

(21.) Observations for latitude were taken to the Sun and Stars at various important points, such as Caubul, Kulm, Faizabad, Sirikul, Kashgar, &c. These latitude observations can be compared with those of Griffiths and Wood as far as Punja; the results generally agree within two or three minutes, quite as close as could be expected, considering that no two explorers are likely to observe from the same point. Caubul for instance being with its outskirts, a straggling place, running two or three miles either way, and everything depending upon what point is referred to. Though the Mirza's observations are not very first rate, yet still judging from the points common to him and to Griffiths and Wood, as shown in Appendix, it may be concluded that the latitudes of new points, such as Sirikul and Kashgar are within about 5 minutes of the correct latitudes.

(22.) As to longitude the new values must depend upon the accuracy of the Mirza's pacing, as the route runs too much East and West to enable the latitudes to act as a very strict test for the whole.

(23.) The longitude of the starting point, viz., Caubul, has been derived from former maps on the authority of Lieutenant (now Sir Henry) Durand, and Lieutenant (late Major) Anderson, both of the Bengal Engineers, viz., E. 69° 5′ 5″. The Mirza's latitude of Caubul has been accepted as his measurements start from his point of observation. From Caubul his route of Kulm, running mostly to the North, has been used in combination with the Mirza's latitude of Kulm to determine Kulm, giving latitude 36° 37′, longitude 67° 47′ for that place.

(24.) The value of the Mirza's mile, as tested by the difference of latitude between Caubul and Kulm is 0·15 in excess of a mile, about the amount that a mile as measured on a rough up and down road, crossing the great Hindoo Koosh range, might be expected to differ from a mile measured on flat ground at the level of the sea. It is of course difficult to say how much of this difference is due to the number of the Mirza's paces, viz., 2300, that have been assigned to the mile.

(25.) From Kulm to Kashgar a distance of about 500 miles, there is not sufficient Northing to determine the value of his mile. It was consequently decided to determine Kashgar from

Yarkund which had already been fixed by another explorer. Taking Yarkund as in latitude 38° 20′, longitude 77° 30′, and using the Mirza's route for distances and bearings, and his latitude of Kashgar, it appears that 39° 26′ and 76° 16′ is the position of the new city and latitude 39° 29′, longitude 76° 12′, for the old city of Kashgar.

(26.) I must note here that the Mirza carried his Route Survey on to old Kashgar which he visited three times, and has consequently been able to give some description of that ancient city.

Messrs. Hayward and Shaw had not the opportunity of visiting the old city, owing, I suppose to the suspicions of the Atalik. The Mirza only got there by bribing his guard, which he no doubt was able to do more easily than a European, and probably with less risk.

(27.) The Mirza's position of old Kashgar is therefore as yet the only one, from this side of India, that has been derived from actually visiting the place.

(28.) Some error has been made in the Royal Geographical Society's Proceedings* as to Mr. Hayward's values, as it is there stated that the old and new city are in the same meridian, and though said to be only 5 miles apart, yet the one is given as differing from the other by 10 minutes in longitude. Judging from Mr. Hayward's map 76° 10′ is the longitude he assigned to both new and old Kashgar. Both he and Mr. Shaw state that the old city is due North of the new town, but the Mirza having gone there and giving a bearing of 312° (or 48° West of North), and the latter has been adopted in deducing the longitude of the old city.

(29.) The value of the Mirza's miles, tested by the difference of latitude, shows it was 0·07 in excess, the excess being, as was to have been expected, less than that found on the rough road between Bamian and Kulm; the roads between Yarkund and Kashgar being on the other hand very fair and almost level.

(30.) Taking the positions of Kulm and Kashgar as determined above, it appears that the direct distance between them should be 494 miles, the Mirza's measurement gives 484 miles, taking the miles as equal to 2,300 paces, showing that each of his miles is about 0·02 in defect, or in other words, showing about 2 per cent of error.

(31.) From this it may be concluded that on an average the assignment of 2,300 paces to the mile is tolerably correct, but as the pacing was done by 3 or 4 men relieving one another, and it is not known how much each individual did, it is impossible to deduce much from the comparison of the pacing of any one portion with another, but viewed as a whole the pacing appears to have been good, and considering the mountainous nature of the country, the many marches over snow, and the fact that the Mirza was for a considerable portion of the time under a sort of open arrest with people watching him, it is surprising that such good results have been obtained.

(32.) The positions of the chief places between Kulm and Kashgar have been deduced by applying the above correction to the Mirza's distances, giving as follows, viz:—

	Latitude.	Longitude.	Height.
Kulm (Tashkurgan), ...	36° 37′	67° 47′	...
Kunduz, ...	36° 45′	69° 4′	...
Rustak, ...	36° 59′	69° 51′	5,100
Faizabad, ...	37° 2′	70° 36′	5,100
Ishkasim, ...	36° 45′	71° 38′	10,800
Punja, ...	37° 5′	72° 39′	...
Pamir Lake, or Barkût Yasseen, ...	37° 14′	74° 18′	13,300
Sirikul (Tashkurgan), ...	37° 44′	75° 13′	11,000
Yangi-Hissar, ...	38° 58′	76° 26′	5,200
Kashgar, Yanga Shahr, or new town, ...	39° 26′	76° 16′	5,100
Kashgar old city, ...	39° 29′	76° 12′	.....

(33.) I had wished to have got another independent value of the longitude of Yarkund,

* Page 69, of Vol. XIV., No. 1, of R.G.S. Proceedings.

but the Mirza only carried his Route Survey from Yarkund to Shahdula on the Karakash river. He did not carry it further, as he was under the impression that the route up to that point had been regularly surveyed. This, however, was not the case, Shahdula not having been connected with the trigonometrical stations on the Karakoram, as expressly stated by Mr. Johnston, (who made a rough sketch of that portion) and in consequence having been put to the East of its proper position.

(34). Had the Mirza carried on his Route Survey to the Karakoram, his work would have supplied full data for testing the position of Yarkund, as it is his route to Shahdula gives 187 miles out of a total of about 240 miles. I have consequently had the said 187 miles computed out, and taking the accepted longitude of Yarkund, viz., that from Hameed, I find that the Mirza's route would put Shahdula in about 5 or 6 minutes to the West of Hameed's longitude of the same point, showing but a small difference, and in no way sufficient to throw any doubt on the substantial accuracy of Hameed's work.

(35). In deducing the positions of unknown places from the Surveys of my explorers, I have always been careful to use places with established positions as starting points, and I have refrained from using the materials of previous, or of other explorers, unless I was aware how their measurements and observations had been made, and considered that the results were likely to be good; I have, however, always closely examined all other available materials in order to see and inquire into any differences between them and those of my own explorers.

(36.) In the present instance, I have examined the material supplied by Messrs. Hayward and Shaw. Mr. Hayward in a route supplied to the Punjab Government, gives the distances between Leh and Yarkund, and makes the distance from Yarkund to Shahdula 190 miles, the Mirza making the same 187 miles, an immaterial difference, as variations in the route, which are known to be numerous according to the state of the rivers, would easily cause much greater. Mr. Hayward does not state how he measured his distances, and gives no bearings, he however observed for latitude at Yarkund, and in the Royal Geographical Society's Proceedings* has stated that his resulting position of Yarkund agrees practically with that which I have deduced from my explorer's work.

(37.) Mr. Shaw has also supplied a route from the Karakoram to Yarkund. He gives both distances and bearings. He states that his distances were measured in tashes of about 12,000 paces each, the length of a tash having been estimated by pacing a tash, and the number of tashes on the whole route having been estimated by timing, based on the time it took to traverse the measured tash. A tash, as I before stated, being a measure used in Eastern Turkestan, which is assumed by Mr. Shaw to be about 5 miles in length.

Mr. Shaw, judging from his map, has also retained the latitude and longitude deduced from my explorer's work.

(38.) No bearings being available from Mr. Hayward's published statements, it was impossibe to examine his results any further.

(39). Mr. Shaw however supplying bearings as well as distances it has been possible, by assuming the latitude of Yarkund to be 38° 20′, to compute out the position of Yarkund with the G. T. Survey value of the Karakoram pass as an origin. This has been accordingly done, and with the above latitude Mr. Shaw's route would put Yarkund in about longitude 77° 27′, agreeing practically in fact with the value I have deduced from Hameed, the same computation however shows that the longitude of Shahdula would be somewhat to the East of Hameed's longitude of the same place, and judged by that, Mr. Shaw's route would have a tendency to make Yarkund more to the East too.

(40). From the above, it will be seen that there are no grounds for altering the longitude I have assigned to Yarkund, and that on the other hand there is a great deal to show that the said longitude, viz., 77° 30′ is substantially correct. I have consequently decided to adhere to it.

No doubt some alteration will be required when the distances and bearings have been

* Page of Vol. No.

regularly measured with a chain, and when the latitude has been determined by a practised observer, but the alteration will probably be but small judging from the data at present available. The longitude of Kashgar would of course be altered by the same amount.

(41.) The heights depend upon boiling point observations, but they are not numerous and owing to breakages depend upon inferior thermometers; and, consequently, cannot be considered final. They however give a fair approximation to the comparative heights of the various places.

(42.) The Mirza unfortunately had not had much previous practice in the use of thermometers, and owing to the great delays in commencing his Route Survey, had to a certain extent forgot the instructions given to him at the G. T. Survey Head Quarters. A greater number of observations at each large place would have been of much value, and no doubt given a better average, but what with the disturbances in Afghanistan and the anxieties of his journey, the Mirza forgot this, and his latitude observations suffered to a smaller extent from the same cause and another very important point, viz., bearings to distant peaks was entirely neglected.

(43.) This latter, however, may not be entirely due to the delay in putting his lessons into practice, as I have observed that all of the explorers have done but little in that way on their first expedition, being too busy trying to secure everything connected with their actual route, and thinking but little of peaks in the distance. The Mirza in this instance being of opinion that there was little necessity for bearings to distant peaks, as his route actually led him over the highest ground, an opinion however which I cannot altogether concur in, as I know that some of the high peaks determined by my Trigonometrical Survey operations were within 40 miles of the point where he crossed the Pamir, and some with a little extra observation would no doubt have been seen.

(44.) The recognizing of distant peaks from different points of view is however a difficult thing, and requires considerable practice before success can be secured, it is consequently easy to excuse the Mirza's omissions in this respect.

(45.) The Mirza's route gives us another determination of the great watershed which separates Eastern Turkistan from the basins of the Indus and the Oxus, viz., the Pāmīr-kul Lake which comes between the Mustagh pass, (the most Westerly point actually on the watershed determined by my survey operations,) and the Sirikul Lake of Wood; and this new determination confirms the opinion that I have held for many years, that the said watershed continues to run North-West from the Mustagh, a conclusion which I came to from the positions of many gigantic peaks fixed by the survey to the North-West of the Mustagh, which peaks though probably not on the watershed, doubtless indicate its general direction. From the Changchenmo East of Leh to the Mustagh the general line of the watershed is about 35° North of West, from the Mustagh to Wood's Sirikul it is about 38° North of West, and the same line would nearly run through the Pāmīr-kul. Further to the North I am not inclined to think that the general direction of the watershed alters very rapidly.

(46). The Mirza in marching from Sirikul to Yang-i-Hissar passed some very high peaks to the West of his route. These are some that have been seen by Messrs. Hayward and Shaw when they went to Kashgar. The peaks are no doubt closer to Yang-i-Hissar than the watershed given in Colonel Walker's map of Turkistan, but judging from the position of the great Himalayan peaks with reference to the main watershed all the way from Assam to little Tibet, the chances are in favor of the main watershed being very considerably behind, or to the West of those peaks. Such has almost always been found to be the case when surveyors have been able to fix the Himalayan watershed.

(47.) I consequently conclude the watershed North of the Sirikul Lake will not require to be moved much more to the East than is indicated by the alteration in the position of Kashgar. The Tarik pass on the said watershed is known to be 11 marches, say 150 miles west of Kashgar, that and the size of the rivers near Yang-i-Hissar and Kashgar, coming from the West, all tend to confirm the above.

(48.) The position of Kashgar deduced from the Mirza's work is to the East of the position

assigned to it in the Map of Turkistan, an alteration which I had anticipated many years ago when trying to fix the longitude of Yarkund, the probability of its being further East being great.

(49.) The positions assigned to the chief places in Eastern Turkistan may now be considered to be accurate enough for all general geographical purposes.

(50.) The alterations made in their positions are very remarkable. About ten years ago, judging from the results of my survey of the Kara Kuram and Mustagh ranges, I ventured to conclude that the positions assigned to places in Eastern Turkistan by Humboldt in his "Asie Centrale" were not in accordance with the more modern information collected in British India.

Humboldt's positions being founded on those by the French Jesuits. I concluded, *vide* page 168 of Vol. 36 of Geographical Society's Journal, that Yarkund was considerably to the East of the position derived from the Jesuits. This was subsequently confirmed by one of my explorers, Mahammad-i-Hameed, and at page 169 of the same volume, I published a table giving the positions as they then stood, a glance at the table which I re-introduce below with the additions up to this date will show how they now stand, viz :—

Name.	By the French Jesuits as in "Asie Centrale."		By Schlagintweits.		By Captain Montgomerie, from Hameed.		By Captain Montgomerie, from his Explorers.		Remarks.
	Latitude.	Longitude.	Latitude.	Longitude.	Latitude.	Longitude.	Latitude.	Longitude.	
Yarkund ...	38° 19′	76° 16′	38° 10′	74° 10′	38° 20′	77° 30′	38° 20′	77° 30′	Khotan from Mr. Johnson.
Ilchi (Khotan)	35 50	80 33	36 50	78 20	37 37	78 57	37* 7	79 24	
Kashgar ...	39 25	73 57	39 15	71 50	39 25	75 21	39 29	76 12	
Sirikul (town)	...	...	...	...	38 10	75 39	37 44	75 13	

(51.) Hameed, the first of my explorers, visited Yarkund, and up to this date, as shown above, it appears that the position of Yarkund derived from his observations is practically correct, but in deducing the position of Kashgar from Hameed's bearing, &c., I erred, as may be seen above in not putting Kashgar still further to the East, but as it was I had put it further to the East than the correction to Yarkund suggested, and I did not feel warranted in shifting still farther the position of a place which had not then been actually visited by my own explorer, and whose position had been given by the Jesuits, who were said to have visited it.

(52.) With reference to Sirikul (Tashkurgan), which as far as I know had not been previously fixed, the position I derived from Hameed's bearings, &c., is a very good approximate one, as tested by that from the Mirza who visited the place.

(53.) As far as Kashgar is concerned I notice that the Russian explorers, have come to the conclusion that the old value of the longitude would require an alteration of about 2° to the East, this would put Kashgar in longitude 75° 57′, or 14′ West of the longitude I have adopted. This determination is however stated to depend upon only one point, which was fixed astronomically, viz., the Western extremity of the Issikul Lake which may itself require altering.

(54.) Baron Osten Sacken says, that he was informed that Kashgar was to the East of Artush, he himself being at that time, according to the Kirghiz with him, within 8 miles of Artush and 20 miles of Kashgar. I am glad to be able to confirm the information given to the Baron, the Mirza went out from Kashgar 3 or 4 miles on the road towards Artush, and he found the general direction of that place to be 20° West of North from Kashgar at a distance of one day's march or 13½ miles. If the Baron Osten Sacken's route is now or hereafter well connected with properly fixed positions to the North, it is to be hoped that he may be able to give us the position of Kashgar as derived from the Russian side.

* As stated in pages 228-229, No III. of Vol. XIV. of the Royal Geographical Society's Proceedings.

(55.) The alterations in the positions of Kashgar and Yarkund in a great measure explains why Marco Polo in crossing from Badukshan to Eastern Turkestan went first to Kashgar and then to Yarkund. With the old positions of Yarkund and Kashgar it appeared that the natural route from Badukshan would have led first to Yarkund; with the new positions and guided by the light of Mirza's route, from which it is seen that the direct route to Yarkund is not a good one, it is easy to understand that a traveller might prefer going to Kashgar first and then to Yarkund. It is satisfactory to have elicited this farther proof of the general accuracy of the great traveller's account of his journey through Central Asia.

(56.) The climate of Kashgar seems to be somewhat colder than that of Yarkund, probably owing to its being farther North and somewhat higher than Yarkund. It is also healthier, the Yarkundies suffering from impure water. Goitre, moreover, being very prevalent in Yarkund, while it is unknown in Kashgar, possibly because the Yarkund river rises from among glaciers, goitre being often common where glaciers are numerous.

(57.) The account given of the Atalik Ghazi, the present ruler of Yarkund, is a curious one—according to the Mirza the Atalik is a good soldier and generally believed to be so by people about him. I however could learn nothing to prove this—he appears rather to be a bold intriguer.

As far as the expulsion of the Chinese from Eastern Turkestan is concerned it was in the first instance effected by the Kūchāri and Tungāni Chiefs with their men who formed the great part of the Chinese auxiliary troops. These men mutinied in consequence of the oppression of the petty Chinese officials, a tax on every adult male being apparently the final provocation. After a good deal of severe fighting they got the upper hand and shut up the Chinese in their forts. As soon as their success was known, numbers of armed Mahommedans, dubbing themselves as Ghazis, flocked in from Kokan, Andijan, Badukshan, &c., and the Chinese were completely cut off from China proper. The Chinese had sent messengers to ask for reinforcements, but owing to the state of Kūchār, a mountainous country towards China, reinforcements were not sent. The Chinese garrisons after holding out for a year, and getting no help resolved to give in. The chief officials, Ambans, &c., were said to have blown themselves up after spitting towards Pekin, while the common Chinese to the number of about 2,000 consented to become Mahommedans, and were after the usual rites released.

(58.) Wali-Khan Khoja took possession of Kashgar while the Kuchāri chief took possession of Yarkund. The new rulers were however not popular, and the Atalik, who had been sent to assist the Mahommedan Ghazis in reducing the Chinese, was able by well planned intrigues to make Wali-Khan leave Kashgar and fly to the mountains, Yarkund after that fell into his hands without firing a shot. The Atalik then marched towards Kotán which had fallen into the hands of Haji Habbiboollah Khan: he invited Habbiboollah to a conference, and disposed of him by the simple expedient of treacherously murdering him, and all his male relations. The latter, according to the Mirza, were included so as to prevent any disagreeable consequence in the shape of a blood feud, male relations being bound to revenge the murder of one of their family.

(59.) The Atalik having thus disposed of all rivals secured the undivided control of all Eastern Turkestan, &c., and he then for the first time assumed the title of Atalik, which means father-like.

(60.) From the Mirza's account, the Atalik is not very popular, his petty officials seem to oppress as much as those of former rulers, and the respect in which he is held depends mostly upon his devotion to Islam, and his want of scruples in other matters.

Except that there is at present no other rival in the horizon it might be supposed that his reign would not be a very long one. Already we hear of his having to take the field against the Tungānies, and it is probable that similar out-breaks may occur elsewhere. The Government of Eastern Turkestan therefore can hardly be considered to be a very stable one.

(61.) The country generally between Caubul and the Oxus appears to be in a very lawless state, slavery is as rife as ever and extends through Huzara, Badukshan, Wakhan, Sirikul, Kunjut, &c. A slave, if a strong man likely to stand work well, is in Upper Badukshan considered

to be of the same value as one of the large dogs of the country, or of a horse, being about the equivalent of Rs. 80. A slave girl is valued at from four horses or more, according to her looks, &c.; men are however, almost always exchanged for dogs. When I was in Little Tibet, a returned slave who had been in the Kashmir army took refuge in my camp, he said he was well enough treated as to food, &c., but he could never get over having been exchanged for a dog, and constantly harped on the subject, the man who sold him evidently thinking the dog the better animal of the two. In Lower Badukshan, and more distant places, the price of slaves is much enhanced, and payment is made in coin.

(62.) The Khirghiz tribes though looking after their herds and flocks seem to plunder without much check, while the Kunjūtis carry on highway robbery as a regular profession, doing very little else, and consequently being the pest of all Kafilas, which unless large, are apt to fall a prey to them. There is some delicate distinction between the Khirghiz and the Kunjūtis, the latter being always made out to be the worst pest of the two.

(63.) I have studied Kunjūt from the Southern side of the Mustagh, and was interested to get a few further details about it, as gathered on the Northern side of the range. From what I have heard, I make out that Kunjūt was originally a small territory South of the Mustagh, on the great eastern branch of the Gilgit river, it was generally known as Hunza or Hunza-Nagar from two small towns on the said branch. The Hunza people were always noted for their plundering incursions into Little Tibet, appearing suddenly above Shigar by a very difficult road which the Survey operations have proved to run over a glacier nearly 64 miles in length, *i. e.*, over 30 miles of ice on each side of the pass.

They also poured down on the Yarkund road North of the Mustagh, probably by a similar route, for whenever the rulers on either side tried to punish the Kunjūtis the troops were entirely baffled by the difficult roads, there being apparently no easy entrance. The Kunjūtis in their fastnesses continue to defy every one, but they have latterly extended their territory to the North of the range, and now occupy several districts on the more Westerly branches of the Yarkund river, and so far are perhaps more vulnerable than formerly.

(64.) The Ruler of Kunjūt seems to have amicable relations with neighbouring states; the Mirza passed a Vakil from Badukshan, on the Pamir, who was going to Hunza the capital.

(65.) The Kunjūtis are said to be a very intelligent set, they are better educated than most Mahommedans, and many of them are said to go to Kashmir, Badukshan, &c., in order to complete their education. They are all Shia Mahommedans. The Government is probably well established, as I know they have a mint, having in my possession a few well stamped coins of various sizes made of gold mixed largely with copper; the coins have the word Gujanfur on them, the name I suppose of some emblematic animal. I was however unable to find out its meaning.

(66.) The Kunjūtis appear always to get the better of the Khirghiz, having taken possession of the huts of the latter near Lungar, &c.; this superiority no doubt is due to their greater intelligence.

They appear to be a much more warlike set than their neighbours in Gilgit and little Tibet. I understand there is some distinction between the men of Hunza and those of Nagar, though only separated by a river; the Nagaris are said to be the milder set of the two. The troops of the Maharaja of Kashmir have over-run Gilgit, but I believe no serious attempt has been made by them to subdue Kunjūt even as far as the part South of the Mustagh is concerned, and yet the route from Gilgit up the river must be a tolerably easy one. The reason why the Kunjūtis have been let alone is no doubt the knowledge that they would be a tough enemy to subdue, and a very difficult people to hold in subjection. They have at times given a good deal of trouble on the borders of the Maharaja's territory, and had it been easy to bring them into subjection it would no doubt have been done long ago.

(67.) The limits of the area which the Kunjūtis can occupy are now pretty well defined, and they cannot well have more than 9,000 square miles, more than half of this area must however be uninhabitable, owing to its great elevation, including as it does some of the highest peaks on the

globe, ranging from 20,000 to 28,300 feet above the sea, with many enormous glaciers ranging in length from 10 to 32 miles, forming in one place a continuous mass of ice 64 miles in length, the largest glaciers in fact known out of the arctic regions. The Survey operations have given the positions of all these peaks, and enabled us to determine that of Hunza-Nagar itself to be in latitude 36° 15′ and longitude 74° 43′, which is probably correct within 2 or 3 minutes. The Hunza-Nagar valley is a high one, though the towns are probably not above 6,000 or 7,000 feet. The people are said to have but little cultivation, and to live chiefly on meat and dried fruit. The farther elucidation of the history of this remarkable tribe is a desideratum as they seem to differ from all others around them.

(68.) The valley of Sirikul, or Sirikol as the Mirza pronounces it, has hitherto been only known by hearsay; it is apparently a fine valley, quite walled in with mountains, and having little more than a gigantic chasm, viz., the Tangitár, for the exit of its river.

In my first memorandum as to the position of Yarkund, I stated that Sirikul was supposed to be the stronghold of Afrasiab; the Mirza heard the same story, and the great extent of its ruined stone fort Tashkurgan, proves it to have been a place of importance, possibly as a refuge in case of disaster. If was not ascertained whether the builder of the fort was the actual conqueror of Persia or one of his descendants, Afrasiab being a family name it is of course doubtful.

(69.) Of the countries bordering on the Mirza's route, various pieces of information were collected. Kafiristan seems to be in much the same state as at the beginning of the century, they being still independent, and apparently not diminished in numbers, though their children are much sought after as slaves. The number taken away cannot therefore be very large. The Siya-posh Kafirs are said to be troublesome on some of the roads.

(70.) Mustooch and Chitral evidently have a tolerably easy communication with Badukshan, as the Mir of the latter manages to extract an annual tribute from the chief of Mustooch. The road from Mustooch to Chitral is said to be a good one. The Mirza's work clears up several obscure points as to the route between Chitral and Pamir. The Mirza was unable to go by Kolab towards Kokan owing to the road being in the hands of the Aliman Khirghiz; this, however, was supposed to be merely a temporary interruption. Various routes were noted as branching off towards the Karakul lake and Kokan. The Mirza did not hear much about Yasseen, though several routes to it were pointed out, which explains the general run of the mountains between it and Wakhan, &c.

(71.) As to Pamir it appears to be an elevated tract of country broken by rounded hillocks, which rise but little above the lowest ground. The Mirza thinks the word Pamir is derived from the Turkish word Pa (belongs) and Mir (chief), implying that it belongs to the chief of Badukshan. He says that he never heard the term Bam-i-Dunya applied to it, though he thinks that it may have been used figuratively. Bamian however, he says, he understands is a corruption of Bam-i-Dunya. Various allusions are made to the Alai valley or steppe occupied by the Alai Khirghiz, which will assist in defining the valley.

(72.) The Khirghiz hordes seem to be very numerous, and still adhere to a nomadic life, their occupation of Sirikul is probably only temporary, as the Mirza says they detest being tied down to any one place, and are very unwilling to undergo the drudgery of agriculture. Probably when they have consumed all the stores of the exiled people of Sirikul they will abandon it. The men take temporary service with the Kashgar, Kokan and Badukshan Chiefs, but they are not willing to submit to much discipline, and change from one party to another without the least hesitation. The Khirghiz have large herds of Horses, Camels, Cattle, Yaks, Sheep, &c.

(73.) The Mirza got some information as to the routes to the Russian frontier, which were given to him by various individuals. The height of the hills to the North of Kashgar towards Artush, &c., does not seem to have impressed him much. Routes were also got towards Aksu, China proper, &c. Some of these will be given in the Appendix.

(74.) Both at Kashgar and Yarkund he heard of the great forest or jungle which begins 3 or 4 marches East of Kashgar and N. East of Yarkund. The jungle is said to be very ex-

tensive and very heavy, so much so that single men are in great danger from wild animals. The animals are probably wolves, and leopards, but the men questioned by Mirza declared that tigers were numerous, and the description given of them was unmistakeable. Tigers I understand have been seen in other parts of Central Asia, so it is perhaps possible.

(75.) The most able man in the Atalik Ghazi's service is probably Mohammed Yunas (Jonas), the Governor of Yarkund, he is better educated than any of the others; and is, indeed, the only man upon whom the Atalik implicitly relies. His education may easily be better than that of any other, for the Mirza says that there is no one about the Atalik that can even keep accounts, the government of the country dispensing with accounts altogether.

(76.) The Jemadar, Nubbi Buksh, is a remarkable man, but the Atalik does not entirely rely upon him. He is I believe the same man that Abdul Majeed saw at Kokan, who was known there as the Lahore Jemadar, and was much thought of, holding a large command in the Kokan service. This man's history is curious, he started in life as an ordinary gunner in the Sikh service, and after the defeat and breaking up of the Khalsa Army, his fortunes seem to have fallen to a very low ebb. He at last got service in the Peshawur Magazine as a classie, probably on Rs. 5 or 6 per mensem. In 1855, on the Mirza's recommendation, he went to Kokan, and from that time his rise appears to have been very rapid, as in 1861 Abdul Majeed found him in high command at Kokan. The Jemadar must be an able man, otherwise he would not have succeeded in holding his own so long. He appears to have been very ungrateful to the Mirza, and was evidently much annoyed at his arrival; this, as far as I can gather, was in a great measure owing to his thinking that the Mirza would tell everybody as to his low origin.

(77.) There were several Hindustanis, and a good many Affghans, who seem to be held in considerable repute as soldiers. These probably include a few of the Mutineers of 1857, but I should doubt there being many of the same stamp as the Jemadar among the Hindustanis.

The Mirza did not think that any others of the Atalik's officials were in any way remarkable. The Atalik appeared to be very self-reliant, acting almost always on his own judgment, and seldom consulting any one but the Governor of Yarkund.

(78.) We have been told that the people of Yarkund are well educated, but it is only in a very restricted sense that they can be considered to be so. The Moolahs apparently only teach the boys to learn to read and repeat from books by heart; the Mirza says they none of them understand beyond a few words of the Persian or Arabic in which the few books read by them are written. They repeat like parrots the Koran, &c., without understanding any of it. Figures and accounts are utterly unknown among them, the Atalik's accountant having to count by means of beads.

(79.) The Mirza noted the size of the rivers between Kashgar and the Karakoram, the Yarkund or Boi river appears to be the largest, evidently drains a great area, and it is a puzzle to think what can become of its great body of water. Flowing rapidly past Yarkund, which is only about 4000 feet above the sea, it must very soon get pretty close to the level of the sea, and there is evidently no chance of its getting out of Asia into the sea. It would be a great thing to get this question solved satisfactorily, and a further attempt will be made to do so.

(80.) That the country to the East is very dry seems to be established by the constantly hazy atmosphere. This haze was noticed by Mr. Johnson, it increases with a strong East wind to such an extent as to make it dark at mid-day. A country subject to such a perpetual fall of dust is a curious fact, and certainly points to a large dry desert tract.

(81.) The expulsion of the Chinese seems to have put an end to all traffic with China proper, and the Atalik's quarrel with the Kokan Government seems to have checked the trade with Russia, consequently it would appear that there is at present a better chance for the introduction of British goods and Indian Tea than there has ever been before.

(82.) The Mirza's Route Survey extends from Sukkur to Khelat, from thence to Candahar and Caubul, a distance of about 950 miles, but as this is not new ground, and Route Surveys of it were I believe made formerly, it is not given in detail here.

(83.) From Caubul to Punja and Wakhan and thence to Kashgar and Yarkund the length of his Route Survey is 1,042 miles, this portion is tested by 48 latitude observations at 14 places. About 350 miles of this portion is entirely new ground, and consequently forms the most valuable portion. In addition the Mirza did 187 miles from Yarkund to Shahdula (Suget). The total Route Survey being 2,179 miles. The height of 28 points have been determined by boiling point observations between Caubul and Kashgar, giving a good general idea of the comparative height of the mountains and country traversed.

(84.) The new portion of his Route Survey between Punja and Kashgar, Yarkund, &c., accounts approximately for the geography about 18,000 square miles of hitherto totally unexplored country, and the portion between Caubul and Punja clears up a number of obscure points in the travels of Wood, Abdul Majeed, and other travellers.

(85.) Considering that the Mirza entered Afghanistan when it was in utter confusion, that he was consequently much delayed in carrying out his instructions, that he made his journey from Badukshan to Kashgar in mid-winter over the highest mountains in the world, it is highly creditable to the Mirza that he has done so well. The credit is the greater as Kasghar could hardly be considered in a settled state, Sirikul the first district of Kashgar met with having only been annexed within a few days of the Mirza's arrival, he having actually met the Ex-Ruler of Sirikul to the West of the Pamir flying from the Ataliks' troops. The discretion of the Mirza seems to be established by the fact of his having made his way through such difficult countries when in such a disturbed state.

As the Mirza has in such a large measure carried out the instructions given to him, I am glad to be able to bear testimony to his good service.

T. G. MONTGOMERIE, MAJOR, R.E.,
Great Trigonometrical Survey.

13*th November*, 1870.

NARRATIVE REPORT

OF

An Exploration of the Route from Caubul to Kashgar in Eastern Turkestan. Drawn up from the original journals, &c., by MAJOR T. G. MONTGOMERIE, R.E., in charge of the Trans-Himalayan Exploring Parties.

The explorer, who will be designated in this report as the Mirza, had been directed to carry on an exploration in Central Asia. He started in the autumn of 1867, and tried to pass into Badukshán from Peshawur by the Chitrál valley, but failed to do so. He then tried to get letters to the rulers of Caubul and Kokan, but did not succeed. He then attempted to go to Caubul by the Koorum valley, but was unsuccessful. Subsequently he resolved to try the route by the northern valley of Bungush, so as to turn the Koorum valley, but owing to the unsettled state of the country, falls of snow, &c., could not carry out his intentions, and was glad to escape out of the hands of the lawless inhabitants of that valley. The Mirza then made his way farther south down the Indus to Dehra Ismail Khan, and tried to get into Afghanistan by the Kakar valley, but could not do so; he then passed on to Dehra Ghazi Khan, and there, despairing of success, he sold his baggage animals and proceeded by steamer to Sukkur in order to try the Bolan Pass, here he again failed; and after waiting some time he at last decided to go to Khelat by the Málá Pass with a view to penetrate into Afghanistan from that town. After a march of about 244 miles he succeeded in reaching Khelat. One of the chief reasons for the Mirza's failure, in crossing by one of the passes between Peshawur and the Bolan Pass, was the unsettled state of Afghanistan, which rendered the passes more than usually dangerous.

(2.) At Khelat fresh news came in, and the Mirza thought that his best chance was to push on to Candahar at once, so as to get through the intermediate country before the road got into a worse state. Fortunately he recognized a man from Candahar who had brought down some merchandize, and was now about to return; by hiring this man's donkeys and promising a present, the owner agreed to take the Mirza quietly into Candahar, and he accordingly went with the man. On the road they met various deserters from Mohamad Azim Khan's army, who said that the army had been completely routed at Girisk, and that Candahar had been evacuated without firing a shot. On entering Candahar, in May 1868, the above news proved to be true, and the Mirza at once sent off a messenger (Kossid) to India with the news. Though Candahar was still in great confusion the Mirza was well received by the temporary ruler. But he was anxious as to his onward journey, as the route which he had intended to try was in a worse state than ever, and it was some time before he could devise any feasible plan for getting into Central Asia. He attempted to send some of his property in advance to Caubul, but the bearer was seized near Guznee, and as some of the Mirza's papers were found on him, suspicion fell on the Mirza, and he was accused of being a spy, &c. Fortunately his explanation was accepted.

(3.) After some farther delay the Mirza was enabled to accompany the Amir Sher Ali's army, and was lucky enough to escape all the dangers of the Amir's advance, finally reaching Caubul about the end of May.

Though the Amir Sher Ali's authority was re-established in Caubul, the Mirza found that his troubles were by no means at an end, the country round about being in a very disturbed state. Owing to the suspicions of various people at Caubul, and jealousies arising from different causes, the Mirza found he could make no arrangements in the city of Caubul for his farther advance into Central Asia. He consequently withdrew from the city and put up in one of the neighbouring villages, there he was enabled to complete his arrangements, and finally started for Badukshan on the 10th of October, 1868.

(4.) According to the Mirza's account, the city of Caubul was in anything but a flourishing state. The main bazar, the best in the city being formed by double storied-houses cemented with mud. This bazar was the one which was destroyed by the force under Generals Pollock and Nott before the British Army evacuated that place. It does not seem to have been rebuilt as substantially as it was prior to 1842. The city generally was in a filthy condition, not pleasant either to the nose or to the eye. Travelling in disguise the Mirza took the well-known road from Caubul to Bamian, crossing the Pugman mountains by the Gardan-i-diwar, or Unai Pass, and the Hindoo-Koosh Range by the Hajiguk Pass, 12,200 feet above the sea. Though with an ordinary Kafila he was very nearly being sent back to Caubul, but the frontier guards were eventually passed with the assistance of a few presents. He found the Helmund river to be about 40 yards wide, and flowing easily at the point he crossed.

(5.) From Bamiān the Mirza made his way to Khulm-Tashkurgan. The Kafila fell in with some portion of Azim Khan's troops, but managed to keep out of their way; but farther on they fell into the hands of robbers, who wounded two Hindoos and carried off a considerable amount of goods and animals, apparently with the connivance of the commandant of the fort near which the Kafila had halted for the night.

(6.) The country passed through was very fertile. The inhabitants own large herds of horses and cattle, flocks of sheep, &c.: every village boasts of a well stocked orchard.

(7.) The Mirza was very glad to arrive safe at Khulm as he was greatly afraid that if he had fallen into the hands of Azim Khan's troops he might have suffered as a supposed friend of Amir Sher Ali. The extent of the ruins of old Khulm seem to have struck the Mirza very much. The Khulm bazar was filled with the wildest reports as to the Afghans, and as to the progress of the Russians.

(8.) The river Oxus is said to be visible from the top of the Khulm fort, called Tashkurgan, the river being about 20 miles to the north.

(9.) The inhabitants of the country between Caubul and Khulm are mostly Shiá Mohammedans, looking to Agar Khan of Bombay as their spiritual guide; they are a very lawless race, and much addicted to high-way robbery. Slavery is common in that country and in the whole of the Hazara Territory. Agar Khan is said to be a pensioner of the British Government: he is a Persian. His influence is said to be very great between Caubul and Khulm, as also in Badúkshan, Wúkhán, Chitrál, Kunjút, Kúshgár and Yarkund. In order to maintain his influence he sends his agents from time to time to travel through those countries. Tashkurgan (stone fort) is about 3 miles in circumference; it has weak mud walls without any ditch, but is considered quite strong enough to resist any sudden incursion of the Alimán Khirgiz tribe, who sometimes penetrate into the country. The town is regularly built and is intersected by small canals: the population is composed chiefly of Ozbucks, Tájaks and Caubulies, all wearing large quilted chogas, turbans and boots. A good many shops are kept by Hindoos, who appear to have a large share in the trade of Bokhara, Kokan, Kundúz and Badukshán. There are regular market days every week.

(10). At Tashkurgan the Mirza fell in with a traveller in Asiatic dress, who the Natives all considered to be a European, the Mirza was inclined to agree with them judging by the man's complexion, figure, &c., and was very nearly confiding his story to him, but as the conversation began in Persian the Mirza was able to judge as to the stranger's command of that language, and as the man made use of the guttural letter "ghain" with as much correctness as a native, the Mirza determined not to trust him, knowing that very few Europeans ever succeed in quite mastering the proper sound of that letter. From what he heard afterwards, there was very little doubt but that this individual had been sent to try and find out what the Mirza's business really was.

(11.) The Mirza was fortunate enough to hear of a large Kafila that was going to Kundúz, with an escort of about 150 horsemen. The escort seemed to be in great dread of the Alimán Khirgiz, and according to the Mirza would have been of very little use in case of a real attack. From Kundúz the Kafila went on to Talakhan, passing Khanabad, which is said to be as healthy as Kunduz is notoriously unhealthy. The ruins around Khanabad showed that it had formerly been a large place. Rostak was the next place of importance, the Kokcha river being crossed on the road to it. This river has a rapid stream, and was crossed by the men on rafts, the baggage animals swimming. A more direct road runs from Talakhan to Faizabad to the south of the Mirza's route, but he could not follow it owing to the disturbed state of the country. Whilst at Rostak the Mirza made inquiries as to the route to Kokhan *viâ* Koláb and Karratagtim, which he had been directed to follow. His host, to whom he had been recommended, said that the route was quite unsafe owing to the general disturbance of Turkestan, and more especially to the incursions of the Alimán Lokhai Khirghiz, who had lately revolted against the authority of the Meer of Koláb. The Mirza at first doubted the accounts given as they were largely mixed up with wild rumours about the Russians, but soon after he arrived a number of brood mares, colts, camels, sheep, &c., which had been taken from the Alimán tribe were brought in and put up for sale, and so he thought it was necessary to wait till better news arrived; in the meantime a heavy fall of snow occurred and closed the Koláb route altogether, and the Mirza had consequently to abandon his intention of following it.

(12.) On the 10th of December the Mirza left Rostak during a heavy fall of snow. Snow continued to fall, or at any rate to cover the ground all the way to the city of Faizabad, that is for four marches; this added very much to the difficulties of the Kafila, and their progress was consequently very slow. The Mirza's men began to grumble and hinted that they would go no farther with him, &c.

(13.) Faizabad is the capital of Badukshán; it runs for about a mile along the right bank of the Kokcha river, and is nowhere more than half a mile in breadth; it has no walls and its inhabitants are chiefly Tájaks and Turks, but they have not got Tartar features. Here the Kokcha river has a rocky bed and a deep rapid stream. It has three sources, the 1st from the Hindoo-Koosh mountains above Zebak; 2nd, from the Jerm valley; and, 3rd, from the small lake of Bazghiran.

The combined stream falls into the river Oxus (the Amoo Darya) about 35 miles west of Rostak, at a place called Dast Tārā Tuppa. The trade in slaves is still very great in and around, Faizabad, the serais and houses being full of slave girls, who have mostly been procured from Chitral; horses and goods are given in exchange for them.

(14.) The inhabitants are skilful in smelting iron, and they send a number of cast-iron pots, pans, ornamented lamps &c., to the market.

(15.) The Mirza stayed at Faizabad a short time in order to take his observations, and at the same time to change his ponies, arrange as to guides, &c. His men were very unwilling to assist, the stories they heard as to the Khirghiz robbers and the cold of the Pamir Steppe making them very adverse to a further advance; the Mirza however persisted. He applied to the Meer or ruler of Badukshan for permission to go by Kolāb, but he refused to give it, as the road, though the snow had melted, was still very unsafe. The Meer, however, said he thought the Mirza might now be able to go by the Pamir Steppe, and if he wished to do so would recommend him to the protection of the Governors of Punja and Sirikul whilst in their territory. Hearing that the Khirghiz hordes had probably withdrawn from the Pamir Steppe the Mirza determined to accept the offer.

(16.) The present Meer of Badukshan, Shandar Shah, is about 40 years of age, he has decidedly Tartar features, with small eyes and a scanty beard. He is given to drinking, and allows his petty officials to do very much as they like: he is consequently unpopular.

(17.) The Mirza found that although he had the Meer's permission his difficulties as to starting were by no means at an end. Throughout his journey various individuals had pretended to be acquainted with him, to know what he was going to do, &c., and at Faizabad he had to quiet one man who threatened to denounce him as an infidel (Kafir) that was spying out the country for the Feringees, &c. This man was evidently in collusion with the Mirza's servants, and he only got rid of him by means of presents: then again no regular Kafila was going across the Pamir Steppe, and the Mirza was forced to make an arrangement with one Abdul Wahab, the son of a Kafila Bashi, or caravan leader.

(18.) After a great deal of delay and anxiety the Mirza succeeded in starting off his six servants with Abdul Wahab, who supplied six more men, including guides, making a total of twelve men. The party started in a snow-storm on the 24th of December, 1868, and followed the right bank of the Kokcha river. The road was very bad and mostly unfit for riding, but the country round about was very well cultivated and evidently fertile. After five marches they reached the small village of Zebak, from whence there is a road to Chitrál. This route is said to be dangerous on account of the inroads of Siyaposh Kafirs; but still a considerable traffic is carried on by this route between Badukshan and Chitrál. The Mirza heard a great many stories about the Siyaposh and other Kafir tribes, agreeing generally with the former accounts given of these strange people, who have succeeded in maintaining their independence in spite of their warlike neighbours in Afghanistan, &c. Though the children of the Syaposh Kafirs are in great demand as slaves, and many are carried off by force, whilst others are sold voluntarily, still the number of these people does not seem to have diminished, and it must be concluded that the percentage carried off is not very great. At Zebak the Mirza parted with his guides, as he found they were constantly trying to frighten his men with stories as to the dangers and difficulties of the road. Abdul Wahab, who he had made Kafila Bashi, said he could get on quite well with his own men, and the Mirza left Zebak on the 1st January, 1869.

After crossing a pass, and subsequently a river coming from the Chitral direction, he reached Aishkasim fort on the Punja or Upper Oxus river. Aishkasim may be considered to be the beginning of the Wākhān (or Wākāh), valley. The country round about is very fertile, and crowded with villages.

From Aishkasim to Punja the road was but a badly defined path, running up and down the intervening ridges, a route difficult in every way. Several villages were however met with, and the

party got over it without much difficulty, though suffering a good deal from the cold. The Upper Oxus river was frozen so hard that it could be crossed at any point. The river is said to be in this state from December to March, and during the rest of the year it is dangerous to ford. This latter circumstance is undoubtedly one of the main reasons on account of which the winter is often chosen by merchants for crossing from Badukshan to Kashgar, and *vice versâ*. The other cause, and possibly a more potent one, being that the snow and cold induces the Khirghiz hordes to remove their cattle and sheep to lower ground, and there is consequently less chance of a Kafila being plundered.

(19.) On his route to Punja the Mirza met Alif Beg, the ex.-ruler of Sirikul, who had just been driven out of his country by the forces of the Atalik Ghāzi of Kashgar. Alif Beg had with him about 50 of his most trustworthy servants and slaves. He himself was well clothed in furs, and mounted on a capital horse. He appeared to be much dejected by his misfortunes.

(20.) On his arrival at the Punja fort, the Mirza was taken before the son of the Meer of Wākhān, and on handing him the letter of the Meer of Badukshan, accompanied by a few presents, the Mirza was made welcome, and a promise was given as to assisting him across the Pamir Steppe.

(21.) Numerous inquiries were made about Hindustan, and the wonderful machines invented by the Feringees, as these people are in the habit of calling the English. In his report the Mirza here branches off into a long dissertation on the blessings and wonders introduced by the British Government. The people expressed great astonishment as to the steam engine, and from all they had heard were inclined to believe in it, but when the Mirza referred to the telegraph and said it could send news 200 miles (Kos) in half an hour (he did not like to say in a minute) they utterly declined to credit it. The Mirza's dissertation was frequently interrupted by the elders of the people, who spoke up for the power of the Russians. The Mirza, however, according to his own account, was able to prove to them that it was not very great as compared with that of the British.

(22.) Though the Meer of Punja promised to assist the party across the Steppe, and gave the necessary orders for 20 days' provisions and a guide to show the roads, it was no easy matter to make a start. It was absolutely necessary to bribe nearly every official that had access to the Meer. The Mirza was greatly puzzled to provide each of them with something without ruining himself; he at last succeeded in getting rid of them, and as he thought had nothing further to do, when a man arrived with a direct request from the Meer himself for a present. The Mirza, not wishing to part with the more valuable articles he had reserved for Kashgar, had to give up the white Peshawar loongi which he had been wearing, and was glad to get off with the addition of some tea. He had in fact to make a bargain with the Meer and each of his officials before he could get any one to move.

(23.) The fort of Punja is considered to be a place of importance. It stands on a rising ground on the left bank of the Punja (or Upper Oxus) river. It is by no means a strong place, and has only a garrison of about 200 men under Meer Futteh Ali Shah, who is the hereditary chief of Wākhān. His revenue is derived partly from land-tax and custom duties, but mostly from a tax on the slave trade, and on actual slave dealing on his own account.

(24.) As a preliminary the Mirza changed his tired and galled baggage horses for a similar number of hardy Punja ponies, which were much better able to stand the passage of the Pamir Steppe than the larger animals he had brought up from the Badukshan side.

Having completed his preparations the Mirza left Punja on the 8th of January, 1869, and marched on to Patoor, the last village of the Sarhad Wākhān or Wākhā valley. At Patoor it is necessary to purchase supplies for the onward route, not a thing being procurable for the next eight marches, whether the Kashgar or the Kokan route is taken; any neglect as to a proper supply of provisions is likely to be fatal. The road to Patoor was a bad one, running through a very narrow defile crossing the frozen Oxus several times during each day's march. In summer this route is said to be impassable. As far as Patoor, for 42 miles from Punja, the country though

not very fertile as to crops, is well peopled, and there is no difficulty about good halting places near villages. The extreme cold was the only hardship.

(25.) The Sarhad Wākhān valley is bounded on the north and south by high ranges of hills, and up as far as Patoor the lower slopes were still covered with flocks and herds.

Ten miles beyond Patoor, near Lungur, the high hills gradually close in and soon leave but a very narrow gap for the passage of the river; further on, the high northern hills merge into the comparatively low hills or knolls of the Pamir Steppe. The wealth of the Wākhān valley mostly lies in live stock in sheep, cows, goats, ponies and yaks,—the wool from these animals is worked up partly for domestic use, but mostly for export, being exchanged for other goods. The people all wear thick woollen chogas and trowsers, the cold being intense. Their houses are built of stone and mud with a flat roof. Each house has a large stove, or oven as the Mirza calls it, in one corner, in order to keep it warm, and this it does thoroughly. The houses are generally built touching one another.

The inhabitants of Wākhān are generally Shiá Mohamedans, looking to Agar Khan of Bombay as their spiritual guide. They are said to pay him annually one-tenth of their income. The Mirza says that they complain very much of their own chief's oppression.

(26.) On arrival at Patoor the Mirza's first care was to make sure of the services of the new guide, Peer Ali, who had been ordered by the Meer to take him across the Pamir Steppe; this he succeeded in doing by making the man a present of a good warm choga, and by giving his small son a handsome present in money. The Mirza then proceeded to lay in provisions to carry his party over the Pamir Steppe, nothing in the shape of butter (ghee) could be got, so he bargained for and bought some fat sheep of the doomba or large tailed kind; these he had killed, and the carcases were carried on the ponies just as they were, to be expended as required, the extreme cold being sufficient to prevent all anxiety as to the meat keeping. Some flour, and a few smaller things were added; a supply of dried fruits and sugar-candy, &c., had been laid in whilst in Badukshan. Every thing being ready the party resumed its journey on the 2nd of January, 1869, starting during a heavy snow-storm they trudged along up the Wākhān valley. The wind was so piercing even after the snow stopped that the men had frequently to get on the lea side of their horses, so as to keep it off a little. For the first three marches the path ran between a number of villages; the lower part of the river banks being covered with a dense growth of stunted willows, as the Mirza calls them, most probably the Myricaria. At the fourth halting place a road strikes off to Chitrál by Mustūch (or Mustuj).

(27.) Mustūch is said to be a valley draining into the Chitrál or Koonur river, the road to it from Wākhānis said to run for the most part through well peopled mountains. The route is a short one, being about 15 marches to Chitrál, and though much snow falls on the pass the traffic along the route is considerable. Mustūch lies to the south of Wākhān; it is nominally independent, but its chief has to send an annual tribute of slaves to Badukshan, a fact which shows that the communication between the two countries is tolerably good. At this same halting place a more direct road leads over the mountains to Lungur by what is called the Marpech, or zig-zag road.

The Mirza avoided the Marpech road, as it was pronounced to be very difficult and dangerous during the winter, though it is used in the summer when the road along the river is impassable owing to the floods. The Mirza pushed further on up the branch of the Oxus, for 4 miles; the path was either on the frozen river or on its bank passing through a very narrow ravine walled in on either side by stupendous and all but inaccessible mountains. These mountains were very imposing, being clad with snow almost down to the river, and leaving hardly 10 yards of level ground on either side. These mountains are not even fit for grazing in the summer; they are only noted for producing a breed of hawks or falcons which the hardy Wākhānis manage to catch among the cliffs. These hawks are much esteemed by the chiefs of Badukshan, Bokhara, &c. They are celebrated for their swiftness, and known by their white color. The Mirza saw a number of them on the hands of Shandar Shah's retainers the night he visited him at Faizabad.

(28.) Seven miles beyond the second Patoor the party halted, and were forced to sleep on the snow. Fires were made with wood from the low jungle, but a fall of snow soon put them out, and the party consequently spent a very miserable night.

(29.) The real difficulties of marching across the Pamir Steppe may be said to commence on the fourth day beyond Punja; the marches are long, and there is no shelter of any kind to be got except the dry stone walls, which previous travellers have run up in order to keep off the piercing wind. On the sixth evening the party arrived at the halting place called Lungur from whence a road strikes off to the Kunjūt or Hunza territory, which lies to the south-east. Lungur is considered to be the beginning of the Pamir Steppe, the halting place has the usual dry stone walls, but they unfortunately had been taken possession of by the camp of an agent or Vakeel of Shandar Shah's, who was going on some business to Kunjūt. Seeing that the only shelter available was occupied, the Mirza only stopped a few hours at Lungur to collect fuel for the forward march. Having laden their ponies heavily, they started on again, but were not able to make much progress before evening; they halted near an isolated rock which afforded a little shelter from the wind. The whole party on arrival suffered a good deal from "Dum," as the Mirza calls it, *i. e.*, shortness of breath, &c., the usual effect at great altitudes. The natives generally consider this to be caused by a noxious wind: some of the men became nearly insensible, but soon got over it when they had eaten a little dried fruit and sugar, which the Mirza served out as soon as he saw the state of affairs. The night spent at this sixth halting place was a miserable one, owing to a fall of snow, and in the morning the men literally rose out of a bed of snow. The great cold had made both the men and ponies very sluggish, and the horses were several times affected by shortness of breath, the Wākhānis however soon relieved them by bleeding at the nose. The next march brought the party to the ruins of what had formerly been Khirghiz huts, which had been abandoned in consequence of incursions made by Kunjūti robbers. From this point there is a good road to Gilgit and Kunjūt. The night at this halting place was if any thing more trying than the last. The next morning they started early, and relying on Abdul Wahab's two young men they trudged along for 9 miles, and were then suddenly brought to a stand still owing to their having lost the track which had been obliterated by the fresh snow.

(30.) The mountains from Lungar had sloped off into rounded hillocks, and generally became so open that the travellers were not at all certain as to the route they ought to take. The party now found themselves in an open valley some 4 or 5 miles wide, in it the Mirza made out a small frozen lake, which he estimated to be about 2 or 3 miles in length, but owing to the snow it was of course difficult to decide exactly as to where the lake ceased and the land began; a frozen stream issued from the western end, being in fact one of the sources of the Punja branch of the Oxus. The small valley was bounded on the north and south by craggy hills, rising up suddenly from the level ground. These hills are the summer haunts of both the Kirghiz and the Kunjūti robbers, who have temporary huts concealed in various places. It was a great trial to the party to be in doubt about their road in such weather and in such a desolate place, the men scattered to search for the track but the fresh snow made it a difficult task. The men's boots, made of thin spongy leather, had sucked up the moisture and then had frozen, thus making all walking about very trying. The day advanced without their finding the path, and the men were getting disheartened, when Abdul Wahab, who had been dubbed Kafila Bashi, said that if the Mirza and his people would sit still and rest, he would make one more try with the guide and his assistant. Though rather apprehensive, the Mirza thought their only chance was to trust to them, so he and his servants remained behind. The men were away for a long time, and the Mirza thought that his party had been left to their fate, his anxiety lasted till late in the evening, when the Kafila Bashi, much to his relief, came back with the cheering intelligence that he had found traces of the path running along the north margin of the lake. He directed the party accordingly, and they went on 2 miles further, and there halted for the night. The Mirza's men had by this time got rather mutinous, and began to murmur when told to light a fire and make the usual preparations: one of them

became so impertinent that the Mirza had to use his stick, a process which fortunately soon brought the others to reason. By the time it got dark a large fire was lighted and the men were just beginning to get a little warmed, when they heard a wild yell in the direction of the lake, making sure that it must come from a band of robbers, who though generally absent from the Pamir in the winter, do sometimes visit it even at that time. The party perpared for the worst, putting out their fire at once, and then shifting their camping place into a neighbouring hollow, whilst the men shouldered their matchlocks in anticipation of an attack. After waiting for a short time two men were sent off to try and make out the cause of alarm, they soon returned with the reassuring news that it was only some of the mounted men of the Badukshan Vakil who were passing on towards Kunjūt. Though much relieved it was too late to think of lighting another fire, and the men had to lay down in the snow, passing another wretched night. The party marched on again the next morning as soon as they could see. For about 3 miles the track appeared to run along a frozen stream that issued from the east side of the lake, and to flow in an easterly direction: owing to the snow the Mirza is not quite certain of this, though positive that there was at any rate no perceptible rise to the east of the lake. Day-light enabling the Mirza to look about him, he saw that he had at last reached the crest of the Pamir table land, or at any rate of that portion called Pamir Khurd (little), which is the name of this part of Pamir. The guides said the name of the lake was Pamir-Kul, sometimes called Barkūt Yassian, after the halting place near the lake. The mountains close at hand were comparatively not very high, but further to the north higher peaks were visible, as also to the south in the direction of Yassin and Kunjūt, but the path itself passed out between endless hillocks, and at times there was literally nothing to guide the eye as to which line to take.

(31.) The Mirza was now on the back bone or watershed of Asia, the streams to the west flowing into the sea of Aral, and those to the east into the Yarkund river, and finally into that remarkable depression in the centre of Asia, called Gobi or Lob Nor. He was now at an elevation of about 13,300 feet above the sea. The scene, according to his account, was the most desolate that he ever saw, not a sign of man, beast, or bird, the whole country being covered with a mantle of snow. Though the Mirza and his men were all well supplied with warm clothing, their bodies being encased in woollen chogas, and sheepskin posteens or coats, their heads in fur caps, and their feet in two pairs of long woollen stockings, and their boots filled with wool, they nevertheless felt the cold very much. The Mirza, indeed, says that, the intenseness of the cold was extreme whenever the wind blew, and that they then felt as if they were going to lose their extremities, the glare from the snow was very trying to the eyes, all suffering from snow blindness; their breath froze on their moustaches, and every one moreover had to walk in order to keep some warmth in the body. The ponies were in a wretched state, for the last few days the poor beasts had to go without water, and to quench their thirst by licking the snow. After a most toilsome march of about 20 miles, the Kafila Bashi chose a halting place near a frozen pool, hoping to get water out of it both for the men and the ponies, but when a hole was broken in the ice the ponies could not be induced to drink at it, and they had to take to the snow again. Soon after they halted, a furious storm of wind set in, and prevented the party from lighting their usual fire, and they could not even make their tea or cook their food, and consequently spent another very wretched night, the Mirza with his head on his saddle was just getting off to sleep when he was roused by the two guides from Punja who came to ask leave to return and to beg for a present. The Mirza remonstrated against their untimely demand, but they said they could be of no further use as they were now beyond the limits of Wākhūn, and they could neither act as guides or guard. After consulting the Kafila Bashi the Mirza paid the men up and let them go, as the Kafila Bashi said he now had no doubt as to the onward route.

(32.) The next morning the party followed the Kafila Bashi down the stream, which was now of some size and clearly flowing eastward into Turkestan, they then ascended to the crest of a low spur from which they had a good view over the great expanse of the Pamir Steppe, which appeared

to be a sea of low rounded hills one behind the other, but nowhere rising to any great height above the more level ground. Descending from this commanding point, called Aktāsh, or white stone, they encamped near the stream. This last march had been a great improvement on the former one, the snow had retired further and further from the track, and they saw signs of animal life in the shape of a herd of some kind of deer which crossed the path: these deer and other game are said to be very numerous in summer. The next day the party again followed down the stream, which was now hemmed in by cliffs on either side, they encamped in a low willow (Myricaria) jungle and were able to get both wood and grass, and to make themselves and their ponies tolerably comfortable again. The next day after marching 3 miles they caught sight of the fertile valley of Sirikul, and pushing on were soon under the walls of the Tashkurgān fort, having spent 12 miserable days between it and Punja.

(33.) The party pulled up near a deserted house; they had hardly settled themselves when a number of the Atalik Ghazi's Kirghiz soldiers came and joined them, with a view to find out who the Mirza was, when told that he was a merchant going to Kashgar they evidently did not believe the story and soon afterwards went away; some Dogras then came up, and the Mirza found that they were sepoys of the Kashmir Maharaja's army who had been captured in Gilgit, and were now kept as slaves. These poor men pretended that they wanted to buy something from the Mirza, but there real object was to see if he could in any way assist them or give them news of their own country. The Mirza could of course do nothing for them, beyond giving them a present of some dried fruit to eat and some tea to drink.

(34.) Late in the evening the Mirza was summoned by the Governor of Sirikul, and he accordingly went with the Kafila Bashi to the fort, he found the ramparts and bastions all in ruins, and after tumbling about in a rugged narrow passage, he was ushered into a very small dark room, here he had to wait for some time in no little apprehension as to what was to be the result of this visit. At last the Governor came in with lights, and the Mirza found himself in the presence of a hale man of about 60. After the usual compliments and the discussion of tea with very hard wheat flour cakes, the Governor proceeded to ask a few questions, and having heard the Mirza's story he said he would like to have all the Mirza's Khurjins, or packages of merchandize, opened in his presence, so that he might see what the nature of his goods was. The Mirza was greatly alarmed at this request lest his concealed instruments should be found out in the search. He had fortunately brought some presents with him to the fort, and he at once proceeded to offer them to the Governor, saying that they were specimens of his goods for his acceptance, and that he hoped he would not have the whole of his packages opened out as he wished to dispose of their contents in Kashgar, where he was taking some things, for his friend Nubbi Buksh, a Jemadar in the Atalik's service. The presents, and the fact that Nubbi Buksh was in great favor with the Atalik for his military services, made the Governor decide to forego a search; after consideration the Governor, who is a brother of the Atalik, said that he would allow the Mirza to go on to Kashgar under the escort of a Kirghiz chief called Abdul Rahman, but in spite of all remonstrances he would not allow the Mirza to go by himself, still having suspicions as to his real business. With this order as to escort, and the return present of a poor choga, the Governor dismissed the Mirza, who went back to his quarters in great anxiety, for though his assertion as to the Jemadar Nubbi Buksh having been his friend was true, he by no means felt certain that the man would stand by him, though he was under some obligations to the Mirza. Nubbi Buksh, now Jemadar in the Atalik's service, is a Punjabi from Sealkote, who had formerly served as a Gunner in the Sikh army, and subsequently as a classie in the Peshawur Magazine. In 1855, when out of employ, the Mirza had recommended Nubbi Buksh for service with the Shahzada Sultan, a Vakeel from Kokhan then in Peshawur, who the Mirza had been directed by Sir Herbert Edwardes to accompany to Kokhan. The Mirza did not make his way to Kokhan owing to various reasons of little interest now. Nubbi Buksh however went on to Kokhan with Shahzada Sultan, and in the various disturbances and changes that had occurred in that

troubled country had finally risen to be chief of the Artillery, and a trusted supporter of the Atalik Ghazi, the new ruler of Eastern Turkestan. Though the Mirza had in a measure assisted Nubbi Buksh to his present position he by no means felt sure that he would be grateful enough to help him in the objects of his journey, it was however his only hope, and there was nothing for it but to trust to chance and the man's good nature.

(35.) Sirikul is a valley bounded on the north by the Chickhik-Dawan mountains, on the east by the rugged chain called Kāndār, on the south and west by the last spurs of the Pamir mountains. The level ground runs from west to east for 30 or 40 miles with a breadth of 12 to 18 miles, in the centre stands the old fort of Tashkurgān, a celebrated place now in ruins, said to to have been built by Afrasiab, the conqueror of Persia, as a safe place to deposit his treasure, which is still supposed to be buried within the limits of the fort. The fort formed an oblong about 1 mile in length by ¼ of a mile in breadth, the towers and ramparts of rough stone, were all in a ruined state, and the houses inside were mostly unroofed. Tashkurgān commands the roads from Badukshan and Chitral to Kokhān, Yarkund, and Kashgar, and is still considered a place of importance, the more especially as it gives a control over one of the chief outlets used by the robber hordes of Kunjūt when they issue from their narrow glens.

(36.) The valley is watered by the Sirikul river, the main branch of which is said to come from the direction of the Karakul lake, or from the lake itself. It is joined by the stream on which Tashkurgān stands, about 5 miles to the north of the fort, and some 30 miles farther down by the Kunjūt river at a place called Charsuton, and a little farther on by the river which drains the northern face of the Karakoram mountains; the combined stream forming the great Yarkund river.

(37.) Sirikul, when the Mirza entered it, had been deserted by the greater part of its native population. The hereditary ruler of the country, Alif Beg, who the Mirza met near Punja flying to Badukshan, had left as the Atalik Ghazi's troops began to take possession; the Atalik Ghazi had directed all who were attached to Alif Beg's rule to be removed to Kashgar and Yarkund, and this included nearly every inhabitant; their place has been supplied by Kirghiz, who seemed to like the change. The former inhabitants were of the Tāj race, a tall, strong built set with good features and fair complexions.

(38.) The valley is elevated, Tushkurgān being 11,000 feet above the sea, it produces wheat, indian corn, &c., which are said to grow well. The whole valley is studded with small square forts, now held by the people of the Atalik Ghazi. The whole valley is well irrigated from its own rivers.

(39.) On the 27th January, 1869, the Mirza resumed his march towards Kashgar. He had hardly roused himself when a mounted Kirghiz Sowar rode up and desired him to pack up quickly in order to follow the Kirghiz chief Abdul Rahman, who had started two hours earlier. After giving the necessary orders, the Mirza paid up the Kafila Bashi Abdul Wahab, who had carried him safely over the trying Pamir Steppe, and finally adding a handsome present, in addition to the stipulated pay the Mirza took leave of him. This Abdul Wahab was a Tāj of (Kulm) Badukshan, though his home for the time being was in Yarkund. The Mirza found him very reliable. Having finished his packing, the Mirza and his men followed the Kirghiz Sowar with anything but pleasant thoughts, marching northwards for two miles, they came to a deserted fort, inside which the houses were filled with every sort of grain without a single man to look after it. The moment he got there the Kirghiz dismounted and proceeded to help himself, and recommended the Mirza's men to do the same, as they would get no grain from the Kirghiz encampments during the onward march. The men consequently put a supply on their horses and then went on again following the Kirghiz. At five miles from Tashkurgān, the path crossed the main branch of the Sirikul river flowing from the west, though fifty paces wide the stream was frozen hard. Up-stream the flat part of the valley appeared to be very narrow, while to the east it was broad and open, evidently very fertile and extending for a long way down the stream.

(40.) After crossing the main stream on the ice, the party followed its bank for about five miles more, the road running through swampy ground, five miles farther on they passed a deserted

Kirghiz village, the houses of which all had dome-shaped roofs, near this place the Kirghiz chief Abdul Rahman had taken shelter in the tent of one his horde. The tent was of the usual Kirghiz kind, called Kappa, made with a portable wooden frame covered with felts, a comfortable enough protection in the winter, but not well adapted for resisting rain, which it lets in at every angle.

On reaching the door of the tent the Mirza was met by Abdul Rahman, and then was taken in and seated alongside of him, the people inside all rising as they went in; after exchanging a few civilities food was brought in, and the Mirza was asked to share it, at first he was very reluctant to do so, it consisted of a sheep boiled whole, which was laid on a dirty cloth and then hacked into pieces with knives, and served out in wooden plates with a share of the broth to each. Hunger however soon conquered the Mirza's scruples, when he reflected that he should get no better food for the next ten days, and he had nothing for it but to eat what was before him.

(41.) Abdul Rahman was of pure Kirghiz breed, a square strong built man with a round head, and small blue eyes, without eyebrows, broad flat nostrils and a little stunted hair for a moustache above a bare projecting chin; fortunately he was good natured and anxious to be as kind to the Mirza as he could, he was the chief of a large horde; and said to be able to muster about 3,000 armed horsemen. He and his horde owned great numbers of sheep, goats, yaks, horses, and double humped camels, which are grazed in different places according to the season going wherever the grass is best. The Kirghiz men and women both wear loose woollen chogas and trowsers with high thin leather boots. The men are ugly, the women somewhat better looking. They are Mahommedans, but not rigid observers of that religion. Snow fell all night, but the tent was so comfortable that the Mirza did not wake till the call for morning prayer was given, he then found the Kirghiz men all sitting round the fire sipping gruel made with flour, they offered him a share, but he was not hungry enough to try it. The chief rode on ahead and left a man to guide the Mirza.

This man was rather a clog on the Mirza's observations, however he managed to take what was required at odd times, when the man was ahead and not looking. Soon after starting they commenced the ascent of the formidable Chichik-Dawan pass, after toiling for 11 miles up the snowy slope, by a path which was only fit for goats, they at last gained the summit. The Kirghiz had beaten down a path in the snow, yet two of the chief's horses fell down and were killed. The Mirza's ponies were fortunately very strong, and managed to scramble up, though much tried by their struggles. At the top they found a sort of table-land lying to the North, the elevation was very great and every one had difficulty in breathing, which the Mirza and his men tried to remedy by munching sugar-candy and dried fruit, a cure which had but little effect beyond keeping the men in good humour. The scene was a most desolate one, if possible even worse than that of the Pamir Steppe, some high peaks were visible to the North-west. After walking about a mile the path began to descend again so rapidly that every one had to slide over the snow on their hands and knees, &c.: the ponies got down with very great difficulty. After struggling for about 20 miles they found themselves at the bottom of the slope, it was then getting dark and they were much disappointed to find that the chief had gone 7 miles farther to a Kirghiz encampment; as there was no shelter at hand, there was nothing for it but to trudge on through the snow, which now began to stick to the feet, both of men and horses, making progress very difficult. After getting over about 3 miles they were startled by a man suddenly appearing, fortunately it was only a guide left by the chief, at the same time one of the Mirza's ponies kicked off its load and ran away, and the party had to divide its load and carry most of the things on their own backs; it was not till near midnight when they reached the encampment. The chief welcomed the Mirza and regretted that the march had been so trying, and then gave the party some tea and gruel, the only food that could be got at that hour. Several of the men missed the road, and spent the night in the snow, fortunately they all turned up in the morning, and the lost horse was found in the encampment.

(42.) The Mirza's men had got very mutinous, and he had the greatest difficulty in keeping them quiet. The encampment boasted of few tents, the place not being a very pleasant one, the only fuel moreover being green twigs from small bushes which produced a pungent smoke that made the

Mirza's eyes ache without warming him. After a miserably cold night the party marched on down the steep ravine, and after going 5 miles were delighted to find themselves in a low jungle where the chief decided to call a halt, so that the half frozen men and horses might recover themselves after their fatigue and exposure. The chief at the same time having an eye to collect his tribute from the Kirghiz who were pitched round about. The party had not yet got away from the snow which covered the whole valley except on a few places near the ravine. Spite of the snow the slopes were dotted with numerous Kirghiz tents, the chief attraction evidently being the firewood and the grass which was got pretty easily as the snow was not deep.

(43). The Kirghiz inhabitants soon brought in their tribute, which they paid chiefly in sheep, camels, horses, butter and coarse woollen cloth, adding a couple of slaves who they had got in exchange for horses. These slaves turned out to be men of the Kashmir Maharaja's army who had been captured in Yassin or Gilgit. They appealed to the Mirza, bemoaning their fate and saying they saw no chance of escape. The Mirza could do nothing much as he pitied them, and indeed he could not help thinking that he might meet with a similar fate.

As soon as the chief had collected his tribute the party marched on again, the road and country being very much as on the previous day. At the 7th mile the stream which they had followed from the Chickik-Dawan diverged to the South to join the Yarkund river. The road turning to the North led up by a steep slope, then across tolerably level ground, and then descending again passing a domed house in ruins, called Chahilston, supposed to be on the boundary between Sirikul and Yarkund. Farther on there was a still steeper ascent to a ridge covered with huge masses of rock, then another descent, which finally after trudging for 23 miles, brought them in sight of a beautiful valley called "Keen," or the Bride, from its general fertility, being a wonderful contrast to the desolate barren track the party had just traversed. The sight of this valley with its easy slopes and stream of flowing water quite put the Mirza and his men into good spirits, and they looked forward to their chances at Kāshgār with less gloomy forebodings than they did whilst in a half frozen state. The country looked altogether more civilized, and the Kirghiz families passed were generally busy spinning wool or weaving.

(44). After leaving this valley the road turned to the North-east over a stony pass, enclosed by great cliffs, then down the ravine coming from the valley, crossing and recrossing the stream repeatedly until the men and horses were fairly tired out, their limbs being stiff with the cold and hard exercise they had been undergoing.

Whilst struggling through this ravine they passed a crowd of starving men, women and children, who had been brought as captives from Sirikul without either provisions or warm clothing, they were grubbing about to get something edible in the shape of roots and herbs. They were the adherents of Alif Beg, the ex-ruler of Sirikul, who they said had poisoned his mother and wives lest they should fall into the hands of the Atalik Ghazi. The whole formed such a miserable sight that the Mirza gave them as much as he could spare from his small stock of dry fruit and sugar, thinking, that as he was now getting into a civilized region, he might be able to buy more for his party.

(45.) The Kirghiz chief pushed on with unceasing energy, changing his horses at any Kirghiz tent where he chose to alight, in this way he always got over his marches in good time, while the Mirza's party on their tired ponies were left far behind with only one Kirghiz as a guide in attendance, an arrangement, which though uncomfortable, allowed the Mirza to take his bearings and make his notes, a proceeding which escaped notice except on one occasion, when the attendant Kirghiz rode up and asked the Mirza what he was looking at in his hand. A question which he managed to put off for the time and thought had been forgotten, but in the evening the chief said he would like to know what his man had seen him looking at, the Mirza said it was nothing but a Kibla namā (a compass), that pointed to Mecca, the chief said he would like to see it, and the Mirza got out a real Kibla namā, a poor one, made in Russia, and handed it over to the chief, as soon as it was shown a dozen of the wild Kirghiz crowded round to look

at it, and were astonished to see that it always pointed in the right direction, though professed Mahomedans they had never seen one. The chief begged to have it, and the Mirza as he had several with him made him a present of it, congratulating himself that he had saved his prismatic compass at so small a cost. The chief was immensely delighted with it, and seemed to be just as ignorant about it as his men.

(46.) At 28 miles from Keen, or 98 miles from Sirikul, the party got clear of the rugged country, and turning more to the East came upon a fort called Karāwal at the entrance of the Chichik-Dawan valley. This was a strong place, completely commanding the road, the ramparts being built on the edge of the cliffs in such a way as to appear inaccessible on all sides except by the Eastern and Western gates. The fort appeared to be about a mile in circumference, including a number of deserted houses, only a few being occupied by about 200 of the Atalik's troops, who seemed to be badly supplied, and had the credit of plundering every one that was without a pass from the Atalik or his officials.

(47.) Soon after passing Karāwul the hills receded to the West and South, opening out a distant view of the Kashgar and Yarkund territory. The Mirza following the stream for a time found himself in a fertile country, all but flat, covered with villages and forts each embedded in large orchards of fruit trees. Finally he crossed over the Yangi-Hissar river on the ice near the junction of the stream which their road had led them along; the river was about 100 paces in width and in the summer can only be crossed by the bridge.

(48.) Late in the evening the party entered the town of Yangi-Hissar, the Mirza was taken to a house and at once presented with a muslin turban and a pair of boots, when he objected to receive them, the chief said it was the custom of the country, being a mark of hospitality.

The Mirza was glad to be inside a town again, but knowing the restless nature of the chief, he felt sure there would be no halt, so he looked about him as much as he could the very day he arrived.

(49.) Yangi-Hissar has decayed mud walls, but there are many houses around just outside the walls.

The houses are of one story with mud walls and flat roofs. It has a large bazar wide enough for carts; the shops are full of every kind of goods, and the town seemed to be in every way well supplied. On the West of the town there is a stronghold built by the Chinese, and called the new Fort, and it was said to be garrisoned by 1,000 of the Atalik's soldiers (called Sirbazes) with some guns, the Atalik is supposed to keep his treasure there.

(50.) The main branch of the Yangi-Hissar river is said to rise to the West. A short route into the Alai Valley and thence to Kokhān goes up this river. Saltpetre and iron are found in the neighbouring mountains to the South-west. The people seemed to be well off, mostly engaged in agriculture, but doing a little in the trading way.

Donkeys are generally used for carrying loads in preference to horses.

(51.) As the Mirza imagined, the Kirghiz chief could not bear the idea of halting in the town, the very next morning he pushed on again, evidently anxious to get rid of the charge of the Mirza, and then to get back to his own barren territory. Starting early on the 2nd February, 1869, the party crossed after 3 miles a frozen stream 20 paces wide, at 11 miles they forded the river Kosum 40 paces in width, and at 18 miles forded the large river Jololuk with a bed about 150 paces in width, and 2 miles farther on another 60 paces wide putting up for the night near it in the village called Upchan.

(52.) The next day (the 3rd February) after crossing two moderate sized streams the Mirza at 13 miles crossed the great Turwaruk river, with a bed 150 paces in width; by means of a wooden bridge, entering the Yangi-Shahr or new town of Kashgar, 3 miles beyond the bridge being 5 miles short of the old town of Kashgar. Between Yangi-Hissar and Kashgar the country was studded with villages, and every piece of available land was carefully cultivated. Shops were met with on the road every now and then, where travellers could buy refreshments in the shape of ready

made bread, boiled fowls, hot tea, sherbet and sour milk, which were always ready at the smallest shops. Every thing was very cheap. Along the road at intervals of about 4½ miles the length of one tash (tash meaning stone) a board was fastened to a pole to indicate the distance from Kashgar to Yarkund. Orchards of fruit trees, and groves of mulberries occupied a large portion of the land, which is generally level, the hills in the distance making but little show. Except near Yangi-Hissar where high mountains were visible to the West and South-West. While to the East nothing in the shape of a hill was visible.

(53.) The party reached Yanga Shahr about mid-day, it appeared to consist of a large fort, with a small town attached, there were not many trees immediately around it, hills were visible to the North, afterwards found to be part of the Artush range. On reaching Yanga Shahr the Mirza was at once taken to a small fort in order to be shown to Nubbi Buksh, the Punjabi Jemadar, the Kashgar officials evidently thinking the Mirza's story as to his being a friend of the Jemadar was false. On seeing the Mirza the Jemadar put on a look as if he had never seen him before in his life, the Mirza however explained so many incidents in Nubbi Buksh's career that he at last reluctantly confessed that the Mirza was an old acquaintance of his. The Mirza was pressing his point farther, but as the Jemadar evidently did not like it, he changed the conversation, and did his best to convince the Jemadar that he wished to be friendly towards him, and had no intention of dwelling on any awkward incidents in his career. The Jemadar however was anything but pleased at being forced to acknowledge that they had been friends, and he insisted that it was nothing mercantile that had brought the Mirza to Kashgar at that time of the year, and he pretended to know what the Mirza's real object was; the Mirza had finally to stop the conversation, and to be satisfied with having got him to admit that he knew him.

(54.) The Jemadar soon afterwards rode off to report to the Atalik Ghazi, and before long returned to inquire whether the Mirza had any letter, and the usual presents for the Atalik with him; the Mirza said he had nothing of the kind, and that he was not a vakil, &c., but all in vain; the Jemadar said he must show his baggage, and forthwith had every thing opened out; having taken whatever he fancied, he then directed the Mirza to take up his abode in a neighbouring house in the same fort which afforded but miserable quarters, already partly occupied by some Affghans, who had been directed to watch the Mirza closely: there the Mirza passed the night in great anxiety, not knowing how the Jemadar would behave. Next morning the Mirza was taken over to the large fort, and introduced into the presence of the Atalik, the Mirza passed a large open building filled with some hundreds of people who were eating; he was then ushered into a small room where he found the ruler sitting on a carpet with two or three chiefs around him. The Atalik received the Mirza much more graciously than he expected; welcomed him to Kashgar; asked him a few indifferent questions, and then requested him to go and breakfast with his chiefs in the outer house, where they were all seated round a fire. The Mirza found these officials talking about two English Officers who had lately entered the Kashgar territory, they asked the Mirza if he knew them, but he said he did not: they did not speak much but allowed the Mirza to eat without interruption. The food consisted of baked bread, dried fruits, tea, sugar, milk, eggs, and excellent fresh melons, the latter having been preserved from the previous summer simply by hanging them up from the roof of a room. The yolk of the eggs was eaten raw by itself, the white being mixed up with sugar candy as a sweetmeat. There were a number of servants in attendance who brought in the things and offered them to every one. As soon as he had breakfasted the Mirza was taken out to receive a dress of honor, and then taken before the Atalik again to return thanks. After the audience the Mirza was directed to live with the Jemadar, who however gave him no better quarters than he had at first assigned to him; and the Mirza found that there was nothing for it but to live with the low set of Affghans in the little house. Among these men he found a Lohāni Affghan, called Mahomed Zamān, who told him he had been a guide to Mr. Johnson, when at Khotan; he said he had been with the "Saheb" sometime, and had seen him observing stars, and also putting some instrument into warm water (a boiling thermometer in fact). This proof

of the man's acquaintance with such matters was anything but re-assuring to the poor Mirza, who began to think he should never be able to handle his instruments; for if seen by such a man it would be impossible to put him off with any story as to Kibla namās, &c., such as answered for the ignorant Kirghiz. For a time, consequently, the Mirza was able to do nothing, but at last a lucky chance took this too knowing Affghan away on duty to Yarkund, and the Mirza was soon afterwards able to take several meridian observations to the sun, from inside one of the roofless houses in the fort, but he was unable to take any star observations, as he was too strictly watched during the night and forbidden to go outside: only on one occasion was the Mirza able to take a night observation when he went out on some excuse, and took the altitude of the pole star; having stayed away rather longer than usual, he was cross questioned, and the Jemadar directed that neither the Mirza nor his men should be allowed out of the sight of the sentry.

(55.) During his residence at Kashgar the Mirza was called before the Atalik on several occasions, in order to ask questions as to Hindustan, Badakshan and Afghanistan, and also to find out who the Mirza was; but the Atalik did not speak much. At other times the Mirza saw him passing towards the Artush Ziyarat, called Khoja Affāk, where he generally went every Friday.

(56.) The Mirza describes this remarkable man as being a devout and strict Mahomedan. His name is Mahomed Yakub Beg, a native of the village of Pishkadh, between Tashkund and Kokhan: he is of the middle size, dark complexion, and is now about fifty years of age. His father was a petty farmer or small zemindar, and he himself started in life as a Peshkhidmut, a sort of private upper servant, or one of the body guards of the Khan of Kokhan: half a soldier, but bound to give personal attendance to the Khan at table, during dressing, while mounting his horse, &c., his emoluments at that time probably not amounting to more than Rs. 100 a month paid by the assignment of the revenues of a small village, and by perquisites in the shape of clothes, horses, arms, and so on. From Peshkhidmut he rose to be Dadhkwah, or Governor of Ak-Musjid, a post which he held for about three years, nearly up to the time the Russians occupied that place. He has the credit of having allowed the Russians to settle near the Ak-Musjid fort without the knowledge of the Khan; when this became known to the then Khan, Yakub Beg is said to have run off to Bokhara, the Russians taking the place soon afterwards. Bribery is supposed to be at the bottom of this transaction; but however that may be, he remained away about three years in Bokhara, and was then taken into favor with the new Khan of Kokhan, Mola Alum Khol, who had lately succeeded to the Musnud, and was made one of his Durbar chiefs, and had the revenue of two or three villages assigned to him. He has received no education, can neither read nor write, though his people declare that at the age of forty-five he learnt his letters sufficiently to read the Koran, which he is said to study every morning: he is very strict as to all rites of the Mahomedan religion, and forbids wine, opium and smoking; females are not allowed to go about unveiled, and every one is ordered to pray five times a day.

(57.) He is a Tajuk, and his native language is Persian, though he now seldom speaks anything but Turkish. At the time of his return to Kokhan he was in no great favor; but on the representation of Walli Khan Tora, (one of the chief men at Kokhan,) the Khan sent him to assist in driving the Chinese out of the Kashgar territory. Whilst Yakub Beg (now styled Atalik) was engaged on this expedition, Walli Khan Tora tried to set up for himself in Kashgar, but owing to the Atalik's intrigues, was forced to fly to the mountains, where he is said to have been murdered by some unknown person: a fitting fate for the scoundrel, who, besides having the unfortunate M. A. Schlagenweit murdered, was noted throughout Turkestan for various other atrocities.

(58.) Yakub Beg, however, was successful in driving out the Chinese, but the Khan in the mean time had his own difficulties in Kokhan, and could exercise but little control over the Kashgar expedition. Yakub Beg (Atalik) was consequently very much his own master, and when he finally heard of the Khan's death in action with the Russian troops, he decided to make himself independent of Kokhan; in consequence of this there is great enmity between him and the present ruler of Kokhan.

(59.) In spite of numerous difficulties, both with the Kokhanis who accompanied him on his first expedition, and also with the various people of Kashgar, the Kirghiz tribes, &c., Yakub Beg managed to establish his rule over the whole of the Kashgar territory.

(60.) When he was first sent against Kashgar with four or five hundred sowars (mounted men) he received the title of Kushbegi from the Khan of Kokhan, and this appellation was continued for some time after he separated from Kokhan; but he has latterly assumed the title of Atalik Ghazi, which he is supposed to derive from the Amir of Bokhara, with whom he is in friendly relations, vakils being exchanged between them.

(61) The Mirza found the Atalik courteous; he appeared to have simple manners; but he has the credit among his people of being very suspicious, and is known to have his spies all over the country: he has a violent temper, and his ordinary expression is a threatening one, insomuch that the people who meet him do not care to look him in the face, nearly every one looks down as he passes. When anything angers him he becomes exceedingly abusive, and is apt to take summary justice: the Mirza on one occasion saw him try to cut a petitioner down, the man only escaping by getting between some guns.

(62.) He and his son are always armed, he takes great precautions to prevent his officers holding general meetings; and he is more especially afraid of being murdered by some of the Kipchak-Kirghiz; a strong horde who opposed his rise to power. Very little talking goes on in his Durbar, the conversation being chiefly confined to answering his questions, the officials all looking down as if they were afraid to look about them, and generally there appeared to the Mirza to be very much less freedom than is usual in a Central Asian Durbar. He is noted for his generosity, dividing the horses, clothes, &c., which he receives as taxes, amongst his adherents; he gives a meal to some three or four thousand people every morning after prayers. The people respect him for being religious, and for what he has done in the way of making roads, bridges, schools, caravan serais, mosques, &c. He encourages the wealthier people to follow his example. He has collected a number of women in his Harem, a large proportion being the wives and daughters of the Chinese whom he turned out of the country. He is said not to spend much of his time among these women.

(63.) According to the Mirza, the greatest defect of his government is in the revenue system for the collection of taxes, &c., his territory being divided out amongst his relations or friends; these officials are allowed to take whatever they like, no accounts are kept, and as long as the Atalik is paid his dues he takes no notice. The consequence is, a large amount of discontent which is said to be shown by the greatly increased number who make the pilgrimage to Mecca; hoping that they may be less oppressed when they return as Hajis, that title generally being a safeguard against anything of the kind. Some however are said not to return at all, but to emigrate for good to Constantinople, &c. The taxes are paid in produce. Officials having to make a yearly present in addition of large silver pieces called Yamu (Rs. 160) each, and of horses, chogas, &c., according to their rank.

(64.) On the whole the Mirza thinks neither the people nor his officials like him; the latter secretly hate him for his harshness, and more especially for the irregular way in which they are paid. One of his rules against his own countrymen returning to Kokhan is particularly disliked. He is said to be a good soldier, exceedingly vigilant as to every movement either in his own territory or beyond his frontiers.

(65.) His army is said to consist of about 20,000 men, with 70 guns of various calibres, mostly small. In emergency it is supposed that he could muster 20,000 men more from among those Kirghiz hordes, with whom he is on good terms. The soldiers consist of Sirbazi, Tafarchi, and Sowars. The Sirbazis are armed with a matchlock and bayonet; uniform of quilted red Russian cloth with long boots, supplied by the Government twice a year. They are drilled every morning by Affghans, and Hindustanies after the English fashion. The Tafarchis number about 2000; they are armed with very long matchlocks taking three or four men to work them: they are

mostly Chinese, who became Mahomedans when the Chinese Government came to an end. The sowars form a very Irregular cavalry. There were about 7000 soldiers in and about Kashgar itself. The guns are all brass, mostly cast by Nogai Turks, who consider themselves subjects of Russia; some have been cast by men from Turkey (Rum) and others by Hindustanis; those by the two latter being considered the best. The guns are said to work well up to about 1500 yards. Spite of all this show the Mirza does not think the troops are at all reliable, the people generally not having much taste for fighting, and no doubt the Atalik relies mostly on his own Kokhanis.

(66.) After the Mirza had been some time in the fort, he was informed by the Atalik that he wished him to see the Shagāwul Dadkhwāh of Yarkund, and he consequently visited the Shagāwul; then a high official was sent to make full enquiries as to who the Mirza was, &c. He had to meet a number of people, when the British and Russian Governments were discussed, as well as those of Afghanistan, Bokhara, &c. The Mirza says he pointed out the great power, resources, &c., of the British, and quoted various points to prove the same; when an Afghan who was present got excited and denounced the Mirza before the assembly as a Kafir (infidel) that did not give proper respect to the Mahomedan princes. Fortunately the others took the poor Mirza's side, otherwise he would have run a great chance of being stoned; as once the cry of Kafir is raised these bigoted Mahomedans are apt to act without further inquiry. The Mirza from that date did his best to avoid all public discussion lest he should get into trouble.

(67.) The Mirza contrived to visit the old city of Kashgar thrice, on days when the Atalik was absent at Artush; unfortunately he had not much money to spare, and the man of the guard he bribed to take him there was not quite satisfied, and consequently informed the Jemadar of the Mirza's trips to the city. The Jemadar abused the Mirza roundly, and then reported him to the Atalik, and expressed his opinion as to the probability of the Mirza having been sent as an artillerist and surveyor, as he was with the Kokhan Vakil in 1855. The Atalik, hearing that the Mirza was an artillery man, wished to get him to make fine gunpowder and gun caps for his army, and sent his son-in-law to try and induce the Mirza to teach his people: the Mirza had great difficulty in convincing him that he did not know how; the British, as he understood, always getting such things ready made from Europe, and it was only by appealing as a guest of the Atalik's that he was let off. The Jemadar however continued to threaten, and there was no appeasing him till he had got nearly every piece of property out of the Mirza.

(68.) Some time afterwards an official was sent with a compass and a pocket sextant, and a request to be shown how to use them: the Mirza had to plead ignorance, thinking it was a trap to find out whether he knew how to handle such things.

(69.) Owing to the restraint that was put upon him the Mirza was unable to visit the Russian frontier himself, but he made friends with a Lohani merchant who had lately arrived from Tashkund by the Narain Valley. This man visited him very often and gave him information as to the Russian posts, and the following route, viz., from Kashgar to Kūrbāshi, 3 days march, thence to Chādur 3 days, and to Zertash one day, all through country infested by wandering Kirghiz subject to Kashgar. From Zertash to Togia, a Russian fort, two days march; Togia is said to be garrisoned by 400 Sappers. After two marches more the route crosses the Narain river over which the Russians have built a bridge protected by a fort with 500 men. From the Narain, at a distance of ten days march is Tākmāk garrisoned by 100 men, and four mountain guns, thence ten days march farther on Allay, garrisoned by 2000 men and eight guns. The Russian garrisons increasing rapidly in proportion to the distance from Kashgar, the Lohani probably wishing to impress the Mirza with the wonders he had seen.

(70.) The Mirza's long detention and want of funds made his men mutinous again, and he was puzzled to know what to do. He first of all asked to be allowed to return by Badukshan, but the Jemadar opposed this, and said the Mirza might return with the two English gentlemen then in Kashgar, and ended by preventing him from doing either the one or the other. The Mirza had hoped that he might get some assistance from these gentlemen, and perhaps be able to

assist them but he had great difficulty in communicating with them, and the Jemadar so constantly misrepresented his actions that he was forced to give up the idea. He was much dispirited when these gentlemen left. Funds were his great difficulty; but he was at last relieved by meeting an Afghan prisoner who had been in the Kashmir Maharaja's service, and who was anxious to send money to his home. He offered to lend the Mirza money on the condition that it was repaid to his family in Kashmir. Having taken a small loan from this man; the Mirza was eager to be off, and finding that the Jemadar would in no way assist him, he at last in despair said he would appeal to the Atalik in person. This alarmed the Jemadar so much that he at once went and asked leave for the Mirza to return to his country. The Atalik sent for the Mirza and received him graciously, ordering him to be given a dress of honor, and gold dust worth Rupees 60, in order to buy a horse for himself. Permission to return by the Yarkund route to Ladak was given, with a passport describing him as a Kabuli Traveller. This passport bears the Atalik's seal, and the Mirza holds it as a proof that he assumed no official character while in Kashgar Territory, as at one time supposed. The Jemadar tried to retain the Mirza's men, but on a hint to the Atalik they were also supplied with passports.

(71.) The city of Kashgar is built in an angle between two branches of the Kazūl river, which join one another a few miles East of the city. The Kazūl or Kazūl Yaman, comes from Mosh (a ruined place towards the Tarik mountains) its other branch, the Northern one, is called the the Toman. The united stream flows Eastward passing at 40 miles a small town called Faizabad, and after receiving the Aksoo stream joins the Yarkund river. During the winter both branches of the stream are frozen, and the Kashgar people can cross any where on the ice; in the summer they cross by two bridges lately built or rebuilt by the Atalik, so as to be fit for carts; these carts are drawn by two ponies or mules, and sometimes by three arranged unicorn fashion. The city is built on an easy slope; it is surrounded by a high wall with towers at about every fifty yards; the wall is a thick one made of sun-dried bricks, and has three gateways with large wooden doors protected by iron plates. The streets are very irregular, the houses are built with sun-dried bricks and flat roofs, and touch one another. Every house has its own fireplace and chimney, where the cooking is carried on inside: the houses are generally kept very neat. The poorest houses have felts and carpets for the floors; in the better houses benches and beds are used. The bazars are large and wide enough to allow the carts to pass one another; the shops are well stocked with native and foreign goods. The city is well supplied with water both by canals from the rivers and from springs. There are no buildings worthy of note, the mosques and schools (madrussa) being only a little higher, and differing in no other way from ordinary houses except in having painted doors. There are eight colleges, eleven caravanserais, and a mosque in every street, where the people are forced to say their prayers five times a day. The streets of the chief bazars are covered in with rough timber and mats, to keep off the sun in summer, and the snow in winter.

(72.) The number of families in the city were reckoned at 16,000 in the time of the Chinese, but since their time the numbers have fallen off very much, many people having emigrated. The population is very mixed, the men comprising Turks, Tājuks, Tungānis, Badukshānis, Andijānis, Afghans, Kashmiris, Hindustanis, and a mixed race descended from foreigners and the women of the country. Tartar features and complexion predominate. The people generally are a profligate set, and though good humoured, are crafty and inhospitable. They are generally opium eaters, and are much given to dancing or singing, though the Atalik has forbidden everything of the kind. The only musical instrument in use is a sort of harp, like the Hindustani sitara. Both sexes wear the same shaped chogas, long loose quilted cloaks of coarse cotton cloth over a tight-fitting jacket buttoned at the side; trowsers of long cloth and various colored silk, and a cap lined with inverted lambskin, with a turned up border completes the costume in winter. The border of the cap is sometimes made of "sugbao" or "sugābi" (otter) skin from Kashmir or Hindustan, but the skins from Russia are preferred. The crown of the men's caps is generally made of plain Russian broadcloth: the crown of the women's caps is generally of Benares brocade (kinkab), cloth embroider-

ed with gold thread. In the summer these caps lined with lambskin, are changed for others made of cotton cloth fitting to the head, the caps well starched so as to preserve their shape. Those worn by the women are of a different shape, the women of the richer classes using Benares brocade, or a cloth embroidered with twisted silver thread got from Russia. Both sexes wear long high-heeled boots, those worn by the women being shod with iron, those of the men having no iron, the leather is generally native, made from goat skins dyed red, or pink: the richer people occasionally using Russia leather. The boots of the women look very gay, being ornamented with red or yellow silk, &c. The women do not wear many ornaments, beyond a few rings, and three or four heavy silver or gold buttons of an almond shape worn in the body of their dresses. They are fond of flowers, and wear them in their caps: a few flowers are grown in the court yards of each house. They do not darken their eyelids with antimony, but instead paint a dark line so as to join the two eye-brows. They wear two long plaits of false hair which hang down their backs. They are not seen much in public as, whenever they go out they are obliged to wear a large black or white "burkha," a sort of sack, which covers them from head to foot, a piece of muslin with eye holes being used as a cover for the face. This is a new custom in Kashgar, introduced by the order of the Atalik, which the women particularly dislike.

(73.) The men always carry knives, with which they eat meat and fruit: the knives hang from their waists: and a leather pouch with steel, flint and tinder, always accompanies it. Their food and times for eating differ considerably from the customs generally observed amongst Asiatics, they eat three times a day, and drink tea with each meal. The food consists of broth made with flour, rice, &c, and a dish called "āsh," made with a sort of vermicelli from wheat flour, boiled with fresh vegetables, such as turnips, radishes, Indian corn, &c., seasoned with salt only; this vermicelli seems to have been introduced by the Chinese. Linseed oil is used instead of butter or ghee, which the Mirza found made the food disagreeable, both to his palate and nostrils. The tea is boiled, and after being strained, is mixed with milk and salt. They drink it hot with wheat flour cakes. Spices generally are not in favor for meat, though they sometimes use pepper, &c., in their tea.

(74.) The people are simple Mahomedans, and do not mix up any local superstition with their creed.

(75.) Level ground extends to about 40 miles south of Kashgar, 30 miles to the West and 15 miles to the North, while to the East there are very extensive plains. To the West and North-west there are high mountains connected with the Pamir, which enclose the Alai Tarik and Narain Valleys: they appear to be distant.

(76.) Kashgar is said to be very healthy in winter the climate is dry, and so cold that fires are required in every house: rivers, tanks and canals all freeze, and water is only got from the four springs, which seldom freeze hard. Snow falls very often, but seldom to a greater depth than a foot, it moreover soon melts: the river remains frozen till the end of March, and no snow is seen after that till December or January. In the spring the weather is very stormy, and the wind so strong sometimes as to blow down the Kirghiz tents that are pitched in the neighbourhood. The stormy winds are invariably accompanied by a hazy atmosphere, sometimes to such an extent that lights are required in the middle of the day. This is supposed to arise from an impalpable dust. The Mirza says that during the four months he was in Kashgar, he could never see the sun clearly until some hours after it had risen; it was always more or less obscured by a sort of dust or haze, and only three or four times really clear. The sun always had a sort of pale red color for three or four hours after it rose.

(77.) The soil, though very sandy, is, owing to the large amount of irrigation, very fertile, producing wheat, barley, rice, cotton, Indian corn, peas, carrots, turnips, radishes, linseed, mustard, hemp (bhang), &c. The cultivation of bhang (hemp) is very extensive; an extract from its leaves is made, called "churrus," which is exported in large quantities to India, Western Turkestan, &c. There are numerous gardens and orchards to the North-East; these are irrigated by canals, and produce pomegranates, melons, mulberries, apricots, plums, apples, pears, walnuts, grapes, figs, &c. Fuel

and timber are very scarce, everything of the kind having to be brought from a jungle called Moral Bashi, which lie about three days march to the East. A donkey load of wood costs about two rupees.

Tea, chintz, long cloth, inferior broad cloth, Benares brocade, (kinkab), are plentiful in the bazars: goods of Russian manufacture supply the shops generally, they are said to be cheap, and not to be so long on the road as British goods from India.

Since the downfall of the Chinese Government a considerable amount of jungle leaves and herbs have been used as a substitute for tea.

Coarse gunpowder is manufactured, but the materials are neither well ground nor well mixed. Shells for mortars are cast after a rough fashion: inferior match locks are made, and some are imported from Russia, but neither are much esteemed. The few arms of British make that come from India are much prized.

(78.) At length, after a detention of more than four months, the Mirza was allowed to start for Yarkund on the 7th of June, 1869. His passport having been granted, he was directed to leave at once, and consequently had hardly time to arrange his affairs. Starting the same evening he marched 4 or 5 miles, and the next day reached Yangi-Hissar. The country, which on the Mirza's arrival was under snow, was now covered with fresh crops, and the trees were in leaf. The rivers which he had crossed on the ice were swollen with water, and had to be forded, except in the few cases where bridges were available. The water of the rivers was generally clear.

(79.) At Yangi-Hissar the Mirza again tried to take star observations, but owing to stormy weather, and the dust haze, he was not successful. They next day the Mirza marched on to Yarkund. At about a mile east of Yangi-Hissar the road crosses the main branch of the Yangi-Hissar river, by a wooden bridge; at 6 miles passed Lungar (a halting place); at 8 miles Soghet Bolok, a large village; at 13 miles Karāwal, a military post, and also Kalpan village; at 16 miles Taplāk, a large village; at 22 miles Tumorra, a village; at 26 miles Kudāk, a well; at 27 miles Chumlak village; at 31 miles Kazil, a very large village, with a military guard for the purpose of examining passports: here supplies for men and animals are very plentiful. To the east of Kazil, a sandy desert tract called Samand-Chol begins and extends for eighteen miles; its surface is totally without water, and the Atalik has consequently built a well and a small mosque at the 13th mile. After crossing this desert, the road passes at 9 miles Koke Robat, a small village where there are two guards to examine passports; at 11 miles the village of Talunghiz; at 14 miles another Karawal or Lungar (halting place).

From this Karawal the road for the first few miles runs through a low jungle of reeds; of 11 miles it passes the village of Urghund, and the country is called Karakum, from its black sandy soil; at 12 miles Baghet; at 13 miles crosses the Opiai canal by a wooden bridge; and at 18 miles enters the city of Yarkund. The road from Kashgar to Yarkund, about 120 miles, is traversed by carts, and with very little expenditure could be made into a good road.

(80.) The Mirza reached Yarkund about noon on the 12th of June, 1869, and at his own request was taken to the house of the Kafila Bashi Wahab, who had piloted him across the Pamir Steppe. The Mirza thought that this private house would be more convenient than a public caravanserai for taking his observations, and he was consequently rather disappointed when an order came the next day for him to live near the house of Ahmad Ali, the Agā Sākāl, or chief of the Yarkund Kashmiris. As soon as news of the Mirza's arrival reached the Shagāwal, or Governor of Yarkund, he sent the Mirza some uncooked provisions. This Governor, whose name is Mahomed Yūnas (Jonas), was very friendly and saw the Mirza very often; both he and the Agā Sākāl expressed themselves as being very well inclined to the British Government, though they did not think it advisible to say so in public. The Mirza was in want of money, but he could not make any satisfactory arrangement, until he found a Kabuli, in the service of the Shagāwal, who wanted to remit money to his family in Kabul. With this loan and the sale of some of his things, the Mirza was able to complete the number of ponies required for himself and his party, and to provide for provisions as far as Ladak.

(81.) Whilst he was making these arrangements his men again became troublesome, and matters were nearly brought to a climax by one of them who had fallen in love with a Yarkundi woman—this man vowed that if he was not given a large sum of money and allowed to remain behind to marry the woman, he would divulge everything he knew about the Mirza; he knew all about the observations, &c., and the Mirza was consequently greatly puzzled to know what to do with him, as the man was in such a demented state about the woman. At last, after consideration, he got the Kabuli to assist by explaining that if the man left the Mirza he would most assuredly be carried off to the Atalik as a Hindustani slave; this probable result frightened the man, and a small sum of money enabled him to get clear of the matter, much to the Mirza's relief.

(82.) Mahomed Yūnas Shagāwal Dādkhwāh, or governor of Yarkund, is about 50 years of age. He is a Tājūk of good family from Tashkand, formerly in the Kokhan service; he was one of the supporters of the Atalik in the taking of Kashgar, and distinguished himself so much that he has gained the entire confidence of the Atalik. He has a better knowledge of Arabic and Persian than any of the Kashgar Moolahs, and he has received a good general education. He is a pleasant man to deal with in every way, and has liberal ideas as to foreign countries.

(83.) The city of Yarkund is built on level ground, about 5 miles to the North of a large river which flows from West to East. The city is enclosed by a ditch and a thick mud wall with towers at intervals. It has a large covered bazaar like the Kashgar one, wide enough for the carts; but the streets generally are irregular, and too narrow to permit carts to pass. At the points where three or four streets intersect there is always a small tank filled by the canals taken from the river. In summer these tanks are filled once a week, but notwithstanding that, the water is dirty and full of worms, and generally has an offensive smell. The Mirza counted 67 small canals running through the city—the people say there are 300, possibly referring to the minor branches—however the canals are very numerous. The houses of the rich are built in large open squares surrounded by high walls, these squares are well stocked with fruit trees. The houses generally are, as in Kashgar, built with sun-dried bricks. There are about 120 mosques and madrussas (schools), and 12 caravanserais, the latter are filled with goods of every country. The schools are always attached to the mosques; and endowment of land, houses, and shops are given by the Government to pay for the education of the poor. Nearly every street has its mosque and school. The children are taught to read the Koran, and a few books in the Turkish language.

(84.) There are no remarkable buildings in the city. The Chinese citadel is still standing on the North side of the city, near one of the gates. It is now the residence of the Governor, and and has a garrison of about 2000 Sirbazes, and a few guns disposed inside the gates.

(85.) Amongst the men there are about 100 Afghans commanded by General Shukrallah, who drills them after the English fashion. These men had formerly been in the Bokhara service which they left in order to try and get into the Russian service, but failing they joined the Atalik's forces.

(86.) The present governor has built a new mosque and school on a elevated piece of ground near the Northern angle of the city. It is painted inside and has gilt pillars and beams. Inside its court there is a fine tank supplied from the canal.

(87.) The shops are open all day, and every evening there is a regular market to which the country people bring their goods for sale.

(88). The population is just as mixed as that of Kashgar, including in addition some men from little Thibet; the people generally are Suni Mohamedans; they are good humored and honest, unless they happen to have been corrupted by Kashmiris. The city is said to contain about 80,000 people, women preponderating. Their diet is simple, generally consisting of dry cakes and hot tea. They are more hospitable than Kashgaris, and supply their guests with food. The features of the people, their language, and dress are very much the same as the Kashgaris. Goitre is very common in the city and in the country round, but it is unknown in Kashgar. The country round about is covered with villages, the whole plain is irrigated by numerous canals, and every

scrap of ground is taken up either by fields or by gardens, the soil is very productive, and a large amount of grain is exported to Kashgar. The grains and fruits are the same as at Kashgar. Fuel is plentiful. Yarkund is hotter in the summer than Kashgar.

(89) There was formerly a large traffic between China and the Kashgar territory, but it has been entirely stopped since the downfall of the Chinese rule: the chief trade is now with Russia by the Kokhan route, but this has latterly been much diminished owing to the jealousy between the Kokhan and Kashgar governments. The current money consists of "pulls," a copper coin with a square hole in the centre; of "tungas," a larger copper coin worth 25 "pulls;" and 26 "tungas" being worth one rupee. A gold coin (tillah) worth 6 to 7 Rs. is also used, and a lump of silver called "tamu," worth Rs. 160. The Yarkund river, which flows about three or four miles South of the city rises in the Karakoram and Mustagh mountains, and after leaving the higher mountains is joined by the Sirikul river; then taking a bend it flows rapidly past Yarkund, taking a North-easterly direction, and is joined successively by the Khotan and Kashgar rivers somewhere near Moralbāshi, which gives its name to a very extensive forest or jungle which extends, as stated above, to within three or four miles of Kashgar. This jungle harbours a number of wild beasts, such as tigers, wolves, &c.; which makes the road to Aksu dangerous for solitary travellers. The Mirza stayed in Yarkund about a month, and after getting a passport he started on the 14th July for Ladak. The governor despatched a messenger after him and requested that he would send him some drill-books and a supply of gun caps as soon as he got into Hindustan. The Mirza was then allowed to go on his way without further interruption.

(90.) The Mirza travelled from Yarkund with a Kafila of about 300 men, a great number of them being pilgrims, mostly men and only a few women, all *en route* to Mecca. The Kafila took the old Karakorum route, and the Mirza said they none of them knew anything about the Changchenmo route, and never even mentioned it. The Mirza crossed the Karakoram pass in safety and reached Leh, the capital of Ladak during August; thence he made his way to Kashmir and back through the Punjab to the Head Quarters of the G. T. Survey, having been absent on his expedition nearly two years.

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Observations for Latitudes taken in Central Asia with Pocket Sextant No. 34.

No. of Observation.	Astronomical Date.		Watch Time.	Stations.	Object on Meridian.	Upper or lower Transit.	Double Altitude.	Single Altitude.	Index error.	Deduced Latitudes.	Mean Latitudes.	Remarks.
	1868		H. M.									
	Septr.	16th	8 40	Caubul.	α Polaris.		69° 57′		— 1′	34° 29′		Throughout α Polaris was not on Meridian.
		,,	9 5	,,	,,		70 28		,,	34 36		
		19th	8 10	,,	,,		69 42		,,	34 30		
		21st	8 2	,,	,,		69 40		,,	34 29	34° 28′	Griffith gives 34° 30′ 34″
		25th	Noon	,,	Sun.		109 27		,,	34 19		
		26th	Noon	,,	,,		108 35		,,	34 22		
		27th	Noon	,,	,,		107 33		,,	34 29		
	Octr.	20th	Noon	Surkh Dur.	Sun.		89 36		,,	34 45	34 45	Griffith gives 34° 49′ 51″ for Bamian which is close to Surkh Dur and nearly in same parallel of Latitude.
			H. M.									
	Novr.	1st	7 0	Tashkurgan (Kulm.)	α Polaris.		75 5		,,	36 39		
	,,	,,	Noon	,,	Sun.		77 47		,,	36 35		
	,,	2nd	Noon	,,	,,		77 13		,,	36 33	36 37	By Wood's Map 30° 40′
	,,	2nd	H. M. 6 35	,,	α Polaris.		74 53		,,	36 41		
	1868-69											
	Novr.	30th	Noon	Rustak.	Sun.		62 51		,,	36 54		

No. of Observation.	Astronomical Date.		Watch Time.	Stations.	Object on Meridian.	Upper or lower Transit.	Double Altitude.	Single Altitude.	Index error.	Deduced Latitudes.	Mean Latitudes.	Remarks.
	1868-69		H. M.									
	Decr.	2nd	6 0	Rustak.	α Polaris.		76° 41′		— 1′			
	,,	,,	6 15	,,	,,		76 57		,,	37° 16′	37° 5′	α Polaris not on meridian.
	,,	11th		Faizabad	Sun.		59 52		,,	37 4		Atmosphere hazy.
	,,	11th	7 9	,,	α Polaris.		77 2		,,			α Polaris not on meridian.
	,,	,,	6 42	,,	,,		77 6		,,			
	,,	,,	7 30	,,	,,		77 3		,,	37 7	37 2	By Wood's Map 37° 5′
	,,	,,	8 0	,,	,,		77 5		,,			
	,,	,,	7 0	,,	Jupiter.		107 15		,,	36 56		
	,,	12th		,,	Sun.		59 48		,,	37 1		
	Jany.	27th	9 0	Sirikul.	α Polaris.		76 35		,,			Or Tashkurgan town with old fortress.
	,,	,,	9 10	,,	,,		76 33		,,	37 44		α Polaris not on meridian.
	,,	,,	9 30	,,	,,		76 37		,,			
	Feby.	1st	Noon	Yanga Shahr.	α Polaris.		66 51			39 34		Or Kashgar, about ¼ mile N. W. of new Fort. The new Fort being about 5 miles South East of the old city of Kashgar.
	,,	2nd	,,	,,	,,		67 45			39 24		
	,,	4th	,,	,,	,,		68 36			39 34		
	,,	5th	,,	,,	,,		69 36			39 22	39° 26′	
	,,	6th	,,	,,	,,		70 5			39 26		
	,,	7th	,,	,,	,,		70 43			39 26		
	,,	8th	H. M. 9 0	,,	α Polaris.		79 20			39 19		α Polaris not on Meridian.
	July,	22nd	11 0	Sanju.	Moon.		63 22			37 49	37 11	
	,,	24th	13 0	,,	,,		79 25			37 15		

Observations of the boiling point taken in Kashgar, Sirikul and other places in Central Asia.

No. of observation.	Month and date.	Watch time.	Station.	Thermometer. No.	Thermometer. Boiling Point.	Thermometer. No.	Thermometer. In Air.	Deduced Height above Sea.	Remarks.
	1868.								
16	November, 30th	10 A.M.	Rustak, ...	XC.	205·2		58·1	5080	
17	December, 12th	11 A.M.	Faizabad, ...	„	205·2		59·1	5081	
	1869.								
18	January, 3rd	4 P.M.	Aish Kashim, ...	„	195·2		45·1	10805	
19	„ 5th	10 A.M.	Kundoor, ...	„	196·5		45·9	10057	
20	„ 10th	9 A.M.	Nast, ...	„	193·5		45·0	11806	End of Wakhan valley.
21	„ 11th	4 P.M.	Lungur Pamir, ...	„	192·5		0	12128	Mercury sank so low that thermometer could not be read.
22	„ 11th	5 P.M.	Lake Pamir Kul, ...	„	190·5		0	13259	Ditto.
23	„ 26th	4 P.M.	Aktash, ...	„	191·1		0	12914	Eastern extremity of Pamir Steppe, do.
24	„ 27th	4 P.M.	Tashkurgan, ...	„	194·5		0	10986	Or Sirikul. Do.
25	„ 30th	4 P.M.	Charling Valley, ...	„	193·5		0	11556	Do.
26	June, 1st	4 P.M.	Yangi-Hissar, ...	„	205·1		84·0	5166	
27	February, 3rd	11 A.M.	Yanga Shahr or new Kashgar,	„	205·1		0	5087	Do. Inside a house. Yanga Shahr or new Kashgar, is about 5 miles South of the old town of Kashgar.
28	June, 22nd	11 A.M.	Yarkund, ...	„	207·1		80·0	4000	Inside a house.
	1867.								
	October, 10th	4 P.M.	Mussoorie, G. T. Survey Office,	„	201·9		62·0	6876	Trigonometrical Height.

Note.—The height of Yarkund deduced from former explorations, viz., 4000 feet, has been used in computing the above heights, but the observations taken at Mussoorie, before the instrument left, indicate a somewhat less altitude, viz., 3891 feet for Yarkund, but the heights have not been altered for this as the thermometer was unfortunately broken before the Mirza returned, and there was no means of testing its zero. Judging from the results of other explorers, Kashgar and Yangi-Hissar are too high as given in the above list, and as they depend upon single observations with a very small thermometer it is probable that they may be so.

Route Survey from Caubul to Kashgar, *viâ* Badukshan, &c., in Central Asia.

Station No.	Bearings of forward Station.	Distances in miles to forward Station.	Remarks.	Station No.	Bearings of forward Station.	Distances in miles to forward Station.	Remarks.
1	253° 0′	14·5	Caubul City.	7	55° 0′	10·0	
2	275 0	11·0		8	90 0	8·0	Talukhan.
3	246 0	14·0		Talukhan	25 0	7·5	
4	270 0	5·0		10	50 0	7·5	
5	305 0	18·0		11	12 0	5·5	
6	0 0	18·0		12	70 0	2·5	
7	313 0	3·8		13	45 0	4·0	Rustak.
8	280 0	6·0		Rustak	98 0	5·0	
9	330 0	3·0		15	140 0	3·0	
10	350 0	6·0		16	68 0	5·0	
11	260 0	3·5		17	90 0	6·5	
12	340 0	3·5		18	40 0	3·5	
13	270 0	6·5	Bamian.	19	70 0	11·0	
Bamian.	275 0	3·5		20	130 0	3·5	
14	310 0	8·0		21	60 0	9·0	Faizabad.
15	20 0	19·0		Faizabad	145 0	5·0	
16	270 0	5·0		2	65 0	6·0	
17	355 0	10·5		3	130 0	8·5	
18	75 0	8·5		4	103 0	10·0	
19	350 0	10·5		5	175 0	9·5	
20	34 30	8·5		6	135 0	10·0	
21	310 0	5·5		7	110 0	10·5	Zebak.
22	24 0	5·5		Zebak	110 0	0·5	
23	330 0	6·5		8	35 0	6·0	
24	40 0	9·0		9	60 0	7·0	
25	103 0	5·0		10	50 0	4·0	Aishkashim.
26	20 0	13·0		Aishkashim	90 0	10·0	
27	345 0	2·5		12	60 0	6·0	
28	310 0	4·5		13	40 0	11·0	
29	320 0	8·0		14	55 0	14·0	
30	350 0	18·0		15	48 0	8·0	Punja fort.
31	345 0	8·0		Punja fort	75 0	18·0	
32	315 0	16·0		17	105 0	14·0	
33	357 0	2·5	Tashkurgan.	18	140 0	1·5	
Station 1	75 0	19·0		19	85 0	8·0	
2	85 0	8·8		20	70 0	10·0	
3	80 0	28·0		21	85 0	10·0	
4	55 0	13·0	Kunduz.	22	140 0	2·0	
Kunduz.	130 8	5·0		23	100 0	6·0	
6	60 0	7·5		24	70 0	23·0	

Route Survey from Caubul to Kashgar *viâ* Badukshan, &c., in Central Asia.

Station No.	Bearings of forward Station.	Distances in miles to forward Station.	Remarks.	Station No.	Bearings of forward Station.	Distances in miles to forward Station.	Remarks.
25	50° 0′	14·0		41	10° 0′	4·0	
26	60 0	23·0		42	90 0	3·5	
27	40 0	11·0		43	28 0	13·0	
28	30 0	2·0		44	40 0	10·0	
29	0 0	5·0		45	5 0	9·0	
30	70 0	2·0		46	80 0	6·0	
31	90 0	6·0		47	112 0	7·0	
32	35 0	2·0		48	0 0	16·0	Yanga Shahr or new town of Kashgar.
33	60 0	4·0		49	340 0	36·0	
34	20 0	10·0		50	312 0	5·0	Kashgar (old city).
35	70 0	3·0	Tashkurgan or Sirikul.	Kashgar.	160 0	36·0	Yangi-Hissar.
Tashkurgan	350 0	10·0		Yangi-Hissar.	145 0	31·5	
37	0 0	5·0		2	110 0	18·5	
38	110 0	20·0		3	130 0	14·0	
39	100 0	7·0		4	98 0	18·0	Yarkund.
40	60 0	8·0		Yarkund.			

STAGES on the Route from Caubul to Badukshan up the River Oxus and across the Pamir Steppe by Sirikul to Kashgar in Eastern Turkestan.

Number of Marches.	Names of the daily halting places for ordinary marches.	Estimated number of miles from stage to stage.	Remarks.
1	Caubul Kot Hashtrū,	16½	A small village from which supplies in small quantities are procurable. Bad encamping ground.
2	Sakanī, ...	13	A good caravan serai and custom house. Encampment on bank of Surchasma stream.
3	Gurdandeewar, ...	23	A small mud fort on the right bank of the river Helmund. Encampment on bank of the river.
4	Kulloo at Kila Murtaza Khan, ...	20	On the road to this place several mud forts are seen.
5	Topchi, ...	12½	A small mud fort, Provisions are scarce at this place. Plenty of pasture for cattle.
6	Bamian, ...	11½	A small village famous for its gigantic idols, also for the excavations made by the people.
7	Surkh Dur, ...	3½	A small village where grass is abundant.
8	Akrabad, ...	12	The site of a dilapidated mud fort, no provisions.
9	Saigān, ...	17	Near small fort, on a hill. Encamping ground good.
10	Kamurd, ...	11	A small mud fort on the left bank of the river. Grass abundant.
11	Muddar, ...	12½	A small military post stage at the foot of the Korakhol mountain. Supplies not procurable here, though grass for cattle abundant.
12	Doab Shah Pusund Khan, ...	12½	A small mud fort situated at the juction of two streams. Camp supplies are scarce here, but grass abundant for cattle.
13	Rai, ...	25	A small military post. Pasture for cattle abundant.
14	Kurrum, ...	17	A small rambling village with good pasture.
15	Foot of Kohil mountain,	17	The country from this point looks wild, and all the villages are at a distance.
16	Asia Badee, ...	19	A ruined wind-mill.
17	Guznīguk, ...	5	A small village surrounded by fine pasture lands on the brow of a hill.
18	Tashkurgān, ...	20	A large town.
19	Ungarik, ...	9	A small village.
20	Abdān, 2nd, ...	20	A well in the desert.
21	Karabagh, ...	23	A small village.
22	Kundooz, ...	7	A town proverbially known to be unhealthy.
23	Khanabad, ...	12½	A small fort on the right bank of stream.
24	Talakhan, ...	18½	A town.
25	Ass, ... / Girdab, ...	2 / 13 = 15	A small village. / A small village stands on the opposite bank of the river Kokcha.
26	Rustak, ...	11	A town in Badukshan.
27	Alkashim, ...	8½	A small village is seen from this place situated about 3 miles distance from the road and at the foot of the hill.

From Caubul to Sirikul. *(Continued.)*

Number of Marches.	Names of the daily halting places for ordinary marches.	Estimated number of miles from stage to stage.	Remarks.
28	Atamjullo, ...	15	A village consisting of about 40 houses. Provisions are however not procurable and the encamping ground is bad.
29	Chhardurra, ...	11	A village of 100 houses on the slope of a hill.
30	Faizabad, ...	12	Chief town of Badukshan.
31	Chupchee, ...	19	A small village where supplies are not procurable.
32	Chakaran, ...	10½	A small village where provisions and supplies are not procurable.
33	Yamulla,	6½	Ditto.
34	Teergaran, ...	6	Ditto.
35	Zebak, ...	18	A small village consisting of about 20 houses.
36	Zardkhan, ...	5	A small village where supplies are not procurable.
37	Aishkashim, ...	14	Several small forts are visible from this, situated along the opposite bank of the Punja or Oxus river.
38	Gazdi, ...	9	A small village.
39	Shakarbi, ...	11	Ditto.
40	Organd, ...	12	Ditto.
41	Kundood, ...	14	Ditto.
42	Punja fort,	16	A small fort made of stones cemented with earth, and considered of great importance. The town of Punja at this place is the chief one of the Wūkhū or Wūkhān valley.
43	Raz Khan, ...	17	A small village.
44	Patoor, ...	15½	A small village
45	Dehgholaman, ...	11	A small village.
46	Patoor, 2nd, ...	12	A small village.
47	Camp, ...	12	In bed of main branch of Oxus River.
48	Near Lungur, ...	13	A halting place. The commencement of the Pamir Steppe.
49	Ruin of a Kirghiz building,	13	Country from this point onwards is very wild.
50	Lake called Pamir-kul or Burkut Yasseen,	9	This lake from its western end gives rise to the main branch of the upper River Oxus, and is on the crest of the Pamir Steppe.
51	Camp in Pamir Steppe,	23	In the midst of hillocks.
52	Akh Tash, ...	20	On the bank of Sirikul stream.
53	Camp, ...	18	In low jungle and grass.
54	Tashkurgan, or Sirikul,	6½	A fort in the Sirikul valley.
55	Sukrab, ...	18	The country extending over these distances is a barren waste, and the inhabitants live entirely on the milk and flesh of their herds and flocks.
56	Kirghiz, ...	27	
57	Camp in Jungle, ...	5	
58	Akul, ...	8	
59	Keen Valley, ...	20	
60	Kipchak, ...	12	
61	Karūwal, ...	16	A well built Fort.

Route from Caubul to Sirikul *(Continued.)*

Number of Marches.	Names of the daily halting places for ordinary marches.	Estimated number of miles from stage to stage.	Remarks.
62	Yangi Hissar, ...	20	A small town.
63	Upchan, ...	19½	A village.
64	Kashgar new town, ...	16½	Or Yangi Shahr. The seat of Government.
	Kashgar old city, ...	5	

Stages on the Route between Kashgar and Yarkund by Yangi Hissar.

	Kashgar to ...		
1	Upchan, ...	16⅓	A village.
2	Yangi Hissar, ...	19½	A small town.
3	Kalpon, ...	13½	A village.
4	Kazil, ...	18	A village.
5	Kokrobat, ...	18½	A village.
6	Karawul or Lungar,	14	A village and Military post.
7	Yarkund, ...	18	City.

ROUTE
FROM
BADAKSHAN
ACROSS
THE PAMIR-STEPPE
TO
KASHGAR
IN
EASTERN TURKESTAN
WITH THE
SOUTHERN BRANCH OF THE UPPER OXUS
FROM
THE SURVEY MADE BY THE EXPLORER MIRZA IN 1868-69

COMPILED FROM THE ORIGINAL MATERIALS
BY
MAJOR T. G. MONTGOMERIE R.E., F.R.G.S.,
G. T. SURVEY OF INDIA

Scale 16 miles to one inch, or $\frac{1}{1013760}$

10 5 0 10 20 30 40 50

MAJOR T. G. MONTGOMERIE R.E., F.R.G.S.,
G. T. SURVEY OF INDIA

Scale 16 miles to one inch, or $\frac{1}{1013760}$

C. Dyson, Photo.

PHOTOZINCOGRAPHED UNDER THE ORDERS OF MAJOR T. G. MONTGOMERIE, R.E., OFFG. SUPERINTENDENT G. T. SURVEY OF INDIA, AT THE G. T. S. OFFICE, DEHRA DOON, JANUARY 1871.

Hill shading by Mr. H. Sindon.

C. G. Ollenbach, Zinco.

REPORT

ON

THE TRANS-HIMALAYAN EXPLORATIONS

IN CONNECTION WITH THE

GREAT TRIGONOMETRICAL SURVEY OF INDIA,

DURING 1870.

DRAWN UP BY

MAJOR T. G. MONTGOMERIE, R.E.,

IN CHARGE TRANS-HIMALAYAN EXPLORING PARTIES.

OFFG. SUPERINTENDENT G. T. SURVEY.

Dehra Doon:

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M. J. O'CONNOR.

1871.

ROUTE FROM THE PUNJAB TO BADAKSHAN THROUGH SWAT, BAJAUR, BARAWUL, DIR AND PART OF KAFIRISTAN AND KASHKAR OR CHITRAL FROM THE EXPLORATION MADE BY A SAPPER HAVILDAR DURING 1870

COMPILED FROM THE ORIGINAL MATERIALS

BY

MAJOR T. G. MONTGOMERIE, R.E., F.R.G.S.,

Hon. Assoc. of the Italian Geographical Society, &c.,

AND

OFFG. SUPERINTENDENT

G. T. SURVEY OF INDIA.

References

Great Trigonometrical Survey Peaks △

Route Surveys

Scale 16 miles = 1 inch, or $\frac{1}{1013760}$

PHOTOZINCOGRAPHED UNDER THE ORDERS OF MAJOR T. G. MONTGOMERIE, R.E., F.R.G.S., OFFG. SUPERINTENDENT GREAT TRIGONOMETRICAL SURVEY OF INDIA, AT THE G. T. SURVEY OFFICE, DEHRA DOON, JANUARY 1872.—HILL SHADING BY MR. H. SINDON.

GREAT TRIGONOMETRICAL SURVEY OF INDIA

ROUTE
FROM
THE PUNJAB TO BADAKSHAN
THROUGH
SWAT, BAJAUR, BARAWUL, DIR
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G. DYSON. Photo

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C. G. GILLENBACH, Zincg.

Memorandum on the Trans-Himalayan Explorations made during 1870, by Major T. G. MONTGOMERIE, R.E., Offg. Superintendent G. T. Survey of India, in charge of the Trans-Himalayan Exploring Parties.

The Trans-Himalayan and Trans-Frontier explorations were carried on during 1870 in various directions in continuation of my general plan for systematically exploring all unknown or partially unknown countries beyond the British Frontier; one line of exploration from Peshawur direct to Faizabad, the capital of Badakshan, was brought to a successful conclusion, and will now be reported on.

I have long wished to clear up the geography of the mountainous tract lying between Caubul and Little Tibet which is bounded on the south by the Indus river and its great Caubul tributary and on the north by the Hindoo-Koosh and Mustagh ranges. Though draining into our territory and though we have several routes actually going into it near Peshawur and again near Gilgit, our progress in clearing up the geography of this very difficult tract has hitherto been very slow, reliable work indeed extending but a very little way beyond the border. This ignorance has been the more aggravating as from information derived from natives of the country we really know nearly every thing as to each separate portion though unable to put the pieces together so as to form a reliable whole; the inhabitants who constantly come down to Peshawur &c. being uneducated and consequently incapable of explaining how any except the larger tracts lie with reference to each other. This being the state of the case, it appeared to me that if a Route Survey could be carried right through the heart of the country, I should be able to get the correct positions of the larger places and should at the same time be able to string together a large amount of detailed information which I have collected as to the minor tracts, valleys &c., of the country, so as to form a fairly reliable map of the whole. With this object in view I made various attempts to get a suitable agent from near the Peshawur frontier, but failed in getting a satisfactory one until I at last applied to Lieut.-Colonel Maunsell, the Commandant of the Sappers and Miners, who placed at my disposal a very intelligent Pathan Sapper who after a good deal of labour was trained to the work and was getting on very well with a first attempt at exploration when he was killed in a quarrel with some other Pathan with reference to some old feud between their families: as this was however in no way connected with his exploring work it was determined to make another attempt: a Pathan from the frontier with the requisite amount of education was accordingly entertained, and his training nearly completed when facts came to light that rendered it necessary to remove him. This was a great disappointment, but still hoping for success I applied for the second time to the Commandant of the Sappers and was fortunate enough to have a Pathan Sapper placed at my disposal who was in every way qualified for the work; he was consequently carefully trained and after several preliminary trials was started on an exploring expedition with instructions to carry a Route Survey from Peshawur through Swat, Bajaur, Dir, Chitral &c., to Badukshan.

Starting from Peshawur on the 12th of August, the party crossed into Swat by the Malakund pass on a range which rises into peaks of 6,000 to 7,000 feet, reaching on the 15th Alladand, the capital of the present ruler of Swat, a small poorly built town of 300 houses. The next day, at a mile and a half north of Alladand, they reached the Swat river, a very large stream, which they crossed on rafts: continuing their march the same day they ascended the opposite mountains and by an easy pass crossed over the Lurrum mountains into the Talash district, and descending to the Punjkora river crossed it on the 17th; this river appeared to be even larger than the Swat river. From the Punjkora river they marched on through Jundul the largest district of Bajaur, reaching, on the 18th August, Miankilai, the chief town of Jundul, and the capital in fact of the province. Bajaur is divided into 3 districts viz., Jundul (Miankilai), Nawagai and Shahr, each of which is ruled by a separate Khan; the two latter however being in a measure subordinate to the present Khan of Jundul, Faiz Talab Khan styled Haji-Saheb-Zada in consequence of his having made the pilgrimage to Mecca, and who has owing to this and his general uprightness as a ruler, become much respected in spite of a slight weakness in the one matter of horses, which he apparently cannot resist taking at his own price for his own use,—a failing which however I understand is looked upon with a very kindly eye by all except the immediate sufferers; the Bajauries in fact, being a race of horse dealers, appreciate any sharpness in such a direction. Having a great partiality for good horses, he has collected them from all parts of the province and now boasts of a well mounted force of about 800 sowars.

Faiz Talab Khan resides in Burwa, a stronghold of some pretensions: his influence extends beyond his own province, and he is considered to be a more powerful chief than the present ruler of Swat or of any other of the neighbouring provinces; his rule seems to be exactly suited to the wild tribes he has to deal with, though he is unable to keep in check their innate thievish propensities, for even in his capital Miankilai the Sapper and his party only escaped being plundered by means of extra precautions and great vigilance,—a plot to loot them having been formed soon after they arrived. After two days halt, the party travelled north for one march more through Jundul, and then crossing the Janbattai mountains which rise to 12,000 feet, they descended gradually through Barawul, part of which is under a brother of Faiz Talab Khan; thence passing into the Dir district they arrived on the 23rd of August at Dir itself which the Sapper reports as being a small town of about 400 houses.

So far the Sapper had made his way as an ordinary traveller, but from Dir to Chitral the road is infested by Kafirs and it was consequently necessary to make some other arrangements in order to have a chance of a safe transit across this dangerous tract. Traders are in the habit of halting at Dir or Chitral until a large number collect, in order that the may all start together: sometimes as many as 200 start at the same time, but in spite of this and other precautions the travellers are frequently attacked by the Kafirs and many are killed. Those of the travellers who fall are buried by the side of the road, mounds surmounted by a flag marking their graves, these are called the tombs

of the martyrs. The Sapper saw hundreds of these, anything but reassuring, memorials on the way between Dir and Chitral.

On arrival at Dir they were much disappointed to find that all the traders for the northern route had already left, and that there was nothing for it but to make a special arrangement for their party by itself. In this dilemma the Sapper presented himself before Ramatoolah Khan, the chief of Dir and asked for assistance. Ramatoolah Khan questioned him as to the object of his journey &c., and was fortunately satisfied with the answers he got.

The Sapper then placed a handsome gold laced scarf by the chief, and pointing out that as all the traders had already started it would be simple madness for his small party to go by itself, he begged that the chief would kindly send an escort with them; after some hesitation the chief consented and gave the necessary orders. The party accordingly resumed its march and on reaching the village of Kashgarai found an escort of 25 armed men awaiting them; the next day they reached Gujor and then crossing the Lahori pass close to mountains of 14,000 feet and upwards, they after a very trying march reached the village of Ashreth, here in spite of their escort they were much troubled by the Kafirs who swarm in and about the village, the inhabitants pampering them so as to escape being more openly plundered. During the night an incessant discharge of small arms was kept up on the Sapper's party who returned the fire, but owing to the darkness there was no damage done on either side as far as was known. The next day they resumed their march being glad to get safely out of Ashreth. Their escort accomapanied them down to the Koonur river and finally parted from them at the village of Galatak, in the Chitral district, where an escort was no longer necessary. From thence they made their way up the Koonur river to Chitral, crossing one very large tributary called the Shushidurra which joins in on the left or eastern bank. On the road near Brary on the 30th August, the Sapper first heard a report of the murder of poor Mr. Hayward; the report was that a saheb by name "Hawel", who had travelled from Kashmir to Chitral and whose intention was to have gone thence into Badukshan, had been murdered at place called Ooshgoom, (distant about seven days journey north-east of Chitral), by the order of Mir Walli of Ooshgoom, son of the late Goraman of Yassin. The saheb was said to have been accompanied by eight servants, one of whom alone escaped though not without some wounds, the other 7 being all killed. After the saheb was murdered, some 700 tillahs or gold pieces, (about 6 rupees each in value,) were found and taken by the murderers along with his clothes, guns, pistols, his watch, books and a variety of other property.

On the 31st of August the party reached Chitral where their first transaction with the Chitral chief was an attempt on his part, through his Wazir, to make them exchange a portion of their goods at his valuation. The Sapper had an interview the next day with the chief, who is styled Badshah by the people thereabouts, but it was to no purpose, so there was nothing for it but to submit to the imposition.

The Sapper saw the chief Aman-i-mulk several times, and has given the following account of a very remarkable interview he had with him when Mir Walli, the murderer of Mr. Hayward was present. "On the 4th of September the Badshah of Chitral sent for me, (the Sapper,) in durbar and gave me a "seat on his right between himself and Mir Walli; after the ordinary inquiries, the Badshah then "commenced to talk with some of his durbar officials who sat opposite him, and while he was engaged "thus, I turned to Mir Walli and in a quiet way asked him what was the cause of quarrel between "Hayward saheb and himself, on which he said to me that "I was in no way inclined to quarrel with "Hayward saheb for I had seen him on a former occasion while he was travelling through our country "when we interchanged civilities and presents, and parted good friends, but on this latter occasion of "his travelling through the country he was forcibly pressing coolies and other people to carry his "baggage from stage to stage on his way into Badakshan, besides taking supplies of food for his fol-"lowers from the villagers by force, and several complaints from the zemindars reached me to this "effect. On Hayward saheb coming up to the village where I was, I remonstrated with him and advised "him not to act as he was acting towards the people, whereupon the saheb turned round on me and "abused me, telling me that this country did not belong to us but to the English, and altogether his "attitude on the occasion was very violent, so much so that I feared his using personal violence to "myself, and in consequence I kept quiet. The saheb encamped for that night near the place I was, "but towards morning I sent some sixty men to a place a little distance ahead called Ooshgoom, with "orders to wait in ambush for the saheb and his party and on their way thence to fall upon them and "kill them—which they did, killing Hayward saheb and seven of his servants."

It is generally reported in the country that on Aman-i-mulk (the Badshah of Chitral) hearing that Mir Walli had ordered Hayward saheb to be murdered, he exclaimed that "Mir Walli is my enemy, for what authority had he without any order from me to take upon himself to kill Hayward saheb, I must imprison him for the act." Report furthermore says, that Mir Walli on learning this threat of the Badshah fled into Badukshan and hid himself in that country for about 25 days, after which he returned to Chitral and presented himself to the chief, giving him a gun taken from Hayward saheb. The date on which Mir Walli returned to Chitral was the 28th August, from which date they have appeared fast friends. The Badshah always now keeps one of Mr. Hayward's guns beside him whilst in durbar.

The people of Chitral appear to be convinced that Mr. Hayward was murdered by the orders of Aman-i-mulk, the chief of Chitral, who used Mir Walli merely as an instrument in the murder; for they say that the fact of Mir Walli being away for so short a time after the murder and then returning and continuing such a fast friend of the chief tend to show that the chief's appearing to have been annoyed on learning the saheb's fate was simply a blind to throw the blame off himself, the actual offender. Moreover the people of Chitral are convinced that Mir Walli could not have, on his own

responsibility, undertaken the murder of Hayward saheb, for his authority in the country is so weak that he would not have been obeyed had not a higher authority instructed him in the act. They are all convinced that Mir Walli's flight and sudden return to Chitral were planned by Aman-i-mulk before hand. Aman-i-mulk has the reputation of being a very deceitful man, speaking to the humblest of his men in a soft hypocritical manner behind which he conceals a bad unfeeling heart. He is said to live in the constant fear that his country will be taken from him, and to avoid any good excuse for this being done his evil acts are always so planned that the blame should rest on the shoulders of others. The following illustrates this which the Havildar heard from several individuals while in Chitral.

A Subadar named Dillawar Khan and 2 Sepoys belonging to one of the Native Regiments serving under the British at a Frontier Station, were making their way into Badakshan by Chitral, and were well received by the chief and had left for Badakshan when the Badshah got notice that a Subadar and 2 Sepoys employed by the British were taking notes of the country, and was recommended on their arrival at Chitral to detain them. The description given of these men, travelling as they were in the disguise of fakirs, corresponded with the 3 men and they were pursued by the Badshah's men, overtaken and brought back to Chitral and by the chief's orders kept close prisoners. After a confinement of 20 days they were brought before the chief who told them that he had just learnt that they were employed by the British, but had he known this sooner they would certainly not have been imprisoned, so in order to compensate them and throw off all suspicion, he made them presents of chogas &c., treated them with apparent cordiality, and asked them which way they intended to travel; on learning which he ordered two of his men in their presence to escort them as far as a village which he named and to treat them well and see that they wanted for nothing on the road, but secretly he instructed the escort to murder them the moment they were out of his country; and according to several reports they did murder the Subadar, though the other two made their escape. Some however suppose that the Subadar died from cold and weakness. One choga and two note books of the Subadar's are still reported to be in the hands of the petty chief at Zebak.

The account of Hayward's murder agrees in the main with that from other sources; Ooshgoom where the murder was said to have been perpetrated is I presume the Wurchagam noted on poor Mr. Hayward's map as the name of the stream or valley, immediately north of Yassin, through the lower part of which he passed when he first visited Yassin; Darkot is according to the account received from Kashmir the name of the village near which he was murdered, it will be found on the accompanying map 20 miles due north of Yassin.

The Sapper reports that Aman-i-mulk, the Chitral chief seemed to be very friendly with Mir Walli, and most assuredly took a share of the spoils of poor Hayward's camp, for he always carried one of Hayward's rifles, taking it with him to the Eedgah or place for praying where the Sapper accompained him and saw the rifle placed alongside of him.

Chitral consists of a number of small villages and separate houses scattered over a considerable area, though according to his boiling point observation it is 7140 feet above the sea, it is very hot at times during the summer. The Government of the country seems to be only a few shades better than that of the neighbouring Kafir tribes, the chief carries on the slave trade himself, *i.e.* catching Kafirs if he can, but failing them seizing his own subjects and selling them whenever they give him an excuse for doing so by committing any real or imaginary breach of his laws. Probably no great numbers are thus sold into slavery, but as far as could be made out no family in Chitral is quite safe from that fate. The Chitral chief was, on the whole, very civil to the Sapper, and as soon as a one-sided exchange of goods had been effected, he allowed the party to march on towards Badakshan.

Starting from Chitral on the 5th of September, they continued their journey to the north, leaving the main Koonur river on their right and ascending a large side stream, they after some delay reached the base of the lofty Nuksan mountain by noon of the 15th of September, and the same afternoon accomplished about half the ascent. The climate was very trying partly on account of the steepness and partly an account of the snow. Their camp was of course a most uncomfortable one, but they were not able to enjoy long such small comfort as was to be got there, for it was necessary to be off by 3 o'clock the next morning so as to clear the pass before the Kafirs met them,—the road near the pass being dangerous owing to strong bands of those robbers who are always on the look out for the chance of plunder. After a very stiff climb the party reached the crest of the pass, crossing large beds of snow and immense masses of ice; the road for a distance of 4 or 500 paces being literally cut through the ice to a depth of from 6 to as much as 12 feet. Every here and there the ice was fissured with vast cracks which the travellers avoided with the greatest care.

The Sapper had never been on any snowy mountains before, but this account leaves no doubt in my mind that this part of the so called Hindoo-Koosh range at any rate boasts of one glacier, the vast cracks or in other words the crevasses being quite unmistakable as they never occur in an ordinary snow-bed. As the mountains on either side of the pass rise considerably above it, the probability is that there are numerous glaciers in the neighbourhood. The above is the first evidence that we have as to their being any glaciers in the Hindoo-Koosh, nothing of the kind having been noted between Bamian and Pamir Kul the most easterly point visited by the Mirza.

Having crossed the pass, they descended rapidly and after a very hard march reached Daigul the first village of Badakshan, and on the 18th September made their way to Zebak on the Kokcha river, the same group of villages that the Mirza passed through in the previous year thus completing a junction and connecting the two Route Surveys together. From Zebak they went down the Kokcha river, by much the same route that the Mirza ascended, reaching Faizabad the capital of Badukshan on the 25th of September.

The Sapper found that Jehandar Shah, the Mir or ruler who held Badakshan when the Mirza was there, had been supplanted by Mahmood Shah who was assisted by the Amir of Caubul. The party had instructions to advance still farther north across the Oxus and they tried to arrange for so doing, but could not because the road in that direction was strictly closed by the orders of the Amir Sher Ali who suspected that letters were sent by that route to Abdul Rahman Khan by his supporters in Caubul.

Whilst in Faizabad, the Havildar witnessed the fate of a man upon whom some such letters were found. The unfortunate wretch was thrown from a lofty bridge down into the rapid stream of the Kokcha, and though not killed on the spot he died a few days afterwards from injuries received by being dashed against the boulders which protrude from the water in every direction. This is a favourite mode of execution in Badakshan and was noted by Wood when he passed through the country.

Being able to devise no immediate means of advancing to the north, the Sapper according to his instructions prepared to return. Starting on the 27th of October, his party reached Zebak on the 31st of October where they witnessed a meeting between the rulers of Badakshan and Chitral. On the 3rd November they left with a party of traders accompanying Mir Walli, the murderer of Mr. Hayward, who had come into Zebak with the Chitral chief. Whilst there the scoundrel Mir Walli had his leg broken between the knee and the ankle by the kick of a horse, and when the Sapper saw him was in great pain with it, the bone never having been allowed to set.

From Zebak it was necessary for the party to take a different route from that by which they crossed the Hindoo-Koosh on their upward journey,—the lofty Nuksan pass being already closed owing to the lateness of the season. The traders said the only chance was to try the Dora pass to the west which was somewhat less difficult, though less used owing to its running through a part of Kafiristan and to its consequently being always infested by strong bands of Kafirs. The traders however, having Mir Walli's escort and being in considerable numbers themselves, thought they might risk the passage; they therefore marched on taking the more westerly of the two streams which, coming from the south, join at Zebak. The first day they reached Sanglech where the cold was so intense (though it was only the 3rd of November), that the stream which flows past that village in a steep bed was already frozen hard; the next day they advanced to another village also called Sanglech and here two of the Sapper's servants deserted, being afraid to face the intense cold expected on the Dora pass; the Sapper however, resolved to go on with his diminished party; on the 5th they encamped in a desolate place at the foot of the Dora pass, here they had to be very vigilant so as not to be surprised by the Kafirs who are thereabouts more especially troublesome. By good arrangements they escaped an attack and the next day they succeeded in crossing the Dora pass, the road appearing to the Sapper to be even worse than the Nuksan pass; this he thinks was in part due to the lateness of the season. He says he never in his life experienced such hardship as he did on those two stages. The combined effect of the intense cold, the high cutting wind that prevailed, the fact of being deserted by two servants, and the anxiety owing to threatened attacks by the Kafirs made them feel the height of misery, the more especially as from the 6th, when they passed the crest of the Dora pass, till the 7th of November, when they reached Lotko in the Chitral province, it was snowing hard. From thence they marched on to Shogoth thus joining in to their former route. The Chitral chief caught them up and passed them on the way, and thinking he had a good opportunity he ordered an extra toll to be taken from the traders; they however refused to leave Shogoth and held out there 6 days till they at last got better terms. The Sapper with them reached Chitral on the 16th of November; on the 17th he again presented himself to the Badshah who now however looked coldly on him saying that he had heard he was in the employ of the English. The Sapper however, was nothing daunted and requested that he might have a pass for his return: the chief, though convinced he had heard a true account as to the Sapper, thought it as well not to interfere with him and his party and so gave the necessary order. The Sapper said when he left, Mir Walli was still in great agony from his broken leg and as he could actually hear the bone grating when he moved, and it was then more than a month since it was fractured, there is little doubt but that this scoundrel may hereafter be recognised by his lameness which is likely to be permanent, and which may yet perhaps assist in bringing him to justice and to the fate he so richly deserves.

Having completed his arrangements, the Sapper marched back by much the same route as he had advanced, reaching Peshawur on the 13th of December, having again passed safely through the corner of Kafiristan between Chitral and Dir, and not a little glad to think that neither he nor any of his men had added another mound to the tombs of the many Mahomedan martyrs who have fallen on that road.

His Route Survey is 286 miles in length over entirely new ground which has never before been surveyed by an explorer, though no doubt other natives may have passed over the whole length. The route touches upon a great number of districts and determines with all desirable accuracy a number of important places. It accounts for the geography of about 13,000 square miles of this *terra incognita* and will aid in unravelling the geography of a still greater area. The route is checked by 20 Latitude observations at 5 places. The boiling point observations are very meagre,—the Sapper not quite appreciating their importance, this being his first expedition. He moreover says he wished to boil on the passes but was unable to do so without risk of detection, except on the Nuksan pass where unfortunately he could find no wood being far above the limits of forests. From the glacier and the amount of snow in September as well as other evidence, I conclude the Nuksan pass to be above 17,000 feet; that of Dora may be 16,000 to 16,500.

The position of Chitral has always been a great desideratum, and as it is so immediately north of Peshawur it may be concluded that it has been very satisfactorily determined, as any error in the distances could but very slightly affect its longitude while its latitude is thoroughly established by 3 astronomical

observations which agree very fairly *inter se*, the Sapper having shown by his observations for Peshawur and for Faizabad that he understands taking Latitudes,—those at the latter place agreeing very closely with Wood and the Mirza.

The heights of Miankilai and Chitral, though only approximate, assist in forming a better general idea of the height of the countries traversed than we have yet had; a glance at the accompanying map will show what has been accomplished. Amongst other things it may be said that the course of the great Koonur river has been definitely, though roughly, determined as there now exist but two gaps,—the 1st between Chitral and the Mirza's bearing from edge of the Pamir Steppe which evidently points to the source of the Koonur river, and the 2nd gap between Chitral and Chigur Serai as determined by Griffith's accurate observations. These gaps can in a measure be filled up by the aid of the numerous peaks which we have determined trigonometrically in that direction, and I think it may be said that those portions of the course of the Koonur river will not hereafter be found to differ materially from the dotted line given in the map. Should any explorer hereafter be fortunate enough to traverse its whole course his additions will be chiefly as to the side streams.

The Sapper's pacing on the whole seems to have been good. As compared with the difference of latitude between Peshawur and Chitral it appears that one of his paces was on the average 21·8 inches in length which is somewhat short.

Accepting the Mirza's value of Zebak and the Sapper's value for Chitral, the direct distance between those places should be 60·5 miles; using the value of the Sapper's pace as determined from the latitudes of Peshawur and Chitral, viz. 21·8 inches, the distance between those places would be 69·1 miles, a fair agreement considering the roughness of the ground and the fact that there is no telling exactly what points of Zebak the Mirza and the Sapper respectively refer to.

A farther check is afforded by his route between Zebak and Faizabad being the same as that by the Mirza; the Sapper gives very nearly the same average bearing and makes the distance 62·9 miles while the Mirza makes the same 59·5 of his miles, which as shown in para: (30) of my last year's memorandum were 0·02 in defect, and the 59·5 miles being consequently equal to 60·7 miles,—a close agreement bearing in mind that Faizabad is a mile in length and that there are 8 villages in Zebak and no particular place for halting in, travellers sometimes choosing one and sometimes another.

Altogether the Sapper's work has satisfactorily stood the tests applied; he has moreover fixed a number of peaks by bearings and though mostly rather close to his route they will aid in solving the geography of the surrounding mountains.

In my opinion the Sapper deserves all credit for his great pluck and endurance as well as for the discretion with which he penetrated through such a difficult country without I believe getting into a single disturbance with the people of any of the districts he traversed, though constantly bullied by requests for legal and illegal tolls which were made at most places. I am convinced moreover, that his undaunted bearing on his return journey when the chief had guessed his secret was the means of preventing himself and party from being sold into slavery or possibly from a worse fate, the wily chief probably thinking that his co-religionist who showed such a bold front did so because he was backed by some thing more than the few men he had with him.

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Narrative Report of an exploration of the route from Peshawur through Swat, Bajaur Barawul, Dir, Kafiristan and Chitral to Faizabad in Badakshan, drawn up from the original journals &c., by Major T. G. Montgomerie, R.E., in charge of the Trans-Himalayan Exploring Parties.

The Sapper left Peshawur accompanied by his assistant and servants on the 12th August and arrived towards evening at a village called Nasath, on 13th arrived at Jelala village, on 14th reached the village of Durgai which is on the frontier of Swat and not in British territory. Durgai is surrounded by a mud wall about 40 feet in height and 3 feet in thickness, it is occupied by an unscrupulous set of bandits, and consequently wholesale robberies and murders are quite common. On the morning of the 15th August they left Durgai village and after crossing the Malakund range reached the village of Alladand towards night fall. This place Alladand is the seat of the present Khan or ruler of Swat, a man not equal to govern the country properly and hence the people are dissatisfied and are always intriguing to induce his predecessor to resume the rule of the country. The village of Alladand consists of about 300 houses built of stone cemented with mud. On the morning of the 16th August, after paying the tax imposed for the goods with them, the party left Alladand village; marching on for a mile and a half they reached the Swat river, which they crossed on rafts, arriving by night at a group of four villages called Ooch, one of which belongs exclusively to the sect called Saiyuds and the other three exclusively to Pathans.

On the 17th they reached the small fort of Serai by noon, and after paying the usual toll charged there they travelled on till they arrived at Shumshi Khan village, where they had to pay another toll. Both these villages are presided over by officials styling themselves Khans and are amenable to Faiz Talab Khan the ruler of Bajaur. Continuing their march on the same day they crossed the Punjkora river and stayed for the night at Kotkai village; the tract from the village of Ooch to the Punjkora river constitutes the district called Talash. On the 18th they arrived by night at Miankilai, which is the largest and most important town in all Bajaur; it is situated in the largest of the three subdivisions of the Bajaur Province, viz. Jundul. The town of Miankilai has about one thousand houses built, as usual in these parts, of stone cemented with mud.

The present ruler of Miankilai has, owing to his popularity, the greatest amount of authority of all the Khans in the Bajaur district, and is styled by the people Haji-Sahib-Zada.

The party halted at Miankilai for 2 days in order to take star observations for the determination of its latitude. While halting for the purpose, a plot to loot the party was made by a gang of thieves; this fortunately was revealed to the Sapper by the owner of the house they occupied, and consequently by extra caution and vigilance on their part the danger thus threatened was warded off.

On the morning of the 20th August they left Miankilai town and arrived at Kanbat village situated in Jundul. This village is notorious for thieves, and they had to adopt great precautions for the the security of their baggage. On the 21st they reached the fort and village of Janbattai after crossing the mountain of the same name. The ascent to the pass of Janbattai from either side is stiff, but fortunately several springs of water exist on the way and help to allay the immoderate thirst produced by the ascent. The northern slopes of this mountain are covered with dense Pine forest while the southern slopes are only partially covered. It rained for half the day while they were on the Janbattai mountain.

Here the Sapper met Feroza-Khan (brother to Faiz Talab Khan of Jundul), who is the possessor of a small tract of country including several villages in the Barawul district. He appeared friendly though anxious to find out the real object of the Sapper's journey; fortunately the latter managed to ward off all suspicion as to the real state of affairs by giving out that he was going to Chitral in the hope of getting some presents from the Badshah, whose reputation for such was proverbial, and at the same time to obtain some falcons for which Chitral is far famed and which fetch such high prices in the Punjab. Feroza-Khan has a great partiality for fire-arms of all descriptions and showed a large number of guns of English manufacture which he had been at great pains in collecting.

On the 22nd they reached, towards evening, the village of Soorbat situated in the district of Dir. Half-way on this march they came across the fort and village of Bandai situated on the frontier of the Barawul district. On the 23rd they arrived at the village of Dir which contains about 400 houses. The present ruler of Dir is Ramatoolah Khan, son of Ghazan Khan who during his life time ruled the large tract of mountain land which at present constitutes the district of Dir. Ghazan Khan was a powerful chief and his authority was very great, for even the Badshah of Chitral was tributary to this chieftain. He left nine sons, all of whom aspired to the vacant Guddee and bloodshed among these brothers ensued, till at last Ramatoolah Khan, the eldest established himself permanently as chief. The brothers then dispersed themselves over the country but are still jealous and impatient of Ramatoolah Khan's authority, endeavouring to throw the country into a state of disaffection and anarchy by questioning their eldest brother's right to the Khanship of Dir.

Ramatoolah Khan is in person a handsome, manly young chief, six feet in height, and is mentally well fitted to rule in such a country. His administration of justice is the theme for praise with all the people.

The road from Dir to Chitral is infested with Kafir robbers, who are much dreaded by travellers. It can be said to be open for only 2½ months of the year, from the latter end of May to the middle of

August. Two reasons make the road impracticable during the remaining months of the year, viz. the snow during the winter and the dread of the Kafirs during the warmer months.

Having made arrangements the party continued its march on the 25th and reached a village called Kashgarai, from whence an escort of 25 armed men accompanied them on the 26th on the route to Chitral. On the 26th they reached the village of Gujor inhabited only during the summer months, on the 27th after crossing over the Lahori mountain they reached the village of Ashreth after a very tedious day's journey. Immense quantities of iron are found in the bed of a small stream which rises at the foot of the Lahori mountain; the process adopted to obtain this iron is similar to that in the washing of gold dust from the streams of other parts of the country. A quantity of sand from the stream is placed in a sieve and washed till the iron is left behind.

Ashreth village is the resort of scores of the Kafir robbers. It is the place most dreaded by the merchants who travel by this route. The Kafirs usually keep up an incessant fire on travellers throughout the night. The exploring party was not spared in this respect and hence passed a most anxious night returning the fire of the robbers, but with what effect the darkness prevented them from ascertaining. Leaving Ashreth on the 28th they reached the village of Darosh at night, after having dispensed with their escort at a village called Galatak situated in the Chitral district. Darosh possesses a fort which is the residence of Kokan Beg, brother to Aman-i-mulk the Badshah of Chitral. This Khan levies on all merchants and others a toll or tax, but in consequence of a letter having been sent to him by the ruler of Dir through one of his officials asking him to exempt the party from, all tolls, they were not asked to pay anything.

On the 29th they reached Shushidurra, a small village on the right bank of the Shushidurra river which throughout the year contains so large a volume of water that at no time is it fordable, and always has to be crossed by a bridge. This river flows into the Koonur river.

It is reported that in the neighbourhood of this village a silver mine exists which is said not to be worked because the chief of Chitral fears that were the fact known to the Amir of Caubul, or the Maharajah of Kashmir or the Amir of Badakshan, his country might be wrested from him. The silver, it is rumoured by the people, was accidentally discovered in a spot in this neighbourhood by a Fakir who in person reported the circumstance to the Badshah of Chitral; the latter was then conducted to the spot and after satisfying himself of the truth of its existence he is said to have imprisoned the discoverer and then to have poisoned him. The existence of silver hereabouts is not unlikely for the country is rich in copper mines, which are said not to be worked now for the same reasons as given for not working the silver. "Orpiment" or yellow arsenic, called Hurtal, which is much used for dyeing cloth is also found in large quantities in the country. On the 30th they left Shushidurra and travelled to Bruz village.

On the 31st August the party reached Chitral. On the arrival of any merchant at Chitral an official of the Durbar immediately reports the circumstance to the chief with a list of the merchandize with the merchant. The Badshah's Wazir then repairs to the merchant and in his master's name informs him that the Badshah requires to exchange goods with him to a large amount. The arrival of the party was reported in due course to the Badshah, who sent as usual his Wazir with the stereotyped request to exchange goods, but thinking that they might avoid this imposition they requested time up to the next morning to make up their mind on the matter. Consequently on the morning of the following day the Sapper went to the residence of the Badshah in the fort. The Badshah then interrogated them as to where they had come from, where they were going, and as to the object of their journey. They answered that they had come from Peshawur and were going to Bokhara where they hoped to recover money from certain of their countrymen who had amassed large fortunes and were settled in Bokhara. The chief of Chitral advised them not to attempt the journey, for the road was closed to travellers onwards from the river Hamoon (the Oxus) by the Amir of Badakshan, Mir Mahmood Shah, in compliance with orders received by the latter from Sher Ali, the Amir of Caubul who has considerable authority in Badakshan. The reason for this prohibition is that about a year and a half ago on the persons of three travellers, who were on their way to Bokhara and who were accidentally searched, were found letters of great political importance purporting to have been written by certain intriguing Sirdars of Caubul to Abdool Rahman Khan nephew of the present ruler Sher Ali of Caubul. Abdool Rahman Khan was said to be at this time in Bokhara under the protection of the Russian Government. These three men on whom the letters were found were forwarded on to Caubul and by order of the Amir were blown away from guns. All these matters were told to the Sapper direct by the Badshah of Chitral himself, in order to force him to interchange the goods he had brought with him, such as richly worked scarfs, chuddurs &c., with such articles as he would or could give in return, and seeing his intention the Sapper replied that at least he would travel up as far as the frontier (the Hamoon river) even supposing that he could proceed no further.

On the 5th September 1870, after making arrangements for the onward march and disposing of a couple of asses which were of no further use, the party left Chitral and reached the village of Shogoth towards evening. At this place they had to halt on the 6th and 7th in order to change carriers. On the 8th they left Shogoth and reached Shali village. On the 10th they marched to Hurkarri village where they stayed till the 13th September.

On the 14th they left Hurkarri and reached the village of Oweer; the road on this march for a mile is very dangerous for laden animals and so they had to unlade the ponies and convey the bag-

gage on men. On the 15th by noon they reached the foot of the mountain called Nuksan; after refreshing themselves they commenced the ascent that same day, but had to encamp about half-way up the hill in consequence of night coming on. The ascent of this hill is attended with great fatigue, being covered with snow nearly from the foot of the mountain, the slope is great and a high, cold and sharp wind always blows throughout the day, making it very disagreable for travellers. The feeling of shortness of breath is felt on this mountain and travellers eat raw onions on making the ascent in order to counteract if possible the giddy feeling which comes over every one.

On the 16th they rose at about 3 A.M. and resumed their journey reaching the crest of the mountain at day break; this was done so as to avoid any likelihood of the party meeting with the Kafir robbers who from this point again begin to be dangerous; the party continued their march till they reached the village of Daigul making altogether a very long and tedious march.

On the 17th they discharged the carriers who were with them and halted at Daigul (which is on the frontier of Badakshan), to make fresh arrangements for carriers &c. On the 18th the arrangements being completed, they started and reached Zebak which is formed of eight villages scattered within a small distance of each other. The present petty chief of Zebak, Mir Hak Nazar by name, has received his authority direct from the ruler of Faizabad. Zebak is in a valley from 2 to 3 miles in length and surrounded on all sides by mountains; three streams, one flowing from Yarkund, one from Daigul, and the third from Sanglech meet at Zebak and flow from thence in one united stream towards Faizabad.

One road leads from Zebak towards Yarkund, another leads to Daigul, a third leads to Sanglech and a fourth to Faizabad. The trade in slaves of both sexes assumes no great proportions in either Chitral or Faizabad. In the former place it is monopolised by the chief and no one besides himself dares to sell slaves, while in the latter place merchants chiefly from Bokhara deal in them, the ruler of Faizabad taking no part in the transactions.

The party was delayed at Zebak for 2 days in consequence of an attempt that was made there to induce them to surrender their goods with little or no payment, which the Sapper on the other hand was determined not to do at any rate without the payment of their full value.

On the 21st they reached Sufaid Durra village, on the 22nd Soofian village. The country about this village is very productive in fruit of all kinds; the apple grows to perfection, and is so abundant that for a single copper they bought about 50. On the 23rd they reached Yardar village; on the 24th Robat and on the 25th September they arrived at Faizabad.

On arrival at Faizabad they learnt that the road through Kolab into Bokhara was closed by the orders of the Amir of Caubul in consequence of his being suspicious that this road was the one used in the conveyance of letters to Abdool Rahman Khan from intriguing sirdars in Caubul, and that they, to avoid all suspicion, had the letters conveyed in the first instance to Peshawur and thence through Swat, Chitral, Faizabad, Rustak &c., into Bokhara.

The present ruler of Badakshan, Mir Mahmood Shah, was placed there in October 1869, by Sher Ali Khan and is tributary to the latter. He is in caste a Saiyud and is reputed to be a learned man; the people of Badakshan, however, are averse to his rule as he oppresses them by demands for extra revenue &c. which is taken from the people on the plea of the same being demanded by the Amir of Caubul, but a large portion of which they are certain is retained by Mir Mahmood Shah for his own use. No less a sum than Rs. 80,000, besides 500 horses, was paid to Sher Ali during the first year of Mir Mahmood Shah's rule in Badakshan. The former ruler of Badakshan was Jehandar Shah an intimate friend of Abdool Rahman Khan; and when the latter fled to Bokhara, Jehandar Shah also left his country and followed his friend, the country being taken from him by Mir Mahmood Shah. The chief of Badakshan up to this time never paid any tribute to the Amir of Caubul.

Jehandar Shah when chief of Badakshan is said not to have oppressed his subjects and though a drunkard and a dissolute character, was able to maintain his independence and never paid any tribute to Caubul. Traders from all parts of Turkestan, Bokhara, Caubul, Candahar &c. resort to Faizabad and the Bajauri Pathans flock thither in large numbers to barter and trade.

The contrast between the two durbars of Chitral and Faizabad is very striking in the matter of the authority of their respective chiefs, the manner in which the durbar is conducted &c. The chief of Faizabad is much respected in durbar, and the despatch of public business, the conduct of public worship, the dress of the people and other public matters betoken the prosperity of the country and the security from oppression which the people really enjoy.

It was commonly reported in Faizabad that a Saheb who had travelled a long distance and had gone to Caubul and received a letter from Amir Sher Ali had found his way into Faizabad, where he was treated in a very cordial manner by Mir Mahmood Shah who gave him a small escort to enable him to travel to Yarkund; he had left Faizabad but 10 days when the party arrived there. This Saheb carried quantities of medicines with him and gave medical aid to the inhabitants of the countries through which he passed. It is reported that he found his way to Yarkund but that he was imprisoned there, for unknown reasons, by the Khoosh Begi or the ruler of that place. During his stay in Faizabad the Sapper witnessed the fate of three men on whom letters, written by some sirdars of Caubul to Abdool Rahman Khan and Jehandar Khan, had been found. They were at first sentenced to be hanged, but their lives were interceded for by some people and the sentence was accordingly commuted to exile for two of the lesser offenders while the chief offender was ordered to be thrown into the river,

a mode of punishment much practised there. Owing to the rapid current of the river flowing over a rocky bed, this practice seldom fails to prove fatal to the victim; in this case, the offender, though escaping immediate death by being washed to the other bank, yet died 10 days after of the wounds he had received from being dashed against the rocks. The place of exile to which the other 2 men were sent is called Sarab, a spot so hemmed in by dangerous and steep mountains that once in the spot it is almost impossible for the victim to escape.

During their stay in Faizabad, the Sapper heard a rumour that Abdool Rahman Khan assisted by the Russians had marched on the city of Shahri-Subz, but was repulsed. On learning that the leader of the enemy's force had been shot down, they were said to have returned to the attack and to have taken and plundered the city.

On the 27th October they began their return journey and reached Robat village, on the 28th Yardar, on the 29th Soofian, on the 30th Suffaid Durra, on the 31st Zebak where they halted the next day, the 1st November, and witnessed the meeting of the chiefs of Chitral and Badakshan who had journeyed thither for friendly intercourse. The former had 700 sowars with him as his escort and the latter 2,000, sowars or mounted men. It was supposed that the meeting of the two chiefs was dictated from fear of their countries being taken from them by the Amir of Caubul, and hence negotiations for offensive and defensive alliance were entered into on the occasion. Presents were interchanged between the chiefs; the Chitral chief giving 21 slaves of both sexes and also his daughter in marriage to the Faizabad chief's son and the latter presenting the other with 60 Chogas of Bokhara manufacture, also 2 swords and a horse.

On the 2nd November they halted at Zebak. On the 3rd they travelled along with the traders accompanying Shah Zada Mir Walli to Sanglech. On the 4th November they reached another village also called Sanglech. On the 5th they encamped in a desolate spot at the foot of the Dora pass. On the 6th they crossed the Dora ridge and encamped at the foot of the pass on the other side near the site of a hot spring the water of which is hot enough to boil eggs in a short while.

On the 7th November they reached the village of Lotko situated in the Chitral district. The Badshah and his followers passed on this march on their return from the interview with the chief of Badakshan. On the 8th they reached Drosh village (not the Drosh mentioned on their first journey). On the 9th they reached Shogoth, the same place they passed on their first journey. Here they were detained for 6 days in consequence of the traders in whose company the party travelled refusing to pay the higher rate of toll imposed by the collector of the place by the orders of the Badshah.

On the 16th they reached Chitral and on the 17th the Sapper again presented himself to the Badshah, but his treatment of him this 2nd time was cold, for he said that he had heard the Sapper was in the employ of the English and could not be persuaded to the contrary. He however did not molest them in the least.

On the 23rd they left Chitral and continued their march over the same road they had gone up by, halting daily at nearly all the same places as on the former journey but from unavoidable circumstances they halted for 2 days at Darosh, 3 at Dir and 2 at Hotee Murdan. They reached Peshawur on the 13th of December 1870, and thence returned to the Head Quarters of the G. T. Survey.

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and Incharge Trans-Himalayan
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Observations for Latitudes taken in Central Asia with.

No. of Observation.	Astronomical Date.		Watch Time.	Stations.	Object.	Upper or Lower Transit.	Double Altitude.	Single Altitude.	Index Error.	Deduced Latitudes.	Mean Latitudes.	Remarks.
	1870		*h.* *m.*				° ′ ″		′ ″	° ′	° ′	
1	August	5th	P.M. 8 55	Camp Peshawur.	Polaris.		67 0 0		+4 30	33 56	33 56	Not observed on Meridian.
2	,,	,,	11 20	,,	,,		68 40 0		,,	33 56		Do.
3	,,	,,	11 36	,,	,,		69 0 0		,,			Do.
4	,,	,,	9 32	,,	Altair.		115 41 0		,,			Do.
5	,,	,,	9 57	,,	,,		121 18 0		,,			Do.
6	,,	,,	10 2	,,	,,		123 0 0		,,			Do.
7	,,	6th	A.M. 2 2	Peshawur Mundee.	Fomalhaut.		51 31 6		,,	34 0	° ′ 34 0	On Meridian.
8	,,	,,	3 48	,,	β Ceti.		74 43 0		,,	34 0		Do.
9	,,	19th	P.M. 11 36	Miankilai (District Bajaur.)	Fomalhaut.		43 37 0		,,			Not observed on Meridian.
10	,,	,,	11 45	,,	,,		44 34 0		,,			Do.
11	,,	,,	11 53	,,	,,		45 33 0		,,			Do.
12	,,	,,	A.M. 0 40	,,	β Ceti.		56 30 0		,,			Do.
13	,,	,,	0 45	,,	,,		57 37 0		,,			Do.
14	,,	,,	0 50	,,	,,		58 41 0		,,			Do.
15	Sept.	1st	Noon.	Chitral.	Sun.		125 35 0		,,	35 36	° ′ ″	On Meridian.
16	,,	4th	A.M. 1 50	,,	β Ceti.		71 6 0		,,	35 49	35 44 40	Do.
17	,,	,,	2 45	,,	Polaris.		74 30 28		,,	35 49		Do.
18	October	2nd	P.M. 11 36	Faizabad (Badakshan.)	Fomalhaut.		45 22 0		,,	37 5		Do.
19	,,	,,	A.M. 0 36	,,	Polaris.		77 10 0		,,	37 9	37 7 20	Do.
20	,,	3rd	1 12	,,	β Ceti.		68 27 0		,,	37 8		Do.

Observations of the Boiling Point taken in Bajaur and Chitral.

No. of observation.	Month and date		Watch time.	Station.	Thermometer.				Deduced Height above Sea.	Remarks.
					No.	Boiling Point.	No.	In Air.		
	1870		*h. m.*						*feet*	
1	August.	11th	1 0 P.M.	Peshawur Mundee		210°		100°	1165	Height from G. T. S.
2	„	20th	7 0 A.M.	Miankilai (Bajaur District)		206°		81°	3535	
3	September.	4th	4 0 A.M.	Chitral		200°		90°	7137	

The positions of the chief places as deduced from the Sapper's route survey are as follows, viz:—

	Latitude.	Longitude.	Height.
Alladand, capital of Swat	34° 38′	72° 0′	
Miankilai, capital of Bajaur	34° 53′	71° 38′	3540
Janbatai, capital of Barawul	35° 8′	71° 41′	
Dir, capital of Punjkora	35° 14′	71° 49′	
Chitral, capital of Chitral	35° 46′	71° 46′	7140