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## JOURNEYINGS IN THE PAMIRS AND CENTRAL ASIA.\*

By The Earl of DUNMORE.

LANDING at Karachi early in February 1892, I proceeded up country, *viâ* Multan, Lahore and Jhelum, to Rawal Pindi in the Punjab, where I commenced making preparations for an expedition to the Pamirs and other parts of Central Asia by way of Kashmir and Western Tibet, and over the great mountain ranges of the Eastern Himalayas and Mustagh or Ice Mountains into Chinese Turkistan. I reached Kashmir in April, and Leh in Ladakh in the end of May. There I was joined by Major Roche of the 3rd Dragoon Guards, who had obtained a year's leave, but although he had a permit from the Government at Peking to cross the Chinese frontier, he unfortunately was not able to procure one from St. Petersburg to enter Russian Turkistan. We purchased fifty-six strong wiry little Ladaki horses or ponies, and engaged thirty picked men (Argoons), all old hands, some of whom had accompanied those intrepid explorers, Captains Bower and Younghusband into Central Asia, and who in addition to being first-class caravan men, combined also the various trades of shoeing-smiths, pack-saddle makers, shoe-makers, Durzis, etc.

Our caravan being fully equipped, horses properly shod, etc., we marched out of Leh in June rather an imposing company, as we had requisitioned seventy yaks to accompany us over the Kardung Pass, the gate of the Eastern Himalayas, that pass being impracticable for laden ponies. The regular trade caravans going north never attempt the passage of the Kardung before the middle of July on account of the snow, but we managed with very little difficulty to cross it on June 23rd.

Crossing the Shyok River, we passed through the Nubra Valley, struck the Tutialak River, crossed the Great Sassir Glacier, camping at

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\* Read at the Royal Geographical Society, July 3rd, 1893. Map, p. 480.  
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MAP OF CENTRAL ASIA Showing Route of the Earl of Dunmore 1892-3

a height of over 18,000 feet, we eventually found ourselves on the Great Depsang Plateau, which we named the "roof of Asia." Ascending an unnamed pass of 18,330 feet, to which we gave the name of Peymalptse (the Tibetan for butterfly), after a beautiful butterfly we saw on the summit, we were much astonished to find no descent on the farther side. It was exactly like going up a ladder and stepping on to the flat roof of a house, for from the summit of the pass we stepped on to this level table-land, a burning desert of sand and shingle, strewn with the bones of animals and bleached skeletons of horses, and notwithstanding the high altitude absolutely devoid of snow. This plateau extended north for 26 miles, and as far as we were able to judge was about 40 miles from east to west.

Thence we descended to the Chip-chak River, and rode up the Karakoram River, camping at the foot of the great pass at an altitude of 18,000 feet, the highest altitude we ever slept in. On July 9th we made the passage of the Karakoram, about which we had heard so many astounding tales, and having crossed a great many passes since, and a few before, I have no hesitation in saying that out of the many we had to negotiate between Kashmir and the Tian-shan mountains on the Russo-Chinese frontier, this pass was one of the very easiest. I do not think any one knows the exactly correct height of it. I believe the last time the altitude was taken officially was twenty years ago by some of the officers attached to the Forsyth Mission to Yarkand, with I believe a mercurial barometer. We took the height with aneroid barometers—two of Negretti & Zambra's newest and best instruments—and made it 18,880 and 19,100 feet; and the Russian traveller, Prince Galitzin, told me he had taken it with the boiling-water test, and made it 19,050.

On entering the pass we came upon the remains of forty-one horses and one human being, so that, under certain conditions, there is no doubt that the pass may be a deadly one. One of our horses fell down dead on the far side of the pass. On leaving the summit we were joined by a pair of old ravens, who live there, and attach themselves to each caravan, following it north as far as the Chinese frontier fort of Sngat, where they invariably take their leave, and fly back to their home on the Karakoram. The caravan men were very superstitious regarding these birds, who did accompany us all the way to the Chinese frontier, and we used to put food out for them every night and morning.

On the north side of the Karakoram the Yarkand River has its source; and not far from the water's edge, about half-way down the pass, stands the cairn erected by Captain Bower to the memory of Andrew Dalglish, the Central Asia trader, who was treacherously murdered by a Pathan, the words, "Here fell Andrew Dalglish, murdered by an Afghan, April 6th, 1888," being carved in English and Persian on a marble slab which surmounts the cairn of rough stones which marks

the spot of the murder. I met Captain Bower the other day in Simla, and he was very much interested to hear that the monument was still standing, as he feared it might have been swept away by the melting snows.

For the next four days we gradually descended, following the course of the Yarkand River until it lost itself to view, flowing, as it does, for some miles underground, to reappear again under the guise of about one hundred bubbling springs of clear water, contained in about an area of two acres of ground.

During these four days our lowest altitude was 16,800 feet; and on the fifth day we crossed the Chinese frontier, over the Suget Pass of 18,680 feet, in a snow-storm, and, descending 5500 feet, found ourselves in two days at the Chinese fort, where we were hospitably entertained by the commandant, Ching Dolai. Here we had hoped to have been able to re-provision the caravan for a two months' march on to the Pamirs; but the Chinese either could not or would not provide us with the large amount of flour and grain we required. The consequence was, we had no choice but to proceed to Yarkand, and try and make the Pamirs from there.

While at the fort we heard that the Kilian Pass was not practicable, owing to the great amount of snow. So we settled to go by Sanju, a route which, Ching Dolai informed us, was closed by special order of the Emperor of China, owing to raids made by some wild tribesmen on caravans, the last of which resulted in the murder of some Yarkandi merchants and the selling of their caravan men into slavery. We were, however, determined to pursue this route, and risk meeting these freebooters, telling Ching Dolai that we were a strong party, well armed, and quite able to take care of ourselves.

So we rode up the valley of the Karakash River for four days, through magnificent scenery, until we reached the Boschut defile, which narrow, steep, and uncompromising gorge was the entrance to the Grim Pass.

I forgot to mention that the morning we left the fort the two Karakoram ravens sat perched on some rocks, watching the men loading the ponies; and when we marched, they spread their wings, and flew in the opposite direction, presumably back to their home on the Karakoram.

We made the passage of the Grim in a thick snow-storm, the altitude being 17,330 feet, the last 1000 feet of which was as difficult as it was dangerous for the transport animals, the yaks lying down and refusing to move, and even the unladen ponies showing the same signs of distress. At one time I thought we should be beaten back; but by dint of sheer hard struggling, not unattended with danger to both man and beast, we managed to reach the summit of the pass (which is in reality the summit of the mountain), and found ourselves on a razor-

backed ledge, where there was barely foothold, so narrow and sharp was the top. As it was snowing hard and very thick, we could see nothing in front of us but a fearful-looking precipice, down which we had to descend in a thick mist. When we with extreme difficulty, and at the risk of breaking our necks, got down about 2000 feet on the north side of the pass, and clear of snow-storm and mist, a sight met our eyes which was as unexpected as it was beautiful and refreshing. Below at our feet lay miles and miles of lovely green downs, the grass growing almost up to the tops of the hills that sloped gently down to them.

Three hours' march brought us to Kichik Ilak, where there was a large Kirghiz encampment, these hospitable nomads receiving us with every demonstration of friendship, and bringing us presents of yak's milk, curds and whey, etc. Having the utmost confidence in these people, we remained in their camp for two days, to rest ourselves, as we had been walking and riding for seventeen consecutive days, at a daily mean altitude of 16,680 feet above sea-level, the distance covered being 258 miles, over eight mountain passes, six of which were over 18,000 feet high.

Leaving our kind Kirghiz friends, we rode for two days down the Sanju River, and on the third day, instead of continuing down the river, following the route taken by the Forsyth Expedition in 1873, we turned off due east up a river called the Arpalek, to explore and, if possible, cross the Chuchu Mountains, and see what lay on the other side of them. Crossing the Arpalek River about one mile above its junction with the Sanju, we proceeded in a north-easterly direction, and, climbing a steep cheraï, found ourselves in a high, narrow defile, which we conjectured must be the entrance to the Chuchu Mountains, which did not appear to us very formidable after the Eastern Himalayas and Kuen Lun ranges. We ascended 3520 feet, and crossed the mountains in the evening of the same day at an altitude of 12,500 feet. It was a long and a steep pull, and several of our ponies came to grief with their loads, and some of the men got hurt trying to save the ponies rolling over the rocks. After a long and weary march of 22 miles over the mountains we halted, and the next day found ourselves in a country sufficiently uninteresting to warrant my not saying anything about it. It was quite uninhabited, until two days later we struck a sort of farm on the Poski River, 20 miles from Sanju. The Poski River being only 9400 feet, we found the temperature warm and pleasant, and the people of the farm very hospitable, but much astonished at seeing a European. Needless to say, we never saw the wild tribesmen, nor do I believe that they exist. Major Roche and I made as careful a survey of that bit of country as circumstances would permit of, a small map together with some photographs and sketches being the result.

Sanju was reached on July 25th, and we arrived at Yarkand early

in August, the distance covered being 953 miles from the start and 790 miles from Kashmir.

Yarkand in ancient times was the capital of the country, and although no longer the metropolis, is still the most popular as well as the most wealthy city in the whole of Kashgaria, called by the Chinese "The New Dominions." Like all cities of Central Asia it is fortified, and like Kashgar has two distinct cities, the old and the new; the former is entered by five gates, and the latter, Yangi Shahr, as its name in Chinese, Mangshin, denotes, is simply a large fort, entered from the east by a double gate over a drawbridge, which spans a ditch 30 feet wide and 30 feet deep. Within this fort are 400 houses, and a population of 2000 souls, whereas the Kuhna Shahr, or old city, and suburbs contains a population of 60,000.

Just at this time all sorts of rumours were flying about the bazaars regarding the movements of the Russians on the Pamirs, the result being that a Chinese force was despatched to that region, and we followed in its rear.

On the second day out we marched across the Desert of Shaitan Kum, after emerging from which we entered a mountainous country again, and passed through many curious defiles, where in some places the stupendous rocks on each side almost met overhead.

On August 22nd we crossed the Kara Dawan, or Black Pass, and found ourselves overlooking the most gigantic basin, in which we counted thirteen small ranges of mountains between us and the blue haze that enveloped the far hills. The descent of 2500 feet was very steep, and we had as usual to make it on foot leading our horses.

The black shale over which we travelled showed plainly the presence of coal and iron, the sides of the hills being streaked with unmistakable veins of those valuable minerals. We soon came to a dead-lock at the far end of the ravine in the shape of a high waterfall, the stream that we were following tumbling over an apparently white marble precipice several hundred feet deep. With difficulty we made our way down a steep zigzag path to the bottom of the waterfall, the water of which was quite salt. All around lay the dead horses of the Chinese, who had been less fortunate than ourselves in making the perilous descent.

Next morning we rode down the Kiaz River, through the yellow hills that give to Sari-kol its name, "Sarig" meaning yellow, and "kol" the Kirghiz name for a wide valley, as distinguished from "gilga," a gorge—not "kul," a lake. Thence through sparsely-cultivated valleys where the natives were busy threshing their corn, the process being as follows: the corn is laid down on the ground and a pole stuck in the middle of it, to which is attached six donkeys and four cows abreast; a boy runs behind with a whip, and the animals trot round and round the pole, treading out the ears of corn as they go.

At the junction of the Kiaz and Charlung Rivers we altered our course from south to west until, after two days' riding, we reached Chehil Gumbaz, where stands an abandoned fort built by the Chinese.

At Tashkerim we came across the Chinese troops, who, having left Yarkand with the ostensible object of marching on to the Pamirs, had taken up a permanent position at this spot and never got any further. Rejoining Major Roche about a mile from the Chinese camp, we continued riding up the river, gradually ascending from 6700 to 10,800 the elevation of Chehil Gumbaz, and the following day crossed the Tarut Pass, 13,600, ascending 2800 feet in  $2\frac{1}{2}$  miles, or nearly 1 in 5.

The next day we journeyed up the Toilobolong River through the wild and almost impassable ravine which bears the same name. After some hours of break-neck work, ascending 4000 feet the while under a burning sun, we found ourselves on a piece of open tableland at an altitude of 13,800, a plateau of rough coarse grass and granite boulders, and in front of us rose the great snow-clad Mountains of Sarikol, the eastern barrier of the Pamir region. After leaving this plateau, we kept ascending until the cold of the declining day became almost as severe as the noonday heat of the defile had been intense.

About midday next day we came upon a beautifully clear sheet of water, out of which the Yambulak River flows. This lake was surrounded on three sides by stupendous cliffs, rising sheer up 2000 feet from the water's edge, one huge glacier standing out in bold relief in the middle of them, which doubtless gave to the water the most beautiful emerald hue I ever saw. The altitude of this lake, which we took to be the Yambulak, as it lies so near the pass of that name, we made 15,800 feet, and the summit of the pass beyond it 16,530.

The sides of the pass were deep in snow, and the strong north-east wind that we met on the summit did not improve matters in the way of temperature. We had to undergo one of those violently rapid changes of temperature so trying to men even in the rudest of health, there being a difference of  $91^{\circ}$  between the heat of the plain and the cold of the camp in the morning. After much difficulty and suffering we reached Tashkurgan in two days.

Tashkurgan, meaning stone fort, is the capital of Sarikol; it is but a small village, and the Chinese fort, which gives it its name, stands on a piece of rising ground on the left bank of the river, which rejoices in several names, the proper name being the Taghdumbash River. The fort is manned by eighty-eight men, one officer, and no guns. The population of the Sarikol district numbers six thousand souls and is purely Aryan. The people belong to the Shia sect of Mohammedans, and their language is the same as that of the Shighnanis, from which western district of the Pamirs they originally migrated.

We remained a day or two at Tashkurgan to re-victual the caravan, and also to give the sick men a rest; and, after riding up the left bank

of the river in a southerly direction for three days, arrived at the dilapidated Fort of Ujad Bai, which stands at the fork of the Khunjerab and Mintaka Rivers. Striking off to the westward from this point, we entered the Taghdumbash Pamir, and, after three days more riding, established ourselves in a permanent camp on the KukTURUK River, where we remained for fifty-five days. It was owing to our camp being laid out on military lines on a square 60 yards to each face, and our making a road round it and building a stone kitchen in the centre that gave rise to the rumour that the English had built a stone fort on the Pamirs, and caused a Mandarin to travel from Kashgar, fifteen marches to our camp, only to find the stone fort was a kitchen. Our caravan, which by then mustered sixty horses, and with Kirghiz followers about forty men, was also magnified into an armed English force. The Chinese were very jealous of our having established ourselves on their Pamirs, and gave orders to Osman Beg, chief of the Kirghiz of Mintaka, not to supply us with any food for men or horses in the hopes of starving us out of the country, and as soon as we struck our camp in October they demolished our stone edifice, still believing it to be a fort.

The weather began to get very cold at the latter end of September and beginning of October, the thermometer registering minimum temperatures of from 5° to 8° below zero every night, and sleeping out without a tent up in the hills, when shooting *Ovis Poli*, was rather cold work. During our stay in the permanent camp, we made several exploring expeditions, amongst others, crossing the Hindu Kush by the Kilik Pass, which we found was a shorter way to Hunza and Gilgit by three days than over the Mintaka Pass, which is the usual route.

On hearing that the Russians had turned the Chinese out of Aktash, a fort at the east end of the little Pamir, and demolished it, I resolved to go and verify the statement, which, like all Kirghiz rumours, had to be taken *cum grano*. So, leaving Major Roche at the permanent camp, I started with five men for the valley of the Aksu River, and, crossing the Beik Pass, 16,370 feet, arrived after four days' marches at the Fort of Aktash, which I found in ruins, not one stone standing upon another.

After my return to the permanent camp at KukTURUK, we struck our tents and started for the middle and upper Pamirs, riding in a westerly direction up the valley of the Wakhjir, having previously despatched those of our sick who could not stand the cold of a Pamir winter across the Hindu Kush to Gilgit.

We crossed the Wakhjir Pass, 16,680, which is the frontier between Chinese and Afghan territory, and when we descended and struck the Ak Bilis River, we found ourselves in the Wakhan district of the Pamirs and within the dominions of the Amir of Kabul. Riding for two days down the Ak Bilis River we reached Bozai Gumbaz, a now historical spot, as it was there Captain Younghusband's progress was arrested by the



Russians in 1891. From there we proceeded east, to the Chakmak Kul, and passing the source of the mighty Oxus which we claim to rise simultaneously with the Aksu River at the east end of the lake, we crossed the mountains of the little Pamir by the Andamin Pass (15,150) and debouched on to the great Pamir Plateau in a heavy snow-storm. It was just before crossing the pass that we came across a bare, gaunt, hungry-looking dog, who, having lost his Kirghiz or Dakki master, attached himself to our caravan and soon got quite tame. To him we gave the name of Pamir.

Our objective point after entering upon the great Pamir was Wood's Lake, now called the Victoria, and what between the stupidity of Abdul Kerui, a Kirghiz who pretended to know the locality of the lake, and the advent of a heavy snow-storm, during which we lost our caravan, we found ourselves at night (November 4th) on the bank of the Chistoba River, a long way north-east of the lake and well out of our course. The next morning we worked our way by compass and crossed a small pass, 15,130, which for want of a better we named the Fox Pass, as our dog Pamir ran one to earth on the summit. In the evening we came within sight of a lake which turned out to be one of the small lakes, the western extremity of which lies about  $3\frac{1}{2}$  miles from the east end of the Victoria, which lake we sighted next morning. We rode along its north shore for two days making short marches, as our mornings were occupied taking observations, sketches, and photographs.

On the third day we camped about 8 miles down the Pamir River, which flows out of the west end of the lake, and forms a junction with the Ab-i-panj at Langar Kisht, and is, therefore, a tributary of the Oxus.

As we lost twenty-three of our horses during the night, it was late before we recovered them, and were able to make a start to explore the mountains between the Khargosh Pass west, and the Bash Gumbaz Pass east, our object being to discover a pass that led straight from the west end of the Victoria Lake over the mountains to Yashil Kul, a lake lying at the west end of the Alichur Pamir. So choosing an open-looking, but very stony nullah, we rode up it due north for 8 miles until we came on to a circular plateau in the midst of wild stony hills, altitude 14,900. In front of us was a ridge which we took to be a watershed, but on reaching the summit (15,230) we saw we were mistaken, as  $\frac{3}{4}$  mile farther on was a narrow pass, on the summit of which (15,700) was a small but perfectly square frozen lake, and its peculiarity lay not only in its perfectly rectangular shape, but in its close resemblance to an artificial reservoir, its sloping sides being paved by nature with flat stones fitting closely together, giving it all the appearance of a piece of solid mason work. We therefore named it the Hauz-Dawan or Reservoir Pass. From the Hauz-Dawan we descended in two marches on to a flat sandy desert, 300 feet below which was a large basin extending

east and west for miles. In it were four lakes: one, the Sasik Kul, 3 miles long by 1 broad; two, the Tuz Kul, and two smaller ones, the last being the Khargosh-Kul at the end of the stream running from the Khargosh Pass. The altitude of these lakes was 13,400 feet, and the whole basin which contained them was encrusted with saltpetre. Rising onto a ridge we came to another small pass which we named Guljia-Dawan, from the large amount of horns and skulls of these animals (*ovis poli*) that we saw lying about. From this pass, which is not marked on any map, we had a fine view of the hills of Shighnan. We reached Bulun Kul, 13,200 feet, and camped at an abandoned Afghan outpost. The next morning (November 9th) we pushed on to Surmatash, skirting the shores of the Bulun Kul, until we came to the river which connects the two lakes—Bulun Kul and Yashil Kul. In none of the maps are these two lakes made to have any connection with each other, whereas they are in point of fact almost one, the little river which connects them being but  $\frac{1}{2}$  mile in length. Bulun Kul lies south-east of the Yashil Kul. This latter lake is the next largest on the Pamirs to the Kara Kul, being about 16 miles long. It lies east and west. The Ghund River, which rises at the west end of the lake, flows into the Ab-i-Panj, and is one of the many tributaries of the Oxus.

Surmatash is the spot where only a few months before the unfortunate conflict took place between the Russians and Afghans, concerning which (as it comes under the heading of politics and not geography) I shall be mute. Close to the scene of the fight we found four Afghan great coats lying on the ground; they were all more or less blood-stained, and on examining them closely could see pretty clearly how their ill-fated owners had met their deaths. One had seven bayonet or lance thrusts through it. Another had the left arm almost severed through at the elbow, and the other two were in worse plight. The dead Afghans were all buried in one grave on a hillock just above the river. They are not interred, but all huddled up together inside an enclosure composed of four low walls built of rough stones. Over the bodies have been thrown two namdahs, over which some mud has been sprinkled, the whole kept down by five large stones to prevent any beast of prey from scraping up the corpses.

Leaving this now historical spot, we marched for five days through the Alichur Pamir along the river of that name, arriving on the third day at the Nezatash Pass, 14,430 feet. There we fell in with a Cossack patrol, who finding one of our men looking for a stray horse, took him to be an Afghan and threatened to shoot him, but on seeing us approaching left him alone.

Two days after crossing the pass, we arrived at Murghabi, Colonel Yonoff's head-quarters, where we were very well and hospitably received by the Russian officers in charge of the fort, as the Colonel had just left for Tashkend. There we remained for two or three days,

as our kind hosts would not hear of our leaving them, and we soon became the best of friends. At the end of November we marched to Rang Kul, another smaller Russian fort, accompanied by Captain Brjesicki. We camped one night at Ak-Baital, where I was much amused at over-hearing the following conversation between Major Roche and Captain Brjesicki. The former was asking the latter in French the meaning of the word Ak-Baital.

Brjesicki, whose knowledge of the French language was limited to about half-a-dozen words, one of which was "*cheval*," was cogitating deeply how to translate the word, Baital (a mare) into French. He knew that Roche understood the meaning of the prefix ak (white), but how to convey the translation of the word Baital. At last a bright thought struck him, and he exclaimed triumphantly, "Baital—*Madame Cheval*."

The next afternoon while riding along the southern shore of the frozen Lake of Chor-Kul, we came upon the curious Lamp Rock. On reaching the end of the Chor-Kul, which is from 6 to 7 miles long, we came upon the Rang Kul, another smaller lake, separated from the Chor-Kul by a quarter of a mile of land, no stream even connecting the two pieces of water; and yet on most of the maps they are represented as one large lake under the name of Rang Kul.

It was a bitter cold ride of 28 miles from Ak Baital to the Russian fort, where we arrived three hours after dark, with the thermometer at 15° below zero. There was but a small force of Cossacks there under the command of two officers, who made us most welcome, and administered as best they could to our wants.

The next day we found the thermometer had been as low as 25° in the night, and we all agreed as to Rang Kul being the coldest place on the Pamirs. One of our horses died of cold the day before. The fort is situated at an elevation of 13,500 feet above the sea, on the edge of an immense plain.

In the afternoon of the second day we spent with our kind hosts, the weather gave us some sort of idea of how cold it could be, as the thermometer fell to 10° below zero in the afternoon; so we had recourse to various expedients to keep ourselves warm. We were genuinely sorry to leave our hospitable quarters and the cheery good fellows who had been our hosts, but December was fast approaching. We started the next morning and marched to the foot of the Ak-Berdi Mountain, crossing the Kokbeless Pass, 15,300 feet *en route*, from the top of which we had a splendid view of the great Mustagh-Ata, whose rugged ice-bound peaks rose some 25,800 feet into the wintry sky.

The Ak-Berdi being the Russo-Chinese frontier Captain Brjesicki bade us adieu there, and we commenced to make the ascent of this mountain, which was deep in snow, the last 1500 feet of which was as bad as the Grim Pass, and we had no yaks. The cold was intense,

with a north-east wind blowing the loose snow into our faces. We managed after several hours' struggling to get over the summit (for there is no pass), and the next day we reached the Chinese fort of Bulun Kul where we remained for the night in a Kirghiz Akoi. Here we had some difficulty in persuading the Chinese officer to allow us to pass.

Riding for 8 miles along the shore of the Bulun Kul Lake and passing the second Chinese fort at the north-east end of it, where the Gez River has its source, we entered the Gez Defile and camped at the first convenient spot. The river runs through a deep narrow gorge on the left of the track which is impossible to see in some places, and which leads over miles of stones and rocks all heaped up in wild confusion, intersected every now and again by deep and almost impassable dry watercourses, all the result of recent landslips. The next day it blew a gale and the landslips were too frequent to be pleasant.

That night we camped near some hot springs. The third day the defile widened out a little and opened up fresh beauties to our appreciative eyes at every turn, as we proceeded further eastwards. The scenery, in fact, became so savagely grand that we ceased to grumble at the roughness of the country over which we were travelling, and at our very slow means of progression, viz., 19 miles in two days.

Rounding the base of a huge rock we suddenly came face to face with a scene which will live for ever in my memory. To attempt to faithfully describe its chaotic magnificence is almost impossible. Picture a background of wild rugged mountains, whose snow-peaks towered into the sky. Rocks of every fantastic shape, with huge festoons of icicles hanging from their jagged edges; ice-bound torrents and frozen waterfalls; huge boulders thrown about in the wildest confusion, the whole foreground seeming to have been lately subjected to some mighty convulsion of nature, and then you can form no idea of the savage splendour of this scene of chaos. After gazing for some time with awe and wonder upon this enthralling picture, whose weird beauty was enhanced by a diaphanous haze which floated over it all, we rode on towards the distant blue hills which marked the termination of this wild gorge.

Three days later we reached Kashgar in the evening, where we were hospitably entertained by Mr. Macartney, the English Political Officer there.

During our stay in Kashgar we visited the few places of interest that the country could boast of.

About December 10th both our caravans were re-provisioned and the horses re-shod. (I say both our caravans, because it was here that Major Roche and I had most reluctantly to part, as he could not cross the Russian frontier. So we divided the caravan up, drawing lots for the fifty ponies, thus having twenty-five each.) And we each made a start, he east, to Maralbashi, in the hopes of shooting a long-haired tiger

before returning to Gilgit, and I north-west, towards the Tian Shan Mountains, that divide the dominions of the Emperor of China from those of the Czar. As heavy snow had been falling for some days, fears were expressed at Kashgar as to the feasibility of my crossing the mountains. However, taking with me only eight of our Tibetans, I made a start, leaving behind me, with much regret, Ahmed Din, my interpreter, who had been appointed as munshi to Mr. Macartney, at Kashgar, and could, therefore, proceed no further with me.

The first night I halted at the village of Sulok, and next day continued riding over the dreary plain in a north-westerly direction, passing the old fort of Andijan Kichik, making but little way, as the snow was up to the ponies' hocks. In the evening we left the plain, and, striking the Mingul River, rode up the little valley until we reached a long, low, rambling fort, where we halted for the night.

Crossing the Mingul we proceeded by and across the Kan-su Pass. On the fifth day from leaving Kashgar I arrived at the Kirghiz encampment of Uksalar.

There we stayed two days and then crossed the head-waters of the Kizil-su to the Chinese frontier fort of Ulukchat, which stands some little way up from the river.

Two days later I reached the Russian frontier fortress of Irkishtan, having spent one day in hawking partridges at Yaghan with the Beg of the Kirghiz, who had some fine, well-trained hawks. Irkishtan is prettily situated on a promontory overlooking the River Chenksu, and I was most hospitably entertained by the Cossack officer there for two days; and when I continued my journey he insisted on escorting me with thirty of his men for about half a day's march. The escort, mounted on their little shaggy horses, rode in fours, singing all the time, the rocks echoing back the music of their wild songs, which were extremely tuneful and very well sung.

On December 22nd, I found myself in the heart of the Alai Mountains in very deep snow and with the thermometer varying from 20° to 35° below zero. I crossed three passes—the Kok-Bel, 11,950 feet, the Ek-Zek, 11,600, and the Borak, 11,550, all of them very difficult ones owing to the mass of ice that covered them. On Christmas Eve the temperature fell to 38° below zero, and I woke to find three of my horses lying frozen at my tent door. One was quite dead, the others never recovered. On Christmas Day I made the passage of the great Terek Dawan on foot; it was one mass of snow and ice. It is barely 14,000 feet in height, but the descent of 5350 feet was very steep and a sheet of ice, the last 1000 feet being accomplished by moonlight. It is considered the worst pass in the Alai Range. After marching for two more days, I arrived at the second Russian fort of Gulcha, where there were about forty Cossacks. I was much struck with the neatness and cleanliness of their stabling accommodation.

Crossing three more passes, all small ones, and riding through a magnificent down-country, I arrived at Osh in Ferghana, where I was hospitably entertained by Colonel Grombohevsky, who has lately been appointed to the command of the district.

At Osh I sold my horses, tents, and camp equipage, having no more use for them, as the remainder of my journey through Russian Turkistan was accomplished in Tarantass and in sledges. I also parted from my faithful Tibetans, to each of whom I made a present of a pony to ride back to Kashgar, where they intended to remain until the first caravan set out for Ladakh. A better set of men, a hardier or a more willing I have never met with, and during the whole eight months they were with me I never once had to punish any of them or cut them a single rupee of their wages. I also include in this most of the men whom I left with Major Roche. Raudzan, who was our head caravan man from start to finish, I took on with me from Osh through Russian Central Asia until I met Mr. and Mrs. Littledale on their way to Pekin, when I handed him over to them, as they had been disappointed in obtaining the services of another man they had wanted, and I was able to tell them honestly that I considered they had in Raudzan one of the best men in Central Asia.

From Srinagar in Kashmir to Osh in Ferghana, following the route we were forced under the circumstances to take, we had travelled for nearly nine months on horseback, and on foot 2006 miles over thirty-nine mountain passes, some of these amongst the highest in the world, and across sixty-one rivers, during which time I am thankful to Providence we never lost a man and only seven horses.

It is unnecessary to describe here my journey through Russian Turkistan. Let me, however, state that from the time I entered the Central Asiatic dominions of His Imperial Majesty the Czar, until I quitted them, the extraordinary civility I received from high and low, the warmth of the hospitality that was accorded me by all officers from the Governor-General downwards, was so marked that as long as I live I shall not only never forget it but it will be always to me more than a pleasant experience to look back to. Being slightly acquainted with the language helped me not a little, as in the out-of-the-way districts, such as the Pamirs and frontier forts, none of the officers spoke either English, French or German.

Leaving Osh and my good friend Colonel Grombohevsky, I proceeded by Andijan to Marghilan, Khokand, Khojend, and Tashkend, being snowed up more than once.

It was now the middle of January, and my object was to get to Khiva, going round by Kasalinsk and the Sea of Aral; but the Governor-General, Baron Wrewsky, whose guest I was, pointed out to me how hopeless it would be to attempt such a journey at that season of the

year, especially as the Oxus was closed for navigation owing to the ice, and to attempt a land journey in the snow over the Khivan desert in this, the most severe winter known in Central Asia for years, would be little short of madness; so I had most reluctantly to give it up as a bad job. Day by day the weather got more and more severe, and the snowstorms were frequent until at last the mails ceased to run, as the roads were all blocked. Telegraphic communication alone remained open, and that at last was closed; but not before I discovered by means of the wires from Askabad that my long-cherished plan of crossing the Persian frontier over to Meshed, and so working my way down the Afghan frontier, and through Beluohistan to the Persian Gulf was also knocked on the head, all the roads and passes over the mountains being so deep in snow that I was unable to procure a caravan of camels or any other beast of burden to cross the hills into Khorasan; so I determined, as soon as the roads were open across the Steppes, to proceed to Samarkand and take the Transcaspian Railway to Uzunada, cross the Caspian to Baku and take boat from there to Enzeli, ride to Teheran, and so on to Bushire, and reach the Persian Gulf that way. It was on the last day of January that I left Tashkend and started for Chinaz. Through the gorge of Jilan-uti we gradually descended till we reached the valley of the Zarafshan, and shortly afterwards the domes and towers of Samarkand came into view, lit up by the golden rays of a winter sunset.

Leaving Samarkand by the Transcaspian Railway, I arrived at Bokhara the next day, then crossed the Oxus at Charjui, and so over the sandy waste that forms the south end of the Khivan desert, to Merv, Askabad, and the Caspian. All this part of the country has been so well and graphically described by Mr. Curzon, that recapitulation on my part would be worse than useless. Suffice it to say that I crossed the Caspian to Baku, arriving there the very day the boat had sailed for Enzeli, and there was not another for a fortnight. The prospect of a fourteen-days' sojourn at Baku was not agreeable, so I went on to Tiflis, that I had not seen since 1859, when it was but a very small town, and so to Batum, where I took the steamer to Constantinople, and returned to India, landing at Karachi in March 1893, just thirteen months since I had landed there in February 1892.

Before the reading of the paper, the chairman, General STRACHEY said:—The Earl of Dunmore will now read you the account of the remarkable journey he has made during the past year, starting from the Indian side of the Himalaya Mountains, going through to Yarkand, thence into the Pamirs, from the Pamirs back to Kashgar, and from Kashgar through Russian Turkistan to the Caspian. I will leave you now in the hands of Lord Dunmore, who I think will give you an extremely interesting account of this journey.

After the reading of the paper, the following discussion took place:—

Mrs. BISHOP: I was not prepared to speak on this question, but as I have

followed the route as far as the Karakoram Pass, I am extremely interested in all Lord Dunmore has said. One or two questions I should like to ask if I may. I should like to know at what height the vegetation ceased on these high passes which he crossed? In my own experience in crossing the Digar and the Kardong glacier pass, edelweiss in enormous quantities covered the whole of the hill-sides in June at a height of 15,000 feet, and from that up to 16,500 feet, beyond which vegetation, except lichens, ceased altogether. I should much like to hear whether he made any observations on the vegetation of the north and south sides, and I should also be interested in knowing whether he observed the range of the thermometer between noon and midnight at heights of 15,000 feet and upwards? I registered solar temperatures of 157°, which was only I think 32° below the boiling-point of water at the same altitude, but the thermometer at midnight fell to 24°, showing an enormous range in twelve hours; and it has occurred to me that the extraordinary disintegrations of the mountains which one sees in Nubra, and specially in the gigantic mountains at the bend of the Shyok may possibly be attributed to these very rapid changes in temperature, occurring in such a dry climate as that of Western Tibet. I should like exceedingly to have some light thrown upon these two subjects—vegetation and temperature?

Sir THOMAS GORDON: As an old traveller in the Eastern Iceland, that wilderness of snow and ice, of which Lord Dunmore has given us a flying account to-night, and shown us some interesting sketches, I should like to say a few words. I wish to speak in praise of the splendid energy which he and Major Roche showed in pursuit of science and sport. We have seen the magnificent *ovis poli* heads in the next room, the result of forty-five days' stay in the Tagh-dumgbash. I think we must all admire the spirit of enterprise and resolute determination, the love of adventure and sport, and the great powers of endurance the travellers showed in their very severe journey. I have some personal knowledge of the difficulties to be met with in that country. I should like, however, on the part of the Yarkand Expedition, to disclaim all responsibility for those astounding tales which Lord Dunmore heard regarding the Karakoram Pass, for we distinctly reported it as easy of ascent and descent. I think these tales must have come from the Arguna, who were employed, and whose interest it is to exaggerate all difficulties with a view of increasing their rewards. Ever since I led the first exploring party in recent times to cross and recross the Pamirs in 1874, I have observed very closely the explorations which followed ours. The famous Skobeloff immediately replied by passing down from Khokand towards Tashkurgan, and his very able assistant, Captain of the Staff, Kuropatkin, also explored in that direction. Very shortly after that, England and Russia began to vie with one another in gaining a geographical knowledge of that then comparatively little known region, and France and Germany subsequently joined in. England has had, I should say, the biggest share in it in later times. I would mention Mr. Ney Elias, then Younghusband, assisted by Davison, then Littledale, who like the lecturer to-night, was a splendid sportsman, as well as a successful explorer. Lord Dunmore has devoted himself to working in a rather remote corner, and I have no doubt he has gained a great deal of information which may prove valuable in solving the big problem which seems to be presenting itself there for early solution. I congratulate Lord Dunmore and Major Roche upon their very successful journey.

Mr. W. M. CONWAY: The only remark that I think is called for from me, bears upon the question of the experiences of the party at high altitudes. I notice that Lord Dunmore mentions that he first experienced discomfort, not on the top of but whilst descending from a pass 18,000 feet high. They were at the time on a glacier and probably in a hollow place. That observation, I think, is of importance. It is not



new, but we have so few accurate observations about the effects of high altitudes, that it is important to get any testimony tending to show that you do not necessarily feel the worst effect of diminished air-pressure on the highest points; there are many other factors that enter into the production of that uncomfortable sensation, and one of the most important of these seems the neighbourhood of snow. It seems to me quite clear that in high places upon snow the effects of atmospheric pressure are more marked than in equally high places on rocks. Lord Dunmore observed next that they found it hard to sleep on an occasion when they were for the first time at 17,000 feet; but I gathered that on later occasions they maintained a high altitude for a considerable period and experienced no discomfort. At 18,000 feet, which they again rose to on the Depsang Plain, notwithstanding that they were helped by the wind, which is of great assistance in warding off the effect of diminished atmospheric pressure, they experienced the most marked discomfort. These observations are of importance, because they show that at heights of 17-18,000 feet, as noticed also by Captain Bower in Western Tibet, considerable discomforts were felt, whereas it seems to be the case in Sikkim that mountaineers and travellers can rise to higher altitudes almost without discomfort. Possibly the greater amount of moisture in the atmosphere of the Eastern Himalayas somewhat lessens the discomforts of diminished air-pressure, whilst in the dry atmosphere of the Pamirs and Mustagh regions greater discomfort is felt owing to the dryness.

Hon. G. N. CURZON: I should like to endorse what fell from Sir Thomas Gordon as to the great value of explorations such as Lord Dunmore has so well described to us. Just as Mrs. Bishop found an excuse for speaking in the fact that she had traversed some of the earlier parts of Lord Dunmore's journey, so I might find an excuse in the fact that I have traversed some of the later portions. I have had occasion to go very minutely into the question of the Pamirs and the Upper Oxus, and had intended, but for the disagreeable necessities of Parliamentary life, going to that region myself this summer. Now General Gordon spoke as a member of the first and last organised British expedition to the Pamirs, the last whose record has been given to the public, and although as he says, Mr. Littledale, Captain Younghusband and Lieut. Davison, and Mr. Ney Elias have been since, yet our record of exploration on the Pamirs is not equal in numbers or extent to that of Russia, who has, from year to year, sent parties, nominally scientific, really political, to those regions. Therefore we owe a debt of gratitude to gentlemen who, like Lord Dunmore, tour on their own account, and bring back to us and the Indian Government information of the highest value. The value of Lord Dunmore's travels in this case is two-fold, because, in the first place, he was on the Pamirs at an extraordinarily interesting time; but as what I am now saying touches on the forbidden ground of politics, I cannot pursue it further, but can only admire, and at a humble distance pursue the remarkable discretion in this respect that Lord Dunmore has shown. The second point on which we owe him gratitude is for the positive additions he has made to geography, to which, after all, as a Geographical Society, we attach higher value than anything else. Lord Dunmore and party passed over thirty to forty passes of great altitude under the severest conditions of atmosphere and temperature. Some of these have never been crossed before by Europeans. Further, by his discoveries, he has rectified our ideas about the peculiar chain of lakes existing in the region of the Upper Oxus. Firstly, there is the succession of small lakes, in or near to which the Oxus is said by him to rise. Then there is the cluster of lakes round Yashil Kul, on the Alichur Pamir. Finally, he has acquainted us with the fact that the lake called Rang-Kul is, in reality, two lakes, of which Rang-Kul is the smaller. These are, I think, positive additions to our geographical knowledge. There is one point on which I desire to ask a

question. Lord Dunmore, in his paper, talked about the real source of the Oxus, and on the screen showed us a fascinating picture of that river emerging from Lake Chakmak. I think in General Gordon's book, or in one of Colonel Trotter's maps, this is given as Oi Kul. Now, the river which rises in this lake, and then flows northwards, is the Aksu, which later on becomes the Murghab, and, after making a great bend to the west, rejoins the Oxus (as commonly accepted) at Kila Wamar. But there is another stream which some people insist upon regarding as the true source of the Oxus, where the upper portion of the Wakhan River, known as the Ak Bilis, rises just north of the Wakhijir Pass amid three great glaciers, which a Frenchman, M. Dauvergne, visited two or three years ago. I cannot help preferring that the Oxus should be held to rise in these great glaciers rather than in an insignificant lake; and I venture to suggest that this, and not the Aksu, the resemblance of whose name to the Oxus is purely accidental, should be regarded as the true parent stream. I have one other thing to say: Lord Dunmore's paper illustrated in an interesting manner the national traits of the various peoples scattered over this remote tableland. First, there are the Kirghiz, genuine nomads, and, I believe, almost always hospitable and generous to travellers. Then there are the Chinese, on political grounds supposed to be friendly towards us, a characteristic which they do not invariably show. Whatever their attitude towards foreigners, their political position on the Pamirs is most inefficient. I do not believe in the wonderful things the Chinese are going to do on the Pamirs. The most gratifying feature, however, to which Lord Dunmore paid a generous tribute, is the civility and courtesy of the Russians. Nobody can deny the fact that the Russians on the Pamirs are possible rivals to ourselves, and it is therefore particularly gratifying that, when a Russian officer comes in contact with an English traveller, they should meet as gentlemen and friends. Even when Captain Younghusband was turned out by the Russians from Bozai Gumbaz, nothing could exceed the politeness of the officer who turned him out. It is gratifying that these great national rivalries, which are too great to be entirely obliterated, do not interfere with the courtesies which should and do prevail, more particularly in inhospitable regions such as Lord Dunmore has visited. I trust that not merely the substance of the paper, but also the admirable illustrations from his own brush will shortly reappear in the book, which, I understand, Lord Dunmore is about to publish, and I hope the rest of this assembly will follow my own example by buying a copy the first day it appears.

Lord DUNMORE replied: In answer to the questions put to me by Mrs. Bishop, I can only say it was a cause of serious regret to me that I had not a botanist with me, as I myself know little or nothing of botany. I have noticed the ice-plants to which Mrs. Bishop refers; but only on the comparatively low passes between Gulcha and Osh in Russian Central Asia. I never saw any on the high passes in the Kuen Lun, Mustagh, or Himalayan ranges; but as most of those passes were deep in snow we were unable to see what was underneath the snow. I cannot think there is vegetation of any sort above 16,000 feet, as there is no animal life. The edelweiss I never saw at all. As to the great variation of temperatures, I regret that I have not by me to-night the meteorological observations taken by Major Roche and myself, but I can recollect variations of 85° to 90° between dawn and midday, especially on the Pamirs.

General Gordon was good enough to make some remarks. I read his book with great interest before starting on this expedition, and followed the track of the Forsyth Expedition from Leh to Yarkand. As regards the correctness of the altitudes, the General knows as well, or probably better than I do, that it is impossible to place any reliance on the reading of aneroids over 16,000 feet elevation above the sea-level; some of our instruments would vary only 50 feet at 12,000 feet,

and at 16,000 feet would vary 300 feet. We shall never know the correct altitudes of these passes until a proper trigonometrical survey is made. I had my instruments corrected on my return to India, and have in consequence deducted 320 feet off all the altitudes I took.

In reply to Mr. Conway's remarks regarding difficulty of respiration at abnormally high altitudes, I can only say that my experience coincides with his. The first time I suffered from the great rarefaction of the air was not by any means at a great altitude, only about 16,000 feet, when in trying to make a hole with a pickaxe in which to sink my tent-pole, I suddenly felt giddy and light-headed and fell flat on my face on the ground. At 19,000 feet we felt no discomfort, whereas at lower altitudes it was sometimes almost impossible to breathe if one made the slightest exertion.

Mr. Curzon has asked me some questions with regard to my determining the Oxus source at the north-east end of the Chakmak Lake and not in the Sarhad River source. My reasons for so doing are as follows: Between the source of the Sarhad and the Chakmak Lake is a very low watershed; on the south-west side of this watershed is the source of the Sarhad River, which joins the Ak-Bilis under the walls of the Tomb of Bozai at a place called Bozai Gumbaz. Their joint waters flow to Ishkashem, whence they run north under the name of Ab-i-panj, until they reach Kala Wamar, a distance roughly measured by me as 240 miles, and receiving on the way the waters of the Pamir River which rises at the west end of Victoria Lake, and the Ghund River which runs out of the Yashil Kul. On the north-east side of this watershed is the Chakmak Lake, out of which flows the Aksu River. I believe myself that Oxus is a corruption of the old Kirghiz name of Aksu, meaning white water. This river, which we believe to be the true Oxus, flows north-east to Aktaash, receiving the waters of the Beik, Chistoba and a few minor rivers. It then takes a turn west to Murghabi on the Sarez Pamir, and receiving the waters of the Ak-Baital runs past Colonel Yonoff's headquarters, where it becomes the Murghab River; thence west until it becomes the Bartang, and so on to Kala Wamar, a distance from its source of 252 miles. This Aksu is therefore 12 miles longer and with a greater volume of water than the Sarhad. Mr. Curzon made mention of the Kirghiz and Chinese. I lived amongst the former for six months, and a quieter or more honest set of people I never met. As to the Chinese troops I could not judge about them, as they had but twelve men on the Pamirs in 1892.

General STRACHEY: It only remains for me now to return thanks to Lord Dunmore for the extremely interesting paper he has read to us.

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THE MAP TO LORD DUNMORE'S PAPER.—The map which accompanies Lord Dunmore's paper is taken from Johnston's "Royal Atlas," and is intended only to show his route. A few corrections have been made, but the map does not contain the most recent additions to our knowledge of the Pamirs. The information brought home by Lord Dunmore, together with the work of other recent explorers, Russian and English, will be embodied in a map which is in preparation in the Society's offices. Reference may also be made to the map of the Pamirs accompanying Captain Younghusband's paper, *Proceedings R.G.S.* Vol. XIV., p. 272.

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