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## Journey from Leh to Yarkand and Kashgar, and Exploration of the Sources of the Yarkand River

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are from rough measurements with an aneroid barometer, and the others are estimated by comparison with those measured. A boiling-point apparatus which Mr. Hollingworth carried proved useless in determining the elevation of the river above the sea level; but considering that the whole course of the river is through an alluvial plain, whose slope must be very gradual, this elevation, even at the uppermost point visited, cannot but be very slight.

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II.—*Journey from Leh to Yarkand and Kashgar, and Exploration of the Sources of the Yarkand River.* By G. W. HAYWARD.

*Read, December 13, 1869.*

1. JOURNEY FROM LEH TO SHADULA, AND EXPLORATION OF THE KARAKASH RIVER.

*October and November, 1868.*

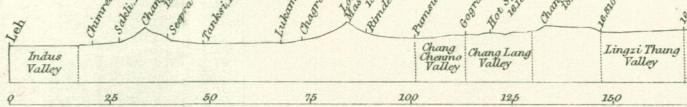
I ARRIVED at Leh, the capital of Ladak, on the 21st September, 1868, having left Murree, in the Punjab, on the 26th August. The distance is 390 miles, and I made double marches every day, being anxious to get off for Turkistan before the snow fell and made the passes difficult.

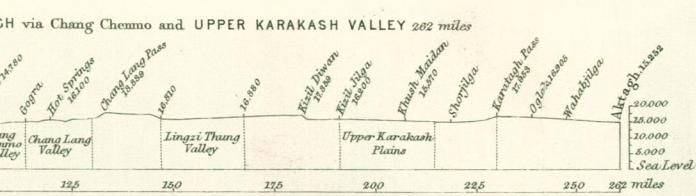
From Leh to Yarkand there are three routes open to the traveller to choose. The first is the Zamistânee, or winter route, which from Leh crosses the Digur Lá Pass and ascends the valley of the Shayok River to near the Karakoram Range; the second, the Tabistânee, or summer route from Leh, crosses the Kardong Pass, 17,574 feet above the sea, and the Shayok River at Suttee, from where, ascending the Nubra valley, it crosses the Karawal Pass, and then the difficult Pass of Sasser, 17,972 feet above the sea, joining the former route at Moorghoo. From here they continue together across the Karakoram Pass, 18,317 feet above sea-level, to Aktâgh, where they separate; the Zamistânee route conducting down the valley of the Yarkand River and across the Yangi Pass to Kugiar, Karghalik, and Yarkand.

The Tabistânee route from Aktâgh crosses the Aktâgh Range by the Sooget Pass, 18,237 feet above the sea, and, following the course of the Sooget stream, joins the valley of the Karakash River 4 miles above Shadula. The Kilián range of mountains has then to be crossed by either the Kullik, Kilián, or Sanju passes, which are all very difficult and impracticable for

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Sketch Map of  
**EASTERN TURKISTAN**

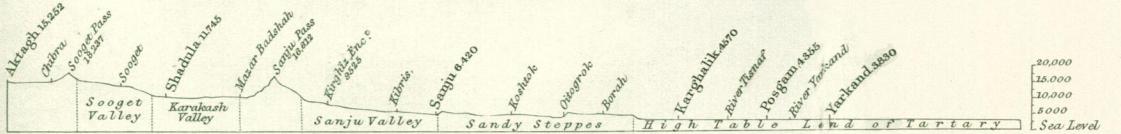
Showing  
THE HYDROGRAPHY OF THE PAMIR TO THE EAST  
The true courses of  
THE YARKAND AND KARAKASH RIVERS  
with all the Routes from  
LADAK across the KARAKORAM  
and adjacent Ranges.

As drawn by the author.

Geo. J.W. Hayward

(the heights are left as marked in the author's original map.)

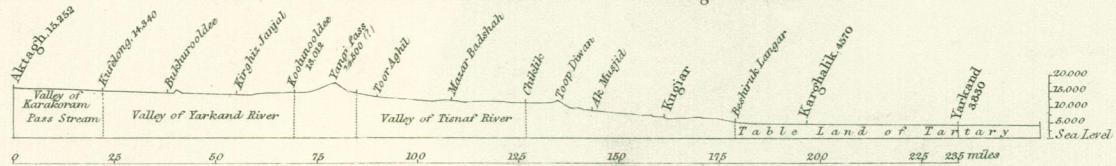




# Takla Makan Desert



ARTACH to YARKAND (Zamistâneé Route) via YANGI PASS and Kugiar 235 miles



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laden horses, whose loads have to be carried on yaks (tame buffaloes), and all of these routes join at Karghalik, 36 miles from Yarkand.

The third route from Leh is *viâ* Chang Chenmo and the Chang Lang Pass, 18,839 feet above the sea, and across the series of high plains lying between Chang Chenmo and the Kuen Luen Range, below which it enters the valley of the Karakash River, and, conducting down that valley, joins the Tabistânee route at Shadula.

With reference to these routes, it may be stated that the Tabistânee route is the one now most frequently traversed by the merchants, although the passes on the Ladak side of the Karakoram are very severe. Still grass and fuel are everywhere obtainable on this road, with the exception of some 50 miles from below the Karakoram to Sooget. The Chang Chenmo route possesses the advantage of having only one pass to cross after reaching the Chang Chenmo valley, and this, the Chang Lang (18,839 feet, as above stated), is a very easy pass, the ascent being only on the south side. Beyond this pass the road traverses some elevated plains, called Lingzi Thung, where no grass and but little fuel and water is to be met with for seven to eight days' journey to the Karakash River, below the Kuen Luen Range. Down the valley of this river grass and fuel are everywhere obtainable. As far as the road is concerned, this route is excellent; but the fact of there being little fuel and grass at such high elevations renders it a severe undertaking for the caravans of the merchants, and there seems at present but little chance of its becoming the main trade-route. The Yarkand merchants appear to be somewhat loth to strike out a new line of traffic in this direction, since, notwithstanding a reward has been offered in Ladak to any trader who will proceed by this route, they all seem to prefer the old road *viâ* the Karakoram Pass.

The distance from Leh to Yarkand, by the Zamistânee route, is 530 miles; by the Tabistânee, some 480 miles; while by the Chang Chenmo route it is 507 miles; Shadula being distant from Leh by this latter route 316 miles, from where it is 191 miles to Yarkand.

The great desideratum to insure an increasing traffic with Central Asia is the opening out of a shorter and easier trade-route, leading direct from the north-west provinces of India to Yarkand. A good road, avoiding both Kashmir and Ladak, would offer greater facilities to the Yarkand traders for reaching India direct, and have the desired effect of insuring an easier transit, as well as doing away with the difficulties, both political and geographical, which attach to the old Karakoram route.

The desirability of such an event was so evident that the ascertaining if such a route existed was one of the main objects kept in view by the present expedition.

I remained a week in Leh, making the necessary arrangements to proceed to Yarkand. Ponies and horses to carry the baggage and supplies for the road had to be purchased. By far the best animals for the purpose are the Turkistan ponies, as the Ladak ones are small, and hardly fit for the severe work attending so long a journey. The Yarkand ponies, however, can carry from 200 lbs. to 250 lbs. across most of the passes met with on the way, and there is generally a large demand for them in Leh. Their price varies according to the demand and their capability of carrying weight. A good pony should be bought in Leh for 80 to 120 rupees (8*l.* to 12*l.*), while the best ones, used for riding purposes, fetch higher prices, many of them selling readily for 200 to 300 rupees (20*l.* to 30*l.*) Several Afghan horsedealers make a yearly trip into Turkistan, and return with horses and mules for sale. Some of these mules are exceedingly fine; and were any inducement offered to dealers to import a larger quantity for the Palampore fair, which is largely frequented by merchants from Yarkand and all parts of Northern India, a certain mart would be established for mules suitable for transport-trains and mountain-batteries.

Here, at Leh, I engaged two men to look after the horses, one of whom had been to Yarkand before and was competent to act as a guide on the road. Warm clothing, lined with sheepskin, had to be obtained for self and servants, as the cold to be met with would be intense, also "pubboos," or Ladak snow-shoes, and supplies for the journey, carried on hired yaks.

Intending to proceed by the Chang Chenmo route, we got off from Leh on the evening of the 29th September, and made a short march to Tiksee, a village situated in the valley of the Indus. At 20 miles from Leh the road leaves the Indus valley and turns to the north, up a ravine, to the village of Sakti, where yaks can be obtained for crossing the pass into Tanksee. There are two passes across this range of the Himalaya, known as the Kilás Range, one of which leads across the Durgoh Pass to the village of Durgoh, some miles below Tanksee, while the other, the Chang Lá, is more to the eastward, the road across which leads direct into Tanksee. The Chang Lá Pass is 18,368 feet above the sea, and, though not impracticable for laden horses, it is severe enough to render its passage preferable with the aid of yaks, which can always be obtained at the villages below the pass.

The descent on the north side is at first steep, and the road conducts down a ravine to Seefrah, a Bhoot encampment in the

valley. Tanksee, 12 miles distant, is reached early the next day. This village, which is 49 miles from Leh, is the last place in the Maharajah of Kashmir's territory where any supplies can be obtained. With the exception of a few stone huts near Chang Chenmo no habitation is met with, nor can any supplies be obtained until reaching Turkistan, 400 miles away. A delay of two days here was, therefore, unavoidable, in order to make the final arrangements for the long journey before us. Four Bhoots, or Ladak villagers, were engaged to accompany me to the borders of Turkistan, and their yaks laden with grain for the horses.

Chang Chenmo is a district lying about 50 miles north-east from Tanksee, from which it is reached in three or four days' journey.

Chang Thang, with Rudok, lie more to the eastward. The greater part of the Chang Thang district contains salt-mines, from which the whole of Ladak and part of Tibet are supplied with salt, while a large traffic is also carried on with Kashmir. The salt is brought down from the mountains on sheep, which are extensively used throughout Ladak and Tibet for carrying light loads. I met a flock of several hundred coming down the Chang Lá Pass, all laden with salt, placed in small bags across the back, the average weight which one sheep will carry being about 30 lbs. The wool of these sheep is considered to be excellent, and is in great demand at Leh for transportation to Kashmir; besides which, the valuable wool of the shawl-goat, abounding in Chang Thang, is the main article of traffic sent to Kashmir.

Leaving Tanksee on the 5th October, we proceeded towards Chang Chenmo, marching that day to Lukong, a place consisting of a few stone huts, situated at the head of the Pangong Lake. Already thus early we had warnings of the inclemency to be expected from the lateness of the season, for a snow-storm came on towards evening, during which we wandered from the track, and, not at once regaining it, did not reach Lukong until late at night. Between here and Chang Chenmo another high pass, the Masimik, has to be crossed. It is nearly 18,500 feet above the sea, and is generally covered with snow. Although at such an elevation, it is a very easy pass, but laden horses suffer somewhat when crossing it from the rarefaction of the atmosphere. The road to the pass is gradually on the ascent for 6 to 7 miles, and the mountains on either side the valley were this day quite covered with snow. Crossing the pass, we encamped that night at Rindee, 2 miles below, at an elevation of 17,200 feet. The cold was severe, the thermometer at 7 A.M. the next day marking  $3\frac{1}{2}$ ° Fahrenheit.

At 14 miles below the pass the Chang Chenmo Valley is struck at Pumsul. The whole country is very barren, and the mountain ranges quite bare, save of snow and glacier. In a few places in the ravines and valleys a little grass alone is met with. Wood, too, is very scarce, the only fuel obtainable being "boorsee," a short thick shrub, with ligneous roots. This is found on the lower slopes of the mountains, at some distance from the main valley, otherwise it would be impossible to exist for any length of time in these elevated regions. All the streams were dried up at this time of the year, with the exception of the main river, which was a mere brook. When, however, the snows are melting during the summer months this stream attains to a considerable size. It receives the waters from the ranges on either side the Kugrang Valley, at the head of which it has its source, and, flowing with a course nearly due west through the Chang Chenmo Valley, joins the Shayok River near Lauxakeuti.

Chang Chenmo is now well known, being visited every year by at least half-a-dozen officers on long leave to Kashmir. The game to be found is the wild yak, ovis ammon, burrell, Tibet antelope, and *wild horses*. The wild yak is met with, more or less, all along the high table-land of Tibet up to the borders of Turkistan. Eastward, they range the high country near the sources of the Indus and Sutlej rivers, and are there, with the ovis ammon, found in much greater numbers than in Chang Chenmo. They live at the higher elevations, being generally seen right up in the snow, and only descend to feed on the scant grass found in the ravines and valleys. Water does not appear to be a necessity to them, as they eat snow. It is not known whether the wild yak is found on the Pamir Steppe, although the Kirghiz who frequent that range possess large herds of the tame species. I have never seen any traces of them further west than in the valleys near the head-waters of the Yarkand River, and the 78th meridian of longitude may be fixed as the limit of the range of the Tibet species in this direction.

Having marched from Pumsul, we ascended the Kugrang Valley, with the intention of crossing the range at its head and following the stream rising there, which is represented on our maps as the Yarkand River, down to Aktâgh. The pass at the head of the valley was found to be a very practicable one, but no feasible route into the valley of the supposed Yarkand River was discernible. We, therefore, returned down the Kugrang Valley, losing a horse from cold and inflammation on the way, and camped at Gogra for a few days previous to going on up the Chang Lang Valley on our way to Turkistan. More sup-

plies were got up from Tanksee, and farewell letters written to England, as all communication between civilisation and the wilds of Central Asia was about to be severed.

We left Gogra on the 25th October, making a march to some hot springs in the Chang Lang Valley. These springs are at an elevation of more than 16,000 feet above sea-level, and gush out from orifices in the summit of these rocks, situate in the bed of the stream which flows through the valley. The whole ground is white with incrusted saltpetre, while a fantastic pile of earth indicates the position of an old spring now extinct.

The mountains round the valley are chiefly volcanic, and many rocks have been formed by the continuous action and accumulation of springs—the spar from these accumulations presenting features of various and beautiful texture. The prevailing formation of the mountain-ranges of the Kugrang Valley is basalt and greenstone, with schists, while immense landslips of shale and *débris* fill the ravines and transverse-valleys. The features of the Chang Lang Valley are strata of argillaceous shale, more or less thick, reminding one of thick roofing-slates, as seen in English quarries, while layers of schists, much laminated, are seen low down, where the ground has been worn away by the action of the water. These strata are vertical or oblique, and in many places reversed or turned over. Beds of conglomerate, alternating with layers of finer gravel, fill up the valley between the stream and the foot of the mountains, while volcanic rocks are scattered about in the forms of boulders and irregular fragments, chiefly composed of granite, on the higher ridges, in the landslips and ravines.

I endeavoured to ascertain the temperature of the warmest spring here at Hot Springs; but a thermometer would not steady itself on account of the force of the stream, but it indicated a heat of upwards of 140° Fahr.

From Hot Springs to the Chang Lang Pass the road is up the bed of the stream, which, frozen over, had to be crossed several times. The ascent of the pass lies up a ravine, filled with loose stone and *débris*, and is very gradual and easy to within 500 feet of the summit. This pass, which is at an elevation of 18,839 feet above the sea, is generally known as the Chang Chenmo one, and is said to be the easiest of all the passes leading across the Karakoram and Hindu Kush ranges. It is quite practicable for laden horses and camels, and would offer no great impediment to the passage of artillery; indeed the ground is so favourable, that a little labour expended on the construction of a road up the Chang Chenmo Valley to the pass would render it practicable for two-wheeled carts and conveyances. Geographically, the pass is remarkable as being across

the main range of the Karakoram, forming the watershed between the Indus and the Turkistan rivers, and constituting the natural boundary of the Maharajah of Kashmir's dominions to the north.

In travelling to the pass it might be preferable not to halt at Hot Springs, but to march from Gogra to near the pass. There is a good encamping-ground in the valley, some 5 miles above Hot Springs, where grass and fuel are met with, and from here the pass can be crossed on the following day. From here to the Karakash River below the Kuen Luen Range is some 120 miles, and the route lies across the series of high plains to the north of Chang Chenmo, where little or no grass is obtainable on the way, whilst water is very scarce, especially late in the year. A little "boorsee" is here and there met with; but it is very small and hardly available as fuel for cooking purposes. There is no regular road as yet, and the mere track of a few merchants and travellers who have ever gone this route is easily missed. The road from the pass is level and good down the open valley between the low hills to Nischu, where we camped without finding grass or fuel, or even water, so late in the year. The cold was intense, the thermometer at 7 A.M. marking 11° below zero. I found it most difficult to keep anything liquid without being lost; everything froze at once and burst the bottles. Trying to paint in water-colours was out of the question; water, brushes, and colours all froze together, and the enamel on the tin paint-boxes cracked from the intense cold. The country beyond the pass until the Lingzi Thung Plains are reached consists of low hills and broken ridges of a sand and clay formation. It is evidently covered with snow during the winter, since the surface of the ground shows signs of the action of running water from the melting of the snows.

Some 16 miles from the pass is the descent to the Lingzi Thung Plains, which are nearly 17,000 feet above sea-level, and extend for 40 to 50 miles from north-west to south-east. Their breadth is some 25 miles, being bounded on the south by the Karakoram Chain, and on the north by a somewhat irregular and lower range, called the Lak Tsung Mountains. They are covered with snow during the winter, and in the summer many lakes and pools of water must be formed by its melting. At this time of year, however, not a drop of water was to be found, all the pools having dried up or infiltrated into the sand. The plains are of a gravel and clay formation, with tracts of sand in the slight depressions of the general surface, and are covered with small pebbles and stones, mostly of angular form, and composed of limestone, flint, &c. Near the foot of the range bordering it on the south, where the slopes of the mountains subside

into the plains, the clay and alluvium formation prevails, and appears to be of considerable depth. The country here is broken up into water-courses and nullahs, which, when rendered soft and slippery by the melting of the snow, much impede the passage of travellers.

The wind blowing across these elevated plains was intensely cold; and directly after leaving the low hills the full force of it was felt—my servants complained most bitterly, and seemed to be quite incapable of doing anything. The weather was generally fine, with a clear sky, during the months of October and November; but the wind which came on to blow daily from noon until sunset was most intensely cold. The only way to cross these inhospitable regions in any comfort is to bring wood and water from the Chang Lang Valley; and this we failed to do, as the Bhoots, with the usual obtuseness of Ladak villagers, never mentioned the total absence of these requisites until after we had crossed the pass.

About half way across the plains we passed a dried-up pool, by which were the carcases of a horse and yak; and further off, wrapt up as if asleep, the dead body of a poor Yarkandi. I afterwards ascertained that this poor fellow was one of the party who had accompanied Mahomed Nuzzur, the Yarkand envoy, back to Turkistan, and remaining behind from illness, had missed the road, and thus died of cold and starvation. I wished to bury the body, but none of the men would approach it; and besides we had no implements.

We lost another horse this day, and again no fuel or grass was met with. For water we had to melt snow, which was found in the nullahs and hollows. There is a remarkable round peak in the Lak Tsung Range, which is a good fixed point to march by in crossing the plains, the road going down a broad sandy valley through the range to the east of this peak.

Beyond the Lak Tsung Mountains is a second series of plains, with low ranges running through them, extending up to the spurs of the Kuen Luen Range. They are very similar to the Lingzi Thung, but some 1000 feet lower. Late in the evening of the day we entered them; we arrived at Thaldat, where is a frozen lake and spring. The water here was very brackish, but the animals drank it eagerly, being the first they had had for four days. There was no grass, however, at Thaldat; but the day we left the place some was discovered in a ravine lying west of it, about a mile away.

As I had failed to find a pass from the head of the Kugrang Valley into the valley supposed to contain the head source of the Yarkand River, I determined to attempt a route across the mountains from Thaldat, though, from the probable absence of

grass and water, it was a somewhat hazardous undertaking for our animals so late in the year. At Lome, 50 to 60 miles distance direct north, I knew we should strike the valley of the Karakash River below the Kuen Luen Range, and the route which I intended to explore might lead us anywhere. When I gave orders to strike camp and prepare to march, the Bhoots and my own servants were anything but pleased at going off to explore a new route. I had this morning ascended the ridge lying west of Thaldat, and obtained a good view of the country around. Looking north was seen the sunny range of the Kuen Luen, with its highest peaks glistening in the morning sunlight, while eastward stretched the wide expanse of desert, known as the Aksai Chin. In many places the appearance of a mirage indicated the position of a former lake, the water of which had now evaporated, leaving an extensive saline incrustation, while a large lake was distinctly visible to the south-east. Beyond this again some high sunny peaks occurred; but whether situated in the main chain of the Kuen Luen, or in a secondary spur of that range, could not be determined with accuracy. The impression at the time favoured the supposition that the main chain of the Kuen Luen terminates as such somewhat abruptly to the eastward, and at about the 82nd meridian radiates in lower spurs running down into the high table-land of the Aksai Chin, or White Desert.

A high range, in which are peaks of upwards of 20,000 feet above sea-level, bounded the view at the distance of 80 miles to the south-east. This range—either the continuation of the main Karakoram Chain, or a spur from it—was visible, stretching from the head of Chang Chenmo, and trending with a direction of E.N.E. towards the spurs of the Kuen Luen to the eastward.

Looking to the west, it was evident that a journey of 25 to 30 miles in that direction would strike the head-waters of the supposed Yarkand River, if an easy pass could be found across the range forming its east watershed. A valley running westward appeared to offer the best line of route, and getting into this we went up to its head, and crossing a low ridge, descended into a wide sandy valley, flanked by irregular detached ridges. We encamped here for two days, in order to give the animals a rest, as fortunately there was a little grass and fuel obtainable, and I went off alone to explore the country ahead. The features of the mountains about here are irregular, with broken ranges of red clay and sand formation, while the valleys and ravines are filled with sand and conglomerate. No water was to be seen in any of the valleys or ravines, excepting in one or two places where a deeper depression in the valley had accumulated a little water, which was one mass of ice. It was gratifying to find a

very easy pass across the range, beyond which should be the valley of the Yarkand River; and all the animals were safely got over across the watershed into a branch valley late on the evening of the 4th November. The pass was found to be 17,859 feet above the sea by the temperature of boiling water, and is a mere ascent of a few hundred feet from the valley below, with an equally easy descent on the north side. It is hardly worthy the name of a pass in the general acceptation of the term; still no less is it across a watershed into the head of one of the Turkistan rivers. I then discovered that the direct road to come from Chang Chenmo to this pass would have been direct from the Chang Lang Pass, skirting the Lingzi Thung Plains, and that a route across from these direct was shorter and easier than the one which we had followed from Thaldat. Our going to Thaldat was, however, a necessity, in order to obtain water for our yaks and horses. Should one have no cause to make the detour, the shortest road is gained by marching due north across the corner of Lingzi Thung Plains, which brings one into a wide open valley leading up to the Kizil Pass. The pass was so named from a prominent hill of red earth, situated to the left of our route above the pass. To the right is a high conspicuous peak ( $\Delta$  5, *vide* Maps), 20,992 feet above sea-level, of saddle-back shape, very irregular and broken, and surmounted by snow and glacier. This peak is a most prominent object from the Lingzi Thung, and in marching across from there at once serves as a conspicuous landmark, and indicates the direction of the line of route. Its south side presents the features of a perpendicular escarpment, and is one mass of granite, while the slopes and ravines at the foot of the precipice are covered with large masses of granite-rock, which have fallen from the summit of the mountain.

At 10 miles below the Kizil Pass we struck the junction of a large valley coming in from the south-west, in lat.  $35^{\circ} 16' 25''$  N., and camped here, calling the place Kizil-jilga. This was evidently the upper waters of the Karakash River, now nearly frozen over. At the time I imagined this stream to be the main branch of the Yarkand River, which it should have been were our present maps correct; but eventually, by following this river down to Shadula, it proved to be the real Karakash, which, instead of rising in the Kuen Luen Mountains, has its source where the Yarkand River is represented as rising, in the valley lying west of the range bordering the Lingzi Thung Plains in that direction, which range forms its east watershed. There was plenty of grass and fuel at this place, Kizil-jilga, and though a cold and desolate place at this time of year, and 16,200 feet above sea-level, it was still infinitely preferable to a camp

on the Lingzi Thung Plains. The valley of the Karakash River above Kizil-jilga is flanked by snowy ranges, that to the west being the main chain of the Karakoram, which here forms the watershed between the Shayok and Karakash Rivers. The valley we had descended from the Kizil Pass is one of the main ones running into the upper part of the river, and as grass and fuel are here obtainable, it is evident that a route direct from Chang Chenmo to Kizil-jilga would be far preferable to one *via* Thaldat to the lower Karakash Valley.

The next day we made a long march down the main valley, which runs north-west, and is wide and open, and the road excellent. Again the wind came on to blow, and surveying was certainly accomplished under difficulties. When on some high ridge of mountain, after taking the bearings of the different peaks around, it was often difficult enough to write down the observations legibly in one's field-book. Notwithstanding the extreme inclemency of the weather, I enjoyed the exploration thoroughly, for all the country was totally unexplored; and it was interesting in the extreme, since, at the time, I did not know what river it was that we were following; and, furthermore, the road was so good, and quite practicable for laden horses and camels, that it was probable I was then traversing what in future would become the main trade-route between India and Eastern Turkistan.

Having marched some 17 miles, we encamped at Khush Maidan, in a wide part of the valley, where there was plenty of good wood for fuel as well as grass for the yaks and horses. Here we lost a yak, which was unable to travel further on account of sore feet, therefore the Bhoots killed him, and were soon busily engaged in gorging pounds of almost raw flesh. Although the yaks will not eat grain, they do not appear to suffer so much as the horses from the privations of the road, for so long as their hoofs do not crack they go well. Having suffered on the march, however, from tender feet, they are useless for the onward journey, and may be killed at once.

The morning we left here I crossed the river, and ascended the range on the opposite side of the valley, wishing to obtain a good view of the country around. The curious features of this range were particularly observable towards the summit. The hill for miles is in layers of laminated schist and slate, some of which are as thin as paper. These layers, projecting vertically or obliquely, and being much broken, cause the ground to assume a most curious appearance. From the station I reached at the summit of the range, nearly 19,500 feet above sea-level, a magnificent view was obtained of the peaks and ranges around. To the west and south the snowy chain of the Karakoram

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bounded the view, while north was the Kuen Luen, between which range and the range I had reached extended an interminable mass of mountains, sloping gradually to the eastward to the plains of the Aksai Chin.

Immediately below Kush Maidan the Karakash River increases in volume, being apparently fed by some internal springs in the valley. Some distance above this encampment, towards Kizil-jilga, the water had entirely disappeared, leaving the bed of the river quite dry. This singular occurrence could only be explained by its having been infiltrated into the sand and gravel, extensively developed in the widest part of the valley. The stream below Kush Maidan was still partly frozen over on its surface, and we found crossing it to be somewhat of a difficulty. A thick sheet of ice having formed on either side, necessitated a straight drop from the edge of this into the centre of the stream. The Turkistan ponies, however, are capital beasts and very seldom come to grief, whereas the yaks often take it into their heads to lie down in the middle of the river, much to the detriment of one's baggage and provisions.

At eight miles below here a large valley effects a junction from the westward, and immediately beyond the river winds round to the north, and steep spurs from the ranges on either side running down into the valley, form a narrow gorge for three miles. The road was here somewhat indifferent; and, being over the rocky ground close to the water's edge, must in the summer, when the volume of water is great, be difficult compared to what it is above.

Arriving at some hot springs in this defile we encamped behind them. These springs are at an elevation of 15,482 feet above sea-level, and, as at Chang Lang, the ground on the river's bank is white with a calcareous incrustation. Above the river are two small pools of water situated at the foot of the mountain, the temperature of which marked 92° Fahrenheit, while on a lower level, immediately above the water's edge, small mounds of earth and tufa show a calcareous deposit. The heated water issuing from their sides and base indicated a temperature of about 130° Fahr.

Six miles beyond the hot springs the river suddenly turns to the north-east, and from this bend resembled a frozen lake for three miles, of about half a mile in width. The journey was here over the ice, since the steeper sides of the mountains, and the rocky ground, rendered a road along the bank more difficult than one over the frozen river.

The river at this point diverging to the north-east was at first unaccountable, since, if it were the Yarkand River, its course from here should have been north-west, yet it was soon evident

that this could not be the Yarkand River, but the real Karakash. It was now optional to follow the river along its downward course, or attempt a route across the Karatâgh Range into the basin of the Yarkand River to the westward, and join the regular road from across the Karakoram Pass at Aktâgh.

The latter course would be desirable as proving the feasibility of a trade-route in that direction or otherwise, while the former offered the greater inducement of exploring the course of the Karakash down to Shadula. It seemed certain that a road conducting up the ravine joining the main valley at this bend, or one ascending the wide valley noticed just above the hot springs, would lead across the range bounding the Karakash here on the north—and named the Karatâgh—and join the Karakoram route near Aktâgh, which place lay at a distance of 35 to 40 miles in a direct line from this point. Judging from the configuration of the country, the pass across the Karatâgh would probably be found to be a very easy one, and assuredly not more difficult than the famed Karakoram Pass, which, notwithstanding its notoriety, is a very easy one, although at the high elevation of 18,317 feet above the sea. The interest attaching to the course of the Karakash, however, prevailed; and I determined to follow the river downwards to Shadula.

Having marched until dusk we encamped in a ravine on the right bank of the river, at the foot of a moraine, which has carried immense quantities of rock and *débris* into the valley from below a glacier. The bed and slopes of this ravine, which extends for upwards of a mile and a half from the foot of the glacier to the river's bank, are covered with large boulders and fragments of granite rock, piled up in masses one above the other. The whole of the country passed during this day's march was wild and rugged in the extreme. Deep ravines between precipitous heights were seen from where the Karakash, forcing its way between abrupt spurs of the ranges on either side, rushed on over its rock-bed to the bend, where, assuming an easterly course, it emerges into the more open valley, and was now held arrested in its frozen expanse. From a lime and slate formation near the hot springs the mountains lower down the valley change to strata of grey and yellow sandstone, while rocks of grey and dark granite with fragments of felspar lie interspersed upon the beds of conglomerate, which fill the valley and extend from the foot of the mountain to the water's edge. These lighter granites seemed to be of an inferior, coarse texture, and much worn by the action of water.

A mile below our camp, at Zinchin, immense moraines have fallen from the high ranges and blocked up the valley, causing

the river to form the lake alluded to. The river has worn its way through these, and for some distance flows on through narrow gorges much confined. The scenery was still very rugged and beautiful. High mountains, surmounted by snow and glacier, towered above the valley on either end, their sides terminating abruptly in steep heights and precipices, while every ravine running into the main valley is filled with moraines of débris and granite boulders.

The river from here winds round more to the eastward, and it was now certain that it would emerge near the Kuen Luen Range, the snowy peaks of which were already in sight far down the valley. Granite was still the prevailing formation of the mountains, and at the foot of a precipice of granite terminating a spur from the Karatâgh our camp was fixed for the night.

The next day, the 11th November, we made a march of 17 miles further down the valley, which widens as the elevation decreases and the mountains are less steep and precipitous. The breadth of the valley had here increased to upwards of a mile, and the river flowed in several streams over its more open bed. Platforms of conglomerate and sand occur on either side the stream, sloping gradually to the foot of the higher mountains. A snow peak of 19,615 feet above sea-level overlooks the valley, where we encamped that night at Mulgoon—the Turki name of a description of wood which is met with in abundance from here downwards. The valley here was found to be 14,458 feet above the sea, by the temperature of boiling water. The cold, too, was not nearly so great, indeed, with a huge fire blazing, it was quite the contrary. Near here some fresh springs issuing from the ground add to the volume of water in the river; and the temperature of these was sensibly above that of the stream, for many fish were seen in their shallower parts.

Some 12 miles below Mulgoon the river suddenly turns to the north-west and runs through the valley of Sarikee to Shadula. The name Sarikee is applied to the valley of Karakash from here downwards, which is evidently the Sarka of Moorcroft and the Chinese itineraries.

We were now under the Kuen Luen Range, some high peaks in which rose immediately to the north-east; and coming in at this bend is a valley from the south-east, down which the road from Thaldat conducts, which route we should have followed had we not diverged from there. I had now proved the river we had been following to be the real Karakash, and thus to have its rise, not in the Kuen Luen Range, but in the main chain of the Karakoram. The valley effecting a junction here

from the south-east has hitherto been represented as containing the main branch of the river; and the error has apparently arisen from Mr. Johnson not having seen the point of junction of the real stream when he crossed this valley on his way to Khotan in 1865. Mr. Johnson, it is known, went into the valley of the upper Karakash, but never so far down the river as to be able to see its upper course for any distance. Had he done so, any observations for altitudes would have shown that this could not be the same stream as that which passes Aktâgh, on account of the differences in the elevation of the several places. Any one not following the river downwards would probably make a similar mistake, for the configuration of the country, as seen from a distance, would lead one to suppose that the river continued the general direction of its upper course in the same line as far as Aktâgh.

From this point the Karakash runs with a general curve bearing w.n.w. to Shadula, some 75 miles distant; and skirting the southern base of the Kuen Luen which rises in a high, rugged range to the north, some of the higher peaks attaining to an altitude of 21,000 and 22,000 feet above the sea.

We had come a great round following the course of this river, and were nearly out of provisions, but expected to meet some of the Kirghiz with their flocks and herds lower down the valley. Our horses and yaks were quite exhausted from the severe work and privations, and we marched but slowly. Grass and fuel are met with everywhere in abundance, and game is plentiful all down the valley. Wild horses and a few yak frequent the best pasture-grounds, while ducks, hares, and partridges are to be had in plenty. Before we had reached half-way down to Shadula, we fortunately met a couple of Kirghiz who had come up the valley to look for game. The sound of my firing at some wild duck had attracted their attention, and they galloped up on their rough-looking ponies. In answer to our inquiries I learnt that they belonged to an encampment 20 miles further down the valley, where, they said, we could obtain some supplies.

Near here, at Ak-koom, a wide valley known to the Kirghiz as Karajilga, joins from the eastward, the peaks at its head being in sight, situated in the main chain of the Kuen Luen. The Karakash valley is here upwards of a mile and a half in breadth, and is bounded on the north by the steep rocky heights of the spurs from the Kuen Luen. The mountains behind rise in snow-capped peaks to the height of 20,500 feet above sea level, with their ravines and ridges filled or crowned with moraines and glaciers. The spurs of the Aktâgh range to the southward are more even and less abrupt, while their slopes

are covered with accumulations of drifted sand. The lower stratum of this range is sand and argillaceous rock.

The road continues down the right bank of the river, and is level and good, excepting where the mouths of the ravines running into the main valley have to be crossed. Large beds of conglomerate occur all down the valley, wherever these openings have given passage to the detritus brought down from the higher mountains.

Continuing our journey, we reached a camping-ground of the Kirghiz, called Gulbaszem, on the 18th November. The Kirghiz had moved up a branch valley in the Aktâgh range, in order to find a better pasture ground for their flocks of sheep and goats, and herds of yak; but on hearing of our arrival the head man of the encampment came down to Gulbaszem with supplies of flour, milk, and butter. By means of my interpreter we carried on a conversation; and I obtained some information from him respecting the names of the different valleys and encamping places. A very easy pass was said to lead across the Aktâgh range, from the head of the valley where the Kirghiz were encamped to Muliksha, on the Karakoram route; and another pass, difficult for laden animals, but still practicable, crossed the Kuen Luen range near the junction of the Karajilga valley, above Ak-koom, from where a road conducts down the valley of the Khotan River to Ilchi, the capital of that province.

In the ravines above Gulbaszem are situated the jade quarries, which were formerly extensively worked when the Chinese were in possession of Eastern Turkistan. They are now quite neglected, and have been so since the expulsion of the Chinese. The jade is called "sang-i-kash," and was manufactured into cups, snuff-boxes, vases, and other curiosities, and transported to Pekin, where it commanded a high price.

This quarry is probably the same as that mentioned by Mir Uzzet Ullah, Moorcroft's explorer, as being situated about half way between the Karakoram Pass and Yarkand. The distance hardly coincides, for the Karakoram pass lies some 60 miles due south from here, whereas Yarkand is upwards of 200 miles away. There are other jade quarries situated lower down the Karakash valley towards Khotan, which may also be identified with the "Causanghi Cascio," or Stone Mountain, mentioned by the mediæval traveller, Benedict Gœs, as being famed for its supply of jade.

The valley of the Karakash, at Gulbaszem, is 12,645 feet above sea-level. Ten miles further down is another encamping place of the Kirghiz, called Balakehee, below which the Sooget Valley effects a junction from the south. Down this valley the

Tabistânee route conducts from across the Sooget Pass and the Karakoram. Some two miles below this junction the Karakash River turns to the north, and piercing the main chain of the Kuen Luen, again assumes an easterly course; until nearing the meridian of Khotan, when it diverges to the northward, and enters the plains of Turkistan.

Shadula, in lat.  $36^{\circ} 21' 11''$  N. and long.  $78^{\circ} 18'$  E., and 11,745 feet above sea level, is situated on the left bank of the river, immediately below this bend, at the junction of the Kirghiz Pass Valley from the westward. It consists of a stone fort and several ruined huts, originally built by the Ladak wazeer of the Maharajah of Kashmir. The fort was occupied by a detachment of Kashmir troops from 1863 to 1866, during the disturbances caused by the rebellion against the Chinese in Eastern Turkistan; but on the invasion of Khotan by the Kush Begie in the autumn of the latter year, it was evacuated by the Kashmir troops, who retired across the Karakoram. The Kush Begie sent a detachment of troops to occupy the fort, and it has since remained in the hands of the Yarkand ruler.

The Maharajah of Kashmir, it is believed, considered his territory to extend up to the Kilian range, north of Shadula, doubtless from the fact of having had a fort built there; but the last habitation now met with in his territory is at the head of the Nubra valley, in Ladak. The boundary line is given on the latest map of Turkistan as extending up to Kathaitum, in the Kilian Valley; but not only this valley, but the valleys of the Yarkand and Karakash rivers are frequented by the Kirghiz, who all pay tribute to the ruler of Turkistan.

The natural boundary of Eastern Turkistan to the south is the main chain of the Karakoram; and the line extending along the east of this range, from the Muztâgh to the Karakoram, and from the Karakoram to the Chang Chenmo passes, may be definitely fixed in its geographical and political bearing as constituting the limit of the Maharajah of Kashmir's dominions to the north.

*Yarkand, January 29, 1869.*

## 2. EXPLORATION OF THE YARKAND RIVER,

*December, 1868, January, 1869.*

Before narrating our onward journey to Yarkand, it is necessary to briefly mention the aspect of affairs as I found them on my arrival on the borders of Turkistan.

We reached Shadula on the 20th November, and found the fort occupied by a Panja-bashi (sub-officer) and some dozen soldiers of the Yarkand ruler.

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As I had come openly as an Englishman, the news that I was on my way to Yarkand had reached there many days before ; and the time that had elapsed in following the Karakash river down to Shadula had given the guard ample opportunity of making arrangements to allow me to proceed or stop me here, according to their orders.

Arrived at Shadula, I found that Mr. Shaw, who had travelled up from Kangra with a large caravan of tea and other goods, had reached here by the direct Chang Chenmo route a few days earlier. The guard would not allow us to communicate in any way ; and it was at once evident that they were immensely suspicious at the almost simultaneous arrival of two Englishmen. Unfortunately, Mr. Shaw and myself had been in ignorance of each other's intention and movements, and were therefore unable to combine our plans and act in concert. After some conversation with the Panja-bashi, by means of an interpreter, I began to perceive how matters stood, which may be thus explained. A Moghul at Yarkand, who had lately arrived from Ladak, had spread there a report that fifty Englishmen were coming, and that he had seen them himself. Consequently the greatest amount of suspicion prevailed in Yarkand, whence messengers were daily despatched to the king at the camp, beyond Kashgar, where, it was reported, he was holding the Russians in check on the northern frontier of Turkistan. Some Punjabi merchants arriving a few days later had greatly relieved the fears of the suspicious Yarkandies, by assuring them that the report about fifty Englishmen coming was entirely false ; and the Moghul who had caused the alarm was at once imprisoned, and would probably be executed.

Still their distrust, so easily aroused, was not to be at once allayed, and an extra guard was immediately despatched to Shadula with strict orders to stop any one there coming from Ladak.

On my expressing a wish to the Panja-bashi to have a letter sent off to the king asking permission to proceed, he ordered a mounted sipahi to be in readiness ; but as none of the men could write, and of course English was unknown in Turkistan, a difficulty presented itself. This was at length got over and arranged, by my writing a letter in English to the king, and giving it to my interpreter to take, accompanied by the sipahi. A horse was also provided for my man, who had strict instructions as to what he had to say—that I had travelled a distance of 8000 miles, occupying six months ; and now, having arrived on the borders of Turkistan, sent forward asking permission to enter his country and have the honour of an interview. This was the substance of my letter to the king. The Panja-bashi

strongly urged our returning to Ladak without delay, and offered to furnish supplies for the journey, expressing an opinion that Mr. Shaw and myself would probably be kept here until some decisive action with the Russians took place. If the Russians were repulsed, we should be allowed to proceed under strict surveillance as far as Yarkand, and sent back thence. Should the Russians be victorious, we should probably not be allowed to proceed at all. I trusted this might not be the case; but, any how, there did not seem to be the faintest chance of any exploration being allowed, or any departure from the direct road to Yarkand. Were permission to enter the country refused, it would be impossible to force one's way; and, having now been seen, equally impossible to penetrate by this frontier in disguise. Still, if even allowed to go on, there was the strong chance that an Oriental despot accustomed to daily bloodshed, perhaps smarting under a defeat, might order the intruders' heads to be cut off, since he had done so before to men whom he took to be spies of the English. The Moghul officers and soldiers here at Shadula were also in terror of their lives from the king, who was likely to visit on them his displeasure at an Englishman's arrival. This was how matters stood on my despatching a letter to Mahomed Yakoob Beg, the "Atalik Ghazee," and ruler of Eastern Turkistan.

An answer to my application could not be expected to arrive within twenty days; and during the next few days I considered what other plans lay open to me to endeavour to carry out should permission to enter Turkistan be refused. To return to Ladak across the mountains in December would be sufficiently unpleasant; but as the Zojji Lá Pass into Kashmir would be closed by the snow, there would remain the only alternative of wintering in Ladak, and in the spring endeavouring to penetrate to Turkistan and the Pamir Steppe by some other route. The idea of passing a winter in Ladak doing nothing was not to be entertained, and to be turned back now, after having travelled 800 miles from our own frontier, would be most unpleasant. The great suspicions of the Yarkandies seemed absurd and needless, although the advance of the Russians from the north had no doubt alarmed them; while the simultaneous arrival of two Englishmen on the southern frontier, with the avowed intention of penetrating to Yarkand, where no Englishman had ever been before, added to the doubts and alarms excited at the prospect of their being brought into contact with Europeans.

Having discovered the source of the Karakash to be where all our maps make the head-waters of the larger river, the Yarkand one, to have their rise, it was most desirable to ascertain the

real course of the Yarkand River, as being the chief river of Eastern Turkistan. I was, therefore, most anxious to undertake this expedition, knowing the time could not be better employed while awaiting the return of my messenger from Yarkand. The difficulty in accomplishing it lay in the close surveillance of the guard of Turki sipahis, which rendered any attempt at getting away on an exploring expedition unlikely to be successful; and if the sipahis suspected my object, they would be sure to accompany me, in which event using surveying instruments openly would be out of the question, and any exploration further than two or three days' journey also impossible. There was a chance that I might be able to get away for the day, for the purpose of shooting, without being accompanied; and this seemed to be the only way of shaking off the guard. The men with me at this time, besides my own servants, were the Bhoots, who had accompanied me from Ladak. They were awaiting my interpreter's return from Yarkand, when, if I was allowed to proceed, they would be dismissed to their homes, or else accompany me back to Ladak should I have to return. They regarded the Turki sipahis in no very friendly light, and were, therefore, not likely to disclose my plans which were carried out successfully.

Leaving my own servants in charge of camp, and taking three of the Bhoots with a week's supply of provisions, we started from Shadula at the first streak of daylight on the morning of the 26th November, without the guard being aware of our departure. Marching up the valley leading to the Kirghiz Pass, beyond which lies the valley of the Yarkand River, we encamped that night at Kulshish Kun, a famous place for wild yak, but this day found without any large game upon it. From Shadula the road runs up the right side of the stream, and is gradually on the ascent to Kulshish Kun, which is 13,965 feet above sea-level, or some 1800 feet higher than Shadula, from which it is 15 miles distant. To the north of the valley the Western Kuen Luen Range rises into lofty peaks, while, to the south, it is bounded by a long spur from the Aktâgh Range, across which lies the Sooget Valley. In order the better to distinguish the geographical features of the great Kuen Luen chain of mountains, it has been divided into eastern and western ranges, from where the Karakash River pierces the chain on the meridian of Shadula. Any remarks on the Kuen Luen, therefore, will be understood to apply to that division of the range, as it bears relatively eastward or westward from Shadula.

Above Kulshish Kun the valley widens and opens out, being bordered by thick beds of conglomerate, furrowed and inter-

sected by watercourses, on the slopes of which large boulders of granite rock are strewn, while in the ravines above are several glaciers, which have worn their way downwards until nearly level with the base of the steep heights above them. The road continues over the more even ground on this side the valley, and skirts the long spurs of the Aktâgh Range on the left, after it has crossed the stream.

Approaching the pass the valley bifurcates, the northern branch containing the main source of the stream, which rises under a large glacier lodged at the head of the ravine, between two high snowy peaks in the Western Kuen Luen.

The Kirghiz Pass, 17,093 feet above the sea, lies at the head of the western ravine, up which the road winds, with a gentle ascent, to the summit. The pass commands an extensive view of the country far and near, and I was able to fix the bearings of some of the highest peaks in the Eastern Kuen Luen, lying 90 miles away, which had already been mapped in, and thus ascertain the value of my survey up to this point, as these peaks are visible from the southward on entering the Lingzi Thung plains, at a distance of upwards of 100 miles.

The Karakoram and Muztâgh mountains, with the range of the Western Kuen Luen, were in sight to the westward, and one was at once struck with the very wild and rugged scenery in this direction. Amongst the interminable mass of precipitous ridges, deep defiles, and rocky ravines, it was difficult to distinguish the exact course of the Yarkand River, but its general direction could be easily determined as flowing through the long longitudinal valley between the two main ranges. Not a tree, bush, or shrub, met the eye anywhere. It was solely a magnificent panorama of snowy peaks and glaciers, as the last rays of the setting sun tinged their loftiest summits with a ray of golden light.

It was dusk as we commenced the descent down the lateral ravine leading from the pass. The road, a mere track, winds down the steep side of the ridge to the head of the ravine, the bed of which is blocked up with *débris* and rocky boulders, while the stream in it was entirely frozen over. We were now in the basin of the Yarkand River, since the Kirghiz Pass leads across a depression in the Aktâgh Range, immediately below its point of junction with the main chain of the Kuen Luen. Marching up to 9 o'clock by moonlight, we got down to near the valley of the Yarkand River. The spot chosen for our camp for the night lay in the gorge of a lateral defile, where running water was found, while a few stunted bushes, which fringed the stream, were soon appropriated and kindled into a cheerful blaze. We had descended nearly 3000 feet from the summit of

the Kirghiz Pass, since our camp lay at an elevation of 14,225 feet above sea-level. Starting early the next morning, we continued down the narrow ravine to its junction with the valley of the Yarkand River, which was struck at a distance of 33 miles west of Shadula. An observation obtained one mile lower down the valley showed the latitude to be  $36^{\circ} 22' 7''$  N. The river here comes down from the south, winding between precipitous spurs of the Karakoram and Aktâgh ranges, the valley being here much confined, and varying from 300 to 500 yards in width.

Immediately overlooking the river, on its right bank, stand the ruins of several stone huts, which were formerly inhabited by some of the Kugiar villagers, when a copper-mine, which lies to the west of the valley, was being worked. Our road here joined the Zamistânee route, which conducts down the valley of this river from the Karakoram Pass via Kufelong. Three miles below the junction of the Kirghiz Pass Ravine is a pasture-ground, called Kirghiz Jangal, where are several springs of fresh water. The valley widens at this point, and is upwards of a mile and a half in width, while the slopes of the mountains are still abrupt, and are covered with accumulations of sand, and a detritus of shale and shingle.

The Kirghiz of Sarikol and Pamir Khurd formerly frequented this pasture ground, and used to commit many depredations on the caravans of the merchants trading between Leh and Yarkand. They have now quite abandoned their plundering excursions, and for many years have not even frequented the upper valleys of the river. Their place has been taken by the Kunjooti robbers of Hunza and Nagar, who, crossing by the Shingshâl Pass from Hunza, ascend the river, and are in the habit of lying in wait for the caravans as they traverse this desolate valley. Though eager for rapine and plunder, they do not relish fighting, and a well-appointed caravan has little to fear from these robbers, who make it their especial aim to surprise any small party unawares.

Their last great raid took place three years ago, when a band of 120 armed men attacked a large caravan, chiefly composed of Kashmir merchants, returning to Ladak with many horse-loads of merchandise near Koolunooldee, when the whole of their property was seized, and the merchants themselves carried off to Kunjoot, from where they were sold as slaves into Badakhshân. The Kunjooties committed so many depredations during the disturbances in Turkistan, that Mahomed Yakoob (Kush Begie) has ordered this route, which is by far the best one, to be closed, until he shall have had time to send an expedition to punish them, the penalty being that any merchant who shall

travel this road without express permission shall lose his head.

Below Kirghiz Jangal, where the elevation of the valley is 13,684 feet above the sea, the river turns to the westward, and continues with a general course in this direction towards Sarikol. The valley from here downwards is full of low jungle, grass, and herbage, which become more profuse as the elevation decreases, while saltpetre and rock-salt occur in many places. Deep, long ravines between the high spurs running down from the Karakoram Chain come in from the south, while the shorter valleys of the Western Kuen Luen to the north narrow as they reach the crest of the range, and are closed in by rocky heights and glaciers.

At 14 miles below Kirghiz Jangal is a camping-ground, called Koolunooldee, where the road leaves the valley of the river and ascends a confined, somewhat difficult, defile leading to the Yangi Pass. It is practicable for laden horses and camels throughout, and there can be no doubt that this is by far the easiest and most direct route from across the Karakoram into Eastern Turkistan. Kugiar is reached in five days' journey from Koolunooldee, and Yarkand in from seven to eight days. East of the Yangi Pass, on the northern slope of the Western Kuen Luen, rises the Tiznâf River, which joins the Yarkand River to the east of where it is crossed on the road between Karghalik and Posgâm, and is one of its principal tributaries. The Yangi Pass leads across a remarkable depression in the Western Kuen Luen Range, and is about 16,500 feet above sea-level in elevation.

I did not reach the summit of the pass, since it was out of my line of exploration, but, when returning up the river, I ascended the Western Kuen Luen, and, attaining to a station on the range, at an elevation of nearly 19,000 feet above the sea, had a full view of the pass below me. A long spur, running down from near the pass, bounds the ravine, up which lies the road, to the westward, the prevailing features of this ridge being red earth, sand, and shingle. The west side of the ravine itself rises in successive terraces and platforms of conglomerate one above the other, presenting a steep scarp to the eastward.

Continuing down the main valley we left Koolunooldee behind us, and, walking up to dusk, reached to near where the Muztâgh Pass stream joins the river.

The Yarkand River from here bears somewhat more to the south, and skirts the precipitous and rocky spurs running down into the valley from a group of high snowy peaks in the Western Kuen Luen. The highest peak in this group was found to attain

to an elevation of 22,374 feet above sea-level. It may here be mentioned that the heights of inaccessible peaks were calculated from the angles of altitude found with sextant and artificial horizon at two stations fixed by triangulation, the peak also being fixed by triangulation, and the heights of the stations known from observations of the temperature of boiling water. They have no pretension to being very accurate, but are fairly approximate, and may be considered to be within 300 or 400 feet of true altitude.

Arriving at dusk at the junction of a large stream coming in from the south, we prepared to halt for an hour. This stream, of considerable size, is one of the largest of the upper branches of the river flowing from the northern slope of the Karakoram Range. Its banks are very precipitous, and the continued action of the water on the beds of pebbly conglomerate, which fill the exit of the valley, has abraded their sides, until a series of caverns have been formed, extending far under the bank. Immediately beyond the mouth of this valley we came upon the fresh tracks of camels and horses, which indicated Kugiar men being about, or perhaps Kunjooties. It was necessary, therefore, to proceed with caution, since if seen down here by even the harmless Kugiares, the report would spread like wildfire that another Englishman had turned up in these valleys, and cause the suspicious Yarkandies to believe that the original rumour of fifty Englishmen coming from Ladak was, after all, correct; and, if Kunjooti robbers, to be carried off by them and sold into slavery, would most effectually put a stop to further exploration. Halting beyond this we lighted a fire, taking care to choose a favourable spot from where it could not be seen by any one, if about; and as soon as a full moon rose above the mountains and was shedding her silvery light far down the valley, we went on again down the left bank of the river for about 9 miles, until stopped at a place where the stream runs deep and strong under a high bank to the left of the valley. We wasted an hour trying to invent something on which to cross; but the long poles cut from the jungle close by, with which we endeavoured to form a temporary bridge, were washed away at once. Going back for a mile we climbed the steep slope of the hill above the river, consisting of loose sand and shingle—the ground that gives way and lets one down about as fast as one progresses upwards. At length, descending again to the bank immediately above the river, we were arrested again a short distance further down, where a stream comes in from the south. This stream has carried into the main valley immense quantities of earth and débris, and now flows down out of sight between precipitous and over-topping banks, as if split by an earthquake. Steep heights

enclose the valley on either hand, while above to the north rise the lofty snow-capped group of peaks in the Western Kuen Luen. The valley, some 2000 yards in width, was here found by observation of the temperature of boiling-water to be 12,130 feet above sea-level. This was the furthest point down the Yarkand River which was reached. There was every probability that the guard of Turki sipahis would follow us from Shadula, and arriving at the junction of the Kirghiz Pass Valley before we could return, thus cut me off from going up the river to its source; consequently I determined to march back up the valley during the night. Retracing our steps we reached the spot where we had lighted a fire the evening before, and, as soon as day broke, started back again up the valley. Crossing to the north side, I left the men with me at the foot of the mountain and commenced the ascent of a steep spur of the Kuen Luen. It was evident that a station on this range would command an extensive view, and what appeared to me the most accessible point was fixed upon for the attempt. The steep slope of the mountain, covered with loose shingle and sand, was most unfavourable for climbing, and very different from the Kashmir Mountains, which, although steep, afford firm footing on the grass and rocks. When the crest of the ridge, however, was gained, the difficulty decreased, and though the higher slope was steeper, the ascent was more rapidly and easily accomplished. After five hours' hard climbing I reached the summit of the mountain in time to fix the latitude of the range by the sun's meridian altitude.

The magnificent view which this station commanded was an ample reward for the toil of the ascent. Far away to the south and south-west stretched the high peaks and glaciers of the Karakoram and Muztâgh Range, some of whose loftiest summits attain to the height of from 25,000 to 28,000 feet above the sea. One peak, situated to the east of the Muztâgh Pass, reaches the stupendous elevation of 28,278 feet above sea-level, and is one of the highest mountains in the world. Beyond where the river sweeps out west, the snowy peaks above the Kunjoot country were in sight towards Sarikol. East and west extended the whole chain of the Kuen Luen and the Kilian Mountains, the last range to be crossed before the steppes and plains of Turkistan are reached, while immediately below lay the confined ravine up which the road ascends to the Yangi Pass, now full in sight beneath me. The extent of view of the main Karakoram or Muztâgh Chain comprised a length of 200 miles, stretching from near the Karakoram Pass to the head of the Tashkurgân territory north of Hunza and Nagar.

The valleys that traverse the mountains between the crest of the chain and the longitudinal valley of the Yarkand River

appear to narrow into ravines towards the head of the range, and are filled with glaciers; and the whole surface of the ground to the north of the chain is probably more elevated in its average altitude than the mountain system, embracing the southern slopes of the range, in the watershed of the Indus.

The cold at this elevated station, nearly 19,000 feet above the sea, so late in the year was very severe, the thermometer sinking to 5° Fahr. in the shade, notwithstanding it was mid-day, and a bright sun was shining. I had reached many higher altitudes, but never any commanding so extensive a view of such a stupendous mass of mountains; and it was with a feeling of regret that we turned to leave a spot from where the peaks and glaciers could be so well seen, stretching far away on every side in their solemn grandeur.

Descending into the ravine beneath, I went on down its rocky bed, and at 4 miles below again struck the valley of the Yarkand River, and being joined by the men who had awaited my return, ascended the valley of our camp near Kirghiz Jangal, from where we had started the morning of the day before, having walked incessantly since that time a distance of more than 55 miles.

On the next day, the 1st December, we went 16 miles up the river, thus getting above the junction of the Kirghiz Pass Valley, and found that no sipahis had as yet followed us from Shadula. I sent off one of the men by this route to Shadula, with orders to my servants there to send provisions for us to a camping-ground, called Aktâgh, some 50 miles further up the river, as the supply with which we had originally started was nearly consumed. This place, Aktâgh, is the third stage from the Karakoram Pass on the Turkistan side, where the Shadula route separates, and the Kugiar or Zamistânee one conducts down to Kufelong and thence down the valley of the Yarkand River. We were now on this road, and never doubted but that we could reach Aktâgh in three or four days, at the latest. Keeping on up the valley, we encamped that night at an elevation of 13,882 feet above sea-level. From here, ascending the river, the road is up the right bank, skirting the steep spurs of the Aktâgh Range; it then crosses to the left bank and goes over the spur of a hill, round which the river winds. Continuing up the left bank the road is good; the valley again widens and the slopes of the mountains are more gentle and less precipitous. Keeping on up the valley and mapping the whole way, on the morning of the 4th December we arrived at Kufelong, where the Karakoram Pass stream, passing Aktâgh, joins the main river. At this place, Kufelong, which is in lat. 36° 4' 48" N., long. 77° 57' E., and the valley here 14,340 feet above sea-level,

the main river comes down from the south-west, and the Karakoram Pass stream, much smaller and now entirely frozen over, joins from the south-east. The latter stream is represented on some of our maps as the head of the Tiznâf River, and on others as the Yarkand River, whereas the real main stream of the Yarkand River is not down on maps at all. From Kufelong I followed the main stream up to its source, but at the time was not aware that Aktâgh lay up the valley to the south-east, on account of the error on the maps, imagining it to be on the main stream so represented.

Thirty miles a-head up the main valley the snow-covered spurs of the Karakoram were in sight, and the foot of these was reached on the evening of the day after we had left Kufelong—the valley up to here being wide and open, and at an elevation of some 15,000 feet above sea-level. The mountains on either side are broken up into ridges, with rugged and irregular crests, showing strata of clay, alternating with sand. The clay-formation prevails, and is of a highly ferruginous appearance. The bed of the valley is composed of deposits of conglomerate and gravel, above which, in places, occurs an alluvium of fine clay, covered with pebbles of every shape and size of different compositions, such as flint, limestone, slate, &c. Being open and level, the river runs in several streams over its bed. A hot spring, running out of the base of a cliff on the right side of the river, is passed at an elevation of 14,900 feet above sea-level. On the evening of our second day's journey from Kufelong we encamped in a wide part of the valley, opposite to the entrance of a deep narrow ravine effecting a junction from the south-west. At the head of this ravine a pass leads across the Karakoram Range into the Nubra Valley in Ladak, and to Chorbut, in Baltistan. It is apparently at a very high elevation, probably not less than 19,000 feet above the sea, and is closed for nine months in the year by the snow. It is impracticable for anything but foot-travellers, and perhaps for yaks; and although not in use for many years, was formerly traversed by the Balties, carrying their own loads of merchandise into Yarkand. This pass appears also to have been used by the Kalmâk Tartars in their successful invasions of Ladak and Tibet towards the close of the 17th century.

From this point to the summit of the pass the distance is from 25 to 30 miles, the road ascending gradually up the ravine, flanked by the snow-capped spurs of the Karakoram.

The main valley here turns and the river comes down from the south-east. Skirting these high ranges our road lay up the open valley through the wildest and most desolate country, where nothing but snowy peaks and glaciers and the barren

slopes of the mountains met the eye. Not a blade of grass was to be seen, and it was with difficulty sufficient "boorsee" could be collected wherewith to light a fire. The valley again turns to the south, and we were now evidently near the source of the river, since it was rapidly decreasing in size and nearly entirely frozen over as we ascended.

On the afternoon of the 8th December I reached the source of the Yarkand River. This is in an elevated plateau or basin, surrounded by high snowy peaks, with the ravines at their base filled with glaciers. The centre of this plateau forms a depression of about  $2\frac{1}{2}$  by  $1\frac{1}{2}$  miles in area, which must contain a lake when the snows melt and drain into the basin, in which the little water now accumulated was a solid mass of ice. The outlet is to the west, in which direction the stream issuing from the basin runs through a narrow ravine for 2 miles to the head of the open valley, where, joined by two other streams from the high range lying west, they form the head-waters of the Yarkand River, commencing here and flowing with a course of nearly 1300 miles into the great Gobi desert of Central Asia. I found the source of the river to be in lat.  $35^{\circ} 37' 34''$  N., and by its distance and bearing from the Karakoram Pass to be in long.  $77^{\circ} 50'$  E., while the mean of three observations of the temperature of boiling water gave an elevation of 16,656 feet above the sea.

The cold in this inclement region, in the depth of winter, was most intense; the thermometer, at 8 o'clock the following morning, showed the mercury to have sunk to a level with the bulb, or some  $18^{\circ}$  below zero.

By exploring the country eastward, I ascertained that I had reached to near the summit of the main range of the Karakoram, and west of the Karakoram Pass. The Karakoram Chain here loses the great altitude to which it attains in that portion of the range lying between the Muztâgh Pass and the source of the Yarkand River; and from here eastward, to beyond the Karakoram Pass, is much broken; presenting features assimilating to the crest of an irregular and detached range bordering a high table-land; while higher summits occur in the more elevated spur which, branching from the chain near the head of the Yarkand River, forms the watershed between the Shayok and its tributary, the Nubra River. The main range continues eastward beyond the Karakoram Pass to where a remarkable double peak occurs in the chain; and at this point throws out a somewhat irregular spur, named the Karatâgh, towards the Kuen Luen, which forms the eastern crest of the high central plateau of Aktâgh. At this double peak the Karakoram range, after running with a general direction of E.S.E. from the "Pusht-

i-Khar," a distance of 320 miles, suddenly turns to the south, and, again rising into a lofty chain of snowy peaks considerably above 21,000 feet above sea-level, forms the watershed between the Shayok and Karakash rivers, until, in the parallel of  $34^{\circ} 43' N.$ , it trends again to the eastward, and runs along the head of Chang Chenmo; and here constitutes the southern crest of the elevated table-land known as the Lingzi Thung plains and the Aksai Chin.

After exploring the country at the head of the Yarkand River, it only remained for us to make the best of our way back to Kufelong; and, as Aktâgh lay up the branch valley joining there, we had thus missed the man sent off to Shadula to bring supplies for us. The only yak with us had succumbed from hard work and the want of grass half way up the valley, and the Bhoots had killed him for food, as we were quite out of provisions. The weather had been threatening snow for the last few days, and an immediate return was imperative. Already heavy clouds were breaking up amongst the high peaks of the Karakoram, obscuring their summits, while the sun set angrily and threw a lurid light through the higher masses of thick cloud, as we returned to camp on the evening of the 9th December. It commenced snowing as we started at dusk and retraced our steps down the valley, marching up to midnight through the falling snow. The next day it again snowed heavily, as we kept on down the valley from noon till dark, when we camped under a rock, which afforded shelter for the night. At length the 55 miles back to Kufelong were traversed, though the last part of the way but slowly, as one of the men with me became ill. This was not surprising, as, where no wood was obtainable for fuel, the Bhoots, nothing discouraged, set to and devoured the yak-flesh, like wolves.

On the evening of the 18th December we reached Kufelong again at the moment a long string of laden horses appeared coming in down the valley from Aktâgh. They were on the opposite side of the river, and five men who were with the caravan immediately commenced shouting to us in the most vociferous manner across the ice, at the same time waving sticks and making other hostile demonstrations. At length, after a good deal of beckoning and persuasion, they were induced to venture across the ice to where we were, when the cause of these proceedings was soon explained, as I learnt from one of the men who could talk a little Hindustani, that they had mistaken me and my men for Kunjooti robbers. Mutually satisfied, we proceeded to their camp for the night, where they entertained us most hospitably, and endeavoured in every way to atone for the privations endured during our late trip up the Yarkand River.

They were a party of Kugiar merchants with some thirty horse-loads of merchandize, come from Ladak, and now on their way to Yarkand ; and, regardless of Kunjooties and captivity, were travelling down the Zamistânee route with the express permission of the Governor of Yarkand, when we fortunately met them here at Kufelong.

On the following morning, after bidding them farewell, we started for Aktâgh and Shadula, having received from our hospitable entertainers three days' provisions for the road. They promised to renew our acquaintance, should I proceed to Yarkand, and were delighted at receiving a flask of powder and a couple of hunting-knives, as tokens of our friendship.

From Kufelong to Aktâgh, the road is excellent ; and runs up the right bank of the Karakoram Pass stream, now entirely frozen over, which had to be crossed twice in the defile at Kufelong. Aktâgh—or “White Mountain” in Turki—as the name implies, is a peculiar hill of white sandstone, standing out prominently in the open valley at the foot of the Aktâgh range. From here, eastward, the country slopes up into a high plateau, traversed by low ridges of hills, until it reaches the foot of the Karatâgh range, forming its eastern crest. This central plateau of Aktâgh is geographically remarkable as constituting the table-land intervening between the main chains of the Kuen Luen and Karakoram, and the Yarkand and Karakash rivers. It is bounded by the Aktâgh range on the north, the Karakoram on the south, and the Karatâgh on the east ; and has an average elevation of 15,800 feet above sea-level, while the whole surface of the table-land slopes down gradually to the north-west to the valley of the Yarkand River. The Karatâgh running out from the Karakoram, and Aktâgh range branching from the western Kuen Luen, converging towards the east of this table-land, determine its triangular configuration, round the apex of which the Karakash River winds. The extent of this plateau, including the ranges which bound it up to the Karakash Valley on the north, and to the valley of the Yarkand River at Kufelong, embraces an area of 3400 square miles. At Aktâgh itself, which is an elevation of 15,252 feet above the sea, several springs of water add to the volume of this branch of the Yarkand River. The stream from here down to Kufelong was one mass of ice, which caused the breadth of the river to appear greater than when not frozen over, as the accumulations of layer upon layer of ice had expanded the river beyond its usual size, when the temperature of the air does not admit of its being entirely frozen over. I saw the stream afterwards, in the month of June, and instead of the valley being filled up with a sheet of ice, as when seen in December, the stream flowing through it

was a mere brook ; while above Aktâgh, towards the Karakoram Pass, that branch of the stream was not of sufficient volume even to reach Aktâgh. There is a very little grass, but no fuel whatever here ; consequently travellers and merchants, going across the Karakoram towards Ladak, have to carry wood with them from Kufelong for this part of the journey, since no fuel is obtainable until reaching the valley of the Shayok River, on the Ladak side of the Karakoram Pass. As before stated, the road here bifurcates,—the Zamistânee route going down the valley of the Yarkand River, and being the road we followed up from Koolunooldee,—while the Tabistânee route crosses the Aktâgh range by the Sooget Pass, and conducts down that valley to Shadula. From here I traversed this latter route to Yarkand throughout.

Coming into Aktâgh we met two of the Turki sipahis, who had been sent out to search for us from Shadula. From what I could understand, I gathered from them that permission for me to proceed to Yarkand had arrived, and that no slight disturbance had been caused by my sudden disappearance ; that the Panja-bashi, in despair, had sent out all the sipahis to search for us in different directions, who had never reached to within 50 miles of where we were, being themselves obliged to return after consuming the little provisions they were able to carry.

We remained the night at Aktâgh, with the thermometer below zero, and no fuel wherewith to light a fire to be had ; and started the following morning at daylight, intending to go straight into Shadula, 40 miles distant. The road is level and good as far as Chibra, a camping-place at the foot of the Sooget Pass. No grass or fuel is obtainable here, the place being at an elevation of 16,812 feet above sea-level. A stone hut in ruins stands on the right bank of the stream, outside of which, in the ravine close by, lay the skeletons of half-a-dozen horses. The whole way from the Karakoram Pass is covered with the whitened bones and remains of horses which have perished in traversing this severe route. The great commercial enterprise of the Turkistani traders is fully evinced by their efforts to carry their merchandize for hundreds of miles over what would be thought in Europe such impracticable mountains. Their losses in horses must be considerable, for a caravan during its journey from Yarkand to Leh, and back to Turkistan, generally loses a third, at least, of its horses.

The want of grass, and often of water, near the Karakoram Pass, but more especially the difficult passage of the Sasser and Kilian passes, are the chief causes of the losses thus suffered.

Camels are much better adapted to endure the privations of

such a journey; and should a feasible route for such animals be opened out, there can be no doubt but they will be extensively used.

From Chibra to the summit of the Sooget Pass, which is at an elevation of 18,237 feet above sea-level, the ascent is very gradual and long, the road leading up the open ravine which runs up to the pass.

The view from the summit is limited, since the spurs of the Aktâgh range close the view to the south, and do not admit of a sight of the more distant Karakoram. The Western Kuen Luen is, however, partly in sight to the north, and the Sooget Valley lies below. The pass is across the Aktâgh range, dividing the basins of the Yarkand and Karakash rivers; and, as above remarked, forming the northern crest of the table-land of Aktâgh.

Descending the pass, the road winds down to the head of the Sooget Valley, which is here, as far as it runs north-west, some 12 miles in length, and enclosed by snow-capped ranges. The valley then narrows, and turns to the north-east, and the road is rapidly on the descent over rough ground, until it enters the valley of the Karakash River, four miles above Shadula.

It was dusk soon after we had crossed the pass, but we kept marching on down the valley, one of the sipahis leading who knew the way. The road is very indifferent, and certainly not the sort of ground one would voluntarily choose to march over during a dark night. For many miles our way lay over the lower slopes of the mountains, and then down the centre of the ravine blocked up with rocks and granite boulders. Thus stumbling on over the rocks and stones, and being consoled by the sipahi to my inquiry, where wood and water were to be found, with the answer, "Su yoak, utum yoak"—in Turki "No wood or water for miles yet"—we kept marching on up to past midnight. At length, coming to wood and water, we halted for the remainder of the night near the Sooget camping-ground, 13,905 feet above sea-level, and 33 miles from Aktâgh. The following morning I sent off one of the men into Shadula, 7 or 8 miles distant, to bring out a horse to meet me; and, following soon afterwards, met one of my own servants with the horse and a most welcome breakfast. Fording the Karakash River twice, Shadula was soon in sight, a dreary and desolate place at any time, but it appeared almost charming just then.

As I rode up to the fort the Panja-bashi and sipahis were waiting to receive me, and seemed to be in utter astonishment at my sudden re-appearance. They had quite concluded that we were lost amongst the mountains, or had gone back to Ladak, for the sipahi who had come on in the morning had fortunately

arrived just in time to prevent their starting without me for Yarkand. They had everything ready for the march, horses and yaks were loaded, when he came in, so thoroughly convinced were they that we should never return; and in dreadful fear lest the King should visit on them his displeasure for their remissness in allowing me to get away on an exploring expedition unaccompanied. They were delighted, therefore, at my re-appearance; and equally pleased was I at the prospect of seeing Turkistan, although the fact could not be ignored that, hitherto, it had proved to be to others "the country from whose bourne no traveller returns."

We had been absent from Shadula just 20 days, and, during that time, had traversed more than 300 miles of mountainous country.

The result of the expedition was very satisfactory from having determined the geographical features and relative bearing of the Karakoram and Kuen Luen chains of mountains, as well as the true course of the Yarkand River.

Hitherto, our maps have represented the Karakoram and Kuen Luen to be one and the same great chain, whereas a distinct watershed and the Yarkand and Karakash rivers intervene between the two ranges. On the other hand, the Tiznâf River has been defined as rising in the Karakoram Pass, and flowing through the Kuen Luen range to its junction with the Yarkand River, which stream has been represented to have its source at the head of the Sarikol territory, near the source of Wood's Oxus. This is entirely wrong. The Tiznâf is but a tributary of the Yarkand River, and rises on the northern slope of the Kuen Luen, to the east of where the Yangi Pass crosses that range.

The main breadth of the Yarkand River has its source to the west of the Karakoram Pass; and at Kufelong, 55 miles below its source, receives its tributary rising in the Karakoram Pass; thence flowing with a course north-west to Kirghiz Jangal, it makes a bend, running west towards Sarikol between the main ranges of the Karakoram and Western Kuen Luen. From the respective slopes of these two ranges it receives innumerable tributaries, and the whole drainage of the Sarikol district, conveyed to it by the Toong, Tashkurgân, and Charling rivers; and then sweeping round with a gradual course to the north-east, flows through the confined gorges of the Kurchum Hills, and debouching into the plains of Eastern Turkistan pursues its course past Yarkand.

It would be satisfactory were a definite geographical name assigned to the great watershed dividing the basin of the Indus from the Turkistan rivers, and which is comprised in the great chain known, in the different portions of its length, as the

Karakoram, Muztâgh, and more anciently Belortâgh, and Pololo. To the inhabitants of Eastern Turkistan the whole chain is known as the Muztâgh range, which in Turki means the "Glacier Mountain," or range; the word Karakoram being merely applied to the pass of that name. That the name Karakoram should be given to the range indefinitely is desirable for the sake of distinction, and the Karakoram range, as specified in this report, will be understood to refer to the whole mountain system included in the chain stretching from the "Pusht-i-Khar" to the head of Chang Chenmo.

### 3. FROM SHADULA TO YARKAND.

Having reached Shadula on the 17th December, on my return from exploring the Yarkand River, we immediately prepared to start for Yarkand. The Panja-bashi had received orders to make arrangements for the journey, so that everything was in readiness, and a mounted sipahi was despatched on ahead to have the yaks of the Kirghiz awaiting us at a Kirghiz encampment down the valley, for the passage of the Sanju Pass. The Bhoots with me were dismissed and received provisions for their journey back to Ladak. I was disappointed in not being able to send news or letters by them; since it was not advisable to risk any correspondence being found on them by the Ludki sipahis. Nor was I now able to survey openly as before, for in the eyes of a Central Asiatic exploration and surveying is spying, the utmost caution was, therefore, necessary; and henceforward all observations had to be made *sub rosa*.

As we rode away from Shadula, every one was in high spirits at the prospect of leaving these inclement mountains, the sipahis testifying their joy by firing at a mark as they passed it at a gallop. I had given a pistol to the Panja-bashi, and we each followed with 5 barrels from a revolver. It was amusing to witness the delight and wonder of the Turkies at inspecting a revolver. They could not understand how a small weapon could shoot so many times in rapid succession, and they were never tired of looking at European firearms and expressing their desire to possess such weapons.

Our road from Shadula lay down the left bank of the Karakash River, which here runs with a northerly course piercing the main chain of the Kuen Luen. The mountains on either side the valley are, consequently, very high and precipitous, and many glaciers and moraines occur at the heads of the steep ravines. Much schist appears in the higher strata; and long slopes formed by a detritus of shingle and drift in the transverse valleys. Between the river and the foot of the mountains the

valley is filled with thick platforms of coarse indurated conglomerate, which occasionally vary in height and the angle of their slope, the whole being strewn with angular fragments of rock, and rounded boulders, and pebbles.

Passing Ulbuk, a camping ground of the Kirghiz, we continued down the valley to Tograssu, 10 miles below Shadula, where a wide valley containing a large stream of water effects a junction from the north-west. A road conducts up this valley to the Kullik Pass, which can be crossed on the third day's journey from Tograssu. The pass, a difficult one, is little used by the traders, who traverse the Kilian or Sanju passes in preference. When the rivers are melting the stream in this valley attains to so considerable a size as often to debar the passage of the caravans for many hours. It was now, however, easily fordable on horseback. Two miles below Tograssu, where the river again turns to the east, are the ruins of a stone fort, situated on the summit of a low mound in the centre of the valley, and known as Ali Nuzar Kurgân; and here the Kilian route leaves the Karakash valley, and ascends a ravine in a north-westerly direction to the Kilian Pass. As we were to cross this range by the pass leading into Sanju, we continued down the valley to Mazar Badshah Abubekr, 19 miles below Shadula, where the road to the Sanju Pass leaves the Karakash Valley, and ascends up a very confined ravine leading to the pass. An observation for latitude obtained here showed Mazar Abubekr to be in lat.  $36^{\circ} 33' 14''$  N.; and the height of the valley at the water's edge was found by the temperature of boiling water to be 11,095 feet above sea-level. The Karakash from here flows eastward through narrow gorges, formed by the steep slopes of the mountains, which do not admit of a road from here down the river to Khotan. This place, being a camping ground of the Kirghiz, takes its name from a Kirghiz chief, named Abubekr, who formerly held sway over the whole of the mountain country down to the borders of Khotan, and used to levy black mail on the caravans of the merchants passing through his territory. His grave is to be seen here at the place which bears his name, surrounded by a rude wall of loose stones, and surmounted by pieces of red, yellow, and white cloth, and yaks' tails.

Whilst the Panja-bashi and the sipahis were regaling themselves on a mess of stewed horse flesh, a most popular article of consumption throughout Turkistan, and I was engaged in taking an observation for latitude from amongst the thick jungle which here fringes the river, the loads were transferred by the Kirghiz to the backs of the yaks awaiting our arrival, and our saddles changed to the best ones to ride. To be seen riding one of the animals in England would no doubt create a sensa-

tion, but here in the mountains of Central Asia they are the regular beasts of burden of the Kirghiz, and are invaluable, since they can safely cross a mountain pass which is impracticable for laden horses. Our horses from here consequently were unladen.

Leaving the valley of the Karakash River, we proceeded up the narrow ravine leading to the Sanju Pass, the stream in which was quite frozen over, while our journey lay between rocky precipices towering above the narrow defile. As no wood for fuel is obtainable near the pass, it was necessary to load one of the yaks with wood gathered in the lower part of the valley; and grass for our horses was also carried by the Kirghiz who accompanied us. We encamped that night 2 miles below the pass at an elevation of 14,474 feet above the sea. The last part of the way was over some difficult ground, where the ravine is much contracted, and the road lay over the frozen surface of the stream. Our camp for the night was formed under some over-hanging rocks in the defile well sheltered from the wind; and Roza Khoja, the Panja-bashi, at once commenced dispensing Turki hospitality by spreading out a "dastarkhan" of bread, dried fruits, and cakes, as we sat by a blazing fire. Already the Turkies had impressed me with a favourable opinion of their good intentions towards their visitor; and from their frank and courteous, yet independent bearing, I was inclined to regard them in a most friendly light. We went on again up the pass at daylight, the last part of the ascent being very steep and over rocky ground, but the yaks we were riding carried us well right up to the summit, which is 16,612 feet above the sea. From the summit of this, the last pass into Eastern Turkistan, the country on the north side lies far below. Looking back are seen the snowy peaks of the Kuen Luen beyond the Karakash River, and the Sooget Hills beyond Shadula. I was disappointed in my expectations of being able to see the plains of Turkistan in the distance, since a haze overhanging the lower country, and light clouds drifting over the intervening mountains obscured the view. Down the north side of the pass the descent is very steep, and many accidents occur from horses slipping on the ice, which lies during the winter on this side the summit.

On my interpreter going to Yarkand, bearing my letter to Mahomed Yakoob, the King, the horse of the sipahi, who had accompanied him, had slipped on the ice when crossing this pass, and falling down the precipitous ravine had been killed. We therefore waited on the pass until the horses came up, in order to see them safely over; I had already lost two horses during the journey from Ladak, and could not afford more accidents. I much doubt if one could ride a horse over the

Sanju Pass, on account of the steep ascent and rarefied atmosphere.

When the merchants cross this pass with their caravans, they are obliged to obtain yaks from the Kirghiz to carry their goods over; and thus often experience serious delay in procuring them at once. The Kilian Pass is quite as, if not more difficult, while the Kullik Pass is even worse. They are all simply impracticable for laden horses and camels, and for any animals except yaks; and there can be no doubt that the true road into Eastern Turkistan is that conducting down the valley of the Yarkand River, and across the Yangi Pass to Kugiar, Karghalik, and Yarkand.

Mounting the yaks below the pass we again rode on down the valley, and striking the head of the Sanju River, continued down it to a Kirghiz encampment, at 14 miles from the pass. We had been descending rapidly the whole way, as this place is at an elevation of 9123 feet above sea-level, the lowest altitude which I had reached during nearly four months' wandering, having for that time lived at elevations varying from 13,000 to 17,000 feet above sea-level. We were now evidently nearing the plain country, since the mountains here now slope rapidly to the north. The range of the Kilian Mountains, which we had crossed by the Sanju Pass, is a spur from the Western Kuen Luen, and bounds the Karakash Valley on the north, after that river has pierced the main chain, at the same time throwing out transverse spurs running down into the high table-land of Tartary, dividing the minor rivers of Oglok, Oshokwas, Kilian, Sanju, and Arpalak. These streams all run to the northward, the Oglok and Oshokwas joining the Tiznâf River; and the Sanju, Kilian, and Arpalak streams, after fertilising the country which they traverse, being finally lost in the sandy wastes of the Takla Makan Desert.

Our approach to the Kirghiz encampment was greeted by a loud barking of dogs and the shouts of the young Kirghiz, who came forward to lead away our shaggy steeds as we dismounted. I was then conducted to an empty tent, and seating myself by the fire, tea and cakes of Indian corn were placed before me, while a sheep was brought and killed as a token of Kirghiz hospitality. The firearms with me attracted the attention of the Kirghiz above everything; and the leading men of the encampment were delighted at being shown how to fire off a revolver. Powder seemed to be in most request with them, as they possess matchlocks and are keen hunters. Their chief sport is in hunting the ibex found in the Kilian and Kuen Luen mountains, which they pursue with the aid of their dogs. This species of ibex seems to differ from the Kashmir kind, and is

the same as the black ibex of Baltistan, judging from the description of it given by the Kirghiz. I was unable to obtain a skin of this species, which is found on the lower slopes of the Kuen Luen, but I saw some ibex horns in several places; and these differed somewhat from the horns of the Kashmir and Ladak species in being thinner, and not having the knots so well defined. As this is a peculiarity of the Skardo ibex, it is probable that the Kuen Luen and Baltistan ibex are the same species.

There are some 20 tents of Kirghiz in the Sanju Valley, under a head-man, or chief, Aksakal. The valley from the Kullik Pass is frequented by some 25 tents, whereas the valley of the Tiznâf River from the Yangi Pass downwards contains about 120 tents of a tribe of Kirghiz, called Phakpook. Besides flocks of sheep and goats and herds of yaks, these latter possess large numbers of fine dromedaries, or the two-humped Bactrian camel, which might be used extensively for traffic between Yarkand and the north-west provinces of India, on the route up the Yarkand River to Aktâgh, and thence to Chang Chenmo direct. The Kilian Valley is frequented by a totally different race to the Kirghiz, being Wakhanees from Wakhan in Badakhshan. There are about 40 tents of these people who came over *via* Pamir Khurd from the Wakhan some forty years ago, and they and their descendants have remained here since. They at different times frequent this valley, and some of the lower valleys of the Yarkand River and the Sarikol district. Speaking the dialect of Wakhan besides Persian, and being of the Sheeah sect, they will not associate or intermarry with the Kirghiz, who alone speak Turki, and are of the Sunnee sect of Mahomedans.

The Kirghiz are the Bedouin Arabs of Central Asia, and like those children of the desert possess no fixed habitation, but move about amongst the valleys of the mountains with their flocks and herds. Their tents are made of felt, in shape circular, supported on cross pieces of wood constituting a framework against which rush matting is fixed in the interior of the tent. Felt carpets cover the floor, in the centre of which is the fireplace. A circular opening in the roof of the tent which can be covered over and closed at will, gives escape to the smoke. The tents are very comfortable and impervious to rain, and will last a dozen years. Each family possesses one, and when a young couple marry, a separate tent is provided for them, and they henceforward constitute a separate family in the encampment. An average sized tent is about 16 feet in diameter, and when moving to a new encamping-ground all at once assist in striking the tent, which is then packed on three yaks, and the Kirghiz move off to "fresh fields and pastures new." They are an excess-

sively hardy race, as men, women, and children alike brave the rigours of winter and the heat of summer amongst their native mountains. Their food is the produce of their flocks and herds, which are driven to pastures and tended by the men and boys during the day time; and on the approach of evening return to their folds in the encamping-ground. Here the women milk the yaks and goats, make butter and curd cakes, and are employed during the day in carrying water, or weaving the warm material which the wool of their flocks affords them, into articles of wearing apparel. In appearance they are seldom attractive, and are short and robust. The men are low in stature, and generally of spare, wiry frame, with high cheek bones, a low and slanting forehead, and a broad flat nose. Their complexion is a yellowish brown, with a ruddy tinge, and they are mostly devoid of beard, with very little hair on the face, while their features unmistakeably exhibit the true Mongolian Tartar type.

The following day we reached the small village of Kibris, the first habitation met with on entering Turkistan from the Sanju Pass. It is 19 miles distant from the encamping-ground of the Kirghiz, and 36 from the pass. Our road this day lay down the Sanju stream, which had to be crossed and recrossed from 20 to 30 times. It was in part frozen over, and in many places the passage was difficult. In the summer this road is often rendered impracticable by the large volume of water in the stream, which is then unfordable. Another route is then used by travellers, which crosses a low pass 11,847 feet above sea-level to the east of the Sanju Valley, and conducts down the Arpalak Valley to Sanju.

On the 21st December we arrived at Sanju, a district containing some 3000 houses, comprised in several villages situated on each side of the stream in the Sanju Valley. Ilchi, the capital of Khotan, lies east from here at the distance of some 66 miles, or three days' journey.

The day we entered here was "Du Shamba," or Monday, on which day the bazaar, or market, is held. Each town and village in Turkistan has its fixed market-day once a week, and the Sanju one being on a Monday, is called the "Du Shamba" bazaar. The place was, therefore, more astir than usual, and we passed many villagers riding in with their country produce. They all wore the costume peculiar to the agricultural classes throughout Turkistan, consisting of a round cap, lined with sheep or lambs' wool; a loose "choga," a description of loose coat confined by a roll of cloth at the waist, and lined with wool or sheepskin; and felt stockings, with boots of untanned leather. Their costume is nearly all of a grey or drab colour; but on the

occasion of some festivity they perhaps don a more gaudy coat, and wear a turban of white or coloured material.

Some distance from the principal village we were met by some thirty mounted sipahis, sent forward by the Hakeem Beg, or chief official, to escort us in. The dress of the sipahis is somewhat similar to that of the villagers, with the exception of being much gaudier, most of their long chogas being of silk of the most striking and absurd colours. They wear the pointed cap and turban similar to the Afghans, but wind the turban, which is generally of white muslin, in a different way.

For arms they possess a matchlock and tulwar (sabre). The former are long, rather rude-looking, weapons, of inferior manufacture, with hardly any stock, consequently ill-balanced, all the weight being at the muzzle. Fitted to the barrel is a cross-piece for a rest to fire from when dismounted, and in general appearance the weapon approaches closely to the native matchlock of the north-west frontier of India, save that the stock is more curved. Their accoutrements consist of two leather pouches, and a wooden powder-flask. A coil of thin rope is carried, attached to the waistbelt, with which, lighted, they fire off their matchlocks, and notwithstanding it is often a tedious process, as perhaps the rope will not light, the powder ignites, or there is a hitch somewhere, they manage to make very fair practice. Like the Afghans and frontier tribes, they would be found to be no despicable enemies in mountain warfare, in which their strength would lie, since in the plain country, however brave they might prove, they could not contend successfully against European arms. They are excellent horsemen, and at once strike one as good irregular cavalry. Their horses are good, though rough and small, while for horse-accoutrements they carry a small wooden Andijâni saddle, with a thick felt saddle-cloth, embroidered with silk, and a plain bit with leather reins. These saddles, made in Khokând, are of good manufacture, and are very durable and lasting. I have seen a horse fall down a ravine and killed, when the saddle on his back was not in the least injured. In front the saddle rises to a small peak, which is used for slinging the matchlock and sabre upon when dismounted, or on the march; and this custom, as also the shape of the saddle, would indicate a similarity to the old Scythian manner of slinging the mace and battle-axe.

The Panjsads (officers commanding 500 men), Yuzbashies (commanding 100 men), Panja-bashies, Jemadars, and people of higher rank, are better dressed and mounted, many of them riding good Turkoman and Andijâni horses. Their weapons are the same, but better finished, whilst their accoutrements are superior, being mounted in gold and silver and studded with

precious stones. Their horses carry silver-mounted bridles, with silk and embroidered saddle-cloths. Their dress is the same universal choga of silk, lined with fur or lambswool, or two or three perhaps, one worn over the other, which are all of the most striking colours, large stripes and cross patterns. A pointed velvet and gold embroidered cap adorns the head, round which a snow-white turban is twisted in many folds. They wear long leather riding-boots, which are called "ittook," and all carry the short Kalmâk whip. Their sabres are similar to the Turkish, having a curved blade and cross hilt, often inlaid with gold and silver, and stones. It would be difficult to imagine a more picturesque sight than that displayed by a band of these wild Tartars, as they gallop in their silk array over the plains of Central Asia, or engage in their national game of "oglok." True descendants of those conquering hordes which burst like a torrent upon Europe in the thirteenth century, and overran Asia Minor, Persia, and India in the next century under Tamerlane, their restless love of adventure and wandering render them good irregular troops, ever ready for a hostile combat, or a raid of rapine and plunder; and in the hands of a stern commander and sagacious tactician, like their own victorious ruler, Mahomed Yakoob, the "Atalik Ghâzee,"\* or defender of the (Moslem) faith, they are likely to prove themselves formidable foes.

It was most refreshing to see houses and cultivated land, with all the appendages of rural life, after so many months' wandering amongst the mountains; and though I saw Sanju at the most unfavourable time of year, it was still striking as a picturesque landscape. The villages are very different to those met with in India, and instead of being crowded and huddled together, as is seen there, two or three houses together form a small homestead, surrounded by enclosures for cattle and horses, while outside are rows of fruit-trees, thus giving to a village a truly agricultural appearance. Cattle, horses, sheep—the broad-tailed sheep of Central Asia—the shawl-goat, and numbers of fowls and pigeons, fill up the pleasant picture. The houses, though built of unburnt brick, are good, comfortable, and clean. Entering the outer door of one of them the visitor finds himself in an open enclosure, or court-yard, surrounded by a verandah, on each side of which are the rooms, while a third, or open space, leads to the enclosures where horses and cattle are kept. The rooms are generally small, with recesses in the walls, shelves and small cupboards, while the walls are perhaps coloured white or yellow. The roof is of

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\* Atalik is an old Turki title, like "father chief," the *Khanbaba* of the Afghans, and presumably the original of the Hun Attila; and Ghazi is a title (literally "ravager") assumed only by those engaged in war with infidels.

wooden rafters, fixed close together and carved in many places, and the floors covered with mundas, or felt cloths, and Khotan carpets, for the production of which that city is celebrated. A fireplace occupies one side, facing which are the windows, generally small and covered over with glazed paper, which is the substitute for glass, as that article is unknown in Turkistan. The carpets and mundas are also used by the family for sleeping on, since a bed is a luxury almost unknown, or at least unappreciated in Eastern Turkistan, the few that were ever seen being rude manufactures of hard planks! Altogether a good house is picturesque and comfortable; and although no display of costliness appears, an air of comfort and homeliness pervades the place. The housework is all performed by the women, assisted by a Mahrum-bashi, who carries water and wood, and is answerable for the minor offices of the household. In the principal towns and cities many of the chief people possess several slaves. These, both male and female, have either been captured in war, or bought openly in the bazaars when brought for that purpose from Badakhshân and Chitrâl, in which latter country an open traffic in slaves is carried on, parents bartering their own children in exchange for merchandise with the Badakhshi traders. During the rule of the Chinese this disgraceful traffic was carried on to a great extent, secretly encouraged and supported by the Chinese officials in Yarkand, where the fame of the beauty and fair complexion of the Chitrâl women had preceded them, and caused them to be eagerly sought after in the slave-market. The Badakhshi merchants found the traffic to be profitable, for a beautiful girl purchased for 12 tillas (67.) in Chitrâl, would sell for four times that amount in the slave-market in Yarkand. Besides Chitralies, the people kidnapped from Kunjoot, Gilgit, and Kafiristan were brought to Bokhara and Yarkand for sale. Since the expulsion of the Chinese from Eastern Turkistan, this inhuman traffic has entirely ceased in Yarkand, thanks to the prompt and vigorous measures taken by the Atalik Ghâzee to put a stop to it, who, immediately he had firmly established his rule, abolished the slave-market in Yarkand, and prohibited further importation from Chitrâl and Kunjoot. It is believed that the open purchase of slaves has ceased even in Chitrâl, since the merchants have now no mart in which to carry on their nefarious practice—Bokhara, as well as Yarkand, being now closed to them. In the country, however, amongst the agricultural classes, no slaves are met with. The house-proprietor's wife and daughters manage the household and do the cooking. The country women also go about with their faces uncovered, which is never the case in the towns and cities, where a female, though allowed perfect liberty, is forbidden to be seen out of

doors without her veil, and, if caught transgressing this decree, is severely punished by the “Kazi,” or head judge. To enforce the due observance of this order, the Kazi may be seen daily parading the streets of Yarkand and Kashgar, preceded by six or eight men armed with long leather whips, whose duty it is to seize and severely chastise any man neglecting to say his prayers at the hours appointed by the Kôran, and any female seen out of doors without her veil.

The costume of the women of Eastern Turkistan is in accordance with all Oriental ideas, and perhaps somewhat assimilates to the dress of their sisters of Constantinople and Turkey in Europe. The country women wear a loose cholah, somewhat like that worn by the men, but shorter and more adapted to their stature. This is of light material for summer, or of warmer material, lined with wool, suitable to the rigour of an Asiatic winter. A round silk cap in summer, or a cloth one, lined with fur or lambswool, in the winter, covers the head, under which a white veil is worn, which is allowed to flow behind. They wear long leather boots of different colours, green and red prevailing. A town beauty, however, is much more gorgeously dressed. She is arrayed in one or two silk cholahs, sure to be of gaudy colours, lined and trimmed with fur and lambswool, while her head-dress consists of a circular silk cap, richly embroidered, for summer wear; and for winter, of a high black lambswool cap, turned up and trimmed with fur, or beaver-skin. Under this a white veil flows behind, when in doors, or is worn over the face when without. Her feet are encased in long red leather boots, embroidered with silk tassels, which are quite as long as riding-boots. They wear no ornaments, like most Eastern women, which is certainly an advantage; for in Ladak and Kashmir, for instance, a female is often so bedecked with rings and ear-rings, or a heavy weight attached to the back of the head, that she appears to walk with difficulty. They have not the fine eyes and gait of the Cabul or Chitral women, but are certainly handsome, with round pleasant faces, rather low in stature, and robust, while their complexion is of the healthiest. Not content, however, with the charms which nature has given them, they plait long masses of horsehair in their own hair and wear it in two long thick tails flowing down the back; consequently horsetails are at a considerable premium in Turkistan.

The hospitality of the Turkies is far-famed, and I experienced it everywhere to the utmost. Every day on the journey into Yarkand I received a “dastar khan,” or present to a guest, consisting of a sheep, fowls, eggs, bread, butter, dried fruits of every description, &c., sent by the Hakeem Beg, or chief official of the towns and villages, where we remained the night. The hos-

pitality everywhere tendered was simply as unbounded as the “dastar khana” were profuse. Everything was at once supplied in far greater abundance than sufficed for myself and servants. On dismounting in the court-yard of the house prepared for me at Sanju, I was conducted into a room where tea and cakes were served, and the usual preliminaries of receiving a guest gone through. It is imperative, on entering a house, to invoke a blessing on its inhabitants, in order to secure their good-will; and to express good wishes for their health and prosperity, by the usual salutations of courtesy; and on seating oneself in the room it is usual with visitors—at least with those of the Mahomedan religion—to accompany such expressions by stroking the beard and uttering the formula, prescribed by the Koran, of “Allah ho Akbar.” The Turkies never sit cross-legged,\* like the natives of India, but assume a kneeling position, with the feet behind. This custom should be known to a visitor, or in ignorance of their manners he may probably sit down in the fashion adopted by Indian Rajahs and Nawâbs, and thus unintentionally offer a deadly insult to his host.

Soon after I had arrived at Sanju the Hakeem Beg came to an interview. He is an Uzbeg, and a good specimen of the country. By means of my interpreter we conversed together; and shortly after the usual conversational etiquette had been gone through, he expressed a wish to see the firearms and weapons which I had with me. Himself a soldier, and one who had seen service, and now suffering from the effects of a severe wound, received at the capture of Khotan in 1866, he said he was delighted to see and handle weapons of European manufacture; adding, that although Allah had given to an Uzbeg his horse and sabre, yet he had made no provision for furnishing him with a rifle, wherewith to fight his foes, thereby implying the inferiority of the Turki matchlocks compared with a rifle of European manufacture. Before leaving he made a request for some medicine, which I gave him, as he was suffering from bad rheumatism, and he sent the next morning to say that, having taken the medicine the night before, he had experienced much relief from the effect of it. I had brought a stock of medicines, and was besieged with applications for them wherever I went. A doctor would have plenty of work to do in Turkistan. Having written instructions for dispensing the medicines, I endeavoured to give them accordingly, as the complainant stated his wants; and so never-failing was the virtue of physic considered to be, that the patient invariably declared that the remedy had been effectual.

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\* This is the rule throughout the East, with the exception of India.

In only one instance did the patient seem dissatisfied with the result. An old man, afterwards at Kashgar, who was suffering from fever, applied to me for some medicine ; I accordingly dosed him with some quinine, and he was well again in four days, but he most ungenerously and ungratefully retorted that the “Feringhee Kafir” had given him some awfully strong physic—I believe he used the word poison—which had nearly killed him. The chief complaint seemed to be goître, from which the native Moghul population suffer more or less, while the Uzbeg invaders from Andijān and strangers do not incur it. It prevails in both towns and villages, though in a greater degree in the populous places, and its cause may be traced to the bad water accumulated in the tanks, which the inhabitants use. The story of its first appearance in Turkistan is as follows :—Several years ago a holy man possessed a wonderfully sagacious camel, which was in the habit of going into Yarkand daily for provisions, and returning unaccompanied by any one. The Posgām people, having a spite against the owner, one day took counsel together to seize the camel as it was returning ; and not only did they waylay the unfortunate beast, but killed and ate him on the spot. On hearing of this the holy man prayed that the perpetrators of the deed might become known by some sign in their throats, immediately upon which all the Posgām people suffered from terrific goitre. This is as the story is related, and with about as much truth in it as other Eastern ones.

Crossing the river at Sanju, the Yarkand road ascends the range of sand-hills bounding the valley on the north, and traverses a sandy steppe to the village of Langar, from where it goes forward across the dry bed of a river, coming down from the Kilian Mountains. Beyond this it again traverses an open plain, and descends a low ridge to the village of Koshtok, pleasantly situated on the right bank of the Kilian River, which village lies some 12 miles to south-west from here. The Kilian stream flows from here, with a north-east course, through the sandy steppe to Guma, a large place, containing some 6000 houses, situated on the direct road from Yarkand to Khotan. The sandy steppe which we crossed this day slopes down very gently to the plain country, which is here a broad belt of sterile soil stretching away to the eastward, and known as the Taklā Makán Desert, beyond which again lies the “Dusht-i-Tâtar ;” towards the Great Gobi Desert of Central Asia. The whole of this vast tract of country is a sandy or stony plain, with tracts of clayey soil, impregnated with a saline incrustation, rendering the little water here and there obtainable brackish and unwholesome. The surface is by no means a dead level, but in

places is raised into ridges and hillocks of sand, drifted by the action of the wind.

As we journeyed on towards Koshtok, the sipahis of the escort amused themselves by chasing each other on horseback over the sandy plains, or firing at a mark as they passed it in full career, while the Punja-bashi was relating to me the history attached by the Turkies to this Taklá Makán Desert. "Many hundred years ago," he said, "all this wilderness was a flourishing province, possessing 160 towns and cities, now entirely overwhelmed with sand and buried. During their populous and thriving state, a great Moulvie, or priest of the Moghuls, visited them, and requested the ruler of the province to persuade the inhabitants of this territory to embrace the Mahomedan religion. After some demur, this the ruler agreed to, on the condition that the priest should furnish him with as much gold as would suffice to convert the doors of his palace into that precious metal. On hearing this demand, the priest invoked his deity to such effect, that on the instant the ruler's palace and everything in it was turned into solid gold and silver. Upon this the ruler laughed, and turned the priest away, saying, there was no necessity for him to force his subjects to become Mahomedans, since he had now obtained his desire. Angrily the great Moulvie turned to depart, but had not yet disappeared from view when black clouds overshadowed the glittering palace, and a tremendous sand-storm came on which buried the palace, the cities, and all the inhabitants beneath its overwhelming fury. There are said to be fabulous quantities of treasure buried in this desert, and many people, attracted by the hope of gain, have endeavoured to reach the buried cities, but though many have departed into the Taklá Makán, no one, so the Turkies say, has ever returned to relate his experience. Their camels have been lost in the sandy wastes, and the owners in search of an *ignis fatuus* have perished with them. Not only do wild camels frequent the desert, but even human creatures are said to have been seen, that are covered with hair, wear no apparel, and live on what they can pick up in the jungle." The Punja-bashi was quite indignant at my suggesting monkeys; and declared he knew people who had seen them frequently, but that these creatures always ran away laughing on being approached.

The Karakash River skirts the edge of this vast tract of uninhabited country, and the gold found in that river is said to be washed up from the buried treasures in the Taklá Makán Desert. So strangely do superstition and the love of gain actuate the mind of a Central Asiatic.

To return to our journey from Sanju. I had obtained an

observation for latitude about a mile from the principal village, at the foot of the range of sand-hills, bounding the valley on the north ; which gave a value of  $37^{\circ} 12' 30''$  N., and by observation of the temperature of boiling water, an elevation of 6420 feet above sea-level. The utmost caution was now necessary in using scientific instruments, when amongst such a suspicious race as the inhabitants of Turkistan. To display them openly would have been highly dangerous to the success of the enterprise, and to be detected doing anything in secret would have been as sure to lead to some unpleasant complication, if not absolute danger to life. As opportunity, however, offered, I succeeded in taking observations whenever the escort left me alone, or by riding away from the road for a few minutes ; nevertheless from this time until I left the plain country, and once more reached the mountains, on the return journey, it was impossible to use the scientific instruments openly as before ; and all observations had to be made with the utmost caution and circumspection. It was advisable even not to be seen writing too much, for the suspicion of an Asiatic once aroused, it is hard to allay, and correspondence in his eyes is conspiracy. Let him once imagine he has cause to look upon any one as endeavouring to compass an object, upon which he could put the construction of harbouring the remotest intention of anything apparently hostile to his rulers, and consequently to himself, and he will ever afterwards prove, at least, a faithless friend, if not an actual foe.

From Koshtok, the Yarkand road skirts the sandy steppes ; and passing through the small village of Oitogrok, situated in a valley, watered by a branch stream from the Kilian River, ascends another range of sand-hills, and traverses the steppe to where it descends to the larger village of Borah, pleasantly situated in an open valley, through which runs a stream coming down past Oshokwas, a large place of some 1300 houses, lying south from here. The Kilian route joins the Sanju one at Borah and from here they are the same to Yarkand throughout. From Borah the road traverses another sandy steppe ; and then descends to the true plain country of Eastern Turkistan, or more strictly speaking the high table-land of Central Asia, which has here an elevation of about 4500 feet above sea-level. From the foot of the low hills our way lay across a barren tract of plain country, the soil of which is gravelly, and covered with loose stones, until passing the widely scattered village of Beshiruk, the more fertile country is reached.

On the 25th December, Christmas-day, I had hoped to have reached Yarkand, but we did not enter the capital of the

Moghuls until two days later. On Christmas-day we arrived at Karghalik, situated 79 miles from Sanju, and 36 miles from Yarkand. This is a large town and district, comprising some 20,000 houses, and possessing a large bazaar and several caravanseries; and is a place of considerable importance from being situated at the junction of all the roads, debouching across the Karakoram Range into Turkistan, from Kashmir, Ladak, and India, as well as the Khotan road through Guma. Outside the town, at the junction of the Khotan road, stands a new earth fort, with four towers, and a dry ditch, which was originally built by the Tungâni in 1865, when they feared Habibula Khan, the ruler of Khotan, invading Yarkand. The fort lies to the west of the road, and is now unoccupied. Karghalik is a thriving place of trade, since all the traffic coming from Khotan and the district eastward passes through the town, which is watered by a canal cut from the Tiznâf River.

I was conducted to a most comfortable serai, and immediately afterwards the chief official of Karghalik, a fine-looking old man, by name Ibrahim Beg, came to an interview. The "dastar khan," which he sent, was most profuse; and exhibited the most unbounded hospitality. It comprised two sheep, a dozen fowls, several dozens of eggs, large dishes of grapes, pears, apples, pomegranates, raisins, almonds, melons, several pounds of dried apricots, tea, sugar, sweetmeats, basins of stewed fruits, cream, milk, bread, cakes, &c., in abundance. In fact, it was enough to feast thirty or forty people, and, although there is a saying in Turkistan, that whoever has once tasted Turki hospitality is so charmed therewith, that he never wishes to leave the country afterwards, which means that he is not allowed to; still one could not but confess that however treacherous the Atalik Ghazee might be, he certainly had no intention of killing his guest by starvation.

The following morning, after receiving Ibrahim Beg's profound salâms, and being the observed of all observers, as we rode through the bazaar of Karghalik, we proceeded on towards Yarkand. From here the distances are marked by "tashes," being a rude sort of sign-post, with a flat board nailed to it, on which the number of tashes are written in Persian. The "tash,"\* so named from the pile of stones at the foot of each post, "tash" meaning stone in the Turki; corresponds, I believe, to the farsang of Bokhara and Western Turkistan; and is said

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\* *Tash* may be understood as a "mile-stone;" *Aghatch*, in Azerbaijan, used in the same sense, is a "mile-post." These distances are really the space traversed by a horse walking in an hour, and usually, in Turkey and Persia, range from 3 to 4 miles; but in Khorassan, where the horses amble, the farsang reaches 5 miles, and Hayward's estimate, therefore, is not excessive.—[NOTE BY SIR H. C. RAWLINSON.]

by the Turkies to measure 12,000 paces. The farsang has been variously stated to be  $3\frac{1}{2}$  to  $4\frac{1}{2}$  miles; and I calculated the "tash" of Eastern Turkistan to be from  $4\frac{1}{2}$  to  $4\frac{3}{4}$  miles. As a general standard for computing distances roughly they are reliable. Thus from Yarkand to Khotan is 37 tash, or about 176 miles; Yarkand to Kashgar,  $26\frac{3}{4}$  tash, or about 125 miles; but observations for latitude and bearing of points on the route are the more reliable data to depend upon for obtaining correct positions.

The whole country from Karghalik is profusely irrigated by the Yarkand and Tiznâf rivers, and is well cultivated and thickly populated. Large villages are seen on every side, embosomed in fruit trees of every description, while the road itself is flanked by mulberry and poplar trees. Rice, wheat, barley, Indian corn, carrots, turnips, clover, &c., are grown in great abundance, while cotton is largely cultivated. Flocks of sheep and goats are everywhere seen, and the quantities of fowls and pigeons are very great. I noticed very few ducks and geese, but quantities of wild fowl in the streams and rivers. The sheep are all the broad-tailed species, and one specimen was seen which was quite a curiosity. This is a species of sheep with four horns, one pair curving backward like an ibex's horns, and the other pair forward over the ears. The cattle appeared to be small and indifferent, and in colour mostly black and red. Eleven miles beyond Karghalik we crossed the Tiznâf River in lat.  $37^{\circ} 51' 35''$  N.

The stream at this time of year was of inconsiderable size, partly from the volume of water carried away by the canals and dykes to irrigate the cultivated lands; and partly from its diminution caused by the little snow now melting on the southern slopes of the Western Kuen Luen, from which it receives the drainage.

Continuing our journey the road passes the villages of Khojerik, Alamakun, Boghorlok, and Meklah, immediately beyond which is "Yak Shamba" Bazaar, a large market, and, as the name implies, crowded by the country people on Sundays. Beyond this is the town of Posgâm, at a distance of 21 miles from Karghalik. It is a large place, and with the immediate suburbs comprises some 16,000 houses, with a long bazaar and a large caravanserai. The town is watered by the Beshkun Canal cut from the Yarkand River, a wooden bridge crossing this canal in the centre of the main street leading through the bazaar.

A considerable amount of traffic appears to be carried on. As we rode through the main street it was crowded with people hurrying through the bazaar, while articles of merchandise were being carried in every direction, laden on horses, camels,

and donkeys, which latter animal abounds in Turkistan, and is made use of for conveying everything transportable.

The main street or bazaar is covered over with a rude roof of matting, which affords a shelter from the sun. On each side of the way the shops are placed, consisting of mere booths ranged in front of the houses, and generally mixed up with no particular regard to the distribution of wares. Butchers and bakers, silk and cap vendors, vegetable and fruit sellers, all ply their several vocations together amidst the din and hubbub peculiar to an Oriental mart. After passing through part of the bazaar, the road runs up the right bank of the canal to the caravanserai situated on some slightly elevated ground. The Serai itself is a large open enclosure, flanked by rows of trees, and surrounded by long sheds for stabling horses, while the east side of the enclosure is occupied by buildings containing several comfortable rooms for travellers.

The plain country extending from Karghalik to Yarkand seems to slope very gently to the banks of the Yarkand River. Observations of the temperature of boiling water showed the elevation of the town of Karghalik to be 4570 feet above the sea; that of Posgâm 4355 feet; and the bed of the Yarkand river near Posgâm, 4180 feet.

On the 27th December, I entered Yarkand, the capital of Eastern Turkistan, so long deemed unapproachable and impracticable to Europeans.\*

No European in later times had succeeded in penetrating to Yarkand and returning. The only one who had made the attempt, besides Mr. Shaw and myself, was the unfortunate Adolph Schlagintweit, who in 1857, after undergoing many dangers in Yarkand, succeeded in reaching Kashgar, where he was foully murdered by a scoundrelly robber named Wullee Khan, who had temporarily seized the supreme power; and who, strange to say, met his death at the hands of the Atalik Ghazee, the very man we were going to see. The high honour of being the first British subject to have reached Yarkand belongs to Mr. Shaw, who had preceded me from Shadula, whilst I was exploring the Yarkand River, and had arrived at the capital some ten days before.

After leaving Posgâm, the road continues in a northerly direction, and at four miles from that town crosses the Yarkand River. The bed of the river is here not less than a mile in width from bank to bank, and three branches of the stream have to be crossed. At this time of the year they are not deep,

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\* Serjeant Ephraimoff, a Russian captive who escaped from the Uzbegs, passed through Yarkand at the close of the last century, and published his travels on his return to Europe.—[H. C. R.].

and are fordable on horseback; but in the summer this is a very large and rapid river. Taking into consideration the whole of the drainage which it receives from the northern slopes of the Karakoram Range, the Western Kuen Luen, and the Sarikol district, and estimating the number of canals and branches carrying away water to irrigate the extensive tracts of cultivated land, the volume of water brought down from the mountains by this river during the spring and summer months must be very great. From its source to this point, where it is crossed on the road to Yarkand, the river has a course of nearly 420 miles, which gives a mean fall of about 30 feet per mile. The Yarkandies themselves say that six other large rivers unite with it below Aksu before it enters the Lob Nor. During the summer it is, where we forded it this day, quite impassable, and is then crossed in boats at Aigachee several miles lower down, which then becomes the direct road from Karghalik to Yarkand.

Our road this day lay through the most fertile country, pleasantly situated villages surrounded by cultivated land appearing on either hand. The road was crowded with people and animals, strings of camels and donkeys carrying bales of silk and goods from Khotan, country produce going in to market, with men and women riding ponies, the latter astride the saddle like the men.

Passing Otunchee, a widely-scattered village to the east of the road, and crossing the Yulchak Canal conveying water to the capital, the road continues on across the open to Yarkand. Meeting the Wuzeer and *suite* sent forward to escort me in, a great salutation took place. We both dismounted and shook hands; and after the usual mutual inquiries after one's health, and his expressing much concern in hoping I had experienced no difficulties *en route* from the cold and the mountains, and had received everything required since being their guest, we again mounted and rode on together, being now followed by a retinue of some 40 mounted men.

The Wuzeer was a good-looking man, of about 35 years of age, but with the unquiet, suspicious eyes of the Asiatic—gorgeously arrayed in silk and embroidery—with jewelled accoutrements and sabre, and riding a fine grey Andijâni horse. A short distance further, and the city of Yarkand was in sight. The day was very gloomy, since it had snowed slightly in the morning, and a thick haze overhung the horizon. Consequently the scene did not appear to the best advantage, for it simply seemed to be a confused mass of mud houses surrounded by a high fortified earth wall. A few mosques and higher edifices reared their summits above the general level of the walls and

houses, whilst gardens and trees, now quite devoid of foliage, were interspersed amongst the mass of buildings.

The city itself lies in the form of a parallelogram, being some two miles in extent from north to south, and  $1\frac{1}{2}$  mile from east to west; the walls thus embracing a circumference of nearly 7 miles. They are from 40 to 45 feet in height, of great thickness, with bastions at each corner, and intermediate flanking defences, and run nearly parallel with the four points of the compass. The city contains some 40,000 houses, and not less than 120,000 inhabitants. It is entered by five gates; from the entrance of the one in the west wall the main street runs nearly due east to the Aksu gate in the east wall. This street is very narrow, being not more than 12 feet in many places. There are 160 mosques, many schools, and 12 caravanserais, which are always crowded with merchants from every country in Asia.

Both the city and fort are supplied with water from several tanks, into which it is conveyed by canals cut from the river. These are frozen in the winter, and the supply is then stopped, but the tanks contain sufficient water for the consumption of the inhabitants until the regular supply is renewed in the spring.

The fort lies at the distance of about 500 yards to the west of the city, with which it is connected by a bazaar. The walls are 40 feet in height, 12 feet in breadth at the summit, and of great thickness at the base, are entirely of earth, and also run parallel with the four points of the compass. The fort is about square, each side measuring from 650 to 700 yards. It has a bastion and tower at each corner, with eight intermediate flanking defences in the several walls, the parapet of which is loopholed all round. The dry ditch, or moat, surrounding the walls does not follow the configuration of the flanking defences, but extends in a straight line, at the distance of some 25 feet from the base of the main wall, while a lower intermediate wall runs along the inner crest of the ditch. The moat itself is some 25 feet deep, 30 feet in width at the summit, and about 18 feet at the bottom. There are three gates—the east gate facing the city; the Khotan gate on the south side; and the Kashgar gate some 80 yards from the south-west corner of the fort, facing the west, and immediately behind the place of residence occupied by the chief authorities. These two latter gates are closed, the Khotan one being also barricaded with unburnt bricks. The only gate through which ingress and egress is permitted is the east one, and this is closed every evening at sunset, and opened daily at daybreak.

In the south-west corner of the fort is situated the "Urdo,"

or place of residence of the chief authorities, surrounded by a wall of 30 feet in height, the entrance to which is on the east side, facing the main road which leads up to it through the bazaar of the fort. Occupying the north-west corner of the fort is the inner fort formerly the residence of the Chinese Governor and his officials. This is surrounded by a lower wall and dry ditch, while the main wall is 35 feet in height, fortified and loopholed. The walls of this inner fort are in ruins in many places, and the old palace of the Amban presents the same dilapidated appearance. The north-east corner of the fort is one mass of ruined walls and houses. No guns are anywhere mounted on the walls, for which, however, there are embrasures, as, when the Chinese held Yarkand, many were in position.

Clearing the south side of the city wall, we came in sight of this fort, or old Chinese quarter, which, in appearance, presents similar features to the city. The road crosses the drawbridge over the moat, and turning, leads through the east gate into the interior of the fort. As we rode up the main street, or bazaar, the place was crowded with people—sipahis leading their horses out to exercise, merchants passing to and fro from the city, women closely veiled, walking, or riding on horseback, while a lively traffic appeared to be carried on in the shops on either side the way.

Near the centre of the street we passed several guns drawn up in regular order on the south side of the road. They consisted of five long swivels, two small mortars, and five apparently 4-pounders, all mounted on carriages, with their ammunition waggons drawn up in rear, and ready for instant use. The gunners on guard pacing in front of them are immediately recognised as Hindustânees, nearly the whole of the Atalik Ghazee's artillery being served by natives of India. I afterwards conversed with several of these men, and heard related their antecedents and adventures. Many had come round from Peshawar to Cabul and Bokhara, and thence to Khokand and Kashgar, serving the different rulers of those countries, and then changing their allegiance, as fate or fortune ruled for or against them. Several of them had come over to the Atalik when he captured Khotan in 1866 from Habibula Khan, whom they had accompanied from India on his return from pilgrimage to Mecca; and a few, no doubt, were escaped mutineers of 1857. Mr. Johnson reported, on his return from Khotan in 1865, that he thought he had recognised the Nana Sahib of 1857 in one of Habibula's artillerymen; but there is not the slightest ground for such a supposition. The individual pointed out by Mr. Johnson took service with Kush Begie in the following year. This man I afterwards saw at Kashgar, but

further than his being a native of India, and a military adventurer, there is not the slightest evidence to connect him with the Nana.

Dismounting immediately beyond the guns, I was conducted up a long open passage to the door of the courtyard of the house prepared for my reception, or confinement, as it may be termed, since during a stay of two months in Yarkand, I never went outside of the garden attached to the house I occupied, excepting when proceeding to interviews with the Governor, and on one occasion when I rode round the fort. I entered the house, and found it to consist of two rooms, small, but very comfortable, and the floors covered with excellent Khotan carpets. Shortly afterwards the "dastar-khan" of Mahomed Yanus Beg, Dad Khwah, the Shâghâwal, or governor of Yarkand, was brought in by the Mahrum bashees sent from the palace. It was very profuse, and I returned my best thanks, and sent to request the honour of an interview, which was accorded. Having dined and dressed in appropriate Oriental costume, I started for the "urdoo," or palace, escorted by a person of rank. At the distance of about 150 yards from the entrance to the passage of the house I occupied, the main entrance to the place of residence of the chief authorities is reached. The road to it is a prolongation of the main street of the bazaar, and passing through the gateway, a guardhouse is first noticed. A covered verandah occupies the front of the guardhouse, and extends over the way to the outer wall. Some twenty Turki sipahis were pacing the raised platform under the verandah, or were lounging about in different places; and precision and military order were at once apparent, as exhibited by their neat and soldierly bearing, and the display of their arms and accoutrements.

Passing from under the covered entrance, the visitor finds himself in a large open enclosure, comprising a garden and tank of water, flanked by rows of trees. The enclosure is subdivided by an intermediate wall, through which lies a way leading to the Kashgar gate immediately opposite. From this enclosure the inner side of the defences is seen. The main wall is crowned by a parapet, below which a broad way runs all round the fort. Steps at the corners and several gateways lead to the summit of the wall, while higher flights of steps conduct from the walls to the watch-towers at each corner. Facing the embrasures in the flanking defences, or bastions, are situated a row of wooden huts, formerly used as a shelter and cover for their guns by the Chinese. A second gate and guard-house conducts to a paved court of about 50 yards square, surrounded by a verandah, passing across which, an inner court of the

same size is reached. The second court is also surrounded by a verandah on three sides, opposite to the entrance to which under the verandah, on the west side, are the rooms of reception. Not the least elegance or display appeared, but the place seemed to be excessively clean and neat. The official who escorted me stopping at the entrance to the inner court, a Yusawal-bashee, dressed in scarlet silk and embroidery, came forward, and, wand in hand, led the way across the court, and up the steps of the verandah to the door of the reception room. With the exception of two or three Mahrum bashees (pages) the inner court and verandah were quite empty, and a deep silence reigned around. The room, to the entrance of which I was ushered, was a long, plainly decorated apartment, with a bright fire at the further end, in front of which two carpets were spread, covered with scarlet silk cushions. On one of these was seated a little man, plainly yet splendidly dressed in green silk cholah lined with fur, and a high fur and velvet cap. This was the Dad Khwah, Shâghâwal, who rose and came forward as I advanced, receiving me very graciously, and shaking me by both hands. Motioning me to be seated, I assumed a sitting posture on one of the carpets, while he resumed his own, and an interpreter was summoned. This man just entered the doorway, and bowed towards the governor to the very ground, the utmost fear being depicted on his face. By means of this interpreter and my knowledge of Persian we carried on a conversation; and before leaving, after half an hour's conversation, I concluded that the Shâghâwal was a very pleasant, agreeable, and well informed man. He was evidently well read, while his fund of anecdote was inexhaustible, and he appeared to be very keen and eager to acquire information regarding India and Europe in general. Tea, fruit, and sweetmeats were then served, brought in by a file of Mahrum bashees, and shortly afterwards I asked permission to leave. As I rose a "khillut," or silk dress from Khokand, was brought forward by an attendant, and in this I was enveloped. I then took leave, again shaking hands, and was conducted back to the house I occupied by the official who had escorted me. Before leaving, I had presented the governor with some firearms, ammunition, &c., and shortly afterwards a second "dastar-khan" from him arrived, and I was informed that provisions for myself, servants, and horses would be supplied regularly every day.

By the 1st January, a few days afterwards, it was evident that I should be well treated, and was in no immediate danger; but although not officially informed that I was not permitted to go about, the presence of a guard, or escort, outside the house was a sufficient hint, and I determined to wait a few days to see

what would come to pass. My servants were allowed to proceed to the bazaar in the fort to purchase anything required, but not until after they had been nearly a month in Yarkand were they permitted to go outside of the fort into the city.

On asking to go about on horseback accompanied by an escort, I was told that it was not the "custom of the country"—the "Andijâni rusmee," the "more Usbeco"—to be allowed to do so until an interview with the king, who was at Kashgar, had taken place. The confinement was excessively irksome after such an active life amongst the mountains, but it was in vain to urge the plea of exercise being needful. The Yuzbashee and sipahis quoted the orders of the Shâghâwal, and he the higher decree of the Atalik Ghazee, at the same time endeavouring to atone for their apparent want of courtesy to their guests by dispensing the most open-handed hospitality. Mr. Shaw was at this time under the same surveillance as myself within 100 yards of the house I occupied; but during the five months we were in Yarkand and Kashgar together, we were not permitted to see each other, nor could we correspond openly; not until after we had left Yarkand on the return journey, and the imaginary danger of any conspiracy we might hatch was removed from the Turki mind, were we once allowed to meet. As Mr. Shaw had brought a caravan of goods, and had entered the country to trade, the Yarkandies were somewhat less suspicious of his motives, although the strict surveillance precluded all possibility of trading. There could be no doubt that they were very suspicious of my motive in entering the country; and as Yarkand is full of spies, many of whom are bitter enemies, false representations placed on the cause of our presence were not wanting. As an Asiatic alone travels from political, commercial, or religious motives, and can conceive no others, they were at the greatest loss to account for my coming amongst them on fair grounds, since I was excluded from all these; and it was impossible for me to give them a reason for the true cause of my presence amongst them, for exploration in their eyes is spying.

Opportunities, however, were not wanting of being able to look about a little during a two months' stay; and there were many secret friends who were willing to volunteer information respecting the country and the true state of affairs. Foremost amongst these were several Hindoo merchants who had arrived from the Punjab, and were living in one of the caravanserais appropriated to Hindoos in the city. The Hindoos themselves when in Turkistan are subjected to different rules to the Mahomedans, in not being permitted to wear turbans, and being obliged to conform to the order which renders it imperative

on them to appear in dark-coloured robes, with ropes twisted round the waist. It is the duty of the Kazi Kalan to see to the due observance of this order by strangers, as well as at the same time to punish any Mahomedan found in the public streets without his turban. The order respecting the dress of the Hindoos appears to have somewhat relaxed of late, and there is every probability, should merchants of Hindoo caste continue to frequent the cities of Turkistan for purposes of trade, that this custom will become a dead letter. It is very desirable the order should be abolished, for the number of Hindoo merchants who yearly visited Yarkand is very small; and any custom they have to conform to which would be considered derogatory, at least, in their own country, tends to lessen their inclination to renew their visit. Still, the profits must be very great which can induce them to come so far, and endure all the hardships inseparable from such a journey.

Amongst the men from whom I obtained news was an Afghan, named Kureem Khan. Through the medium of my men servants, he sent me information respecting affairs as they daily occurred in Yarkand and Kashgar, and was of much use. Being unprejudiced, and regarding the Turkies in no very friendly light, he was not likely to exaggerate matters on their behalf; and the information he gave proved afterwards to have been generally correct. It was hopeless to expect to obtain any accurate news from the Yarkandis themselves; for if they volunteered any statement, it was generally in such a confused mass of contradiction as to render it almost impossible to get at the truth of anything, even after discarding the indiscriminate exaggerations.

Kureem Khan first stated, regarding himself, that he had left Cabul during the late disturbances there, and had come by way of the Punjab and Kashmir to Yarkand, with the intention of taking service under Kush Begie. He had hitherto been deterred from doing so by the representations of many of his fellow-countrymen in the employ of the Atalik, who had warned him, that should he enter his service, he would never be allowed to return to his own country. Alarmed at this, he had requested permission to return, but this had been refused; and he was now awaiting the Atalik's arrival from Kookhar to make his application in person, or enter his service involuntarily, should permission to leave the country be refused. He eventually proceeded to Kashgar, and there took service under Kush Begie. After volunteering some information about Khokand and Samarcand, Kureem Khan stated that the alarm and suspicion created in Yarkand by the report that fifty Englishmen were coming from Ladak was immense, and only somewhat relieved on the

after discovery that the rumour was without foundation. Still, so suspicious were the authorities that strict orders had been sent by the Atalik Ghazee, from Kashgar, to the effect that his English guests were to be treated well, and receive everything they required, but were not to be allowed to go about, for fear of carrying back any information respecting the condition of the country and the true state of affairs. Kureem Khan, also, gave an interesting account of Badakshan and Chitral. He had travelled through those countries himself, and averred there was a much shorter and easier route to India direct, *via* the Chitral Valley, than any of the longer routes by Ladak. He stated his opinion, however, that it was impossible for an Englishman to traverse Chitral, as such, in safety ; but that, by assuming the disguise of an Afghan or Turki merchant, it might be accomplished from this side, since the Chitralis alone regard with suspicion travellers coming from the direction of the Indian frontier ; and not those arriving from the Bokhara and Turkistan side. With a view to eventually returning to Peshawar by Chitral, it was my intention to make an application to the Atalik Ghazee, should my interview with him prove favourable, to be allowed to visit the Pamir Steppe from Kashgar, for if I found him open and in good faith, he might materially assist my views by affording me his assistance and protection as far as his territory extended. Still, the strict surveillance under which one was placed foreboded but little chance of being able to obtain such a concession. On the contrary, the very suggestion of such a step might cause him to become more suspicious, and make him feel sure that I had entered his country for a purpose hostile to himself. Should, however, nothing of the sort be allowed, and I be permitted to leave the country by the route by which I had come, there would be no alternative but to retrace one's steps, and endeavour to penetrate to the Pamir by the way of Hunza and Nagar, or of Gilgit.

During my stay in Yarkand I succeeded in obtaining eleven observations for the latitude of that city, the mean value of which gave a resulting position of  $38^{\circ} 21' 16''$  N., and long.  $77^{\circ} 28'$  E., while several observations of the temperature of boiling-water showed an elevation of 3830 feet above the sea. These results all closely coincide with the values obtained by Major Montgomerie's unfortunate explorer, Mahomet Hameed, who died in Ladak on his return from Yarkand, under somewhat suspicious circumstances. The position of Yarkand as deduced by Major Montgomerie, from the papers of Mahomet Hameed, was given as in lat.  $38^{\circ} 19' 46''$  N., long.  $77^{\circ} 30'$ , and an elevation of 4000 feet above sea-level.

## 4. FROM YARKAND TO KASHGAR.

*March, 1869.*

During my stay in Yarkand I had several interviews with the Dad Khwah, and at length got off from Kashgar on the 24th February. An escort accompanied me under the command of Mahomed Azeem Beg, an Uzbeg who had followed the fortunes of Kush Begie since he had left Khokand. I found this man very communicative, and he never tired of relating their late campaigns, and extolling the military prowess and bravery of his leader and ruler, the Atalik Ghazee. Passing along the northward of the Torr, the storms of war and siege, which the ill-fated Chinese underwent, have left their traces in the marks of bullets and cannon-balls with which the wall is perforated.

From here the Kashgar road bears away west, passing the villages of Karakoom and Bigil to where, at four miles from the city, it crosses the Urpi Canal by a wooden bridge. The road is deep in dust, and the traveller is covered with it as it is kicked up by the horses. The road to Sarikol, and thence to Uakhan and Badakhshan, lies up the left branch of the Urpi Canal. It is regularly traversed by Badakhshi merchants, residing in Yarkand, who yearly take their caravans of goods across the Pamir Steppe to Badakhshan. Tash Kurgân (or Stone Fort), the capital of the Sarikol district, lies in a w.s.w. direction from Yarkand, at about 175 miles' distance ; while the total distance to Fyzabad, the chief town in Badakhshan, is some 460 miles. A journey of from 7 to 8 days to Tashkurgan, and of 18 days to Badakhshan, is considered very rapid travelling ; but the caravans of the traders seldom accomplished the whole distance under the period of one month. The road traverses a plain country for nearly 70 miles from Yarkand ; and then crosses a low range into the Sarikol district ; and, ascending the valley of the Charling River, crosses the Chichilik Pass, leading across a high spur of the main Pamir range into the Tashkurgan Valley. From Tashkurgan it crosses the pass at the head of the Sarikol territory, and conducts through Pamir Khurd into the valley of the Oxus. The road is practicable for laden horses throughout, and for camels as far as the foot of the Chichilik Pass from the Turkistan side ; and from Badakhshan up to the head of Pamir Khurd from the westward. A second route conducts from Yarkand to Tashkurgan more to the southward, but it lies through a very mountainous country, and, as there high passes have to be crossed, it is consequently but little frequented, except by Kirghiz and foot travellers. This road bifurcates near Tashkurgan, one branch conducting down the valley to that place, while the other crosses the Kara-

chunker Pass, and joins the main road to Badakhshan in Pamir Khurd.

Continuing our route towards Kashgar, the road skirts some marshy ground, lying 12 to 15 miles to the west of Yarkand, which is surrounded by low sandy steppes covered with reeds and a coarse kind of grass. The marsh gives rise to several streams, which flow with a north-easterly course across the road ; and appear to continue into the wide expanse of desert lying in that direction. A low forest fringes the edge of the steppe, while the country more immediate to the streams is frequented by wild pigs, a few deer, and quantities of wild-fowl and pheasant are to be found in the more retired portion of the marshy ground. The Urpi Canal, which is crossed within an hour's journey from the city, is a branch from the Yarkand River, and fertilises all the country lying north and north-east of the city towards Aksu.

At dusk this day we arrived at Kokrubat, a village containing about 200 houses, the first stage from Yarkand, from which it is 22 miles distant ; and the following day rode 27 miles further to Kizil, a large village of 500 houses. From Kokrubat the road skirts the Dusht-i-Hameed, a large barren tract of stony plain extending up to the Kiziltâgh range on the west. This plain presents the usual features of desert country, consisting of a hard gravelly and clayey soil, furrowed and intersected by watercourses, and covered with loose stones. A few stunted bushes and a little coarse grass are here and there seen, otherwise it is quite barren. Halfway between Kokrubat and Kizil, a halting-place, called Ak-Langar, is reached. It lies to the east of the road, and consists of a few houses in an open enclosure with the usual musjid, or mosque. The water here is derived from two wells in the enclosure, and is palpably brackish. Iron-ore abounds in the lower slopes of the Kiziltâgh range, and is worked to a small extent. It is then transported to the village of Kizil, where the furnaces for smelting it may be seen, and likewise taken to Yanghissar, and used in the fort for casting guns. The revenue of Kizil is not collected for the Atalik Ghazee, but is given by him to keep in repair two mazars or tombs of Khojas, and support their attendant moulies. These mazars lie respectively at the distance of 5 and 12 miles north-east from Kizil. From here to the town of Yanghissar the distance is 32 miles, the road passing the villages of Khamalung, Khoduk, Koshimbash—very unworthy of their hard sounding names—to the larger village of Toblok. A large plain is then crossed, bounded east by a low range of hills, and consisting of clayey soil, thinly covered with short and coarse grass impregnated with saline particles. Beyond this the road

traverses a low ridge, and descends to the banks of the Sargrak, or Yanghissar River, coming down from the Kizil Yart range of the Pamir steppe, which is in sight to the south-west. On the left bank of the river the town of Yanghissar is situated. It comprises some 11,000 houses, and appears to be a considerable place of traffic. The market-day is Friday, on which day we arrived here ; and the main street was so crowded that it was with difficulty we could ride through it to the caravanserai. The streets, like those of other towns and cities in Central Asia, are narrow and confined, while the shops consist of mere booths, upon which the shopkeepers display their goods for sale, which appear mixed up in the greatest confusion. Next to the shop of a vendor of silks and caps will be seen the stall of a butcher, reeking with horseflesh, which is the most popular article of consumption throughout Eastern Turkistan, many more horses than cattle being killed for food. At the distance of 600 yards from the town, towards Kashgar, lies the fort of Yanghissar. This was the first place which the Atalik Ghazee captured on his invasion from Khokand ; and as we rode past it to the caravanserai, Mahomed Azeem, the Yuzbashee, related the different phases of the siege. The Chinese made a better defence of this fort than of any which remained in their hands during the rebellion against their rule in 1863 to 1865 ; and the Uzbegs themselves acknowledge that they here lost many men before effecting its capture. Nor does the treachery, which was a leading feature in the capture of the cities of Yarkand and Khotan, appear to have here run its usual course ; since the Chinese defended the fort gallantly to the last, until starvation and hunger compelled them to succumb. Nearly all perished in the siege, and the few survivors were constrained to embrace Mahomedanism. The fort is much smaller than those of Yarkand and Kashgar, being only some 230 to 250 yards in extent. Each wall possesses three flanking defences, intermediate between the bastion and tower at the several corners. The moat is some 40 feet in width at the summit, and 36 feet in depth, which is also the height of the main wall. We remained five days in Yanghissar, living in a most comfortable serai, which the Atalik has lately had built for his own especial use, since he is in the constant habit of visiting Yanghissar from Kashgar. This was by far the most picturesque place which was seen in Turkistan ; the great cause of its attraction being the magnificent view of the lofty Kizil Yart range of the Pamir, which is full in sight lying south-west and west. Contrary to the usual supposition that the eastern crest of the Pamir slopes down very gradually into the high plateau of Eastern Turkistan, or the high plain country of Central Asia, the range forming its eastern crest

rises into a chain of lofty peaks of 20,000 to 21,000 ft. above sea-level, the spurs from which run down most abruptly into the high table-land below. The range thus presenting a steep face towards the plains of Eastern Turkistan, the slope of the watershed will be found to be very gentle and sloping to the westward, while the waters issuing from the lake-system of the Pamir must, of necessity, drain into the basin of the Oxus. The Kizil Yart range is crossed by high passes leading on to the true Pamir, and it is exceedingly unlikely that any of the Pamir lakes drain to the eastward into the Kashgar River and its tributaries. A high peak in this range, known by the name of Taghalma, lies at the distance of 63 miles w.s.w. from Yanghissar. This Taghalma Peak is the most conspicuous of any in the range, as seen from the eastward, and its approximate height was estimated by observations to be 21,279 feet above the sea. At the foot of this peak the Sargrak or Yanghissar River takes its rise, and another stream—the Hosun River—has its source to the north of the intermediate range, and flowing eastward joins the Khanarik River, which, also rising in the Kizil Yart range, effects a junction with the Kashgar River to the east of that city.

The town of Yanghissar stands on the left bank of the Sargrak River at the foot of the low sandy steppes lying between it and the Kizil Yart Range. These low hills appear in gentle undulations or broken up into long and narrow ridges. The soil is clayey and sandy, and but little cultivated, save in the immediate neighbourhood of the town and its adjacent villages. Broken up into ridges, as seen along the banks of the Sargrak River, this clayey soil appears in their horizontal strata covered over with drifted sand. The steep and rugged slopes of the Kizil Yart Range, sheering from precipitous scarps towards the crest of the range, meet the gentle slope of the table-land and close in the plain country to the west.

The town of Yanghissar was found by observation of the sun's meridian altitude to be in lat.  $38^{\circ} 52' 34''$  N., and by triangulation, and from its distance and bearing from Yarkand, the meridian of  $76^{\circ} 18'$  E. has been assigned for its longitude. It is situated nearly south of Kashgar, from where it is 43 miles distant, and north-west of Yarkand, to which city the road distance is nearly 83 miles. The elevation of 4256 feet above sea-level was estimated from careful observation of the temperature of boiling water; and this elevation may be fixed as the mean height above the sea of the high plateau of Central Asia near the mountain ranges which bound it on the west.\*

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\* Boiling water alone is a very fallacious test, so much depending on the normal state of the thermometer, and a single degree of temperature giving 550 feet of elevation; so that, unless the thermometer is finely graduated, differences of 200

The successive gradations in the elevation of the principal towns of Eastern Turkistan have been based on data obtained from actual observations of the boiling-point of water: and these calculations should be of especial interest as tending to remove all doubt regarding the actual elevation of the plateau or table-land of Central Asia.

Continuing our journey towards Kashgar we left the serai at Yanghissar on the morning of the 4th March in the midst of a heavy snow-storm, which continued until we had accomplished nearly the half of our day's march. The road passing the Fort runs with a direction bearing E.N.E. to the village of Koomlok, surrounded by low domes of drifted sand, and situated six miles from Yanghissar. From here it bears to the north, and then again inclines to the north-west, passing a wide expanse of marshy ground occupied by small pools and streams which are enclosed by low sandy hillocks covered with reeds and coarse grass. The country beyond this is more fertile, and is irrigated by the Hosun River, which is crossed by a wooden bridge before reaching the village of Yupchan. This village is at an elevation of 4055 feet above sea level; and the land around it is well cultivated, being fertilised by the water conveyed to it by dykes cut from the Hosun River. The village comprises some 700 houses, and is considered to be the fourth regular stage from Yarkand, from where it is 104 miles distant.

Shortly beyond Yupchan we crossed the Khanarik River, coming down from the westward, and rising, it is believed, in the Kizil Yart Range of the Pamir. This must be a stream of considerable size when the volume of the water is increased by the melting of the snows which lie on the range. The width of the bed of the river is here not less than 700 yards from bank to bank. It must not be supposed, however, that the actual stream occupies a space approaching to such a breadth. On the contrary the banks of the river are very low, and somewhat resemble in appearance the banks of one of the Punjab rivers, in being fringed with strips of grassy land covered with low tamarisk jungle. The two separate streams flowing through the bed of the river were crossed by rude wooden bridges, while the actual breadth of the streams did not at this time of the year here exceed 90 feet. This Khanarik River in its course and direction most closely represents the Yaman Yar River of our maps, which is defined as having its source in the Karakul (Lake), the dragon lake of the Chinese mythology. Any

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or 300 feet cannot be detected. Thermometrical, when compared with barometrical observations, are of course of value. All the recent confusion about the Upper Nile basin has arisen from so-called boiling-water observations.—[H. C. R.].

reliable information, therefore, which could be obtained with reference to this stream was of particular interest, as tending to decide the vexed question of the direction of the drainage from the Karakul—or Black Lake. Putting aside the genuine, or fabricated, account of the ascent of this river to the Karakul Lake, all evidence goes far to prove that no stream issuing from the Karakul is the source of any of the Eastern Turkistan rivers. But not until some explorer can really succeed in reaching the Karakul, will this problem be definitely solved. The people with whom I was mostly brought into contact during my stay in Turkistan, were naturally the ruling powers, the Uzbegs of Andijan; who, no doubt, gave their opinion, not from an actual visit to the Pamir, but merely from hearsay. The Kirghiz who frequent the Pamir, and know every lake and valley in the mountains, were but seldom met with, and then under the circumstances of such strict surveillance as to render any attempt at a lengthy conversation out of the question. I was, however, fortunate in meeting the son of an influential Kirghiz chief when at Kashgar; and I obtained information from him with reference to the Karakul which, until further facts can be proved by an actual visit to the lake, is worthy of careful consideration. I will, however, defer relating what was stated with reference to the Karakul until the account of our journey to Kashgar is concluded.

Having crossed the Khanarik River the road continues past the large village of Tasgam, through fertile and well-irrigated country, to near Kashgar. The Fort is the first conspicuous object which meets the eye; and situated prominently in the open country on the right bank of the Kashgar River, its high walls and poplar trees attract the attention when yet at some distance. Two streams have to be forded before reaching it, one a canal from the Khanarik River, and the second a broad shallow watercourse supplied with water from the Kashgar River. Immediately beyond this the road passes several serais, and skirting the east wall of the Fort turns the N.E. corner and runs along the northward to the entrance gate facing the city. The walls are somewhat longer on the N. and S. sides, and measure about 600 yards in length. They are 40 feet in height, and surrounded by a lower wall and dry ditch, which moat is 25 feet deep and nearly 40 feet broad at the summit—this measurement making the ditch of the same depth as the Yarkand one, but broader at the summit. The main gate is situated in the centre of the north wall facing the city, while the east and south sides of the Fort are also pierced with a gateway in the centre of their length, which have flanking defences but are both closed. The Fort possesses six flanking

defences in the north and south walls, and the usual bastion and tower at the corners, while the east and west sides have but four. Between the east gate and the N.E. corner, a distance of upwards of 250 yards, there is no intermediate defence; and this is the weak point of the Fort, as no flanking fire can command the space outside except such as could be delivered from the N.E. tower. The walls are entirely of earth, and loopholed all round, with embrasures also for guns. Passing through the north gate the main street runs through the centre of the Fort due N. and S., while branch streets diverge on either side between the houses. In the S.E. corner is situated a large mosque, the tower and upper part of which commands the ground outside. In the centre of the west wall a Chinese pagoda, now converted into a guard-house, rears its roof above the level of the main wall, and commands the exterior ground in that direction.

The place of residence of the chief authorities consists of a large enclosure surrounded by high walls, embracing three separate courts, in the inner one being the palace, or "urdoo," occupied by the king. The entire Fort appears to be in better order and more available for defence, were it not for its one weak point, than the Fort of Yarkand. The moat, as before stated, is much broader at the summit than the one of Yarkand, which being deep and narrow could be more easily bridged by temporary constructions. At the same time this moat being broader and shallower could be more easily crossed by an attacking force. Although the Chinese defended this Fort against the Kirghiz and Uzbegs in 1864 and 1865 for eighteen months, and only surrendered when compelled to do so by hunger and starvation, it is improbable that a European force provided with a siege train, or even attempting its capture by an assault, would experience much difficulty in effecting an entrance when defended solely by Asiatics.

Four miles off, lying north, across the Kizil Daria, or Kashgar River, is situated the city of Kashgar, now distinguished by the inhabitants from the "Yangishahr," or new city, which name is applied to the Fort, by its general appellation of the old city. The derivation of the name Kashgar is involved in some obscurity, nor does it appear to follow the usual formation terminating the names of the towns of Turkistan in the affix of كر, or قر, as represented in Samarcand, Tashkend, Kho-kand, and Yarkand. The word is generally written by Europeans as Kashgar, but the name as written and pronounced by the inhabitants is كاشق Kâshkar. The city is surrounded by a high fortified earth wall, in the south side of which 17

flanking defences were counted. It is entered by five gates, and having rapidly increased in size and prosperity since the expulsion of the Chinese, now contains some 28,000 houses and a population of 60 to 70,000 souls. Although, perhaps, little known to European statesmen, it must eventually play an important part in Asiatic politics, since the power in possession of Kashgar holds the key of Eastern Turkistan from the North. Wonderfully well and centrally situated, it is a place of the utmost importance both in a political and military point of view. Here all the roads from the Khanates of Central Asia converge, and in the hands of any European power it would be a place of immense commerce. As it now is, however, external trade is in utter stagnation. From the East and China few caravans ever arrive; and the large traffic in tea, which formerly flowed through Central Asia to Bokhara and Western Turkistan, has now entirely ceased. On the other hand, owing to the hostility existing between the Atalik Ghazee and his former master Khodayar Khan, the Khan of Khokand, and the near advance of the Russians, the road to Khokand, *via* the Terek Pass, is all but closed from that side. Recognising the great importance of Kashgar as a base for developing the tea trade with China, the Russians entered into a treaty with the Government of Pekin in 1861, as is well known, by which it was agreed they should be granted sites of land in Kashgar for building purposes, and allowed to establish a manufactory and warehouses under Consular authority.\* The insurrection of the Tungâñies against the Chinese, and the overthrow of the Tungâñies in their turn by the present ruler, prevented this treaty from being carried into effect. Now, however, overtures have already been made to the Atalik Ghazee to carry out the terms of this treaty of 1861; but as he has decidedly refused to entertain such views, and holds that he is not liable for the fulfilment of any treaty entered into with the Chinese, we must, in the natural course of events, expect to see the whole of this splendid country up to the Karakoram absorbed as a Russian province; for it cannot be doubted that Russia, if she cannot obtain her end by diplomacy, will coerce him by force of arms; and will not allow an Eastern despot, whom she is pleased to consider an usurper,† to debar her from pursuing the career

\* In the Treaty of Pekin, concluded by Russia in imitation of the English and French treaties with China, three places are named for the establishment of Consuls,—Kashgar, Kulja, and Chuguchak, the two last being in Zungaria.

† Russia declines categorically to recognise the Atalik Ghazee. She considers Kashgar and Yarkand still belonging to China, and may perhaps, on an invitation from Pekin, reconquer them some day for the Chinese Emperor. In the mean time Khodayar Khan, of Khokand, will probably be pushed forward to try the Atalik's metal; but Russia will not commit herself to any direct interference.

opened to her in this zone of Central Asia, a career which, in its aggressive phase, will be immortalised by future historians as a parallel to that of the conquest of our Indian empire.

The day we reached Kashgar I proceeded to a caravanserai, lying between the fort and old city, and situated on the right bank of the river; and the following morning went to an interview with Mahomed Yakoob Beg, the Atalik Ghazee and ruler of Eastern Turkistan. Passing through the north gate into the Fort, a body of Tungâni soldiers, armed with long lances, were first noticed, drawn up on each side of the way, while a guard of Turki sipahis, in scarlet uniform and high sheepskin caps, were grouped around some few pieces of artillery in position, near the main entrance. It was evident that Kush Begie had ordered an extra gathering of his followers, in some sort of review order, with a view to exhibiting a military display. Dismounting at the entrance of a large court-yard, I was conducted by the Yuzbashee across this enclosure to the gate of an inner court, where a Yusawal-bashee, dressed in the costume and chain-armour of the Egyptian Mamelukes, came forward to say, that if I would sit down for a few minutes, the Atalik would be prepared to see me. I accordingly waited until he returned and ushered me across the second court, which, with the first, was filled with men all dressed in silk and armed. Nothing could be more picturesque than the gaudy display, showing the outward glitter of Oriental pomp and splendour, in the courts where but lately all the horrors of siege and starvation had been endured by the ill-fated Chinese. Their Moslem conquerors had, however, effaced all traces of the tragedy, and if cruel and merciless in their religious fanaticism to their foes, their frank and manly courtesy, and warlike bearing, contrasting most strikingly with the degenerate and effeminate Chinese, win the good will as well as excite the admiration of the stranger. Arrayed in every variety of coloured costume, with bright arms and studded accoutrements, they sat, or stood in rows under the verandahs as I passed to my interview with the King. Having reached the entrance of the innermost court, I found it to be quite empty, save of a piece of ordnance, in position, with muzzle pointed towards the entrance-gate. At the further end of this court, sitting under the verandah in front of his apartment, was the Atalik Ghazee himself, and here, as at Yarkand, no display or decoration appeared in the plain and unadorned buildings of his palace. As if scorning any costliness but that of military display, everything about him is in keeping with his simple and soldier-like habits. Never so happy as when living the hard life of the soldier in camp, or assisting with his own hands to erect forts on his threatened

frontier, it is not too much to predict, that were Asia alone in the hands of its native rulers, he would prove the Zenghis Khan, or Tamerlane of his age. But, with more sagacity and foresight than those conquerors, he admits the inevitable contact of the strong European races, and bends himself to the overpowering force of circumstances.

The Yusawal-bashee who escorted me retiring, I advanced alone, bowed, and then shaking hands sat down opposite to the Atalik. He was dressed very plainly in a fur-lined silk choga, with snow white turban, and in the total absence of any ornaments or decorations, presented a striking contrast to the bedecked and be-jewelled rajahs of Hindustan. I was at once favourably impressed by his appearance, which did not belie the deeds of a man who in two years has won a kingdom twice the size of Great Britain. He is about forty-five years of age, in stature short and robust, with the strongly marked features peculiar to the Uzbegs of Andijân. His broad, massive, and deeply seamed forehead, together with the keen and acute eye of the Asiatic, mark the intelligence and sagacity of the ruler, while the closely knit brows, and firm mouth, with its somewhat thick sensuous lips, stamp him as a man of indomitable will, who has fought with unflinching courage; and never sparing his own person, has, in the hour of success, been alike stern and pitiless in his hatred to his foes. Although an adept in dissimulation and deceit, the prevailing expression of his face was one of concern and anxiety, as if oppressed with constant care, in maintaining the high position to which he has attained. His manner was, however, most courteous, and even jovial at times. If report speaks true, his bed can hardly be one of roses, as it is said that the danger from some secret assassin's hand is so great that he never remains for more than one hour in the same apartment during the night. The few presents which I had bought for the Atalik were delivered, and a man was summoned to interpret, who remained standing at some short distance off, on the ground below the verandah. The conversation was at first the usual Oriental etiquette; and shortly afterwards the Atalik Ghazee expressed a hope that the English would in future visit his country, as hitherto they had been prevented from entering Central Asia by the Bokhara tragedy, when Colonel Stoddart and Captain Connolly were murdered by the Ameer of Bokhara in 1842. He then proceeded to say that another European—meaning Schlagintweit—had also been killed in this very place, Kashgar, by a robber named Wullee Khan, who relying on his spiritual influence as one of the seven Khojas, overran the northern provinces of Eastern Turkistan with a wild rabble of unscrupulous followers.

in 1857 and 1858, executing and murdering the most innocent people, for the mere purpose of shedding blood. The Atalik, however, never mentioned that he himself had involuntarily avenged the murder of Schlagintweit, and this he might have averred, for he cut Wullee Khan's throat two years ago. After a short conversation I took leave, and was conducted to the house of the Yusawal-bashee, in which quarters were assigned to me during my stay in Kashgar. It is almost needless to say that the same strict surveillance was exercised here as at Yarkand, and I was not permitted to go about. This was more especially the case when staying in the larger towns, but when on the march, and moving from place to place, the surveillance of the escort somewhat relaxed, and greater liberty was enjoyed.

I remained in Kashgar for upwards of a month, from the 5th of March to the 13th April; and during this time took observations as opportunity offered. The resulting position obtained for the fort was in lat.  $39^{\circ} 19' 37''$ , N. (uncorrected) and by its distance and bearing from Yarkand, it was found to be in long.  $76^{\circ} 10'$ , E., while the elevation of 4165 feet above sea-level was determined from observations of the boiling-point of water. The position of the city of Kashgar, lying directly north from the fort across the river, was estimated to be in lat.  $39^{\circ} 23' 9''$ , N., and in the same meridian of  $76^{\circ} 10'$ , E.

Meteorological observations were conducted from the month of October, 1868, to June, 1869; and the data thus obtained have been added to this paper; in the hope that they may prove of interest in throwing light upon the climatic features of the country.

I found that any representation of my intentions to endeavour to return to India by way of the Pamir Steppe and Chitral were ineffectual to obtain the desired object of being permitted to make the attempt from the side of Eastern Turkistan. The Atalik Ghazee would not hear of such a step for one moment; and it was evident that no such expedition would be allowed, and the only alternative remained to endeavour to leave the country as soon as possible, and make the attempt to reach the Pamir by another route.

From the roof of my house, on a clear evening, I could see the snow-covered peaks of the Kizil Yart Range of the Pamir in the far distance, some 60 miles away, beyond which lay the true Pamir, the "Bâm-i-duneeah," or Roof of the World, as it is called, the very name of which makes the mouths of geologists and geographers to water; while beyond that again lay Badakhshan—the ancient Bactria—and Trans-Oxiana, and the disappointment felt at being debarred from visiting all this

unexplored ground was enhanced by its very proximity, after having succeeded in penetrating thus far.

It was during my stay in the fort that I obtained information regarding the Karakul. A Kirghiz chief, by name Togrok Kholoh, and his son, Mâhmur Khan, were detained in Kashgar, by order of the Atalik, on account of some dispute with reference to territory, on the northern frontier. The latter was living in the serai, attached to the house of the Yusawal-bashee, which I occupied; and as several opportunities occurred of conversing, I made it an especial object to cultivate his acquaintance, knowing that a local Kirghiz should be good authority on the subject of the Pamir. He stated with reference to the Kizil Daria, or Kashgar River, that this stream takes its rise in a small lake situated in the angle, where the Thian Shan Range (known to the local Kirghiz as the Artush Range) intersects the transverse chain of the Pamir. At the distance of 170 miles to the west of Kashgar, the stream rising in the Terek Pass, effects a junction with the main branch. The largest lake of the Pamir is the Karakul, and no stream, he averred, issuing from its eastern flank, joins the Kashgar or Khanarik rivers. On the contrary, he affirmed that the sole outlet of the Karakul is to the west, and that the affluent flowing out of its western side, has a course to the south and west through the hills of Karatigeen. Although any information acquired from native hearsay is unsatisfactory, and very often unreliable, still in the absence of proved facts from the result of further research and investigation, it is at least worthy of being recorded. It is confidently believed that on further exploration the greater slope of the watershed of the Pamir will be found to be to the westward; and that its lake-system drains solely into the Oxus. The Karakul itself must embrace a considerable circumference, since it was stated by different authorities to be a lake of fourteen, twelve, and ten days' journey round.\* According to the general definition of a day's journey, this calculation would make the lake to be of vast extent; but even deducting considerably from this measurement, and allowing for native exaggeration, a sufficient margin is left to justify a conclusion that the lake is of no mean size; and that when its topography shall have been determined by some explorer, it will be found to embrace an area of at least 600 square miles.

The incessant turmoils and disturbances, with their accompanying scenes of violence and bloodshed, which have swept over the soil of Eastern Turkistan during the last five years,

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\* Abdul Mejid, who camped on the Karakul, says in his report it is four days' journey in extent, that is, probably, from west to east; so that it may well be ten days' journey in circumference. —[H. C. R.]

causing a change of dynasty in its rulers and their religion, may be made the subject of a brief notice, as being closely connected with the career of its present sovereign, the Atalik Ghazee.

The causes which led to the rebellion, commenced in 1863 against the Chinese, may be traced to many sources. Foremost amongst these was the incorporation of a large body of Tungâniés, as a military force, with the regular Chinese soldiery. Rigid Mahomedans, and with some love of nationality, their fealty to the rule of foreigners was always untrustworthy; and since they had become a disciplined force their power was so greatly increased as to constitute an element of constant danger to the State. The Hakeems, or Uangs, holding authority over the Chinese, and ruling many of the outstanding provinces, together with the native Moghul population of the country, had become irritated and disgusted at a partial administration of justice, and the unscrupulous manner in which an exorbitant revenue was extorted. The Chinese soldiery in the large towns had fallen into a lax state of discipline, and enfeebled and demoralised by a constant use of opium and noxious drugs, they offered an easy prey to their more vigorous and simple neighbours, and the warlike Uzbeqs of Andijân. When the standard of revolt was raised by the Tungâniés in the eastern provinces of Urumchee and Karashahr, the Chinese at once shut themselves up in their forts, and preferring to endure the privations of a siege, in no instance endeavoured to retrieve their falling fortunes by attacking the rebellious forces. Cut off from all communication with China, and without hope of relief, or reinforcement from the Government of Pekin, they were not only expelled, but exterminated during the struggle, for with the exception of a few who preferred to save their lives by embracing Mahomedanism, they perished to a man.

The Tungâniés first seized Karashahr, and being joined by a large body of Kucharies advanced on Aksu and Yarkand. Khotan had already been wrested from Chinese rule, as Habibula Khan, instigating a revolt, had attacked the Chinese who were in the city, most of whom were killed, while a few escaped to Yarkand, and others embraced Mahomedanism. Besieged in the Fort of Yarkand, the Ambân, or Chinese Governor, who was the chief authority throughout Eastern Turkistan, held out in the vain hope of receiving succour from Pekin. Every one of the inhabitants of the city had sided with the Tungâni and Kuchar allies; and the fort was closely invested. A sally against such overwhelming numbers would have been useless, nor did the Chinese once attempt it, or move outside the fort. Their enemies were content to wait, knowing that relief was

hopeless, and they must eventually succumb. There was no occasion to precipitate their ruin, since hunger and starvation were soon doing their deadly work. The siege had continued for forty days, when terms of capitulation were offered to the besieged by the Kuchar chief, Jamal-ud-deen Khoja, the one extreme demand being that they should all embrace Mahomedanism. On hearing this excessive demand, the Ambân, who had previously formed his plan of action, assembled his officials and courtiers under the pretence of consulting with them as to the terms of the capitulation. The consultation took place in an upper room of the palace, under which had been stored a large amount of gunpowder, while by orders of the Ambân a train had been laid connecting it through the floor, immediately from under his chair of state. Assembled here the old Ambân laid before his officers the terms of the capitulation, and requested them to state what amount of ransom each was prepared to give. The last act in this tragedy was described by a Mahrumbashee, formerly in the service of the Ambân, with a glow of feeling quite Oriental; and the scene that follows is the subject for an artist.

The courtiers, in ignorance of their approaching doom, are wrangling and disputing amongst themselves as to the amount of ransom which each shall give, at the same time the sons of the Ambân are handing round tea and sweetmeats to them as guests.

Regarding the scene before him with the calmness of a stoic, sits the grey-bearded old Ambân in his chair of state, quietly smoking a long pipe, while beside him kneel his weeping daughters, all conscious of their coming fate. Suddenly the clamours of the disputing courtiers are hushed, as the report of cannon is heard, and the deep-muttered sounds of "Allah-ho-Akbar!" burst upon the ear. It is the enemy shouting their war-cry, as all impatient of delay they rush to storm the gates. The old Ambân has taken his resolution of dying sooner than fall into the hands of the cruel foe; and the courtiers, now aware of his dread intention, start up in the wildest despair, but all too late! With one word of farewell to his trembling children, the old Ambân slowly reverses his long pipe, and allowing the ashes from the bowl to fall upon the fatal train, in this act of self-immolation perishes with all around him; and thus ends the rule of a dynasty which had held sway for upwards of a century.

The Tungânies being now in possession of the chief city of the country, at once turned their attention towards Kashgar, where the Chinese garrison and population were being besieged by Kush Begie, who with a following of some 500 men had fled

from the Russians now advancing on Khokand; and had blockaded the Chinese in the fort. A large force of Kirghiz from near Samarcand, under their leader Sedeek Beg, had also descended from the Pamir, and were attacking the Chinese when Kush Begie arrived from Khokand.

Buzurg Khan, one of the seven Khojas of Andijân, accompanied the force with Kush Begie, and was nominally, from his spiritual influence, the principal leader of the expedition, having been invited by the Kashgaries to their city to resume his spiritual sway over them. Kush Begie, however, intriguing with his followers, soon won them over to his own designs, and seizing the supreme power imprisoned Buzurg Khan; and from his energy and name as a soldier at once obtained a complete ascendancy over the Kashgaries, as well as the Kirghiz.

His former career had been marked by a conspicuousness which had caused him to be looked on as one of the few able and energetic men who had striven to arrest the waning power of Khodayar Khan the Ameer of Khokand, now threatened by the advance of the Russians up the line of the Syr Daria, or Jaxartes. The son of a villager near Namagân, Mahomed Yakoob had risen by ability and perseverance to the rank of Kush Begie under Khodayar Khan; and in the summer of 1852 was the Governor of Ak Musjid, now Fort Perofski on the Syr Daria. In that year he repulsed the attack of the Russian army, nor was the town taken until the following year, and not then until after "a most heroic defence," as was stated in the Russian despatch.

During the European war with Russia, in 1854 and 1855, little advance was made up the Jaxartes after the capture of Ak Musjid; but in the next few years the Russians continued to encroach upon Khokand, and during the contests which ensued, Kush Begie was ever the foremost in opposing them.

After receiving five wounds from Russian bullets, he relinquished his command under Khodayar Khan, and accompanied Buzurg Khan to Kashgar, in order to try his fortune in Eastern Turkistan. Not only the Chinese, but mostly the Tunganies, have had cause to acknowledge his ability as a military commander.

When the fort of Kashgar was invested, it is said that there were 32,000 Chinese within the walls and adjoining enclosures, but for humanity's sake it must be hoped that this number is greatly exaggerated. The horrors which they endured from starvation have not, however, been over-estimated. Not only were they compelled to eat horses, and every animal within the walls, but when these were consumed, they killed their own wives and children for food in their extremity of hunger.

Hundreds of famished wretches died every day, and of the whole number who perished in the course of the siege it is impossible to form any accurate computation. While they were yet besieged, and before they had surrendered, the Tungânies, flushed with success at their late capture of Yarkand, and the downfall of Aksu, which had likewise fallen into their hands, advanced against Kashgar with a large force, variously estimated at from 28,000 to 40,000 men.

Kush Begie, with all the followers he could collect, moved out from before Kashgar to oppose them. They met on the banks of the Khanarik River, near Yupchan, and although it is unlikely the Tungâni were in anything like the numbers represented, yet the rival forces must have been out of all proportion. On this occasion Kush Begie surpassed anything which he had before achieved. They fought for eight hours with varying fortunes, during which he had two horses killed under him, and received two severe bullet-wounds. Victory was for a long time doubtful, notwithstanding the repeated and vigorous charges made by his men. Almost despairing of success, they wished to induce him to withdraw, but he declared his intention to win the battle or to perish in it.

At length the Tungânies were routed by the furious charges of the Uzbegs, and victory declared for Kush Begie. His wounds were unknown to his followers until after the day was won, when, in escorting him to his camp, he fainted from loss of blood.

Following up his success, he attacked and captured the fort of Yanghissar, where the Chinese made a stubborn resistance, and fought better than their fellows in Yarkand and Kashgar. The Chinese, too, in Kashgar, had now been nearly exterminated after enduring an eight months' siege, and the survivors, embracing Mahomedanism, threw open the gates of the fort, and surrendered.

Concerting measures to attack Yarkand, he proceeded there with only 500 followers. The small force with which he was accompanied had no chance of success against the Tungânies in the fort; and entering the city, he nearly paid the penalty of his rash attempt to win the capital of Eastern Turkistan by a *coup-de-main*. The inhabitants were in favour of the Tungânies, who held the fort, and creating an *émeute* while Kush Begie and his men were in the city, the gates of the town were closed upon them, and they were assailed by the Tungânies from the walls. Two hundred of them were killed or wounded, and he himself received a slight wound. All hope of escape seemed gone, when he rode his horse up the steps leading to the summit of the fortified city wall, which is here some 12 feet in

width. From the summit of the wall they leapt their horses into the open ground outside, and riding up an accessible part of the moat, escaped. Kush Begie was the last man to leave the walls.

Shortly afterwards he a second time attacked Yarkand, and again unsuccessfully. A third attempt, however, proved successful. The measures he now took to effect its capture were better matured, and with a force of 6,000 to 7,000 men, two thousand of whom were Kipchaks who had fled from Khokand, and a reinforcement of Badakhshi troops sent by Jahandar Shah, the Meer of Badakhshan, he marched to Chinibâgh, situated two miles south of Yarkand, and besieged the Tungâñies within the forts. The Tungâñies who had sallied out during Kush Begie's second attack, and being caught in an ambuscade had suffered some losses, were not to be induced to venture outside of the fort. Treachery, however, was at work within the walls. One of their chief men, Mahomed Niyaz Beg, was in secret correspondence with Kush Begie, with whom he arranged that on an appointed day he would send the Tungâñies out against him; and it was agreed that Kush Begie should feign flight in order to delude them. In the mean time Kush Begie had made it his constant endeavour to win over to his side the population of the city; and by promises and numerous presents he had succeeded in attaching to his cause most of the influential people in Yarkand. According to the agreement with Niyaz Beg, the Tungâñies sallied out of the fort and attacked Kush Begie and his force in their camp at Chinibâgh. Some guns which Dad Khwah, Nubbee Buxsh, the commander of his artillery, had loaded with broken pieces of iron, swords, and guns—having no cannon-balls—did great execution among the assailants. As previously arranged, Kush Begie then feigned flight with all his followers, and the Tungâñies were soon busily engaged in plundering his camp. During this the Uzbëgs returned at full gallop, and surrounded them. Taken by surprise, it was scarcely possible to offer much resistance; and those who did were trampled down and cut to pieces, while the remainder, who fled for refuge to the fort, found the gates closed upon them by the traitor Niyaz Beg. They surrendered at once, and Kush Begie then entered the fort, where he was joined by Niyaz Beg and those who had been induced to come over to him. The Kuchar allies of the Tungâñies were well treated, and their leader, Jamal-ad-deen Khoja, professing allegiance to the new ruler, after receiving numerous presents, were dismissed to their homes.

The year 1866 opened under different auspices and much altered circumstances for the successful invaders. Now in full

possession of the provinces of Yarkand and Kashgar, Mahomed Yakoob, no longer the Kush Begie, assumed the title of the Atalik Ghazee, or Defender of the Faith, while adventurers from every part of the country flocked to seek service under his standard. The fertile city and province of Khotan now attracted his attention, and he secretly concerted measures for attacking its new ruler, Habibula Khan, who, since the expulsion of the Chinese, had enjoyed a short duration of power. It was late in the autumn of the previous year that Mr. Johnson visited Khotan, at the invitation of Habibula Khan; and thus established the claim to the undeniable merit of being the first European to have penetrated into Eastern Turkistan since the sad fate of Adolph Schlagintweit. The Tungânies were at this time in possession of Yarkand, which rendered any attempt of Mr. Johnson to visit that city out of the question. Habibula Khan was in fear of his turbulent neighbours, having already repulsed an attack of the Tungânies in an action fought in August, 1865, near the Karakash River, and was thus anxious to cultivate the friendship of the English, in the hope that he might be able to ward off the coming storm. Nor had he long to wait. Kush Begie, now the Atalik Ghazee, sent to invite Habibula's son to his court, and by many presents and representations sent to Habibula, through his son, succeeded in disarming all suspicion regarding his ultimate designs. Under the now friendly protestations towards the Khotan ruler, an old man of nearly eighty years of age, he left Yarkand with a small force, and proceeded to Khotan, giving out that he had come to seek a blessing at the hands of Habibula, who was venerated as a Hadji and spiritual leader. The Khotan ruler had a large force under his command, and was prepared to resist any hostile demonstration, but the deceit practised by the Atalik Ghazee completely misled him as to his real intentions. Having encamped near Khotan, Habibula's son was despatched by his father to Kush Begie's camp, with a request that the Atalik Ghazee would explain the cause of his being accompanied by an armed force, when he had professed to be proceeding solely on a friendly visit. This was met by the answer from Kush Begie that he was about to march to attack Aksu, and had come to entreat Habibula's blessing for the success of his expedition. All further suspicion was disarmed, by Kush Begie swearing on the Koran that he meant him no injury. The son went into Khotan, and Habibula was so firmly convinced that Kush Begie entertained none but friendly views that he at once proceeded to his camp, accompanied by a small escort. The deceit was maintained to the last, until Habibula rose with the intention of returning to the city, when

at a sign from their leader, the Atalik guard immediately surrounded him and his attendants, and made them prisoners. Before the news could reach the city, Kush Begie's troops marched against it, and the Khotanies believing in their friendly intentions, and unable to act without their leaders, offered but little resistance. Khotan was captured ; and the tragedy completed by the late ruler, his son, a nephew, and his wuzeer being carried off to Yarkand, and there secretly executed. Their graves may be seen behind the Tungâni Ziarat in the fort, where the Khotan sipahis, in memory of their old leader, proceed every morning to scatter flowers upon his grave.

From this time the Atalik Ghazee continued to enjoy an uninterrupted career of conquest. The downfall of Aksu followed the capture of Khotan, and shortly afterwards Kuchar was attacked. The Khucharies had thrown off the allegiance which they had declared for Kush Begie, when he had permitted them to return to their homes from Yarkand, and were now in open revolt under their leader Jamal-ud-deen Khoja. They made a gallant defence of the town, and it was not until the Uzbegs had suffered a loss of 163 men that its capture was effected. Jamal-ud-deen Khoja was seized, and met the fate which had been dealt out to so many others. Usk Turfan and Bai Sairam were brought under the Atalik's sway, and he advanced as far as Ili, where the Kalmaik population agreed to pay him tribute, without an actual occupation of the province. He then returned to Kashgar, where he has since remained, after pursuing his successes uninterruptedly for a period of two years. His latest acquisition is the district of Sarikol, which was brought under his rule so lately as during the autumn of 1868. Recognising the danger to be expected from the near advance of the Russians on the Naryn River immediately to the north of Kashgar, he has busily employed himself in collecting a large force at Kashgar ; and by erecting forts commanding the roads debouching from the passes across his threatened frontier, has prepared to meet the coming storm to the best of his power. Meanwhile the country under his rule presents a striking contrast to its condition when under the sway of the Chinese. The cities are increasing in wealth and prosperity, and a large internal traffic is carried on, while a most favourable opportunity is now occurring for developing its external commerce. Merchants are turning their views towards India, for the supply of such general articles of consumption as tea and sugar. Owing to the greater facilities of the road communication with Khokand, goods and articles of Russian manufacture find their way in far greater quantities than British merchandize into the bazaars of Yarkand and Kashgar, but with the present obstacles to

commerce removed, and the opening out of a new and easier trade-route, a thriving and increasing traffic will be carried on with India alone. The agricultural industry of the country is progressing; and a prosperous future would appear to be in store for Eastern Turkistan, but for the standing menace of a Russian invasion from the north. The Atalik Ghazee has quite consolidated his power; and the only enemies he has to fear are his powerful neighbours on the Naryn. He is certainly prepared to resist an invasion, and his courage cannot be doubted for one moment. If the villainy and deceit which he has practised during his career stand in strange contrast with his fortitude and unflinching bravery, he has also fought well, for he has been twelve times wounded. And as an Asiatic will never hesitate to stoop to treachery and deceit, it would be hopeless to look for any trait of generosity and magnanimity displayed by him during his rapid rise to power. He is now proving himself to be an able and energetic statesman, and a fit ruler of the somewhat turbulent subjects whom he has to govern. Should the peace and quietness now prevailing throughout his dominions continue, he is likely to enjoy a lengthy time of power; but already the storm is gathering, which threatens to hurl him from his high position. If Russia advances to the south of the Thian Shan Chain, the Atalik Ghazee must be the first enemy with whom she will have to contend. Eastern Turkistan possesses a splendid mountain frontier, especially to the north, the roads of which are impracticable for guns, and even difficult for mounted men. The Russians were long delayed in the Caucasus, and our own Afghanistan disasters are not yet forgotten; and as savages have before now defied disciplined armies in the mountains, it is even possible that he may succeed in beating his enemies back from the passes. Once in the plains, however, the Russians must carry all before them, for the discipline that makes men act with coolness and collectedness amidst scenes of greatest danger, is wanting here, and in the plains of Turkistan he could not oppose them successfully for one hour.

I left Kashgar on the return journey, as the sun rose on the morning of the 13th April. It was one of those perfectly clear days, so characteristic of the climate of Eastern Turkistan; and in the grand display of the mountain-masses around offered an ample compensation for the long detention and delay which had been experienced.

Lying north immediately beyond the Kashgar River appears a low, undulating ridge of ground, from which the transverse slopes run down very evenly and gently into the level plain beyond the river. Beyond this again an irregular rocky-range

occurs, presenting a steep face to the south, an opening in which admits the exit of a stream flowing with a south-easterly course to its junction with the Kashgar River. A road conducts up the valley to the village of Tajend, beyond which is situated the fort of Aksai, commanding the route debouching across the snowy range to the north, by the Pass of Tailâh. To the north-east, in the far distance, appear the slopes of the Artush Range, branching from the Great Thian Shan Chain of Central Asia, while conterminous with the horizon to the north, this Snowy Range stretches with an even crest at nearly 70 miles' distance from Kashgar. The direction of the range is from w.s.w. to E.N.E., while the spurs slope evenly and with a regular alternation to the south and east. The Artush Valley is seen throughout a considerable portion of its length to where it deflects to the northward. The stream rising in the pass at its head has, at first, a course to the south-east, and then to the southward; and again flowing eastward after leaving the lower hills, forms one of the tributaries of the Kashgar River. But very few peaks in the Snowy Range appear to attain to a greater height than 18,000 or 19,000 feet above the level of the sea; and the crest of the chain, as before mentioned, presents no alternate lofty summits and deep depressions so remarkable in the chains of the Kuen Luen and Karakoram. The appearance of the range, as seen from the southward, is somewhat desolate, since no forests occur to break the interminable view of the bare slopes of the mountains, with their snow-crowned summits. Although forests are found on the northern slopes in the basin of the Naryn, yet no trees are visible from the south, or at any rate no timber of sufficient height to be seen at the distance of Kashgar. It is not known with any degree of certainty to what altitude the passes across the range attain; but if the mean elevation of 15,800 feet is assigned to them, this measurement is, in all probability, sufficiently accurate for an approximate calculation.

Looking south and west from this point of observation is seen the whole Kizil Yart Range, forming the eastern crest of the Pamir, surmounted by snow-capped peaks and glaciers. It would be impossible for any scene in nature to surpass the vast grandeur of these mountains, as seen towering up like a gigantic wall, with the well-defined outline of their lofty summits cutting the clear azure of the sky. The lines of Pope at once occur to the observer with striking appropriateness:—

“Eternal snows the growing mass supply,  
Till the bright mountains prop the incumbent sky;  
As Atlas fixed each hoary pile appears  
The gather'd winter of a thousand years.”

It was a scene that could not fail to be indelibly impressed upon the memory ; and the more so from the circumstances under which it was beheld. The Russians, our friendly rivals in the noble science of geography, had already reached to the crest of the range now in sight to the north ; and here, in the very heart of Central Asia, it was gratifying to know that, at length, through the medium of British enterprise, had been determined the much-vexed question of the position of Kashgar.

From here again was noticed the very abrupt and rugged declivities of the lofty Pamir Range, while, trending westward to its junction with the Artush, the Thian Shan Chain was visible at the head of the open valley, through which flows the Kashgar River. The point of junction of the two chains could not be seen at such a distance, but some lofty isolated peaks were discernible towards the Terek Pass, as the rays of the morning sun lit up their snowy crests.

Continuing our journey, we arrived at Yanghissar the following day, and a further delay of thirteen days here occurred, since the Atalik Ghazee, who had preceded me from Kashgar, did not grant me a farewell interview till the evening of the 25th April. I had here an opportunity of seeing the interior of the fort, as, instead of living in the serai as before, a house in the fort belonging to the Yusawal-bashee, in command of the garrison, was assigned to me during my stay. A few observations of the peaks and principal points in the range of the Pamir were here taken to check the bearings already fixed from Kashgar and intermediately ; and as the sun, when on the meridian, was now out of the range of the sextant, I could make no further observations for latitude at mid-day. The weather had now changed from that of a severe winter to the more genial climate of spring.

Only on two occasions was any rainfall noticed, and then in but very slight showers towards the end of March in Kashgar. No rain fell at Yarkand, although it snowed slightly on several days in the month of January. The snow was very fine-grained, and was melted within a few hours, with the exception of where it had drifted and lay in shady places and hollows. The greatest fall of snow upon the mountains would appear to have taken place during the first week in March, while thunderstorms with rain were prevalent towards the Sarikol Hills throughout May. The predominant winds were gentle breezes from the west and south-west, and a few heavy dust-storms, accompanied by a strong south-east gale, occurred towards the end of April and the beginning of May.

The thermometer at Yarkand rose from a temperature of 23° Fahr. at noon in the commencement of January to 71° and

72° Fahr. at the end of May. As the mercury probably indicates a temperature of 82° or 85° during the months of July and August, which is undoubtedly the hottest time of the year, Eastern Turkistan thus experiences alternate periods of great heat and excessive cold. And as in countries where ranges of mountains intercept the course of the prevalent winds, being enclosed on the north, west, and south by lofty chains of mountains, a peculiarly dry climate is here met with.

We remained another month in Yarkand, since all the passes on the southern frontier were reported by the Kirghiz to be impracticable up to the end of May. The welcome news at length arriving that the Sanju Pass was practicable for laden yaks, we bid farewell to the Dad Khwâh—the courteous and hospitable Governor of Yarkand—and started on the return journey to Ladak on the 30th May. I had still hoped to have been able to return to India by way of the Pamir and Chitral, but on my again representing my desire to make the attempt, the governor would not hear of my running the risk attending such a route. Although the Karakul lay within 150 miles of the furthest point to which I had penetrated, it was imperative to return by way of Ladak, and travel over again some 1600 miles before one could hope to reach it by another route.

The country now presented the most blooming and fertile appearance. The trees were all in full foliage, and the gardens and fruit trees fragrant with blossom. Encamped in the picturesque gardens of Karghalik, under the spreading walnut trees, Mr. Shaw and myself were now allowed to meet, and were soon discussing together the various events of our sojourn in the land of the Moghuls, and our rides through the pleasant plains and steppes of Turkistan.

We finally left Sanju on the 12th June by a different route to that by which we had entered. The swollen state of the Sanju River did not admit of a road up that valley to the pass, and a divergence was necessary in order to strike the stream nearer to the pass. Leaving the village of Sanju we crossed the low sand-hills, and ascending the valley of the Arpalak stream encamped at Kizil Aghil for the night. The following day a journey of 14 miles further up the stream brought us to the junction of a branch valley leading to the Chuchu Pass across the transverse spur from the Kilian Range dividing the Sanju and Arpalak valleys. The pass is at an elevation of 11,847 feet as calculated from hypsometric measurement, and the ascent immediately before reaching the crest of the ridge is steep for a short distance. Mazar, an encamping-ground in the Arpalak Valley, where the road turns off to the pass, was found to be at an elevation of 8617 feet, while the distance from that

point to the pass is nearly six miles. From a height above the pass which I ascended a commanding view was obtained of the country towards Khotan, in which direction the course of the Karakash River, as well as the position of Khotan itself, could be approximately determined from observations of the configuration of the intervening country. Descending the pass to the westward the road winds down a narrow ravine to the valley of the Yangah stream, one of the main feeders of the Sanju River, which effects a junction with that stream immediately below Tam, a Kirghiz encamping-ground in the Sanju valley. We reached this place early in the afternoon, but our baggage and servants were delayed near the pass until the stream had increased to such a torrent, from the melting of the snows, as to be quite unfordable until the following morning. We fortunately found a few Kirghiz at Tam who extended their usual hospitality for the night, and as soon as the stream had subsided sufficiently to admit a passage we continued our journey towards the pass. We remained two days at a large encampment of Kirghiz at the head of the valley in order to make the final arrangements necessary, and load up provisions for the long journey before us. The situation of this Kirghiz encampment was well calculated to inspire a love for the charms of a pastoral life. Few more picturesque spots could have been chosen than where, by the rushing stream, they had pitched their tents, in full sight of their flocks and herds grazing or wandering over the grassy slopes of the valley, while high overhead towered the grand mountains crowned with their mantle of eternal snow.

Bidding farewell to the Yuzbashee who had accompanied us, and not without regret at parting from the last of our Turki friends, we commenced the steep ascent of the Sanju Pass. The Kirghiz, with their invaluable yaks, accompanied us as far as Shadula, which was reached the second day after we had crossed this difficult pass. It was found to be even less practicable than when traversed six months before, since the melting snow which lay on both sides of the summit had not yet disappeared; and rendered the passage even dangerous for the sure-footed yaks. A second series of hypsometric measurements gave an altitude of 16,610 feet above the level of the sea; and although the pass is at a lower elevation than any traversed between Turkistan and Ladak, it is by far the most impracticable of any on the route. Having crossed the Aktagh range by the Sooget Pass, on the 24th June, we encamped at Chibra for the night, and on the following day made a long march of 27 miles to Châdartâsh, a camping-place situated in the open valley leading to the Karakoram Pass. From Chibra,

passing Aktagh and Muliksha, we had crossed the high table-land of Aktagh, and ascended the wide open valley of the table-land up which lies the road to the pass leading across the main range of the Karakoram. A most favourable opportunity now presented itself of exploring the small strip of country lying between here and the upper valley of the Karakash. The discovery of this connecting link in the new route traversed during the preceding November was not only desirable, but the exploration was one of much personal interest to myself, since it would afford the means of testing the value of the survey hitherto executed, and prove an admirable check on all the previous observations which I had conducted. The valley at Châdartâsh was found to be at an elevation of 16,190 feet above the sea, by the temperature of boiling water; and as it was known that the valley of the Karakash River at the point where I expected to strike it at a distance of 30 to 40 miles to the south-east, lay at an elevation of about 15,600 feet above sea-level, the probability that an easy pass would be found to lead across the intervening range was very evident.

During the course of a long day's exploration, what appeared to be the most practicable route was fixed upon; and returning to camp at Châdartâsh long after dark, I perceived that misfortunes had already begun, as my best horse was lying dead in the moonlight before my tent. Moving at daylight the next morning we struck across the low hills to the eastward, and skirting the short slopes of the series of broken ridges which the northern face of the Karakoram here presents, encamped for the night at an elevation of 16,905 feet above the sea. A little of the lavender-like plant called "boorsee" was here found, but at no higher elevation than about 17,000 feet above the sea, which altitude would appear to be the utmost limit to which any vegetation attains on the high lands lying between the chains of the Karakoram and Kuen Luen.

Proceeding eastward, our road lay up an open ravine leading with a very gentle ascent to the summit of a depression in the ridge, here branching from the Karakoram range and named the Karatagh. This pass was found to be at an elevation of 17,953 feet above the sea from data obtained by hypsometric measurement. A very little snow was noticed on the slopes of the summit of the ridge immediately above the pass, while the open face of the pass itself was quite free from it on this day, the 28th June. Many of the conical-shaped crests of the lateral slopes of the Karakoram, lying at an elevation of 18,500 feet, were also observed to be free from snow, save where a few patches had accumulated on their shady sides. Below the pass, to the eastward, the open ravine was quite free from snow.

The Sooget Pass, which had been crossed on the 24th June, was covered with a fall of new snow to the depth of six inches, but when this pass, which is at an elevation of 18,237 feet above sea-level, was traversed on the 15th December, it was observed to be quite free from snow on the summit, while but a slight bed of snow had accumulated at the head of the open ravine on the north side. I am inclined to think that the mean elevation of 18,400 to 18,600 feet should be assigned for the snow line, or limit of perpetual snow on the northern slope of the Karakoram chain. The snow-line on the northern declivity of the Kuen Luen may be estimated to extend to a somewhat higher level, since observations made at different stations on the range show the height of the snow line to be 18,800 to nearly 19,000 feet above sea-level. Many glaciers may be observed at a lower elevation, which have gradually moved down into the head of the ravines. The descent from the Karatagh Pass to the eastward is as gradual and gentle as the approach from the valley of the Yarkand River. Having now crossed the crest of the plateau of Aktagh, we had descended into the basin of the Karakash River; and continuing down the open valley, struck that river the following morning immediately above the hot springs. The valley we had descended from the pass was the one originally noticed in November when exploring the course of the Karakash, as likely to afford an easy route to Aktagh, which proved to be the case, and the much desired connecting link was thus established. The ascent from the Karakash River to the pass which lies at a distance of 18 miles from this point, is a very gradual one of 2400 feet, which gives the exceedingly easy gradient of 133 feet per mile. The descent from the pass to Wahâbjilga above Aktagh, on the regular Karakoram route, presents the same gentle gradient, while the natural advantages offered by the open character of the country are such as to render this line of communication perfectly practicable for two-wheeled carts and conveyances.

We continued our journey up the Karakash Valley, and crossing the low pass of Kizil found ourselves once more on the elevated plains of Lingzi Thung. Knowing the position of the Chang Chenmo Pass we marched across the open plains due south, and encamped for the night at an elevation of 16,810 feet above the level of the sea. Towards morning it came on to snow, and continued uninterruptedly for the next 24 hours. Even in the height of summer, the cold experienced on these desolate plains was severe—the thermometer at 9 P.M. indicating a temperature of 26° Fahr. and sinking to 11° Fahr. during the night. It would have been impossible to distinguish

the line of our route through the heavy snow-storm, without constant observation of the bearing of the compass. As it happened we diverged too much to the westward, and getting entangled amongst the beds of clay alluvium which fringe the slopes of the low hills, experienced some delay in recovering the true direction of our line of route. The Lingzi Thung were now covered with pools and streams of running water caused by the melting of the snow, while a considerable stream flowed through the open valley leading to the Chang Lang Pass. We remained for the night in the open air amongst the snow near the summit; and the following morning, on the 4th July, crossed the pass into Chang Chenmo. Large beds of snow, now rapidly melting, were observed along the crest of the range, while the summit of the pass, 18,839 feet above the sea, which had been quite free from snow in the previous November, was now covered with it to the depth of nearly one foot.

We had made the journey from Aktagh into Chang Chenmo in 8 days; and should have accomplished it more quickly had not the snow falling on the Lingzi Thung made the road very heavy going for the horses.

A cursory glance at the map suffices to show that the most direct route from the north-west provinces of India to Yarkand must, after reaching Chang Chenmo, cross the main chains of the Karakoram and Kuen Luen and the intervening high land of Aktagh, in a general direction bearing N.N.W. I have endeavoured to show that the true road into Eastern Turkistan from Aktagh is down the valley of the Yarkand River and across the Kuen Luen Range by the Yangi Pass, and it remains to point out the most direct route by which Aktagh can be reached from Chang Cheumo. This is the route we followed on our return; from the Chang Lang Pass, leading across the Karakoram range it traverses the western side of the Lingzi Thung plains, and, entering the upper valley of the Karakash River, conducts down that valley and across the Karatagh Pass to Aktagh. This would certainly be the direct road for a caravan to follow coming from Upper India and wishing to avoid Kashmir and Ladak, and having traversed it myself I can vouch for its excellency and perfect practicability for laden horses and camels. Indeed the natural advantages of this line are so great, that from the Chang Chenmo to Koolunooldee in the valley of the Yarkand River, a distance of 240 miles, a little labour expended on the construction of a road up the Chang Chenmo Valley would render it practicable for two-wheeled carts and conveyances. There is, too, the immense advantage of grass and fuel obtainable all down the upper valley of the Karakash, so that this line not only avoids the

difficult passes of Sasser and Kardong on the Ladak side of the Karakoram, as well as the Karakoram Pass, but possesses the great desideratum of affording grass and fuel on that portion of the route where it is most essential. It is desirable to draw especial attention to this line of communication, since what is capable of being converted into an easy trade-route, may be made equally available for military purposes. In all discussions regarding the Central Asian question, the feasibility of this route has been ignored. In a late excellent work which discusses the question in all its bearings, it is said that "this latter route may be entirely dismissed from consideration, as being impracticable for several reasons, the chief of which would be the sterility of the country through which an army would have to pass." Admitting the difficulties which a hostile force advancing across these mountains would have to overcome, yet the undertaking is very far from being impracticable, and history affords for example the successful invasions of Ladak and Tibet by the Kalmuks towards the close of the 17th century. It is equally true that the invaders were eventually overwhelmed in their attempt to return through these very mountains, but the analogy cannot be maintained between a host of wild Tartars and what would be a disciplined European force, equipped with every material and appliance of the art of war. An army attempting a passage across the mountains from Eastern Turkistan to India would have no great impediment to encounter until they had entered the deeper defiles of the lower Himalayas. The portion of the line intervening between the crest of the Karakoram range and the plains of Turkistan is quite practicable, and, as in all human probability, it is here that the Russian and Indian empires will first come into contact, and the frontiers run conterminous, this fact is deserving of especial consideration.

It may be interesting to briefly notice the results of the geographical research which has been conducted by the present expedition.

The theory advanced by the explorers, the Schlagintweits and Johnson would indicate a system in which the Karakoram and Kuen Luen ranges are the northern and southern crests of the same great chain, but the mountain system assigned by Humboldt to Central Asia, which divides them into great mountain chains, "coinciding with parallels of latitude," is strictly the true one. Whether regarding the Karakoram as a separate chain, or as a prolongation of the Himalaya to the northward, it forms a distinct watershed between the Indus and the river-systems of Tartary or Eastern Turkistan, while the Kuen Luen consti-

tutes a parallel chain bounding the high table-land of Tibet to the north. To the west of this elevated plateau or table-land the extensive tracts of level plain, which are its characteristic features, are no longer met with, for here they break into detached ranges, and the general level of the country sinks into the basin of the Turkistan rivers.

With the relative bearing of these two main chains, the more immediate points of interest which have been discovered are the true courses of the Yarkand and Karakash Rivers. The former river, rising on the northern slope of the Karakoram, flows through the longitudinal valley between the two chains, while the Karakash, rising in the same range more to the eastward, pursues a parallel course until it pierces the main chain of the Kuen Luen.

Before discussing the positions of the chief towns of Eastern Turkistan, I may be allowed to quote an extract from the Report of the Great Trigonometrical Survey Department of India, of 1867-68, by Colonel Walker, which illustrates the compilation of their new map of Turkistan, and bears closely on the subject:—

“(87.) The map of Turkistan, with the adjacent portions of the British and Russian territories, which was stated in my last report to be under compilation, has now been completed, and published by the photo-zincographic process. A great deal of valuable information has been incorporated into this map from the Punjab ‘Report on the Trade and Resources of the Countries on the North-West Boundary of British India,’ as to the routes from Afghanistan, *viā* Kokan and Kashgar, and *viā* the Oxus River, the Pamir Steppe, and the Sarikol or Tashkurgan district to Yarkand; from Peshawur, through Swat, Panjkora, and Chitral, to the Pamir Steppe and the sources of the Oxus, and from Leh and Iskardo into Tashkurgan and Yarkand.

“In the regions beyond the British frontier, which no Europeans could safely enter unless backed by a strong army, there are many hill-peaks whose positions and heights have been determined with accuracy by the operations of this survey in previous years. These points furnish the basis on which the geographical details, as obtained from oral information, or travellers’ itineraries, or explorations by native surveyors, have been fitted; where they are numerous, the map is probably fairly accurate; where they are scanty, it is necessarily less reliable. The regions of which least is known are those lying between the Oxus and the southern frontier of Kokan; nothing is known of the configuration of the Pamir Steppe, and very little of the positions of places on it.

“(88.) The determination of the much-questioned positions

of the chief towns of Altyshahar, or Little Bokhara, is approaching solution. The position of Ilchi, the capital of Khotan, may be considered to have been definitely fixed by Mr. Johnson, while that of Yarkand has probably been very approximately fixed by Captain Montgomerie's explorer, Mahomed-i-Hamid. Adopting these positions, and collecting all the evidence available in this office as to its distance and bearing from Yarkand and from Ilchi, Kashgar would appear to be in lat.  $39^{\circ} 25'$ , and long.  $75^{\circ} 25'$ . This value of the latitude agrees with what has generally been adopted hitherto, but the longitude is  $1\frac{1}{2}^{\circ}$  east of the position adopted by Klaproth, Humboldt, and Ritter, and no less than  $3^{\circ} 35'$  (nearly 200 miles) east of the value adopted by the Messrs. Schlagintweit. On the other hand, a new and entirely independent value of the position of Kashgar has been recently obtained in the summer of 1867, by the Russian General Poltoratsky, in the course of a reconnaissance of the regions to the south of Lake Issikkul and the Naryn River, down to the border of the plains of Altyshahar, the resulting position of Kashgar was lat.  $39^{\circ} 35'$ ; and long.  $76^{\circ} 22'$ , or still more to the east than the value adopted in this office. I am indebted to Baron Osten Sacken, Secretary to the Imperial Geographical Society of Russia, who accompanied General Poltoratsky's expedition, for the above information, as well as for several of the latest and most correct maps of the regions on the south of the Russian frontier. They have been of great assistance in compiling the new map of Turkistan."

In order to facilitate the interesting discussion of the positions of Yarkand, Kashgar, and Khotan, I subjoin a table of several values for longitude of those cities adopted by different authorities, many of which have been taken from Col. H. Yule's work, entitled 'Cathay, and the Way Thither':—

| Authorities.                         | Yarkand. | Kashgar. | Khotan (Ilchi). |
|--------------------------------------|----------|----------|-----------------|
| Chinese Tables .. .. .. .. ..        | °   '    | °   '    | °   '           |
| Veniukhof .. .. .. .. ..             | 76  3    | 73  48   | 80  21          |
| Kiepert .. .. .. .. ..               | 76  10   | 73  58   | ..              |
| Colonel Walker .. .. .. .. ..        | 74  56   | 72  53   | 79  12          |
| Schlagintweit .. .. .. .. ..         | 76  24   | 73  58   | 79  13          |
| Montgomerie .. .. .. .. ..           | 73  58   | 71  50   | 78  20          |
| General Poltoratsky (67) .. .. .. .. | 77  30   | 75  25   | 79  26          |
| Present Expedition (69) .. .. .. ..  | 77  28   | 76  22   | ..              |
|                                      |          | 76  10   | 80  5           |

The values adopted by Major Montgomerie are the results of the observations of his explorer, Mahomed-i-Hamid, for the

meridian of Yarkand, and of Mr. Johnson for that of Khotan. Those assigned to Col. Walker are the values adopted in the map of Central Asia. The position of Yarkand may be considered to have been definitely determined, since the value obtained by Mahomed-i-Hamid, viz. lat.  $38^{\circ} 19' 46''$  N., long.  $77^{\circ} 30'$  E., and that by the present expedition, lat.  $38^{\circ} 21' 16''$  N., long.  $77^{\circ} 28'$  E., very nearly coincide. The difference in the latitudes may be accounted for by presuming the observations to have been made from different points, as, for instance, from the north and south walls of the city, which would afford this variation.

With reference to the position of Khotan, the latest data which have been obtained are the observations of Mr. Johnson, whose value is  $79^{\circ} 26'$  E. for the longitude of that place.

Taking the longitude of  $77^{\circ} 28'$  to represent the position of Yarkand, this value of Khotan is only  $1^{\circ} 58'$  to the east of the meridian of Yarkand. Now the road distance from Yarkand through Karghalik and Guma to Khotan is about 175 miles, and allowing a margin for the difference of latitude between the two cities, viz. about  $1^{\circ} 13' 16''$  (Yarkand being in  $38^{\circ} 21' 16''$ , and Khotan in  $37^{\circ} 8'$  of north latitude), this would appear to be insufficient. The value of  $80^{\circ} 21'$  E., as given in the 'Jesuit Register,' is probably more accurate, though deviating too much in the opposite direction.

Although Khotan has not been visited by myself, the results of all observations taken of the country lying between Sanju and Khotan tend to show its position as more to the eastward than the meridian adopted by Mr. Johnson. A meridian of  $79^{\circ} 26'$  would approach too close to Sanju—would, in fact, nearly cut the head of the Arpalak Valley, which has been visited and surveyed. The road distance, also, from Sanju to Khotan is not less than 60 miles. Judging, then, from the distance between Yarkand and Khotan, and Sanju and Khotan, as well as the course of the Karakash River, the longitude of Khotan would appear to be from  $79^{\circ} 55'$  to  $80^{\circ} 5'$  E., and the latter meridian has been approximately adopted in the present map.

This gives a difference of  $2^{\circ} 37'$  to the east of the meridian of Yarkand, and is believed to be correct within small limits. Still it must be remembered that this result is merely based on calculation, and not from an actual visit to the place; whereas Mr. Johnson was in Khotan for several days, and, it is believed, took astronomical observations in order to ascertain its position. It is much to be regretted that the general inaccuracy of his map should tend to throw doubts upon the correctness of the position assigned by him to Khotan.

The great geographical puzzle, however, appears to have been in identifying the true position of Kashgar.

As given by the Jesuits, Veniukhof, Kiepert, and the Schlagintweits, it has never been placed to the east of the meridian of  $74^{\circ}$ . Our latest map has it fixed by Major Montgomerie as in long.  $75^{\circ} 25'$  E. Even this is not far enough eastward. The Russian General Poltoratsky has recently obtained a value of lat.  $39^{\circ} 25'$ , long.  $76^{\circ} 22'$ . General Poltoratsky did not actually reach Kashgar, or probably any point within 80 miles of that city, but his value places it still more to the east of the position adopted by our latest map. The position of Kashgar, as based on data obtained from observations by the present expedition, would appear to be in lat.  $39^{\circ} 23' 9''$  N., long.  $76^{\circ} 10'$  E.

This position is  $4^{\circ} 20'$  (or 240 miles) to the east of that adopted by the Schlagintweits. Those explorers, however, can hardly maintain any claim to be considered authorities on the subject, for it can be shown that the brothers Herman and Robert never reached any point within 191 miles of Yarkand and 317 miles of Kashgar. Their treatment of the observations of so good a traveller and careful observer as Wood is unjust and their alterations unreliable; but, not content with dislocating the map of Turkistan, they summarily place Wood's Sir-i-kul Lake  $2^{\circ} 22'$ , or some 135 miles, to the west of its true position. There is no direct evidence of the longitude of Sir-i-kul as fixed by Wood being correct, independent of Wood's observations connecting it with Badakhshan.

Yarkand, in long.  $77^{\circ} 28'$ , and Sir-i-kul Lake, in long.  $73^{\circ} 50'$ , as given by Wood, show a difference of  $3^{\circ} 38'$ , or just 200 miles between the two meridians. As Yarkand lies about  $41'$  N. of the latitude of lake Sir-i-kul, and the road distance, including curvatures, is from 240 to 250 miles from Yarkand to Sir-i-kul, via Tashkurgan and the Sarikol district, this should prove the correctness of Wood's valuation.

With reference to my own value of the position of Kashgar, I would observe, that it may be considered to be as fairly accurate as could be expected to be obtained, under circumstances attending an expedition into a country which has hitherto been so jealously closed to Europeans.

What has now become the great question for decision in the geography of Central Asia is, the exact configuration of the Pamir Steppe, and the identity of the main source of the River Oxus. So much of the configuration of the Pamir Steppe has been determined, as would go far to prove it to be of greater breadth than is conjectured, and that none of the streams issuing from its lake-system drain through the range

forming its eastern crest into the rivers of Eastern Turkistan. That the stream flowing out of the Karakul to the west is the main source of the River Oxus, there can be little doubt. I am indebted to Colonel Yule's work for the following interesting information on the subject of the sources of the Oxus. The extracts from Edrisi, as quoted by Colonel Yule, are as follows:—

“The Jihun takes its rise in the country of Wakhan, on the frontier of Badakhshan, and there it bears the name of Khariâb. It receives five considerable tributaries, which come from the countries of Khutl and Waksh. The Khariâb receives the waters of a river called Aksura, or Mank, those of Than or Balian, of Farghan, of Anjâra (or Andijâra), of *Wakshab*, with a great number of affluents coming from the mountains of Botun (it also receives); other rivers, such as those of Sâghaniân and Kawâdian, which all join in the province of the latter name and discharge into the Jihun.” “The Wakshab takes its rise in the country of the Turks, after arriving in the country of Waksh it loses itself under a high mountain, where it may be crossed as over a bridge. The length of its subterranean course is not known; finally, however, it issues from the mountain, runs along the frontier of the country of Balkh, and reaches Tarmedh. The river having passed to Tarmedh follows on to Kilif, to Zane, to Amol, and finally discharges its waters into the lake of Khwarizm (the Aral).”

The stream mentioned as Sâghaniân may be identified with the tributary of the Oxus, flowing through the modern province of Shagnan; but where does the main stream mentioned as Wakshab obtain its source? Edrisi says,—“it takes its rise in the country of the Turks,” or the mountains of Pamir. And as the main source of the Oxus is represented by this Wakshab, all evidence would show it to have its rise in the Lake Karakul. If, then, the affluent flowing from the Karakul to the west and south-west drains through the hills of Karatigeen and Kolab, it must be the main source of the Oxus. But where does this stream, the Wakshab of Edrisi, effect a junction with the Panja Daria of Wood? Must it not be in that bend of the river which Wood did not see, or near the Hagrât Imam?

It is interesting to note the difficulty which occurs in endeavouring to make all the parts of a map agree with information acquired from hearsay, if that information happens to be at all ample. It must have been this confused mass of evidence, collected at various times from native reports, which has made the errors in the extant maps of Central Asia so possible. And yet it is strange that we have really no correct map of the interior of the oldest continent of the world. The causes of the absence of this desideratum, now appreciated in the science of

geography, may be at once traced to that antagonism of race and religion, which has hitherto been the deadly barrier to the acquisition of such knowledge. It is the fanatical tribes and bigoted Mahomedans inhabiting Central Asia, which alone offer a bar to its successful exploration, for no country possesses a finer climate, grander scenery, or places of more attractive interest. Although during the extended sway of the Moghul Empire, mediæval travellers from Europe were enabled to traverse the land in safety, yet a fatality would appear to have attended those who have more lately followed. But as civilization advances, so the hope may be entertained, that the entire physical geography of Central Asia will soon be as well known as that of Europe.

To the explorer is here offered a field of surpassing interest, whether regarded from its extent of unknown country, or the history which attaches to it, both past and future. With such an incentive to enterprise, he may well toil on ; and, though in such a life many privations and hardships will have to be endured, they should, at least, teach him to sacrifice every consideration of personal ease in pursuit of the objects of what, he may rest sure, is a noble ambition ; an ambition which excites to arduous enterprise and scientific labour, in so fair a field as that embracing the grand mountains and wilds of Central Asia.

#### REMARKS ON EASTERN TURKISTAN.

Eastern Turkistan, the country comprised in the elevated table-land of Central Asia, extending from the mountain-ranges which bound it on the north, south, and west, to the borders of the great desert of Gobi, is more generally known to Europeans by the name of Little Bokhara, Chinese Turkistan, and Chinese Tartary. Turkistan, or the country of the Turks, includes the provinces of Bokhara, Samarcand, Tashkend, Khokand, and Andijan, comprised in Western, or Russian Turkistan, whilst the provinces of Kashgar, Yarkand, Khotan, Aksu, &c., constitute the country called Eastern Turkistan.

This interior plateau is defined within the meridian of  $74^{\circ}$  to  $88^{\circ}$  E. longitude, while it varies in breadth from north to south from 380 to 520 miles, between the parallels of  $35^{\circ}$  to  $43^{\circ}$  of N. latitude, and embraces an area of 360,000 square miles. If we extend its boundaries into the Gobi Desert, and include the extent of uninhabited country lying to the east of its most fertile tracts, a total area of 430,000 square miles will be obtained.

The surface of this extensive table-land presents alternate

features of desert country, and well irrigated and fertile tracts. In its general elevation it attains to a height of about 4000 feet above the level of the sea on the west, and probably decreases to 1200 feet on the confines of the Gobi Desert. The boundaries are natural, and remarkably well defined.

On the north extends the great Thian Shan Chain of Central Asia, which, from its point of intersection with the Altai, in its prolongation westward, forms the natural boundary of Eastern Turkistan to the north. It is known to the inhabitants of the country in that portion of its length lying immediately north of the province of Kashgar, as the Artush or Kokshal Range.

On the south the Kuen Luen and Karakoram chains stretch eastward, from the point of intersection with the transverse range of the Pamir, near the meridian of 74° E., while this transverse range, or Pamir Steppe, now the object of so much geographical interest, forms the natural boundary of Eastern Turkistan on the west. Thus enclosed on three sides by immense chains, comprising independent mountain-systems, an uninterrupted natural frontier line of 2000 miles is presented, affording to the country the greatest elements of security within itself. The routes debouching across these mountain ranges into the plains of Eastern Turkistan, include the roads from Khokand and Andijan, those from the sources of the Naryn River, over the Thian Shan Chain to the north; the two roads from Ladak, Tibet and India, across the southern frontier; and the main road from Badakhshan, in the valley of the Oxus from the westward. They are thus few in number, and are chiefly traversed by merchants and adventurous pilgrims on their way to Mecca.

That portion of the country under more immediate consideration, may be defined as the west zone of Eastern Turkistan, including the fertile provinces of Kashgar, Yarkand, and Khotan. Fertilised by three considerable rivers, which unite on the 80th meridian of E. longitude, these provinces form a distinct zone of the country, which embraces an area of some 193,000 square miles, included in the basins of these rivers, to where they discharge into the Lob Nor, the united stream of Tarim Gol.

The Karakoram chain of mountains extends from the meridian of 74° E., with a general direction from W.N.W. to E.S.E., to near the sources of the River Indus. It intersects the Hindu Kush Chain, at the head of the Gilgit Valley, at a point known by the synonym of the "Pusht-i-Khar," or Ass's Back. Of its prolongation eastward beyond Chang Chenmo, nothing is very definitely known. Whether it joins the lofty group of Kailâs Peaks of the Himalayas, overlooking the sacred sources of the Indus and Brahmaputra, or loses its character as a single chain,

but merging into the high table-land of Tibet, in a series of radiating spurs, has yet to be determined. The most elevated summits occur in that portion of the chain lying between the Karakoram Pass and the head of Gilgit, where some peaks attain the height of 25,000 or 26,000 feet above the sea. The crest of the range reaches a mean elevation of 20,000 to 21,000 feet above sea-level, and the most lofty summit is found near the Muztagh Pass, where a peak near the 77° meridian of E. longitude, rises to the stupendous height of 28,278 feet above the level of the sea. The chain to the north is here penetrated by long transverse valleys, while the southern face in the watershed of the Indus presents steeper declivities, and is more rugged than the northern slope. Thus the ground to the north is visibly more elevated in its general surface, than to the south of the chain in the basin of the river Indus.

Extending with a general direction from W.N.W. to E.S.E., the crest of the chain continues from the Pusht-i-Khar for a distance of 420 miles to beyond the Karakoram Pass. Here, at where a double peak occurs in the chain, it deflects to the southward, and again rises into loftier summits. From hence eastward it forms the southern crest of the high table-lands which extend to the Kuen Luen, at a mean elevation of 16,500 feet above the sea; and continues eastward from Chang Chenmo to the north of the Pangong Lake and Rudok. By following the crest of the chain up to this point, a length of 650 miles is reached. The snow-line on the northern face of the chain would appear to attain an elevation of 18,600 feet above the sea; and on the southern declivity a mean height of 18,200 to 18,400 feet, may be assigned for the limit of perpetual snow.

The height which the passes attain is very considerable. The two principal passes over the more central portion of the chain are the Muztagh and Karakoram, the latter reaching an elevation of 18,317 feet above the sea. The road across this pass ascends from the southward from the head of the Shayok River, one of the principal tributaries of the Indus, and crossing the pass thence descends into the plateau of Aktagh, and conducts down the valley of the Yarkand River to the capital of Eastern Turkistan. The third pass, that of Chang Lang, or Chang Chenmo, crosses the range more to the south-east, at an elevation of 18,839 feet above the sea, and is remarkably easy. Ascending from the head of the Chang Chenmo Valley, the road across the pass descends gradually into the elevated plains lying between the pass and the chain of the Kuen Luen. The chief difficulty connected with the passage across this range is caused by the distress of laden animals from the rarefaction of the atmosphere at such high elevations, and the general sterility

of the surrounding country. No natural obstacles exist on the Chang Chenmo Pass to the formation of a road to admit the passage of light conveyances.

The Kuen Luen forms a system of mountains in a long narrow chain which extends on the parallel of  $36^{\circ}$  to  $36\frac{1}{2}^{\circ}$  N. latitude from east to west. It bounds the high table-land of Tibet on the north, and in its western portion runs along the Karakash and Yarkand rivers. The southern declivity of this portion of the range appears broken up into short transverse valleys, in distinct lines. Towards the eastern extremity of the chain the mountains decrease in altitude, and are more sloping. Between the meridians of  $77^{\circ}$  and  $81^{\circ}$  E. long., the chain attains greater height, and here the mountains are rugged and precipitous. The summits of the loftiest peaks reach an elevation of 22,000 to 22,500 feet above the level of the sea, while the average height of the crest of the chain is considerably above 20,000 feet.

The Kuen Luen thus constitutes a long and narrow chain, the eastern portion of which is a single ridge of heights and sunny peaks, while the western throws off branches which accompany the main chain in a parallel direction, or run down as transverse ridges into the high table-land of Central Asia. The Kilian Mountains constitute a subordinate range to the north of the main chain, and as a secondary spur commence to the west of the meridian of  $78^{\circ}$ , and stretch eastward to the meridian of Khotan.

The mountain-system of the Pamir Steppe, the transverse range which bounds Eastern Turkistan on the west, rises into a high elevated plateau of probably not less than 16,000 feet in its average altitude above the level of the sea. From the "Pusht-i-Khar," the point of its junction with the Hindu Kush, it extends to where it intersects the Thian Shan chain to the west of the Terek Pass in a direction bearing N.N.W., and then trending more to the westward on the parallel of  $38\frac{1}{2}^{\circ}$  N. latitude, and is comprised within the parallels of  $36^{\circ} 40'$  and  $40^{\circ} 20'$  of north latitude. The eastern crest of the plateau rises into the lofty range of Kizil Yart, presenting a steep face towards the plains of Turkistan, into which the mountains descend in steep and rugged slopes. The high country lying to the west of the Kizil Yart Range, which is the true Pamir, embraces the lake-system in which the several branches of the Oxus take their rise. The largest of these lakes is the Karakul, which is supposed to be the main feeder of that river. The Pamir throws off several high spurs to the eastward; the main one being the Chichiklik Range, dividing the province of Yarkand from the Sarikol district.

Eastward of the 79th meridian of longitude the country situated between the Kuen Luen and Karakoram chains forms a high table-land, which is the prolongation of that of Tibet to the westward. The general appearance of this elevated plain is characterised by Tibetan features—low undulating hills, and broken, irregular ridges, occur to vary the monotony of the general level, while numerous salt-lakes are found in the depressions of the surface, many of which evaporate or infiltrate into the soil at certain periods of the year, and leave an extensive saline incrustation. On such elevated plains vegetable life almost ceases to exist, and it is only on a few more favoured spots that a few blades of grass, or the lavender-like plant called "boorsee," can be found springing to welcome the eye.

The Yarkand River, which fertilises the province of that name, has its source on the northern slope of the Karakoram chain. The main branch of the river issues from the basin of a small plateau in lat.  $35^{\circ} 37' 34''$  N., long.  $77^{\circ} 50'$  E., which lies at an elevation of 16,656 feet above the level of the sea. Flowing with a northerly course to Kirghiz Janjal, 90 miles below its source, it here deflects at right angles to its former course, and enters the long longitudinal valley between the Kuen Luen and Karakoram ranges. Traversing this valley with a westerly course towards Sarikol, it winds round gradually to the N.E., and issuing into the plain country of Turkistan, continues in that direction to where it receives its large tributaries, the Kashgar, Karakash, and Aksu rivers. After the junction of these tributaries it flows eastward in a united stream, known as the Tarim Gol, and finally discharges itself into the lake of Lob Nor, on the confines of the Gobi Desert. From its source in the Karakoram to the Lob Nor, it has a total length of 1230 miles, and of some 680 miles to where it receives the Kashgar River, while the area of its basin embraces an extent of about 85,000 square miles. Zimmerman has shown that the elevation of the lake of Lob is probably about 1280 feet above the level of the sea, thus the river has a fall of nearly 15,500 feet during its entire course of 1230 miles, or a greater fall than from the summit of Mont Blanc to the level of the Mediterranean Sea. During the first 150 miles of its upper course it descends at the rate of 34 feet per mile, while the mean fall of the bed of the river in 400 miles is shown to be nearly 30 per mile by hypsometric measurement. In that portion of its course where it traverses the low country as the Tarim Gol, before entering the Lob Nor, it must have a very gentle fall of about  $3\frac{3}{4}$  feet per mile, since throughout its length from below Yarkand to the Lob Nor the total fall would appear to be about 2,900 feet. Thus the river throughout its entire course has a mean fall of

12½ to 13 feet per mile. The river shows little diversity in the country which it traverses, since the general character of the bed is level and open, except where it flows through the gorges of the Kurchum Hills before debouching into the plains of Eastern Turkistan. From the level character of its bed the river more often flows in several channels than in a single united stream, and the valley is seldom contracted to less than a mile in width, save where the stream winds along the spurs of the Aktagh Range, and the steeper declivities of the Western Kuen Luen. From immediately below Yarkand, where the width of its bed increases to upwards of 5000 feet, it is navigable during the months of June, July, and August. Its tributaries are numerous. It receives innumerable streams from the northern slope of the Karakoram chain, the largest of which is the Shingshâl and Toong rivers, and the Tashkurgan and Charling rivers draining the Sarikol district. While on the right bank the Ruskum and Tiznâf rivers with their minor tributaries effect a junction. The larger rivers of Kashgar, Aksu and the Karakash unite with it near the 80th meridian of east longitude. The vegetation found above the banks during the first 200 miles of its upper course is scanty, and is principally confined to low brushwood, with patches of coarse grass. Where the elevation has decreased to 11,000 and 10,000 feet, good pasture ground fringed with bushes and timber is met with in the valley, and the slopes of the mountains are less bare. Here the Kirghiz encamp, and graze their flocks and herds, and ascend to the heads of the transverse valleys during the summer months. The banks of the river, where it traverses the desert country to the east of Yarkand, consist of sandy tracts covered with a dense forest of underwood, coarse grass, and tares.

The river freezes during the winter throughout its course to below Yarkand, wherever the stretches of water flow evenly and gently. In its upper course, where the fall is as great as 34 feet per mile, a thick mass of ice accumulates on either bank, so intense is the cold; and in many places the edges of the ice approach close enough to admit of a passage, and in others have joined so as to form a bridge. The river is fordable throughout its upper course during the winter months, in those places which are in use as regular fords. The great increase in the volume of water renders these impracticable during the months of June, July, and August.

The principle of irrigation is extensively developed along the banks of the Yarkand River. The water, conveyed by numerous canals and dykes cut from the river, fertilises extensive tracts of cultivated land throughout the province. A few of the prin-

cipal canals are the Beshkum, Urpi, and Yulchak, which irrigate the country around the capital and Posgâm.

The Kizil Daria, or Kashgar River, takes its rise in the angle formed by the intersection of the prolongation of the Thian Shan chain with the transverse range of the Pamir. It receives a tributary from the Terek Pass, and flowing, with a course nearly due east, along the southern slope of the Thian Shan chain, unites with the Yarkand River at a distance of about 500 miles from its source. Its tributaries on the right bank are the Khanarik, Hosun, and Sargrak Rivers, descending from the Kizil Yart range of the Pamir, and the Aksu, Artush, and other streams which it receives from its southern slope of the Thian Shan chain. The province of Kashgar is comprised in the basin of this river with its tributaries, which embraces an area of from 55,000 to 58,000 square miles.

The third principal river of the west zone of Eastern Turkistan is the Karakash, which fertilises the more southerly province of Khotan. Rising in the northern slope of the Karakoram chain, in about lat.  $34^{\circ} 45'$  N., long.  $78^{\circ} 45'$  E., and at a probable elevation of 16,800 feet above the level of the sea, it flows with first a northerly and then an easterly course to under the Kuen Luen chain, where, on the parallel of  $35^{\circ} 54'$  N., at a distance of 120 miles below its source, it bends to the north-west, and flows through the valley of Sarikia, along the southern slope of the Kuen Luen, for a further distance of 80 miles. Arrived at Shadula, 200 miles below its source, it turns to the north and pierces the main chain of the Kuen Luen on the meridian of  $78^{\circ} 18'$  E. long., and then, meeting the southern declivities of the Kilian range of mountains, deflects at right angles to the eastward, and having thus turned the chain of the Kuen Luen continues an easterly course to near the 80th meridian of E. longitude, where, diverging to the north, it emerges into the plains of Turkistan, and fertilises the fair province of Khotan. The Karakash continues with a northerly course through the Taklá Makán and Dusht-i-Tatar, where it unites with the Yarkand River. From its source to this point of junction it has a length of about 590 miles, while the basin of the river, including the province of Khotan, embraces an area of 48,000 to 50,000 square miles. Its principal tributary is the Kakka or Khotan Daria, and it also receives several smaller streams from the slopes of the Kuen Luen. The bed of the river has a fall of 27 feet per mile from its source to Shadula, where it pierces the Kuen Luen, and flows at the rate of 200 yards per minute, or nearly  $4\frac{1}{2}$  miles per hour, as observed at a point 220 miles below its source. In the general character of the country which it traverses throughout its upper course it greatly

resembles the Yarkand River, save that the fall of its bed is more gentle, and the general surface of the valley less sloping. Where it skirts the base of the steeper mountains of the Karatagh and the Kilian Mountains, the course of the river is more confined. At as high an elevation as 15,800 to 16,000 feet grass and the lavender-like "boorsee" are found in the valley and lower slopes of the mountains, and below an elevation of 12,000 feet vegetation, with bushes and trees, occur along its downward course. The bed of the river consists chiefly of gravel and conglomerate, while an alluvium and fine sand formation is developed in many parts of its course. Nearly the whole volume of water which it rolls down is utilised for irrigation throughout the province of Khotan. Like the Yarkand River the stream is frozen during the winter months.

In the plain country of Turkistan we meet with several tracts of marshy ground, which contain small ponds or larger accumulations of water, with running streams of greater or less size, while the prevailing features of the surrounding country are hillocks of drifted sand. The margins of these marshes are fringed with high coarse grass and reeds, and are the favourite haunts of large quantities of wild fowl. Between the more fertile tracts and the foot of the mountains wide sandy steppes occur along the southern bases of the Thian Shan chain and on the eastern base of the Pamir.

From its central position Eastern Turkistan enjoys a peculiarly dry climate. The rain-fall at any distance from the mountains must be excessively small, while towards the interior of the plateau, on the confines of the Desert of Gobi, the moisture must be reduced to a minimum. The inhabitants being deprived of periodical rains to fertilise the cultivated tracts, are thus dependent for their well-being and means of subsistence upon the waters of the rivers, brought down from the mountains during the spring and summer months. By numerous branches, canals, and dykes led off from the main rivers, the cultivated ground is irrigated, and as the soil must be naturally productive, for the rudest implements of agriculture are everywhere employed, abundant harvests are generally yielded. It is only in exceptional years when the fall of snow upon the mountains has been but little, and the volume of water brought down by the rivers during the ensuing summer consequently less than usual, that anything like a scanty harvest occurs. Thus the welfare of the country depending upon the fertilising powers of its rivers, the towns and villages of Eastern Turkistan will be found situated at greater or less distances along the courses of these streams. The population of the country is therefore accumulated on certain tracts running parallel with the

course of the rivers, whilst between them large barren tracts of uninhabited country are met with. They consist for the most part of bare, open plains, whose level expanse is broken by dunes and low hills of drifted sand, or here and there marshy ground surrounded by sandy steppes. A journey between two distant towns can only be accomplished by crossing some of these uninhabited deserts, where supplies for the road have to be carried. The usual halting-place, or langar, is invariably met with at the end of the day's journey. All the roads in the plain country are practicable for wheeled carriages, and are regularly traversed by two-wheeled carts and conveyances. Of these main roads may be mentioned that from Yarkand to Khotan, Yarkand to Aksu, and Yarkand through Yanghissar to Kashgar. The true beasts of burden in the plain country are the ass and dromedary, while the mountains are traversed by the sure-footed yaks of the Kirghiz.

Besides the Moghul population of the country the inhabitants of the towns and cities consist of Chinese who have become Mahomedans, Tungâni descendants of Chinese mothers, with a sprinkling of Kalmuks, while amongst the mercantile classes a large infusion of Tadjiks from Andijan has taken place. Emigrants from Badakhshan, Afghanistan, and the more adjacent countries have taken up a permanent residence in many of the large towns. The ruling powers and military are chiefly Uzbegs and Kipchaks who have invaded from the north.

The mountain districts are frequented by nomadic Kirghiz who possess no fixed habitation, or cultivate an acre of ground. They possess large flocks of sheep and goats, and herds of yaks and camels, with which they frequent the pasture grounds of the higher mountains during the summer months, and in the winter descend to the rivers of the lower valleys. These Kirghiz periodically visit the nearest towns for the purpose of disposing of some of their live stock, and in exchange purchase grain, flour, and other necessaries sufficient for their wants during the ensuing season.

The chief towns of the country present no diversity in their uniformity of feature and situation. Enclosed by a fortified earth wall the houses appear in regular narrow streets or enclosures, surrounded by small gardens, in which fruit and other trees thrive. No stone is anywhere used for building purposes, as it is not obtainable in the plain country. The houses built of mud and unburnt bricks, are of one storey in height, with flat roofs and small apartments. The shops consist of open booths displayed on either side the narrow streets. On account of the total absence of stone buildings and erec-

tions, inscriptions and antiquities which might throw a light upon the early history of the country are in no place to be met with.

The government of the country presents the usual forms of Oriental despotism. Rigid Mahomedans, the inhabitants all conform to the ordinances exhorted by the Koran, and hold their priests, or moulvies, in much veneration. The hand of charity is ever ready to be extended to the many mendicants who, in the dress of dervishes and fakkeers, incessantly roam the land, while the numerous mosques are daily and hourly crowded with devout Moslems. The Sheik-ul-Islam is the chief head of the religious community, while the Kazi Kalan dispenses perhaps a somewhat partial administration of justice in law and civil cases. They are the only persons who have the will or power to differ from the king, and to them, out of good policy, the sovereign generally defers, since in all disputes, especially on points of religion, the popular feeling would be with the Kazi. The king himself is very particular in observing all ceremonies connected with the Mahomedan religion.

Each outstanding town and district is under the authority of a Hakeem Beg, or chief official, who is bound to pay a certain fixed revenue yearly to the king. The several villages in a district are under a head man, or Diwan Beg, who is responsible to the Hakeem Beg of the district for the yearly revenue of his village. These appointments are given by the king to his favourites, or to such as are able to pay a bribe for the somewhat doubtful honour of holding them, since they are often displaced on the slightest ground of complaint or even at the mere caprice of the sovereign, to be given to a later favourite.

The revenue is collected in kind, while a fixed land-tax is levied. Each family can be called upon to furnish one individual as a soldier to the State in time of war, or in case of emergency. This institution, like the law of the Medes and Persians, is one against which there is no appeal.

The products of the country are various and abundant. Wheat of two descriptions is produced. One crop called "Khuzgha bagdai," sown in September, the other, "yuzgha bagdai," which is sown in April. Rice, barley, Indian corn, four kinds of oil-crop called "zaghoon," "zâghee," "zeranghza," and "muskar," are yielded in abundance. Clover, root-crops, as turnips, carrots, onions, are grown extensively. Cotton of a fair description is produced in large quantities, and manufactured into material for native wear, or exported to Khokand and Russia.

The fruit crops consist of the pear, apple, apricot, almond,

pomegranate, walnut, peach, and melon, while the vine is cultivated—the yield from which is excellent. The mulberry is everywhere seen, and prevails in the province of Khotan. The principal exports from Yarkand to India, Kashmir and Tibet, are felt cloths, silk, churrus or bang, pushmeena wool, gold, silver, and cotton. Yarkand imports from India opium, spices, sugar, tea, linen cloths, Kinkhab, English broad cloths, muslins, Kashmir shawls, arms, leather, brass utensils, and indigo.

Khotan produces excellent carpets and felt cloths, silk in large quantities, gold, &c.

Through Kashgar the imports from Khokand are silk, Russian prints and calicoes, iron, silk caps, cochineal, indigo, porcelain, Russian knives and padlocks, Russian broad cloths, tobacco, snuff, &c. From Afghanistan and the valley of the Oxus come horses and the Bactrian camel.

The country is rich in minerals.

Gold is found in the northern slopes of the Kuen Luen, and extensive gold washings occur on the banks of the rivers east of Khotan. The country adjacent to Khotan Daria and the Karakash furnishes a moderate supply. Copper and iron ore are found in the Karakoram and Kizil Yart Ranges—while rubies, turquoises, lapis-lazuli, and other precious stones, are met with in the mountain ranges or are imported from Badakhshan.

The animals are the horse, two-humped camel or dromedary, ox, ass, sheep, and goat, from which the valuable shawl wool is extracted. Fur-yielding animals are found in the Pamir Steppe, as the fox, lynx, sable, and hare.

Wild animal life is not very profuse, on account of the scant pasture and herbage in the more uninhabited tracts. The ibex is found in the Kuen Luen chain, and probably also in the Kizil Yart, the stag abounds in the forests towards Aksu, and antelopes roam the plains, while wild camels are met with in the desert tracts of the Taklá Makán, and “Dusht-i-Tatar.” The beasts of prey are two species of wolf, and the tiger is met with in the forests towards Aksu.

## APPENDIX I.

## Main Road from YARKAND to KASHGAR.

This road is regularly traversed by two-wheeled carts and conveyances.

| Number<br>of<br>Marches. | Stages or Halting<br>Places. | Estimated<br>Distance<br>in Miles. | REMARKS.   |
|--------------------------|------------------------------|------------------------------------|--|
| 1                        | Yarkand to<br>Kokrubat ..    | 22½                                | Road conducts along the north wall of the Fort, and at 4½ miles from the city crosses the Urpi Canal by a wooden bridge. Passing the village of Kara-Koom and Bigil, it skirts some marshy ground to Kokrubat, a village of 200 houses with a caravanserai.  |
| 2                        | Kizil .. ..                  | 27½                                | Road skirts the "Hamed-i-Dush," a large barren tract of country, extending up to the Kiziltagh Range on the west. At 14 miles from Kokrubat is a halting-place, called Ak-Langar, where is a musjid and two wells of water. Kizil is a village of 500 houses, with a large tank and caravanserai.  |
| 3                        | Yanghissar ..                | 32                                 | The road passes the villages of Chamalung, Khoduk, Koshimbash, and Toblok, to Kelpun, an old Chinese "urtang," or police-station, now in ruins. At 2½ miles, before reaching Yanghissar, it crosses the Sargak River by bridge. Yanghissar is a commercial town of some 11,000 houses, situated 82 miles N.W. of Yarkand, and 43½ south of Kashgar. The Fort lies at a distance of 600 yards to the north of the town. |
| 4                        | Yupchan ..                   | 22½                                | Road passes villages of Koomlok and Toglok, and crosses the Hosun River by bridge. Then continues up left bank of river to Yupchan, a village of some 700 houses.  |
| 5                        | Kashgar (Old<br>City.)       | 21                                 | At 2½ miles from Yupchan cross Khanarik River by bridge; and passing the village of Tasgam, cross a canal from the Khanarik River, and a branch of the Kashgar River, to the Fort of Kashgar, which lies some 3 miles south of the city. Cross "Kizil Daria," or the Kashgar River, midway between the Fort and City. Kashgar contains about 28,000 houses; and from 60,000 to 70,000 inhabitants.                     |
| Total ..                 |                              | 125½                               |  |

## YARKAND to KHOTAN.

This road is traversed by two-wheeled carts and conveyances.

| Number<br>of<br>Marches. | Names of Halting<br>Places. | Estimated<br>Distance<br>in Miles. | REMARKS. |
|--------------------------|-----------------------------|------------------------------------|----------|
|                          | Yarkand to                  |                                    |          |
|                          | Karghalik ..                | 36                                 |          |
|                          | Guma .. ..                  | 52                                 |          |
|                          | Khotan .. ..                | 88                                 |          |
|                          | Total ..                    | 176                                |          |

## No. 1.

## LEH to YARKAND.

LEH to YARKAND *via* Chang Chenmo and Valley of the Lower Karakash River.

| Number<br>of<br>Marches. | Names of Halting<br>Places. | Estimated<br>Distance<br>in Miles. | REMARKS.   |
|--------------------------|-----------------------------|------------------------------------|--|
| 1                        | Leh to<br>Chimray .. ..     | 21                                 | Road good up right bank of the River Indus to opposite Marsalong, where turn up valley to the left for 4 miles, to the village of Chimray.<br>At 7 miles from Leh is a large village called Tiksü, which is also a halting-place.          |
| 2                        | Sakti .. ..                 | 6                                  | Up a ravine to the village of Sakti, where yaks can be obtained for crossing the Chang La Pass.  |
| 3                        | Seeprah .. ..               | 11½                                | Cross Chang La Pass, 18,368 feet above the sea. From Sakti to the summit of the pass is 7 miles. Ascent steep for the last 2 miles. Descent of 4½ miles to Seeprah, which is a Bhoot encampment in the valley. Pass a lake called Tso Lak. |
| 4                        | Tanksee .. ..               | 10½                                | A large village and thannah. The last place in the Maharajah of Kashmir's territory where supplies can be obtained.  |
| 5                        | Lukong .. ..                | 19                                 | At 9 miles from Tanksee Pass a small village named Moglib. Lukong is a small village situated north of the Pangong Lake.   |
| 6                        | Chagra .. ..                | 6½                                 | A Bhoot habitation of a few stone huts. No habitation is met with after this.  |

## LEH TO YARKAND—continued.

| Number<br>of<br>Marches. | Names of Halting<br>Places.          | Estimated<br>Distance<br>in Miles. | REMARKS.  |
|--------------------------|--------------------------------------|------------------------------------|---|
| 7                        | Rimdee .. ..                         | 10                                 | Cross Masimik Pass, 18,457 feet above the sea. Ascent to the pass gradual and easy. Steeper descent of 3 miles. The pass is generally covered with snow, and is closed from December to March.  |
| 8                        | Pumsul .. ..                         | 15                                 | Road down valley to Pumsul, where the main Chang Chenmo Valley is struck. Fuel in abundance.  |
| 9                        | Gogra .. ..                          | 11½                                | Road for 4 miles up left bank of Chang Chenmo River, then ford river and cross a low spur on the right side of the valley to Gogra in Kugrang Valley.   |
| 10                       | Hot Springs ..                       | 5                                  | Road up Chang Lang Valley, crossing the stream several times. Hot springs on rocks in the bed of the stream, at an elevation of 16,000 feet above sea-level.  |
| 11                       | Camp South of<br>Chang Lang<br>Pass. |                                    | Road up Chang Lang Valley. At 4 miles from Hot Springs, the road leaves the main valley, and leads to the east up a branch valley to the Pass. For the journey onward water and fuel should be carried from Chang Lang, as generally no water, and but very little fuel, is to be met with between here and the lower Karakash River.<br>It might be preferable not to halt at No. 10, Hot Springs, but march from No. 9, Gogra, to near the Pass. There is a good halting-place in the valley, 5 miles beyond Hot Springs, where is fuel and a little grass. By camping here the Pass can be crossed the next day. |
| 12                       | Kala Pahar ..                        | 14½                                | Cross Chang Lang (or Chang Chenmo) Pass, 18,839 feet above the sea. Road to the pass up a ravine filled with loose stones and debris. The last part of the ascent is steep for half a mile. From the pass road good, down the open valley of the table-land. At ten miles from pass is a camping-place called Nischu, beyond which is Kala Pahar. No fuel or grass obtainable.  |
| 13                       | Camp, Lingzi<br>Thung Plains.        | 15                                 | Descent gradual to the Lingzi Thung Plains, which are nearly 17,000 feet above sea-level, across which the road is level and good. Camp in sandy bed of wide nullah. The Lingzi Thung is destitute of water from October to March, but water is to be met with during the   |

LEH to YARKAND—*continued.*

| Number<br>of<br>Marches. | Names of Halting<br>Places.      | Estimated<br>Distance<br>in Miles. | REMARKS.   |
|--------------------------|----------------------------------|------------------------------------|--|
|                          | Camp, Lingzi, &c.<br>(contd.) .. |                                    | spring and summer months. A little "boorsee," which is available for fuel is found here and there on the plains. Direction of route across the plains is N.N.E. There is a remarkable Round Peak in the Lak Tsung Range, which is a good fixed point to march upon in crossing these plains, the road going down a broad sandy valley to the right of this peak. |
| 14                       | Lak-Tsung ..                     | 13                                 | Camp in valley of Lak Tsung Range, where is a little grass.  |
| 15                       | Thaldat or<br>Paldar.            | 19                                 | A frozen lake and a salt spring at an elevation of 15,886 feet above the sea. Road good. Some grass is obtainable in a ravine lying due west about a mile off.   |
| 16                       | Pats-alung ..                    | 18                                 | Road good across open plain. At 13 miles cross low pass to Patsalung.  |
| 17                       | Camp Soda Plain                  | 14                                 | Road down open valley, passing some salt lakes.  |
| 18                       | Brungsa .. ..                    | 13                                 | At Brungsa camp in valley of a branch of the Karakash River. A little grass and fuel.  |
| 19                       | Mandalik ..                      | 12½                                | Road down valley for 8 miles, where strike main valley of the Karakash River, continuing down right side of valley to Mandalik. Grass and fuel everywhere obtainable on the march from here downwards.   |
| 20                       | Lunguâk .. ..                    | 9½                                 | Road good down right bank of Karakash River. At half-way cross and recross river. Camp under some granite rocks close by the stream.   |
| 21                       | Ak-koom .. ..                    | 10                                 | At 5 miles cross river to left bank. Camp in open valley. Fuel in abundance.   |
| 22                       | Mulbash .. ..                    | 16½                                | Road good down right side of valley.   |
| 23                       | Gulbas hem ..                    | 14                                 | A Kirghiz encampment, where the Kirghiz bring flocks of sheep and goats, and herds of yaks to graze.   |
| 24                       | Balakchee ..                     | 10½                                | Another Kirghiz encampment. Some supplies can generally be obtained from the Kirghiz.  |

## LEH to YARKAND—continued.

| Number<br>of<br>Marches. | Names of Halting<br>Places.       | Estimated<br>Distance<br>in Miles. | REMARKS.   |
|--------------------------|-----------------------------------|------------------------------------|--|
| 25                       | Shadula .. ..                     | 8                                  | A Fort in the Turkistan territory, garrisoned by a guard of Turki sepoys. Permission must here be obtained to enter Turkistan. The guard does not interfere with the passage of the native traders.  |
| 26                       | Pilartâkash ..                    | 14½                                | At 4 miles below Balakchee, the Tabistânee route from the Karakoram Pass down the Sooget valley joins.   |
| 27                       | Diwanjilga South<br>of Sanju Pass | 10½                                | Road down Karakash Valley passing Ulbuk and Tograssu.<br>At Tograssu, 10 miles below Shadula, a valley to the N.W. conducts to the Kullik Pass.<br>At Ali Nuzur Kurgan, 2 miles below this, a ravine to the N.W. conducts to the Kilian Pass.  |
| 28                       | Kichikyulak ..                    | 9                                  | At Mazar Badshak, 4½ miles below Pilartâkash, the road leaves the Valley of the Karakash River, and ascends up a narrow ravine to the Sanju Pass. A Kirghiz encampment is generally at Mazar Badshak, where yaks can be hired from the Kirghiz for crossing the pass. Fuel should be carried from near Mazar Badshak, as none is obtainable near the pass. |
| 29                       | Tâm .. ..                         | 12½                                | Cross the Sanju Pass, 16,612 feet above the sea. Very steep ascent and descent. The pass is impracticable for laden horses, whose loads have to be carried on yaks. Horses and camels unladen can cross the pass. The pass is closed by snow during the winter, from December to May.  |
| 30                       | Kibris .. ..                      | 19                                 | Kichikyulak is a camping-place of the Kirghiz, on the north side of the pass.  |
| 31                       | Sanju .. ..                       | 10                                 | Road down Sanju Valley, crossing and re-crossing the stream.   |
|                          |                                   |                                    | Road difficult, the Sanju stream having to be crossed and recrossed some twenty times. Kibris, a village of a few houses, is the first habitation met with on entering Turkistan.  |
|                          |                                   |                                    | Road down open valley to Sanju, a large place of some 3000 houses, comprised in several villages situated on each side of the river. The market-day is "Du Shamba," or Monday.   |

LEH TO YARKAND—*continued.*

| Number<br>of<br>Marches. | Names of Halting<br>Places. | Estimated<br>Distance<br>in Miles. | REMARKS.  |
|--------------------------|-----------------------------|------------------------------------|---|
|                          | Sanju ( <i>contd.</i> ) ..  |                                    | Ilchi, the capital of Khotan, lies 66 miles east from Sanju.<br>There is another route from Sanju to the pass, which is used when the Sanju River is impassable between Täm and Kibris. This road conducts from Sanju, <i>via</i> the Arpalak Valley and Chuchu Pass (11,847 feet above the sea), to its junction with the Sanju Valley near Täm, and is as follows:—<br>Sanju to Kizil Aghil 11½ miles.<br>Mazar .. 12     "<br>(Cross Chuchu Pass) } 15     "<br>to Täm .. .. "   |
|                          |                             |                                    | Total .. <u>38½</u> miles.  |
| 32                       | Koshtok .. ..               | 25                                 | Road crosses the Sanju River, and ascends a low range of sand-hills, across which it descends to the small village of Langar, 15½ miles from Sanju. From here it crosses the open to Koshtok, a village of 70 houses, watered by a stream from the Kilian Mountains.  |
| 33                       | Oitogrok .. ..              | 18½                                | A small village in a valley. Road level and good.   |
| 34                       | Borah .. ..                 | 11½                                | Ascend low range of sand-hills, and cross a sandy steppe to Borak, a village of 90 houses.<br>The Kilian route joins at Borak, and from here they are the same to Yarkand throughout.   |
| 35                       | Karghalik ..                | 24½                                | At 6 miles from Borak the road leaves the low hills, and descends to the plain country, crossing a barren tract of country, to the village of Beshiruk, beyond which, at the distance of 4½ miles, is Karghalik. It is a large town and district of some 20,000 houses, with a large market and several caravanserais, and is watered by a canal from the Tis-nâf River.<br>The following roads join at Karghalik:—<br>The Kugiar route, from the Karakoram, <i>via</i> the valley of the Yarkand River, and the Yangi Pass.<br>The Kullik Pass route.<br>The Khotan Road through Guma. At the junction of the Khotan Road there is a new earth fort. |

## LEH to YARKAND—continued.

| Number of Marches. | Names of Halting Places. | Estimated Distance in Miles. | REMARKS.  |
|--------------------|--------------------------|------------------------------|---|
| 36                 | Posgam .. ..             | 21                           | At 11 miles from Karghalik the Tisnâf River is crossed. Six miles beyond this is "Yak Shamba Baza," a large market, crowded by the country people on Sundays.<br>Posgam is a town and district of some 16,000 houses, with a market and caravanserai, and is watered by the Beshkun Canal, cut from the Yarkand River.                    |
| 37                 | Yarkand .. ..            | 15                           | The capital of Eastern Turkistan, containing some 40,000 houses, and about 120,000 inhabitants.   |
|                    | Leh to Yarkand.          |                              | At 4 miles from Posgam the Yarkand River is crossed. It is here fordable during the winter months. In the summer it is crossed in boats at Aigâchee, many miles lower down, which is then the direct road from Karghalik and Posgam. Four miles beyond this the Yulchak Canal, carrying water to the city, is crossed by a wooden bridge. |
|                    | Total ..                 | 507½                         | Leh to Shadula .. .. 316½ miles.<br>Shadula to Sanju .. 75½ , ,<br>Sanju to Yarkand .. 115½ , ,<br>Total .. .. 507½ miles.  |

## No. 2.

## LEH to YARKAND.

NEW ROUTE *viâ* Chang Chenmo and the Valley of the Upper Karakash River to Aktâgh.

| Number of Marches. | Names of Halting Places.        | Estimated Distance in Miles. | REMARKS.  |
|--------------------|---------------------------------|------------------------------|---|
|                    | Leh to No. 12 Camp, Kala Pahar. | 143½                         | Vide Route No. 1.   |
| 13                 | Camp, Lingzi Thung Plains       | 11                           | Descend low hills to Lingzi Thung. Road across plain due north.   |
| 14                 | Boorsee .. ..                   | 10½                          | Continue due north. At 8 miles cross a low ridge, leaving the Lingzi Thung Plains. At Boorsee that wood for fuel. No grass. |

LEH to YARKAND—*continued.*

| Number<br>of<br>Marches. | Names of Halting<br>Places. | Estimated<br>Distance<br>in Miles. | REMARKS.   |
|--------------------------|-----------------------------|------------------------------------|--|
| 15                       | Karasu .. ..                | 10                                 | Road across open plain and up wide valley to Karasu, where is a little water. No grass; no fuel.   |
| 16                       | Kizil Jilga ..              | 14½                                | At 2 miles cross Kizil Diwan, 17,789 feet above the sea. Very easy ascent and descent of a few hundred feet. Road down open valley to Kizil Jilga, where the main valley of the Karakash River is struck. Plenty of "boorsee" for horses and for fuel. A little grass close by. Plenty of good grass on the hill side a mile away.   |
| 17                       | Khush Maidan                | 16                                 | Road excellent down left side of valley. Khush Maidan is a camping in the valley. Plenty of good wood for fuel and grass here. It would be advisable to carry some wood from here for the journey onwards.   |
| 18                       | Shorjilga .. ..             | 10                                 | At 5 miles below Khush Maidan is Choongtâsh, a perpendicular cliff overlooking the river on its right bank. At one mile below this the road leaves the main valley of the Karakash River, and ascends, in a N.W. direction, up a wide valley leading to the Karatâgh Pass. A little grass is met with at Shorjilga.  |
| 19                       | Oglok .. ..                 | 21                                 | From Shorjilga to the pass is 13 miles. About half-way is a camping-place, where is some "boorsee" for fuel; so it might be preferable to march from Khush Maidan to this place, and not halt at Shorjilga.<br>Ascent to the Karatâgh Pass (which is 17,953 feet above the sea) very gradual and easy. The pass is across a depression in the Karatâgh Range, which here forms the watershed between the Yarkand and Karakash river-basins.<br>Road across the pass down open valley to Oglok, where is water, grass, and a little fuel. |
| 20                       | Wahâbjilga ..               | 10                                 | Road down open valley to Wahâbjilga, on the Karakoram Pass route.  |
| 21                       | Aktâgh .. ..                | 15½                                | Regular Karakoram Road down open valley to Aktâgh.<br>Camp under rocks at foot of Aktâgh, or "White Mountain."<br>A little grass; no fuel; water plenty.   |
|                          | Leh to<br>Aktâgh .. ..      | 262                                |  |

## No. 3.

## LEH TO YARKAND—continued.

From Aktâgh to Yarkand by the Valley of the Yarkand River and the Yangi Pass.

| Number<br>of<br>Marches. | Names of Halting<br>Places. | Estimated<br>Distance<br>in Miles. | REMARKS.   |
|--------------------------|-----------------------------|------------------------------------|--|
| 1                        | Aktâgh to<br>Kufelong... .. | 21                                 | This is the regular Zamistânee route to Yarkand.<br><br>Road level and good down open valley along the Karakoram Pass stream, which is passed twice in the defile near Kufelong. At Kufelong the main valley of the Yarkand River, coming down from the S.W., is struck. Camp below junction on right bank. Grass and fuel everywhere obtainable from here on the line of march downwards. In journeying towards Ladak, fuel should be carried from Kufelong.                                      |
| 2                        | Bukhurooldee..              | 17                                 | Two routes, not now in use, one from the head of the Nubra Valley, in Ladak, and the other from Chorbut, in Baltistan, conduct down the main valley of the Yarkand River, and join at Kufelong.  |
| 3                        | Kirghiz Jangal              | 18                                 | Road down valley of the Yarkand River, which is crossed once or twice. There are two intermediate camping-places.  |
| 4                        | Koolunooldee ..             | 14                                 | A pasture-ground in the open valley. Several springs of good water.<br><br>Three miles before reaching Kirghiz Jangal are passed some ruined stone huts, on the right bank of the river, from where a road goes off east, leading up a ravine and across the Kirghiz Pass (17,092 feet above the sea) to Shadula, 33 miles distant.  |
| 5                        | Camp S. of<br>Yangi Pass.   | 9½                                 | Cross to left bank of river immediately below Kirghiz Jangal. Again cross to right bank, 1½ mile further down. Road continues down open valley to Koolunooldee.<br><br>At Koolunooldee the road leaves the valley of the Yarkand River, and ascends up a narrow ravine to the Yangi Pass. Road somewhat difficult up bed of the ravine. The Kunjoot robbers of Hunza and Nagar, lying in wait on the hill side, overlooking this defile, sometimes attack and plunder the caravans of the traders. |

## LEH TO YARKAND—continued.

| Number<br>of<br>Marches. | Names of Halting<br>Places. | Estimated<br>Distance<br>in Miles. | REMARKS.   |
|--------------------------|-----------------------------|------------------------------------|--|
| 6                        | Toor-Aghil ..               | 12½                                | Cross Yangi Pass. Ascent somewhat steep for the last half mile. The pass is practicable for laden horses and camels. Descent gradual to valley of the Tisnâf River, which rises N.E. of the pass.  |
| 7                        | Mazar Badshah               | 18                                 | A Kirghiz encampment. Cross and recross Tisnâf River several times. Grass and fuel obtainable all down the valley.   |
| 8                        | Chiklik .. ..               | 20                                 | Cross and recross river several times. Near Chiklik two streams join from the eastward, called Oglök and Sanooch. The valley of the Tisnâf River is frequented by a tribe of Kirghiz called Phakphook. They generally supply travellers with provisions if required. |
| 9                        | Ak Masjid ..                | 15                                 | Near Chiklik the road leaves the valley of the Tisnâf River, and crosses a low pass named Toopa Diwan. Ak-Masjid, a Kirghiz encampment in the open valley.   |
| 10                       | Kugiar .. ..                | 18                                 | Road through plain country to Kugiar, a village containing 200 houses. No one is allowed to proceed onwards without permission of the Turkistan ruler.   |
| 11                       | Beshtiruk Lan-<br>gar.      | 19                                 | Road across a barren tract of country, called the "Beshtiruk Dusht". At Langar the Kullik Pass route joins from Oshokwas, a large village of 1200 houses, lying S.E.   |
| 12                       | Karghalik ..                | 17                                 | Road across "Beshtiruk Dusht" to near Karghalik.   |
| 14                       | Yarkand .. ..               | 36                                 | Vide Route No. 1.  |

|                                  | Miles. |
|----------------------------------|--------|
| Aktâgh to Yarkand .. .. .. .. .. | 235    |
| Leh to Aktâgh .. .. .. .. ..     | 262    |

|                         |     |
|-------------------------|-----|
| Leh to Yarkand .. .. .. | 497 |
|-------------------------|-----|

## No. 4.

## AKTÂGH to SHADULA, by the Sooget Pass.

| Number<br>of<br>Marches. | Names of Halting<br>Places. | Estimated<br>Distance<br>in Miles. | REMARKS.  |
|--------------------------|-----------------------------|------------------------------------|---|
| 1                        | Aktâgh to<br>Chibra .. ..   | 12½                                | Road good up right bank of stream coming down from the Sooget Pass. A ruined stone hut in the ravine at Chibra. No grass or fuel.   |
| 2                        | Sooget .. ..                | 19½                                | At 4 miles cross the Sooget Pass, 18,237 feet above the sea. Ascent very gradual and easy up the ravine. Steeper descent of one mile to the Sooget Valley, which runs N.W. for 9 miles.<br>The road passes a camping-place called Kotasjilga, then winds round down the valley, and is on the descent to Sooget, where are grass and fuel in abundance. |
| 3                        | Shadula .. ..               | 7½                                 | Road on the descent down the Sooget Valley to where it joins the valley of the Karakash River, 4 miles above Shadula. Cross and recross river to fort.  |
|                          | Total ..                    | 39½                                |   |

YARKAND to BADAKHSHAN, *viâ* TASHKURGAN and the PAMIR STEPPE.

Tashkurgan, the capital of Sarikol, is reached in from 8 to 9 days' journey from Yarkand.

The probable distance is about 175 miles.

The journey onwards from Tashkurgan to Badakhshan is accomplished in from 16 to 18 days. The whole distance from Yarkand to Badakhshan is probably about 460 miles.

This road traverses a plain country for nearly 70 miles from Yarkand. It then crosses a low range into the Sarikol district, and, ascending the valley of the Charling River, crosses the Chichiklik Pass, leading across a spur of the main Pamir range into the Tashkurgan valley. From Tashkurgan it leads across the pass at the head of the Sarikol territory into Pamir Khurd, and conducts down the valley of the Oxus into Wakhân.

The road is practicable for laden horses throughout, and for laden camels up to the foot of the Chichiklik Pass, from the Turkistan side; and from Badakhshan as far as Pamir Khurd, from the westward.

The caravans of the merchants seldom accomplish the whole journey under one month.

There is also a second route from Yarkand to Tashkurgan, but it lies through a very mountainous country. On this route three high ranges—the Kandar, Arpatallah, and Oogrbiot—have to be crossed, and it is consequently but little frequented.

## APPENDIX II.

METEOROLOGICAL OBSERVATIONS FROM OCTOBER, 1868, TO JUNE, 1869.  
MONTH OF OCTOBER, 1868, IN LADAKH AND TURKISTAN.

| Date. | Thermometer. |          |         | Wind.      | Weather. | B. P.<br>of<br>Water. | Air.    | Elevation<br>in feet above<br>Sea-level. | PLACE, &c.   |
|-------|--------------|----------|---------|------------|----------|-----------------------|---------|--|--|
|       | 7 A.M.       | 12 Noon. | 7 P.M.  |            |          |                       |         |  |  |
| 1     | °<br>35      | °<br>53  | °<br>40 | W.S.W.     | Fine     | 188°·0                | °<br>47 | 13,274                                   | Sakti, in Ladak, foot of Chang La Pass,<br>(Seprah, 4 miles below pass. Crossed Chang La<br>Pass, 18,368 feet above the sea. Thermometer<br>on pass at noon = 27°. |
| 2     | 30           | 27       | 30      | W.S.W.     | Fine     | 183°·4                | 34½     | 15,790                                   | Tanksee.   |
| 3     | 18           | 53½      | 45      | W.S.W.     | Fine     | 188°·8                | 45      | 13,128                                   | Ditto.   |
| 4     | 34           | 54       | 45      | S.W. by W. | Fine     | °                     | °       | °  | Ditto.   |
| 5     | 37           | 49       | 49      | S.E. by S. | Snow     | °                     | °       | °  | Chigra, foot of Masimik Pass.  |
| 6     | 29           | 44       | 29      | S.W. by S. | Cloudy   | 185°·8                | 35      | 14,394                                   | Rimdee, 2 miles below pass. Crossed Masimik<br>Pass 18,457 feet above the sea. Thermometer<br>on pass 41°. B.P. of water on pass = 179°·4°.                        |
| 7     | 12           | ..       | 7       | S.W.       | Fine     | 180°·8                | 7       | 17,208                                   | Punsul   |
| 8     | 31½          | ..       | 27      | S.W.       | Fine     | 185°·5                | 27      | 14,780                                   | Kiam   |
| 9     | 14           | ..       | 11½     | W.S.W.     | Fine     | 184°·0                | 24      | 15,598                                   | Ditto  |
| 10    | 7            | 33       | 19      | W. by S.   | Fine     | °                     | °       | °  | Ditto  |
| 11    | 4            | ..       | 14      | W. by S.   | Fine     | °                     | °       | °  | Ditto  |
| 12    | 7            | 34       | 18      | W.S.W.     | Fine     | °                     | °       | °  | Ditto  |
| 13    | 5            | ..       | 14      | W. by N.   | Fine     | °                     | °       | °  | Ditto  |

|    |      |    |     |            |            |         |         |         |  |
|----|------|----|-----|------------|------------|---------|---------|---------|--|
| 14 | Zero | 30 | ..  | W.S.W.     | Fine       | 183° 6' | ..      | 15° 770 | Kung Kong, 10 miles from Kiam.   |
| 15 | ..   | 7  | ..  | W.S.W.     | Fine       | 183° 6' | ..      | 15° 770 | Gogra, in Kugrang Valley.  |
| 16 | ..   | .. | ..  | W.S.W.     | Fine       | 182° 0' | 11°     | 16° 619 | Ditto, ditto.  |
| 17 | ..   | .. | ..  | W.S.W.     | Cloudy     | 182° 0' | 11°     | 16° 619 | 2nd camp, Kugrang Valley, in lat. 34° 27' 42" N.   |
| 18 | Zero | .. | ..  | S.W. by W. | Snow       | ..      | ..      | ..      | Ditto ditto.   |
| 19 | - 4  | .. | ..  | W.S.W.     | Fine       | ..      | ..      | ..      | Ditto ditto.   |
| 20 | - 2  | 30 | 7   | W.S.W.     | Fine       | ..      | ..      | ..      | Ditto ditto.   |
| 21 | 0    | 31 | 4   | W.W.       | Fine       | ..      | ..      | ..      | Ditto ditto.   |
| 22 | - 3  | 24 | 15  | S.W. by W. | Cloudy     | ..      | ..      | ..      | Ditto ditto.   |
|    | ..   | 29 | 12½ | W.S.W.     | Snow       | 182° 4' | 19°     | 16° 408 | Camp junction of branch, Kugrang Valley.   |
| 23 | Zero | .. | 28  | 11         | S.W. by W. | Fine    | ..      | ..      | Ditto ditto.   |
| 24 | - 2  | 6  | 30  | 9½         | S.W. by W. | Fine    | 183° 6' | 27°     | Camp near Gogra, lat. 34° 22' 38" N.   |
| 25 | - 5½ | 28 | 10  | W.S.W.     | Fine       | 183° 0' | 28°     | 16° 028 | Hot springs, Chang Lang, lat. 34° 24' N.   |
| 26 | - 2  | 34 | 9½  | S.W. by W. | Fine       | ..      | ..      | ..      | { Camp near Chang Lang Pass. Crossed Chang Lang Pass, 18,839 feet above the sea. B. P. of water on pass 17° 8° 3'. |
| 27 | - 9  | 25 | ..  | W.W.       | Fine       | 181° 6' | ..      | ..      | Camp 7 miles beyond pass.  |
| 28 | - 15 | 21 | 1   | W.S.W.     | Fine       | 181° 6' | 1       | 16° 810 | 1st camp, Lingzi Thung Plains.   |
| 29 | - 11 | .. | ..  | Zero       | ..         | ..      | ..      | ..      | Lingzi Thung Plains.   |
| 30 | - 9  | .. | ..  | - 4        | W.S.W.     | 181° 5' | ..      | 16,892  | 2nd camp.  |
| 31 | - 2  | .. | ..  | 5          | W.S.W.     | 182° 4' | 13°     | 16,342  | Lak Tsing.   |
|    |      |    |     | 10         | S.W. by W. | 183° 4' | 22°     | 15,896  | Camp Thaldat, lat. 35° 14' 41" N.  |

Note.—Being on the march almost daily the morning observation of the thermometer as recorded will be that of the place where camped the evening of the day before. Thus : the morning observation of the 29th instant, 11° below zero, was taken before starting from 1st Camp, Lingzi Thung Plains; and the morning observation taken at 2nd Camp, Lingzi Thung Plains, the camp of the night is recorded the next day, the 30th instant, being 9° below zero.

Mid-day observations on the march were taken by suspending thermometers in shade, whilst observing for latitude.

## MONTH of NOVEMBER, 1868, in EASTERN TURKISTAN.

| Date. | Thermometer:      |          |                  | Wind.      | Weather. | B. P.<br>of<br>Water. | Height<br>in Feet above<br>Sea-level. | Place, &c.   |
|-------|-------------------|----------|------------------|------------|----------|-----------------------|---------------------------------------|--|
|       | 8 A.M.            | 12 Noon. | 8 P.M.           |            |          |                       |                                       |  |
| 1     | Zero.             | ° 1      | ° 23             | ° 7        | S.W.     | Cloudy                | 188°·4<br>$\frac{22}{2}$              | Camp Thaldat, lat. $35^{\circ} 14' 41''$ N.                              |
| 2     | - 5               | 30       | 2 $\frac{1}{2}$  | S.S.W.     | Fine     | 182°·2                | 30                                    | Camp Somah Lam.  |
| 3     | - 5               | ..       | 2                | S.W.       | Fine     | ..                    | ..                                    | Ditto.   |
| 4     | - 6               | 25       | ..               | S.W. by W. | Snow     | ..                    | ..                                    | { Camp near Kizil Pass. Crossed Kizil Pass 17,859<br>feet above the sea. |
| 5     | -11               | ..       | 13               | W.N.W.     | Fine     | 182°·8                | 18                                    | Kiziljiga, lat. $35^{\circ} 16' 33''$ N.                                 |
| 6     | - 3               | ..       | 17               | W.         | Fine     | 184°·0                | ..                                    | Khush Maidan, lat. $35^{\circ} 27' 12''$ N.                              |
| 7     | - 9               | 24       | 15 $\frac{1}{2}$ | S.W.       | Cloudy   | ..                    | ..                                    | Ditto ditto.   |
| 8     | -10 $\frac{1}{2}$ | ..       | 25 $\frac{1}{2}$ | W.S.W.     | Fine     | 184°·2                | 18                                    | Hot springs, lat. $35^{\circ} 35' 7''$ N.                                |
| 9     | - 5               | 31       | 16               | W.S.W.     | Fine     | 184°·4                | 19                                    | Zinchin.   |
| 10    | 2                 | ..       | 18               | W.S.W.     | Fine     | 185°·2                | 27                                    | Sang Kalan, lat. $35^{\circ} 48' 25''$ N.                                |
| 11    | 5                 | ..       | 20               | S.W. by W. | Fine     | 186°·2                | 20                                    | Mulgoon.   |
| 12    | 3 $\frac{1}{2}$   | 34       | 15               | W.S.W.     | Fine     | 186°·6                | ..                                    | Kyung Jangal.  |
| 13    | 2                 | 29       | 18               | S.W.       | Cloudy   | 186°·9                | 23                                    | Mandalik.  |
| 14    | 5                 | ..       | 23               | S.W.       | Snow     | 187°·4                | 23                                    | Lunguak.   |
| 15    | 3                 | 22       | 19               | S.W.       | Fine     | 188°·1                | 21 $\frac{1}{2}$                      | Ak-Koom.   |

Valley of the Karakash River.

| Valley of the Karakash River. |                  |                  |                  |            |        |       |        |                                  |  |  |  |
|-------------------------------|------------------|------------------|------------------|------------|--------|-------|--------|----------------------------------|--|--|--|
|                               |                  |                  |                  |            |        |       |        |                                  |  |  |  |
| 16                            | 6                | 15 $\frac{1}{2}$ | N.W. by W.       | Fine       | 188·9  | 30    | 13,070 | Langar,                          |  |  |  |
| 17                            | 9                | ..               | W.N.W.           | Fine       | 189·1  | 19    | 12,932 | Mulbash,                         |  |  |  |
| 18                            | 9 $\frac{1}{2}$  | ..               | W.N.W.           | Fine       | 189·6  | ..    | 12,649 | Gulbashem, a Kirghiz encampment. |  |  |  |
| 19                            | 11 $\frac{1}{2}$ | 36               | 18 $\frac{1}{2}$ | W.N.W.     | Fine   | ..    | ..     | Balakchee                        | ditto.   |  |  |
| 20                            | 9 $\frac{1}{2}$  | ..               | 15               | N.W. by W. | Fine   | 191·0 | 28     | Shadila, lat. 36° 21' 11" N.     |  |  |  |
| 21                            | 5                | 33 $\frac{1}{2}$ | 16               | W. by N.   | Fine   | ..    | ..     | Ditto                            | ditto.   |  |  |
| 22                            | 4 $\frac{1}{2}$  | 32               | 16 $\frac{1}{2}$ | W.N.W.     | Fine   | ..    | ..     | Ditto                            | ditto.   |  |  |
| 23                            | 3 $\frac{1}{2}$  | 38               | 19 $\frac{1}{2}$ | W. by N.   | Fine   | ..    | ..     | Ditto                            | ditto.   |  |  |
| 24                            | 5                | 34               | 22               | W.         | Cloudy | ..    | ..     | Ditto                            | ditto.   |  |  |
| 25                            | 3 $\frac{1}{2}$  | 30               | 13               | W.         | Cloudy | ..    | ..     | Ditto                            | ditto.   |  |  |
| 26                            | 3                | 26 $\frac{1}{2}$ | 19               | W. by N.   | Fine   | 187·2 | 22     | Kulshishkun.                     |  |  |  |
| 27                            | 9                | ..               | 10               | W.N.W.     | Fine   | 186·6 | 17     | 14,222                           | { 5 miles below Kirghiz Pass. Crossed the Kirghiz<br>Pass 17,092 feet above the sea. |  |  |
| 28                            | Zero             | 35               | 9 $\frac{1}{2}$  | W. by N.   | Fine   | 188·5 | 22     | 13,280                           | { Camp below Kirghiz Tangal, lat.<br>36° 24' 18" N.                                  |  |  |
| 29                            | 9                | ..               | 18               | W. by S.   | Cloudy | 189·4 | 18     | 12,590                           | Valley of the<br>Yarkand River.  |  |  |
| 30                            | Zero             | ..               | 17               | W.S.W.     | Fine   | 188·5 | ..     | 13,280                           | 12 miles below Koolunooldee.<br>Camp of 28th instant.                                |  |  |

Note.—Up to the 15th November the direction of the winds was chiefly from the south-west. From the 16th November north-west winds were prevalent.

The winds were always calculated from carefully noticing the direction of the upper clouds with a pocket compass.

The figures showing heights above sea-level are all calculated from Casella's Tables. They are subject to correction, for which purpose the boiling-points of water have been recorded.

Field-books and original observations are all preserved.

## MONTH of DECEMBER, 1868, in EASTERN TURKESTAN.

| Date, | Thermometer, |          |        | Wind,      | Weather, | B.P.<br>of<br>Water. | Air. | Elevation<br>in Feet above<br>Sea-level. | Place, &c.                                       |
|-------|--------------|----------|--------|------------|----------|----------------------|------|--|--|
|       | 8 A.M.       | 12 Noon. | 8 P.M. |            |          |                      |      |  |  |
| 1     | Zero.        | °        | °      | 11         | W.       | Fine                 | °    | °  | Camp above Kirghiz Jangal.                       |
| 2     | - 1          | ..       | 11½    | 4          | W.N.W.   | Fine                 | ..   | ..                                       | 12 miles up valley.                              |
| 3     | - 4          | 17½      | 7      | N.W. by W. | Fine     | 187.0                | 7    | 13,882                                   | Camp near Bukharoelde.                           |
| 4     | - 5          | ..       | 8      | W.N.W.     | Fine     | 186.8                | 12   | 14,082                                   | Camp 6 miles above Kufelong, lat. 36° 1' 2" N.   |
| 5     | - 10         | 30       | 7      | W.N.W.     | Fine     | 185.8                | ..   | 14,635                                   | 12 miles further up valley, lat. 35° 53' 21" N.  |
| 6     | - 11         | ..       | 10½    | W.N.W.     | Fine     | 185.0                | ..   | 15,144                                   | 13 miles above yesterday's camp.                 |
| 7     | - 3½         | ..       | 11     | W.N.W.     | Snow     | 183.8                | 7    | 15,685                                   | 12 miles from head of Yarkand River.             |
| 8     | - 5          | 20       | 5      | W.         | Snow     | 183.2                | 4½   | 15,973                                   | Source of the Yarkand River, lat. 35° 37' 34" N. |
| 9     | - 18         | ..       | 9½     | W. by S.   | Snow     | 182.2                | ..   | 16,656                                   | Returning, camp of 7th instant.                  |
| 10    | - 7          | ..       | 11     | W.         | Snow     | ..                   | ..   | ..                                       | Camp of 5th instant.                             |
| 11    | 3½           | ..       | 13     | N.W.       | Fine     | ..                   | ..   | ..                                       | 2 miles above camp of 4th instant.               |
| 12    | - 2          | ..       | 1½     | N.W.       | Fine     | 186.4                | 7½   | 14,340                                   | Kufelong, lat. 36° 4' 48" N.                     |
| 13    | - 16         | ..       | 4½     | N.W.       | Fine     | ..                   | ..   | ..                                       | Camp between Kufelong and Aktaigh.               |
| 14    | - 16         | ..       | 7      | N.W.       | Fine     | 184.6                | 3    | 15,252                                   | Aktaigh.   |

|    |      |     |     |            |        |       |     |        |
|----|------|-----|-----|------------|--------|-------|-----|--------|
| 15 | —18½ | ..  | 3½  | N.W.       | Fine   | 187·3 | 3½  | 13,905 |
| 16 | 2    | ..  | 13  | W.S.W.     | Fine   | 191·0 | 22  | 11,745 |
| 17 | 5½   | ..  | 25  | W.S.W.     | Fine   | 192·0 | ..  | 11,293 |
| 18 | 14   | ..  | 7   | N.W.       | Fine   | 186·0 | 11  | 14,474 |
| 19 | 3    | ..  | 17  | W.N.W.     | Fine   | 195·2 | 23  | 9,525  |
| 20 | 15½  | ..  | 18½ | W.N.W.     | Fine   | 198·2 | 27  | 7,685  |
| 21 | 16   | ..  | 20  | N.W.       | Fine   | 200·4 | 24  | 6,420  |
| 22 | 12   | ..  | 21½ | N.W. by W. | Cloudy | 200·8 | 21½ | 6,298  |
| 23 | 13   | ..  | 27  | W. by N.   | Cloudy | 201·2 | 31  | 6,100  |
| 24 | 15½  | ..  | 17  | N.W. by W. | Fine   | 202·1 | 22  | 5,554  |
| 25 | 8½   | ..  | 21½ | N.W. by W. | Fine   | 203·7 | ..  | 4,570  |
| 26 | 17   | ..  | 23  | W.         | Fine   | 204·1 | 27  | 4,355  |
| 27 | 19½  | ..  | 25  | W.N.W.     | Cloudy | 205·1 | ..  | 3,830  |
| 28 | 20   | 25  | 22  | S.W. by W. | Snow   | ..    | ..  |        |
| 29 | 14½  | 23½ | 19  | S.W.       | Fine   | ..    | ..  |        |
| 30 | 10   | 23  | 15½ | S.S.W.     | Fine   | ..    | ..  |        |
| 31 | 8½   | 22  | 15½ | S.         | Fine   | ..    | ..  |        |

MONTH OF JANUARY, 1869.

At YARKAND. Latitude, 38° 21' 16" N.; Longitude, 77° 28' E.  
Elevation, 3830 feet above Sea-level.

| Date. | Thermometer, Fahr. |        |          |        |        |        | Wind.      | Weather. | — |
|-------|--------------------|--------|----------|--------|--------|--------|------------|----------|---|
|       | Sunrise.           | 9 A.M. | 12 Noon. | 3 P.M. | 6 P.M. | 9 P.M. |            |          |   |
| 1     | ° 8½               | ° 11½  | ° 22½    | 27     | 19½    | 13½    | S.S.E.     | Fine     |   |
| 2     | 9                  | 10     | 23       | 27     | 21     | 14     | S.S.E.     | Fine     |   |
| 3     | 5                  | 11     | 22½      | 26½    | 22     | 19     | W.N.W.     | Fine     |   |
| 4     | 14                 | 22     | 28       | 32½    | 25     | 18     | S.W.       | Cloudy   |   |
| 5     | 5½                 | 13     | 24½      | 28     | 24½    | 19     | S.W.       | Fine     |   |
| 6     | 10                 | 18     | 25       | 27     | 24     | 21     | S.W. by S. | Cloudy   |   |
| 7     | 9                  | 20     | 27       | 28     | 19     | 18     | W. by S.   | Cloudy   |   |
| 8     | ..                 | 19     | 30       | 31     | 24     | 19     | S.W.       | Cloudy   |   |
| 9     | 10½                | 19     | 28       | 29½    | 24     | 20     | W.         | Fine     |   |
| 10    | ..                 | 19½    | 28½      | 29     | 25½    | 23     | S.W.       | Fine     |   |
| 11    | ..                 | 22     | 26½      | 28     | 25     | 23     | ..         | Cloudy   |   |
| 12    | 13                 | 21     | 27       | 31     | 26     | 22     | ..         | Cloudy   |   |
| 13    | 12½                | 20     | 29½      | 32     | 25     | 21½    | W.N.W.     | Fine     |   |
| 14    | ..                 | 16½    | 27       | 30     | 27     | 23     | W.N.W.     | Cloudy   |   |
| 15    | ..                 | 17½    | 32       | 36     | 31     | 25½    | W. by N.   | Fine     |   |
| 16    | ..                 | 22     | 34       | 35     | 30     | 24     | W.         | Fine     |   |
| 17    | 15½                | 19     | 28       | 34     | 28     | 25     | W.         | Cloudy   |   |
| 18    | 16                 | 22     | 28½      | 31½    | 29     | 26     | W.S.W.     | Cloudy   |   |
| 19    | ..                 | 21½    | 29       | 30     | 26     | 25½    | W.S.W.     | Snow     |   |
| 20    | 24                 | 28     | 30½      | 33     | 28½    | 27     | S.W.       | Snow     |   |
| 21    | ..                 | 25     | 27       | 28     | 25     | 23     | S.W.       | Snow     |   |
| 22    | ..                 | 25     | 31       | 29     | 25½    | 22     | W.S.W.     | Cloudy   |   |
| 23    | ..                 | 24½    | 36       | 32     | 31     | 29     | S.W.       | Cloudy   | * |
| 24    | ..                 | 30     | 35       | 33½    | 31     | 29     | S.W.       | Snow     |   |
| 25    | 26                 | 29     | 34½      | 35     | 30     | 26     | S.W.       | Snow     |   |
| 26    | ..                 | 21     | 33       | 37     | 31½    | 29     | W.         | Fine     |   |
| 27    | ..                 | 27     | 36       | 40     | 36     | 29     | W.         | Fine     |   |
| 28    | ..                 | 22     | 36       | 38     | 32½    | 29½    | N.W.       | Cloudy   |   |
| 29    | 26                 | 29     | 37       | 38     | 30½    | 25½    | W.N.W.     | Cloudy   |   |
| 30    | ..                 | 25     | 34       | 37     | 33     | 30     | W.         | Fine     |   |
| 31    | ..                 | 28     | 31       | 32     | 30     | 24     | W.N.W.     | Cloudy   |   |
| ..    | 13                 | 21     | 29       | 31     | 27     | 23     | Averages.  |          |   |
| ..    | ·633               | ·225   | ·725     | ·790   | ·096   | ·322   |            |          |   |

Monthly mean deduced from 9 o'clock observations = 22°·273.

## MONTH OF FEBRUARY, 1869.

At YARKAND (to 23rd Instant). Lat.  $38^{\circ} 21' 16''$  N.; Long.  $77^{\circ} 28'$  E.

Elevation 3830 feet.

| Date. | Thermometer, Fahr. |        |          |        |        |        | Wind.      | Weather. | — |
|-------|--------------------|--------|----------|--------|--------|--------|------------|----------|---|
|       | Sunrise.           | 9 A.M. | 12 Noon. | 3 P.M. | 6 P.M. | 9 P.M. |            |          |   |
| 1     | ..                 | 24°    | 38°      | 35°    | 30°    | 28°    | W.         | Cloudy   |   |
| 2     | ..                 | 29     | 37       | 35     | 32     | 29½    | W.         | Cloudy   |   |
| 3     | ..                 | 31     | 45       | 40     | 35½    | 29     | W.         | Fine     |   |
| 4     | ..                 | 27     | 35       | 39½    | 31½    | 27½    | W.S.W.     | Fine     |   |
| 5     | ..                 | 28     | 36       | 37     | 31     | 25     | S.W.       | Fine     |   |
| 6     | 14                 | 25     | 36       | 37½    | 34     | 27     | W.         | Fine     |   |
| 7     | ..                 | 25½    | 37½      | 40     | 35     | 28     | W.         | Fine     |   |
| 8     | ..                 | 27     | 32½      | 37     | 35     | 31     | S.W. by W. | Cloudy   |   |
| 9     | ..                 | 31     | 45       | 47     | 42     | 34     | S.W.       | Fine     |   |
| 10    | ..                 | 27     | 43       | 45     | 40     | 31     | W. by N.   | Fine     |   |
| 11    | ..                 | 30½    | 45½      | 50½    | 41     | 38     | W.         | Fine     |   |
| 12    | ..                 | 33     | 47       | 51     | 42     | 37½    | W.         | Cloudy   |   |
| 13    | ..                 | 32     | 46½      | 50     | 43     | 33½    | W.         | Fine     |   |
| 14    | 27                 | 31     | 48       | 50½    | 44     | 38     | W.S.W.     | Fine     |   |
| 15    | 25½                | ..     | 43½      | 46     | 41     | 34     | ..         | Cloudy   |   |
| 16    | ..                 | 33     | 47½      | 50     | 44½    | 37     | S.W.       | Fine     |   |
| 17    | ..                 | 30     | 45       | 49     | 44     | 38     | W.S.W.     | Fine     |   |
| 18    | ..                 | 33     | 45       | 50     | 45     | 35     | W.         | Fine     |   |
| 19    | ..                 | 34     | 50½      | 50     | 45     | 33     | W.         | Fine     |   |
| 20    | ..                 | 34     | 44½      | 49½    | 44     | 39     | S.W.       | Cloudy   |   |
| 21    | ..                 | 36     | 47       | 50     | 44     | 39     | S.W.       | Cloudy   |   |
| 22    | ..                 | 34     | 43½      | 47     | 43½    | 39½    | W.S.W.     | Cloudy   |   |
| 23    | ..                 | 37     | 46½      | 49½    | 44½    | 39½    | W.S.W.     | Cloudy   |   |

| Date. | Therm. Fahr. |        | Wind   | Weather. | B.P. of Water. | Air. | Elevation<br>in feet above<br>Sea-level. | Place, &c.   |
|-------|--------------|--------|--------|----------|----------------|------|--|--|
|       | 9 A.M.       | 9 P.M. |        |          |                |      |  |  |
| 24    | 36°          | 37°    | W.S.W. | Cloudy   | 205·2          | 43°  | 3,728                                    | Village of Kokrubat.   |
| 25    | 34           | 39     | S.W.   | Cloudy   | 204·8          | 39   | 3,932                                    | Village of Kizil.  |
| 26    | 35           | 39     | W.     | Fine     |                |      |  | Town of Yanghissar.<br>Lat. $38^{\circ} 52' 3\cdot4''$ N.;<br>Long. $76^{\circ} 18''$ E. |
| 27    | 35           | 39     | W.     | Fine     | 204·2          | 42   | 4,256                                    |  |
| 28    | 37           | 38½    | W.S.W. | Fine     |                |      |  |  |

$$\text{Averages } \dots \dots \dots \left\{ \begin{array}{l} 9 \text{ A.M.} = 31\cdot444 \\ 9 \text{ P.M.} = 34\cdot375 \end{array} \right.$$

$$\text{Monthly Mean } \dots \dots \dots 32\cdot909$$

MONTH OF MARCH, 1869.

At KASHGAR (Fort of). Lat.  $39^{\circ} 19' 37\cdot 1''$  N.; Long.  $76^{\circ} 10'$  E.  
Elevation 4165 feet above sea-level.

| Date. | Thermometer, Fahr. |                 |                 |                 | Wind.    | Weather. | Place, &c.  |
|-------|--------------------|-----------------|-----------------|-----------------|----------|----------|---|
|       | 9 A.M.             | 12 Noon.        | 3 P.M.          | 9 P.M.          |          |          |   |
| 1     | 37°                | 48°             | 56°             | 45°             | W.S.W.   | Cloudy   | Town of Yanghissar. Lat. $38^{\circ} 52' 3''\cdot 4$ N.   |
| 2     | 42                 | $53\frac{1}{2}$ | 55              | 44              | W.       | Fine     | , ,   |
| 3     | $40\frac{1}{2}$    | $42\frac{1}{2}$ | 41              | 37              | ..       | Cloudy   | , ,   |
| 4     | 36                 | ..              | ..              | $37\frac{1}{2}$ | W.N.W.   | Snow     | Village of Tupchan, 4055 feet. B.P. of water, $204^{\circ}\cdot 6$ .  |
| 5     | ..                 | ..              | ..              | 35              | N.W.     | Cloudy   | Kashgar, 4165 feet above sea-level. B.P. of water $204^{\circ}\cdot 4$ . Lat. $39^{\circ} 19' 37''\cdot 1$ N. |
| 6     | 39                 | ..              | ..              | $36\frac{1}{2}$ | W.       | Cloudy   |   |
| 7     | $39\frac{1}{2}$    | ..              | 52              | 36              | W.       | Fine     |   |
| 8     | 39                 | 53              | $55\frac{1}{2}$ | 41              | W.S.W.   | Fine     | , ,   |
| 9     | 42                 | $53\frac{1}{2}$ | 56              | $39\frac{1}{2}$ | S.W.     | Cloudy   | , ,   |
| 10    | 43                 | 54              | 57              | 41              | W.S.W.   | Fine     | , ,   |
| 11    | 44                 | 56              | $59\frac{1}{2}$ | 42              | W.S.W.   | Fine     | , ,   |
| 12    | 46                 | $57\frac{1}{2}$ | 59              | 40              | W. by S. | Fine     | , ,   |
| 13    | 48                 | 61              | 60              | 48              | W.       | Cloudy   | , ,   |
| 14    | 48                 | 55              | 56              | 42              | W.       | Cloudy   | , ,   |
| 15    | 49                 | 59              | 61              | 45              | W.S.W.   | Fine     | , ,   |
| 16    | 49                 | 61              | 64              | 45              | W.       | Fine     | , ,   |
| 17    | $50\frac{1}{2}$    | 65              | $68\frac{1}{2}$ | 49              | W.       | Fine     | , ,   |
| 18    | 51                 | $66\frac{1}{2}$ | $67\frac{1}{2}$ | 52              | W.       | Fine     | , ,   |
| 19    | 52                 | 67              | 64              | 49              | W.       | Fine     | , ,   |
| 20    | ..                 | 61              | 63              | 45              | W.       | Fine     | , ,   |
| 21    | 49                 | 59              | 56              | 50              | S.W.     | Cloudy   | , ,   |
| 22    | 52                 | 61              | 60              | 48              | W.S.W.   | Cloudy   | , ,   |
| 23    | 48                 | 45              | 47              | 41              | S.W.     | Rain     | , ,   |
| 24    | ..                 | 47              | 49              | 42              | S.W.     | Rain     | , ,   |
| 25    | 42                 | 49              | 49              | $38\frac{1}{2}$ | W.       | Cloudy   | , ,   |
| 26    | $46\frac{1}{2}$    | 49              | 52              | 41              | W.       | Fine     | , ,   |
| 27    | 45                 | 58              | 63              | 45              | W.       | Fine     | , ,   |
| 28    | 48                 | 62              | 65              | $49\frac{1}{2}$ | W.       | Fine     | , ,   |
| 29    | 51                 | $63\frac{1}{2}$ | 67              | $49\frac{1}{2}$ | W.       | Fine     | , ,   |
| 30    | 55                 | $66\frac{1}{2}$ | 65              | ..              | W.       | Cloudy   | , ,   |
| 31    | $58\frac{1}{2}$    | $70\frac{1}{2}$ | $72\frac{1}{2}$ | $53\frac{1}{2}$ | W.S.W.   | Fine     | , ,   |

$$\text{Averages } \dots \dots \dots \left\{ \begin{array}{l} 9 \text{ A.M.} = 45\cdot 910 \\ 9 \text{ P.M.} = 43\cdot 583 \end{array} \right.$$

$$\text{Monthly Mean } \dots \dots \dots 44\cdot 746$$

MONTH OF APRIL, 1869, IN EASTERN TURKISTAN.

| DATE. | Thermometer, Fahr. |          |        | Wind.  | Weather.                  | PLACE, &c.          |
|-------|--------------------|----------|--------|--------|---------------------------|---------------------|
|       | 9 A.M.             | 12 noon. | 9 P.M. |        |                           |                     |
| 1     | 59                 | 71½      | 59     | W.S.W. | Cloudy                    | Kashgar (fort of).  |
| 2     | 61                 | 72       | 52½    | W.     | Fine                      | , ,                 |
| 3     | 61                 | 73½      | 52     | W.S.W. | Fine                      | , ,                 |
| 4     | 60½                | 72½      | 58     | W.     | Fine                      | , ,                 |
| 5     | 62½                | 69       | 56     | W.     | Cloudy                    | , ,                 |
| 6     | 64                 | 71       | 57½    | W.S.W. | Fine                      | , ,                 |
| 7     | 64½                | 71½      | 59     | W.S.W. | Cloudy                    | , ,                 |
| 8     | 63                 | 68½      | 58     | S.W.   | Fine                      | , ,                 |
| 9     | 55                 | 52½      | 41     | S.W.   | Rain                      | , ,                 |
| 10    | 49½                | 64       | 51     | W.     | Fine                      | , ,                 |
| 11    | 55                 | 58       | 51     | W.     | Cloudy                    | , ,                 |
| 12    | 62                 | 66       | 58     | W.S.W. | Fine                      | , ,                 |
| 13    | 62½                | ..       | 59     | W.     | Fine                      | Village of Yupchan. |
| 14    | ..                 | ..       | 50½    | ..     | Cloudy                    |                     |
| 15    | 62½                | 67       | 56     | W.     | Fine                      |                     |
| 16    | 63                 | 65½      | 53     | W.     | Fine                      |                     |
| 17    | 63                 | 65½      | 55     | W.     | Fine                      |                     |
| 18    | 64                 | 64½      | 53     | W.     | Cloudy                    |                     |
| 19    | ..                 | 61       | 51     | W.S.W. | Rain                      | Fort of Yanghissar. |
| 20    | 59½                | 62       | 55½    | W.S.W. | Cloudy                    |                     |
| 21    | 60½                | 63½      | 57½    | S.W.   | Cloudy                    |                     |
| 22    | 64½                | 68       | 57½    | S.W.   | Cloudy                    |                     |
| 23    | 64½                | 68       | 60     | W.S.W. | Fine                      |                     |
| 24    | 63                 | 66½      | 59     | S.S.E. | High Wind,<br>Dust Storms |                     |
| 25    | 67                 | 68       | ..     | S.     | Fine                      | Village of Toblok.  |
| 26    | ..                 | ..       | 67     | S.S.W. | Fine                      | Ak Langar.          |
| 27    | ..                 | ..       | 65½    | S.     | Fine                      |                     |
| 28    | 66                 | 70½      | 64½    | S.W.   | Fine                      |                     |
| 29    | 64½                | 70       | 67     | S.W.   | Fine                      |                     |
| 30    | 66½                | 68½      | 69     | S.W.   | Fine                      | Yarkand.            |

$$\text{Averages } \dots \dots \dots \left\{ \begin{array}{l} 9 \text{ A.M.} = 61^{\circ}84 \\ 9 \text{ P.M.} = 57^{\circ}00 \end{array} \right.$$

$$\text{Monthly return } \dots \dots = 59^{\circ}42$$

MONTH OF MAY, 1869.

AT YARKAND. Lat.  $38^{\circ} 21' 16''$  N.; long.  $77^{\circ} 28'$  E.

Elevation 3830 feet above sea-level.

| DATE. | Thermometer, Fahr. |          |        | Wind.      | Weather.    | PLACES, &c.  |
|-------|--------------------|----------|--------|------------|-------------|--|
|       | 9 A.M.             | 12 noon. | 9 P.M. |            |             |  |
| 1     | 68                 | 72       | 72½    | W.S.W.     | Fine        |  |
| 2     | 68½                | 71½      | 71½    | S.W.       | Fine        |  |
| 3     | 69                 | 73       | 73     | S.W.       | Fine        |  |
| 4     | 70½                | 72       | 74     | S.W.       | Fine        |  |
| 5     | 73                 | 75       | 74     | W.S.W.     | Fine        |  |
| 6     | 72                 | 73       | 69     | S.E.       | Dust Storms |  |
| 7     | 68                 | 72       | 66     | W.S.W.     | Fine        |  |
| 8     | 68½                | 73       | 70½    | W.S.W.     | Fine        |  |
| 9     | 68½                | 71½      | 69½    | S.W. by W. | Fine        |  |
| 10    | 67½                | 72½      | 69½    | W.         | Fine        |  |
| 11    | 68                 | 73       | 71½    | W.         | Fine        |  |
| 12    | 68½                | 74       | 73     | W. by S.   | Cloudy      |  |
| 13    | 70                 | 73       | 72     | W.         | Cloudy      |  |
| 14    | 68½                | 72       | 69     | W.         | Cloudy      |  |
| 15    | 69                 | 71       | 70     | W. by S.   | Fine        |  |
| 16    | 70                 | 74       | 67½    | W.         | Fine        | Slight rain towards Sarikol Hills.                                       |
| 17    | 69                 | 72       | 66½    | W.         | Fine        |  |
| 18    | 61½                | 66       | 69     | W.         | Fine        |  |
| 19    | 68                 | 69½      | 71½    | W.         | Fine        |  |
| 20    | 69                 | 72       | 74½    | W. by S.   | Fine        |  |
| 21    | 70½                | 73½      | 75     | W. by S.   | Fine        |  |
| 22    | 73                 | 74½      | 73½    | W.         | Fine        |  |
| 23    | 72                 | 73       | 72     | W.         | Cloudy      |  |
| 24    | 71½                | 72½      | 72     | W. by S.   | Fine        |  |
| 25    | 69½                | 71       | 69     | W.S.W.     | Fine        |  |
| 26    | 69                 | 71       | 70½    | S.W.       | Fine        |  |
| 27    | 70                 | 71½      | 70     | S.W.       | Fine        |  |
| 28    | 69                 | 70½      | 71     | W.S.W.     | Fine        |  |
| 29    | 70                 | 71½      | 72½    | S.         | Fine        |  |
| 30    | 70½                | ..       | ..     | ..         | ..          | Otunchee } Left Yarkand or<br>31 .. .. .. .. .. Posgam } return journey. |
|       | Averages           | ..       | ..     | ..         | ..          |  |

$$\text{Averages} \quad \dots \quad \dots \quad \dots \quad \begin{cases} 9 \text{ A.M.} = 69^{\circ}333 \\ 9 \text{ P.M.} = 71^{\circ}017 \end{cases}$$

$$\text{Monthly mean} \quad \dots \quad \dots \quad \dots = 70^{\circ}175$$

## MONTH OF JUNE, 1869, IN EASTERN TURKISTAN.

| Date. | Therm. Fahr.                               |        | Wind.    | Weather.   | B.P. of Water. | Air. | Elevation in Feet above Sea-level. | Places, &c.   |
|-------|--|--------|----------|------------|----------------|------|------------------------------------|---|
|       | 9 A.M.                                     | 9 P.M. |          |            |                |      |                                    |   |
| 1     | °  | °      | S.S.W.   | Fine       | °              | ..   | ..                                 | Karghalik.  |
| 2     | ..   | ..     | W.S.W.   | Fine       | ..             | ..   | ..                                 | „ „   |
| 3     | ..   | ..     | W.S.W.   | Fine       | ..             | ..   | ..                                 | „ „   |
| 4     | ..   | ..     | ..       | ..         | ..             | ..   | ..                                 | „ „   |
| 5     | ..   | ..     | ..       | ..         | ..             | ..   | ..                                 | „ „   |
| 6     | ..   | ..     | ..       | ..         | ..             | ..   | ..                                 | „ „   |
| 7     | ..   | ..     | ..       | ..         | ..             | ..   | ..                                 | „ „   |
| 8     | ..   | ..     | ..       | ..         | ..             | ..   | ..                                 | „ „   |
| 9     | ..   | ..     | ..       | ..         | ..             | ..   | ..                                 | „ „   |
| 10    | ..   | ..     | ..       | ..         | ..             | ..   | ..                                 | „ „   |
| 11    | ..   | 60     | S.W.     | Rain       | ..             | ..   | ..                                 | Village of Sanju.   |
| 12    | 65   | 57½    | S.S.W.   | Fine       | 199·1          | 57½  | 7,234                              | Kizil Aghil.  |
| 13    | 56½  | ..     | W.S.W.   | Fine       | 196·7          | 65   | 8,617                              | Mazar (Arpalak Valley).   |
| 14    | ..   | ..     | W.S.W.   | Cloudy     | 196·3          | 63   | 8,933                              | Tâm.  |
| 15    | 47   | 49     | W.       | Cloudy     | ..             | ..   | ..                                 | Five miles above Tâm.   |
| 16    | 53   | 40     | S.W.     | Fine       | 191·2          | 44   | 11,528                             | Kiehikyluk.   |
| 17    | 38   | 39     | S.W.     | Fine       | ..             | ..   | ..                                 | (Crossed Sanju „ Pass to<br>Diwânjilga.<br>Silartakash.           |
| 18    | 37   | ..     | ..       | Fine       | 188·2          | 52   | 13,482                             |   |
| 19    | 41   | ..     | ..       | Fine       | ..             | ..   | 11,215                             |   |
| 20    | ..   | ..     | ..       | ..         | ..             | ..   | 11,745                             | Shadula.  |
| 21    | ..   | 38     | W. by S. | Rn. & Snow | ..             | ..   | ..                                 | „ „   |
| 22    | 44   | 44     | S.W.     | Fine       | ..             | ..   | ..                                 | „ „   |
| 23    | 55   | 41     | W.S.W.   | Fine       | 188·0          | 52   | 13,598                             | Sooget Valley.  |
| 24    | 47   | 26     | S.W.     | Fine       | 182·1          | 26   | 16,812                             | { Chibra. Crossed Sooget<br>Pass, 18,237 feet.<br>Chádartash.     |
| 25    | 26   | 22     | W.S.W.   | Fine       | 183·1          | 22   | 16,190                             |   |
| 26    | ..   | ..     | W.S.W.   | Fine       | ..             | ..   | ..                                 | { Oglok. „ Crossed „<br>Karaktag Pass, 17,953 feet.<br>Shorjilga. |
| 27    | 39   | 23     | W.S.W.   | Fine       | 182·0          | 33   | 16,905                             |   |
| 28    | 29   | ..     | W.S.W.   | Fine       | 183·7          | 39   | 15,929                             |   |
| 29    | 39   | 40     | S.W.     | Fine       | ..             | ..   | 15,570                             | Khush Maidan.   |
| 30    | 41   | 37½    | S.W.     | Fine       | ..             | ..   | 16,192                             | Kiziljilga.   |
| July. | °  | °      | S.W.     | Fine       | 181·0          | 47½  | 17,655                             | Karasu.   |
| 1     | ..   | ..     | N.E.     | Snow       | ..             | ..   | ..                                 | Camp Lingzi Thung.  |
| 2     | ..   | ..     | N.E.     | Snow       | 180·9          | 31½  | 17,527                             | Kala Pahar.   |
| 3     | ..   | 26     | N.E.     | Snow       | ..             | ..   | ..                                 | { Chang „ Lang „<br>Pass, 18,839 feet.                            |
| 4     | 31½  | ..     | N.E.     | Snow       | ..             | ..   | ..                                 |   |
| 5     | Crossed Chang Lang Pass into Chang Chenmo. |        |          |            |                |      |                                    |   |

## TOWNS AND VILLAGES IN EASTERN TURKISTAN.

1. *Kibris*.—The first village met with on entering Turkistan from the Sanju Pass, consisting of 6 or 8 houses, inhabited by some of the Sanju people during the summer months.
2. *Sanju*.—A district consisting of 3000 to 4000 houses, comprised in several villages scattered for several miles on each side of the Sanju River, situated in an open valley running nearly east and west, is 6420 feet above sea-level. Head official, a Hakeem Beg.
3. *Koshtok*.—A village of some seventy houses, lying 25 miles north-west of Sanju, on the road to Yarkand, situated on the left bank of the Kilian stream, is 6298 feet above the sea. Head official, a Yuz bashee.
4. *Langar*.—A small village to the left of the Yarkand road, at 15 miles distance from Sanju.
5. *Kilian*.—A village of 200 houses, south-west of Koshtok, situated on the left bank of the stream rising in the Kilian Pass. One of the main routes into Eastern Turkistan crosses this pass. This road conducts up a ravine from Ali Nuzur Kurgân, 12 miles below Shadula on the Karakash River, and crossing the Pass, debouches here at Kilian, and joins the Sanju route at the village of Borah.
6. *Ismasulla*.—A village lying between Koshtok and Kiliar, at 7 miles distance from the former. Is situated on the right bank of the Kilian stream at the foot of a low range of sand hills.
7. *Has-an-Boora*.—A small village lying between Sirzum and Oitogrok.
8. *Sirzum*.—A small village 4 miles north-west from Kilian. The road from Kilian to Yarkand passes through these two villages.
9. *Guma*.—A district of 5000 to 6000 houses, lying 27 miles north of Sanju and 23 miles north-east of Koshtok. Is on the right bank of the Kilian stream, which runs from Koshtok past it. The main road from Khotan to Yarkand passes through Guma.
10. *Otunsu*.—A village of fifty houses, lying 1 mile south of Kugiar.
11. *Kugiar*.—A village of 300 houses, some 40 miles south of Karghalik. The Karakoram Pass road down the valley of the Yarkand River, crosses the Yangi Pass, and debouches into the plain country at Kugiar.
12. *Yulurik*.—A village of 100 houses, lying 5 miles north-east of Kugiar.
13. *Oitogrok*.—A village of twenty houses, 18 miles north-west of Koshtok, towards Yarkand. Is 6100 feet above the sea.
14. *Borah*.—A village containing ninety houses, situate 11 miles north-west of Oitogrok, on the road to Yarkand. Watered by a stream from Oshokwas. Chief official, a Yuz bashee. The Kilian road here joins the Sanju one, and from here they are the same to Yarkand throughout. Borah is 5554 feet above the sea.
15. *Tonkzi*.—A village 5 miles south of Borah.
16. *Oshokwas*.—A large village of 1300 to 1400 houses, lying south of Borah. Is situated at the foot of the low range of hills running north-west from Kilian past it, and is watered by the stream rising in the Kullik Pass. The road to the Kullik Pass ascends the ravine which joins the Karakash Valley, 10 miles below Shadula at Tograssu, and crossing the pass, follows

the course of this stream to Oshokwas, from where it joins the Kujiar route at Beshtiruk Langar.

17. *Beshiruk*.—A large, widely-scattered village of some 900 houses, lying 4 miles south of Karghalik, watered by a considerable stream coming down from Oshokwas. Is 4665 feet above sea-level.
18. *KARGHALIK*.—One of the largest towns and districts in Eastern Turkistan, consisting of some 20,000 houses, with a large market, bazaar, and caravanserai. Is a place of considerable importance, being situated at the junction of all the roads leading across the mountains into Turkistan from India, Kashmir, and Ladak. The Kujiar route joins here, and the Khotan road through Guma. Outside the town, at the junction of the Khotan road, is a new earth fort. Karghalik is 4570 feet above sea-level, and is watered by a canal cut from the Tisnâf River. Chief official, a Dakeem Beg. Karghalik is 36 miles from Yarkand.
19. *Alamakun*.—A village passed to the right of the Yarkand road, 12 miles from Karghalik. Is situated on the left bank of the Tisnâf River.
20. *Khojerik*.—A village lying 2 miles north-east of Alamakun.
21. *Boghorlok*.—A village of some sixty houses, lying opposite to Khojerik.
22. *Mela*.—A small village, 14 miles from Karghalik, on the Yarkand road.
23. *Yak Shamba Bazaar*.—On the Yarkand road, 15 miles from Karghalik, and 6 miles from Posgam is a large market crowded on Sundays.
24. *Posgam*.—A town and district of 16,000 houses, 15 miles from Yarkand, possessing a large bazaar and caravanserai. There is an old fort in ruins, 1½ miles to the west of the town, which is 4355 feet above sea-level and watered by the Beshkur Canal, cut from the Yarkand River.
25. *Kurum Togrok*.—A village of 700 houses, lying 6 miles from Posgam, on the left bank of the Yarkand River.
26. *Aigâchee*.—A village of 1000 houses on the right bank of the Yarkand River. In the summer the river is here crossed in boats, and this then becomes the direct road from Pozgam to Yarkand.
27. *Otunchee*.—A large, widely-scattered place, containing some 5500 houses, situated 8 miles south-east of Yarkand.
28. *Chinibagh*.—Situated 3 miles south of Yarkand. Formerly the residence of Ahmed Wang.
29. *Shamal bagh*.—Situated one mile east of the city of Yarkand.
30. *YARKAND*.—The capital of Eastern Turkistan, in latitude  $38^{\circ} 21' 16''$  N., longitude  $77^{\circ} 28'$  E., and 3830 feet above sea-level. Contains some 40,000 houses and about 120,000 inhabitants. There are 160 mosques, many schools, and some twelve caravanserais, which are always crowded with merchants from every part of Asia. The city is surrounded by a fortified earth wall, varying from 40 to 45 feet in height, and is entered by five gates, which are as follows :—
  1. *Altun Dubza*.—On the west side, leading to the fort and Kashgar, &c.
  2. *Moskari Dubza*.—On the south side, leading to Karghalik, Khotan, &c.
  3. *Balti Dubza*.—On the south-east side, leading to Aigâchee, &c.
  4. *Aksu Dubza*.—On the east side, leading to Lai Musjid, Aksu, Oosh Turfân, &c.
  5. *Terek Bagh Dubza*.—On the north side.

The city lies in the form of a parallelogram, being some 2 miles from north to south and  $1\frac{1}{4}$  miles from east to west. The main street runs nearly due east and west from the Altun Dubza (Gate) to the Aksu Dubza (Gate), and is very narrow, being not more than 12 feet in many places. The city and fort are supplied with water from tanks, into which the water is brought by canals cut from the Yarkand River. These are frozen over in winter, and the supply of water is then stopped; but the tanks contain sufficient for the consumption of the inhabitants until the regular supply is renewed in the spring.

Yarkand imports from India opium, spices, tea, sugar, kinkâb, English cloth, &c. The principal exports to India and Kashmir are silk, churrus, felt cloths, pushmeena, shawl-wool, gold and silver, &c.

THE FORT is situated some 500 yards to the west of the city. The walls run nearly due with the four points of the compass, and are 40 feet in height, 12 feet broad at the summit, and are entirely of earth. The fort is nearly 700 yards square, and has four bastions with towers at the corners, and eight intermediate flanking defences on each side. It is surrounded by a lower wall and dry ditch. This moat is 25 feet deep, 30 feet broad at the summit, and about 18 feet at the bottom. There are three gates.

*The East Gate*, facing the city.

*The Khotan Gate*, on the south side.

*The Kashgar Gate*, some 80 yards from the south-west corner, facing the west; and immediately behind the place of residence of the chief authorities.

These two latter gates are closed, the Khotan one being also barricaded with unburnt bricks.

The only gate through which ingress and egress is permitted is the East Gate. This is closed every night at 8 P.M. in winter and 9 P.M. in summer, and is opened daily at daybreak.

In the south-west corner of the fort is the residence of the chief authorities, surrounded by a wall of about 30 feet in height, the entrance through which is on the east side facing the main road, which leads up to it through the bazaar of the fort.

Occupying the north-west corner of the fort is the inner fort, formerly the residence of the Chinese Governor and officials. This inner fort is surrounded by a fortified earth wall of 35 feet in height, with a lower wall and dry ditch. These walls are in ruins in many places. The north-east corner of the fort is one mass of ruins. No guns are anywhere mounted on the walls, for which, however, there are embrasures; as, when the Chinese held Yarkand, many were in position.

31. *Beshkun*.—Twenty-two miles east of Yarkand, on the left bank of the Yarkand River, contains about 4000 houses.
32. *Beshwok*.—A large village of 3300 houses, on the road to Sarikol and Tashkurgan; six miles distant from Yarkand, and lying west of it.
33. *Hazrat Peer Mazar*.—Tomb of a Syad and ruined village, lying half a mile north of the fort of Yarkand.
34. *Bigil*.—A small village, situated five miles north-west of Yarkand, on the left bank of the Urpi Canal.
35. *Urpi*.—A village of 1000 houses,  $4\frac{1}{2}$  miles north of Yarkand, on the right bank of the Urpi River or Canal.
36. *Tayarchee*.—A village of some 600 houses, lying 9 or 10 miles north-east of Yarkand, on the right bank of the Urpi Canal.

37. *Karchi*.—A village of 100 houses, 13 miles north-east of Yarkand, situated on the left bank of the Urpi Canal.
38. *Tongus*.—A large village of 1500 houses, situated 22 miles north-east of Yarkand, towards Aksu.
39. *Karakoom*.—A village four miles north-west of Yarkand, on the Kashgar road.
40. *Otun Langar*.—A small village, 15 miles from Yarkand, towards Kashgar.
41. *Kokrubar*.—A village of 200 houses, 22 miles north-west of Yarkand; is the first stage or halting-place towards Kashgar.
42. *Ak Langar*.—A halting-place, 14 miles from Kokrubar, on the main road to Kashgar. There is an enclosure with a musjid, and two wells of water.
43. *Abdoola Khan Langar*.—Eight miles beyond Ak Langar; is now unoccupied.
44. *Kizil*.—A village of 500 houses, the second stage from Yarkand, from which it is 50 miles distant; is 3932 feet above sea-level.
45. *Oordoo Badshak Mazar*.—Tomb of a Syad and small village lying six miles north-east of Kizil.
46. *Hasrat Bakeem Mazar*.—Tomb of a Syad and small village situated 13 miles north-east of Kizil.

## POSITIONS OF THE TOWNS OF EASTERN TURKISTAN.

|   | Lat. N.       | Long. E. |
|---|---------------|----------|
| Yarkand .. .. .. .. ..                                  | 38° 21' 16"   | 77° 28'  |
| Yanghissar .. .. .. ..                                  | 38° 52' 34"   | 76° 18'  |
| <i>Kashgar</i> --                                       |               |          |
| Fort .. .. .. .. ..                                     | 39° 19' 37.1" |          |
| Old City .. .. .. .. ..                                 | 39° 23' 9"    |          |
| Khotan .. .. .. .. ..                                   | 37° 8' 0"     |          |
| Shadula .. .. .. .. ..                                  | 36° 21' 11"   |          |
| Source of the Yarkand River ..                          | 35° 37' 34"   | 77° 50'  |
| <i>Kufelong</i> --                                      |               |          |
| At junction of main stream and Karakoram Pass stream .. | 36° 4' 48"    | 77° 57'  |

*Chamalung*.—Containing 30 houses lying 3 miles west of Kizil.

*Khoduk*.—A village of 20 houses 5 miles from Kizil.

*Koshimbash*.—A small village of a few houses to the right of the road 9 miles from Kizil.

*Toblok*.—A village of 40 houses 14 miles from Kizil, on the main road. Is a halting place between Kizil and Yanghissar.

*Kelpun*.—A ruined village 3 miles beyond Toblok, formerly a Chinese "urtang" or police station. There are now only a few inhabited houses and a "mazar."

*Sooget Bolok*.—A halting-place 5 miles south of Yanghissar.

**YANGHISSAR.**—A town of some 11,000 houses situated 82 miles north-west of Yarkand, from which it is the 3rd stage. Is in lat.  $38^{\circ} 52' 3\frac{1}{4}''$  N., long.  $76^{\circ} 18'$  E., and is 4256 feet above sea-level. Has a large bazaar, 3 caravanserais, and is a place of considerable traffic. Is situated on the left bank of the Sargrak River coming down from the Kizil Yart Range of the Pamir. The Fort is situated 600 yards north of the town. It is some 250 yards square, with 4 bastions and 3 intermediate flanking defences. The moat is some 40 feet in width at the summit, and 36 feet in depth, which is also the height of the main wall. The entrance to the Fort is on the south side facing the town.

**Koomlok.**—A village of 30 houses 6 miles from Yanghissar towards Kashgar.

**Shorlik.**—A large village lying north-west of Yanghissar.

**Syad Mazar Khoja.**—Tomb of a Syad, or Khoja, in an enclosure passed to the right of the road 9 miles from Yanghissar.

**Toglok.**—A scattered village of 350 houses, 13 miles from Yanghissar, on the Kashgar road.

**Yupchan.**—A large village of 700 houses  $22\frac{1}{2}$  miles from Yanghissar towards Kashgar. Is the 4th stage from Yarkand, from which it is  $104\frac{1}{2}$  miles distant. Is situated on the left bank of the Hosun River, from which the land is irrigated by numerous dykes, and is 4055 feet above sea-level.

**Tasgam.**—A village of 800 houses 6 miles north-west from Yupchan towards Kashgar. Situated on the left bank of the Khanarik River.

**KASHGAR** (the Fort), the Yaugishar, or New City. In lat.  $39^{\circ} 19' 37\frac{1}{4}''$  N., long.  $76^{\circ} 10'$  E. Elevation 4165 feet above sea-level. Is nearly square, being somewhat longer in its north and south sides, which are about 600 yards in length. The walls are 40 feet in height, surrounded by a lower wall and dry ditch. This moat is 25 feet deep and some 40 feet broad at the summit. The main gate is in the centre of the north wall facing the city. There are 2 other gates, one on the east the other on the south side. They have flanking defences, but are both closed. The Fort has 6 flanking defences on the north and south sides, whereas the east and west ones possess only four. The walls are entirely of earth, and the whole Fort appears to be in better preservation and more available for defence than the Yarkand Fort. It is distant 123 miles from Yarkand.

**THE CITY** is 3 miles off, lying north between the Fort, and, which is crossed, the "Kizil Daria," or Kashgar River, coming down from the westward between the Kizil Yart Range of the Pamir and the Terek Pass on the road to Khokand. The city is surrounded by a high fortified earth wall, and is entered by 5 gates. It has rapidly increased in size since the expulsion of the Chinese, and now contains some 28,000 houses and from 60 to 70,000 inhabitants.

## PASSES ACROSS THE KARAKORAM AND KUEN LUEN RANGES INTO EASTERN TURKISTAN.

| Name of Pass,                 | Height in feet above Sea-level. | B. P. of Water on Pass. | Temperature of Air at time of Observation. | Across what Range.                          | Where from, where to.   | Character of Pass.   |
|-------------------------------|---------------------------------|-------------------------|--|---|---|--|
| Chang Lâ . . . . .            | 18,368                          | ..                      | ..   | Kilas Range of Himalaya . .                 | Leh to Tanksee . . . . .  | Somewhat difficult.—Practicable for laden horses and yaks.                                   |
| Masimik . . . . .             | 18,457                          | 179° 4                  | 41° 3                                      | Range north of Pangong . .                  | Leading into Chang Chenno .                                       | Easy.—Practicable for laden horses, camels and yaks: practicable for artillery.              |
| Kizil . . . . .               | 17,859                          | 180° 4                  | 57   |   |   | Very easy.—Practicable for artillery for laden camels, horses and yaks.                      |
| Chang Lang (or Chang Chenno). | 18,839                          | 178° 7                  | 43   | Main Karakoram Range north of Chang Chenno. |   | Easy.—Practicable for guns and for laden animals.  |
| Kurafagh . . . . .            | 17,953                          | 180° 0                  | 56   | Karafagh Range . . . . .                    |   | Very easy.—Practicable for guns, laden horses, camels and yaks.                              |
| Sooget . . . . .              | 18,237                          | 180° 2                  | 43   | Aktâgh Range . . . . .                      |   | Easy.—Practicable for laden animals.   |
| Kirghiz . . . . .             | 17,992                          | ..                      | ..   | Aktâgh Range . . . . .                      |   | Difficult.—Practicable for laden horses and yaks; impracticable for artillery.               |
| Yangt . . . . .               |                                 |                         |  | Western Kuen Luen . . .                     | Koolunoolde in valley of Yarkand River to valley of Tsinai River. | Easy.—Practicable for guns, laden horses, camels and yaks.                                   |
| Sanju . . . . .               | 16,612                          | 182° 6                  | 42   | Spur of Western Kuen Luen or Kilian Range.  | Valley of Karakash River to Sajju.                                | Difficult.—Impracticable for guns, laden camels and horses: only practicable for laden yaks. |
| Kilian . . . . .              |                                 |                         |  | Spur of Western Kuen Luen or Kilian Range.  |   | Somewhat difficult.—Practicable for laden animals.   |
| H Chuchu . . . . .            | 11,847                          | 190° 9                  | 61   | Lateral spur of Kilian Range .              | Arpalak Valley to Sajju Valley.                                   | Easy.—Practicable for laden animals and guns.  |
| Karakoram * . . . . .         | 18,317                          | ..                      | ..   | Main Karakoram Range . .                    | Ladak into Eastern Turkistan                                      |  |

\* The two passes on the Ladak side of the Karakoram on the road to Leh, viz., the Sasser Pass, 17,972 feet, and the Kardong Pass, 17,574 feet, are difficult more especially the Sasser Pass. They are impracticable for guns, but practicable for laden horses and yaks.

## APPENDIX III.

RE-COMPUTATION of Mr. HAYWARD'S OBSERVATIONS for LATITUDE. By Staff-Commander C. GEORGE, R.N., Map-Curator Royal Geographical Society.

| Date.   | Name of Place.           | Object used. | Result of Observations for Latitude. | Approximate Longitude.<br>(From Map.) |
|---------|--------------------------|--------------|--------------------------------------|---------------------------------------|
|         |                          |              | N.                                   |                                       |
| 1868.   |                          |              |                                      |                                       |
| Nov. 26 | Shadula .. .. .. ..      | ⊖ M. Alt.    | 36° 23' 24"                          | 78° 1' 8"                             |
| ,, 29   | Koolunooldee .. .. ..    | Ditto.       | 36 25 4                              | 77 28                                 |
| Dec. 4  | Kufelong .. .. .. ..     | Ditto.       | 36 5 55                              | 77 58                                 |
| ,, 9    | Yarkand River, Source of | Ditto.       | 35 38 39                             | 77 54                                 |
| ,, 18   | Mazar Badshah .. ..      | Ditto.       | 36 34 52                             | 78 31                                 |
| ,, 22   | Sanju .. .. .. ..        | Ditto.       | 37 15 20                             | 78 47                                 |
|         |                          |              | E.                                   |                                       |
| 1869.   |                          |              |                                      |                                       |
| Jan. 5  | Yarkand .. .. .. ..      | Ditto.       | 38 23 52                             |                                       |
| ,, 9    | Ditto .. .. .. ..        | Ditto.       | 38 23 30                             |                                       |
| ,, 15   | Ditto .. .. .. ..        | Ditto.       | 38 23 27                             |                                       |
| ,, 28   | Ditto .. .. .. ..        | Ditto.       | 38 21 50                             |                                       |
| ,, 30   | Ditto .. .. .. ..        | Ditto.       | 38 21 13                             |                                       |
| Feb. 4  | Ditto .. .. .. ..        | Ditto.       | 38 21 28                             | = 38 21 43.3 77 29                    |
| ,, 6    | Ditto .. .. .. ..        | Ditto.       | 38 20 44                             | Mean.                                 |
| ,, 10   | Ditto .. .. .. ..        | Ditto.       | 38 20 51                             |                                       |
| ,, 11   | Ditto .. .. .. ..        | Ditto.       | 38 20 29                             |                                       |
| ,, 13   | Ditto .. .. .. ..        | Ditto.       | 38 21 44                             |                                       |
| ,, 14   | Ditto .. .. .. ..        | Ditto.       | 38 19 48                             |                                       |
| Mar. 1  | Yanghissar .. .. ..      | Ditto.       | 38 52 15                             | = 38 52 12.5 76 18                    |
| ,, 2    | Ditto .. .. .. ..        | Ditto.       | 38 52 10                             | Mean.                                 |
| ,, 10   | Kashgar .. .. .. ..      | Ditto.       | 39 19 43                             |                                       |
| ,, 11   | Ditto .. .. .. ..        | Ditto.       | 39 19 32                             | = 39 19 44 76 11                      |
| ,, 16   | Ditto .. .. .. ..        | Ditto.       | 39 19 56                             | Mean.                                 |

## RE-COMPUTATION OF MR. HAYWARD'S OBSERVATIONS FOR HEIGHTS IN EASTERN TURKISTAN.\* By Staff-Commander C. GEORGE, R.N.

| Date.  | Name of Place.                                   | Approximate Position.<br>(From Map.) |            | Boiling<br>Water. | Tempera-<br>ture. | Resulting<br>Height.† |        |
|--------|--|--------------------------------------|------------|-------------------|-------------------|-----------------------|--------|
|        |  | Latitude.                            | Longitude. |                   |                   |                       |        |
|        |  | N.                                   | E.         |                   |                   | Feet.                 |        |
| 1868.  | Leh .. .. .. .. ..                               | 34° 6'                               | 77° 15'    | 191° 75           | 61                | 11,532                |        |
| Oct. 1 | Sakti. At foot of Chang La Pass ..               | 34                                   | 1          | 77 58             | 188° 0            | 47                    | 13,697 |
| ,, 2   | Seeprali. 4 miles below pass ..                  | 34                                   | 1          | 78 2              | 183° 4            | 34½                   | 16,320 |
| ,, 3   | Tanksee .. .. .. .. ..                           | 34                                   | 2          | 78 13             | 188° 8            | 45                    | 13,228 |
| ,, 6   | Chagra. At foot of Masimik Pass ..               | 34                                   | 4          | 78 28             | 185° 8            | 35                    | 14,933 |
| ,, 7   | Rimdee. 2 miles below pass ..                    | 34                                   | 9          | 78 42             | 180° 8            | 7                     | 17,656 |
| ,, ,   | Masimik Pass .. .. .. ..                         | 34                                   | 5          | 78 39             | 179° 4            | 41½                   | 18,724 |
| ,, 8   | Pumsul. Chang Chenmo Valley ..                   | 34                                   | 17         | 78 50             | 185° 5            | 27                    | 15,077 |
| ,, 9   | Kiam. Chang Chenmo Valley ..                     | 34                                   | 18         | 78 59             | 184° 0            | 24                    | 15,930 |
| ,, 15  | Gogra. In Kugrang Valley ..                      | 34                                   | 21         | 78 56             | 183° 6            | 20?                   | 16,136 |
| ,, 17  | No. 2 Camp. In Kugrang Valley ..                 | 34                                   | 28         | 78 57             | 182° 0            | 17                    | 17,040 |
| ,, 22  | Camp Δ. Junction of branch in Kugrang Valley ..  | 34                                   | 21         | 78 56             | 182° 4            | 19                    | 16,818 |
| ,, 24  | Camp Δ. Near Gogra .. ..                         | 34                                   | 23         | 78 57             | 183° 6            | 27                    | 16,172 |
| ,, 25  | Hot springs. Chang Lang .. ..                    | 34                                   | 24         | 78 58             | 183° 0            | 28                    | 16,520 |
| ,, 28  | No. 1 Camp. Lingzi Thung Plains ..               | 34                                   | 47         | 79 14             | 181° 6            | 1                     | 17,164 |
| ,, 29  | No. 2 Camp. Ditto Ditto ..                       | 34                                   | 52         | 79 22             | 181° 5            | 1                     | 17,220 |
| ,, 30  | Lak Tsung .. .. .. ..                            | 35                                   | 1          | 79 30             | 182° 4            | 13                    | 16,747 |
| ,, 31  | Thaldat. Camp .. .. .. ..                        | 35                                   | 15         | 79 28             | 183° 4            | 22½                   | 16,229 |
| Nov. 2 | Somah Lam. Camp .. .. .. ..                      | 35                                   | ..         | .. ..             | 182° 2            | 30                    | 16,965 |
| ,, 5   | Kizil Jilga .. .. .. ..                          | 35                                   | 17         | 79 1              | 182° 8            | 18                    | 16,546 |
| ,, 6   | Kush Maidan .. .. .. ..                          | 35                                   | 27         | 78 51             | 184° 0            | 18                    | 15,872 |
| ,, 8   | Hot springs .. .. .. ..                          | 35                                   | 35         | 78 50             | 184° 2            | 18                    | 15,757 |
| ,, 9   | Zinchin .. .. .. ..                              | 35                                   | 43         | 78 55             | 184° 4            | 19                    | 15,647 |
| ,, 10  | Sang Kalan .. .. .. ..                           | 35                                   | 48         | 79 3              | 185° 2            | 27                    | 15,226 |
| ,, 11  | Mulgoon .. .. .. ..                              | 35                                   | 48         | 79 14             | 186° 2            | 20                    | 14,632 |
| ,, 12  | Kyung Jangal .. .. .. ..                         | 35                                   | ..         | .. ..             | 186° 6            | 22?                   | 14,412 |
| ,, 13  | Mandalik .. .. .. ..                             | 35                                   | 55         | 79 26             | 186° 9            | 23                    | 14,247 |
| ,, 14  | Lungnak .. .. .. ..                              | 35                                   | 58         | 79 20             | 187° 4            | 23                    | 13,964 |
| ,, 15  | Ak-Koom .. .. .. ..                              | 36                                   | 6          | 79 5              | 188° 1            | 21½                   | 13,565 |
| ,, 16  | Langai .. .. .. ..                               | 36                                   | ..         | .. ..             | 188° 9            | 30                    | 13,116 |
| ,, 17  | Mulbash .. .. .. ..                              | 36                                   | 19         | 78 50             | 189° 1            | 19                    | 13,002 |
| ,, 18  | Gulbahem, a Kirghiz encampment ..                | 36                                   | 13         | 78 40             | 189° 6            | 25                    | 12,733 |
| ,, 20  | Shadula .. .. .. ..                              | 36                                   | 23         | 78 18             | 191° 0            | 28                    | 11,951 |
| ,, 26  | Kulshishkun .. .. .. ..                          | 36                                   | 25         | 78 5              | 187° 2            | 22                    | 14,147 |
| ,, 27  | Camp Δ. 5 miles below Kirghiz ..                 | 36                                   | 23         | 77 46             | 186° 6            | 17                    | 14,397 |
| ,, 28  | Ditto. Below Kirghiz Jangal ..                   | 36                                   | 24         | 77 41             | 188° 5            | 22                    | 13,344 |
| ,, 29  | Ditto. 12 miles below Kool- unooldee .. .. .. .. | 36                                   | 23         | 77 10             | 189° 4            | 18                    | 12,833 |
| ,, 30  | Ditto. Of the 28th November ..                   | 36                                   | 24         | 77 41             | 188° 5            | 20                    | 13,340 |
| Dec. 2 | Ditto. 12 miles up valley ..                     | 36                                   | 17         | 77 46             | 187° 0            | 7                     | 14,103 |

\* The latitudes, longitudes, and heights in Mr. Hayward's memoir are those computed by himself during his journey, and agree with his map, which has been engraved from his own drawing, without alteration.

† The boiling-water observations have been reduced to Leh, the starting point, which has been assumed to be 11,532 feet in height. On Mr. Hayward's map it is marked as 11,740 feet. This difference of 208 feet in some measure accounts for the variation in the heights between the Table and Diary.

## RE-COMPUTATION OF OBSERVATIONS FOR HEIGHTS IN EASTERN TURKISTAN—continued.

| Date.   | Name of Place.                                   | Approximate Position.<br>(From Map.) |            | Boiling<br>Water. | Tempe-<br>rature. | Resulting<br>Height. |
|---------|--|--------------------------------------|------------|-------------------|-------------------|----------------------|
|         |  | Latitude.                            | Longitude. |                   |                   |                      |
|         |  | N.                                   | E.         |                   |                   | Feet.                |
| Dec. 3  | Camp A Near Bukhurooldee ..                      | 36° 13'                              | 77° 47'    | 186° 8            | 12                | 14,228               |
| ,, 4    | Ditto. 6 miles above Kufelong                    | 36 1                                 | 77 50      | 185° 8            | 8                 | 14,765               |
| ,, 5    | Ditto. 12 miles up valley ..                     | 35 53                                | 77 45      | 185° 0            | 10                | 15,212               |
| ,, 6    | Ditto. 13 miles above camp 5th ..                | .. ..                                | .. ..      | 183° 8            | 7                 | 15,862               |
| ,, 7    | Ditto. 12 miles from head of Yarkand River .. .. | 35 45                                | 77 51      | 183° 2            | 4                 | 16,176               |
| ,, 8    | Source of Yarkand River .. ..                    | 35 39                                | 77 54      | 182° 2            | 4                 | 16,730               |
| ,, 12   | Kufelong .. .. .. ..                             | 36 6                                 | 77 58      | 186° 4            | 7½                | 14,651               |
| ,, 14   | Aktagh .. .. .. ..                               | 35 55                                | 78 15      | 184° 6            | 3                 | 15,402               |
| ,, 15   | Sooget .. .. .. ..                               | 36 17                                | 78 15      | 187° 3            | 3½                | 13,929               |
| ,, ,    | Sooget Pass .. .. .. ..                          | 36 7                                 | 78 16      | 180° 2            | 3                 | 17,835               |
| ,, 16   | Shadula .. .. .. ..                              | 36 21                                | 78 18      | 191° 0            | 22                | 11,942               |
| ,, 17   | Camp A. 14 miles below Shadula                   | 36 30                                | 78 20      | 192° 0            | 20                | 11,396               |
| ,, 18   | Ditto. South of Sanju Pass ..                    | 36 43                                | 78 34      | 186° 0            | 11                | 14,666               |
| ,, 19   | Kirghiz East, above Tam .. ..                    | .. ..                                | .. ..      | 195° 2            | 23                | 9657                 |
| ,, 20   | Kibris .. .. .. ..                               | 37 9                                 | 78 41      | 198° 2            | 27                | 8029                 |
| ,, 21   | Sanju .. .. .. ..                                | 37 15                                | 78 47      | 200° 4            | 24                | 6868                 |
| ,, 22   | Koshtok .. .. .. ..                              | 37 24                                | 78 20      | 200° 8            | 21½               | 6671                 |
| ,, 23   | Oitogrok .. .. .. ..                             | 37 31                                | 78 5       | 201° 2            | 31                | 6403                 |
| ,, 24   | Borah .. .. .. ..                                | 37 36                                | 77 53      | 202° 1            | 22                | 5980                 |
| ,, 25   | Karghalik .. .. .. ..                            | 37 55                                | 77 42      | 203° 7            | 25                | 5118                 |
| ,, 26   | Posgam. River Tisnaf .. ..                       | 38 9                                 | 77 34      | 204° 1            | 27                | 4891                 |
| ,, 27   | Yarkand .. .. .. ..                              | 38 22                                | 77 29      | 205° 1            | 25                | 4384                 |
| 1869.   |  |                                      |            |                   |                   |                      |
| Feb. 24 | Kokrubat .. .. .. ..                             | 38 28                                | 77 5       | 205° 2            | 43                | 4146                 |
| ,, 25   | Kizil .. .. .. ..                                | 38 40                                | 76 46      | 204° 8            | 39                | 4391                 |
| ,, 27   | Yanghissar .. .. .. ..                           | 38 52                                | 76 18      | 204° 2            | 42                | 4690                 |
| Mar. 4  | Yupchan .. .. .. ..                              | 39 10                                | 76 18      | 204° 6            | 36                | 4444                 |
| ,, 6    | Kashgar .. .. .. ..                              | 39 20                                | 76 11      | 204° 4            | 38                | 4536                 |
| June 12 | Kizil Aghil .. .. .. ..                          | 37 6                                 | 78 52      | 199° 1            | 57½               | 7255                 |
| ,, 13   | Mazar .. .. .. ..                                | 36 57                                | 78 52      | 196° 7            | 65                | 8615                 |
| ,, 14   | Tam .. .. .. ..                                  | 36 56                                | 78 34      | 196° 3            | 63                | 8855                 |
| ,, 16   | Kichik-yulak .. .. .. ..                         | 36 46                                | 78 35      | 191° 2            | 44                | 11,852               |
| ,, 18   | Diwan-jilga .. .. .. ..                          | 36 39                                | 78 31      | 188° 2            | 52                | 13,627               |
| ,, 23   | Sooget Valley .. .. .. ..                        | 36 15                                | 78 14      | 188° 0            | 52                | 13,746               |
| ,, 24   | Chibra .. .. .. ..                               | 36 4                                 | 78 20      | 182° 1            | 26                | 17,133               |
| ,, 25   | Chadartash .. .. .. ..                           | 35 43                                | 78 10      | 183° 1            | 22                | 16,515               |
| ,, 27   | Oglok .. .. .. ..                                | 35 39                                | 78 18      | 182° 0            | 33                | 17,236               |
| ,, 28   | Shor-jilga .. .. .. ..                           | 35 34                                | 78 43      | 183° 7            | 39                | 16,255               |
| July 1  | Karasu .. .. .. ..                               | 35 12                                | 79 11      | 181° 0            | 47½               | 17,950               |
| ,, 3    | Kala Pahar .. .. .. ..                           | 34 39                                | 79 14      | 180° 9            | 31½               | 17,901               |