

XIV.—*The Watershed of Central Asia, East and West.*

By Lieut.-Col. T. E. GORDON, R.E.*

THE diplomatic mission under Mr. (now Sir Douglas) Forsyth, sent to Kashghar in 1873 by Lord Northbrook, the Viceroy of India, gave us an opportunity of entering upon the somewhat unknown geographical field of the Pamir tracts, and of gaining information there which has cleared up considerably the hitherto obscure topography and hydrography of the high mountain lands lying between Eastern and Western Turkistan. I had the good fortune to be in command of the party detached from the mission to explore that region. I now propose to give a short account of our journey and observations from Eastern Turkistan to the Oxus and back, along both the Great and Little Pamir routes. But before commencing my narrative, I shall briefly notice what were the points in doubt before we went over the ground, and how far Wood and former travellers had gone.

Previous travellers.—The first to enter on the Oxus basin and Pamir tracts was the Chinese Hwui Seng, who, in 518, crossed from the valley of Wakhān to Tāshkūrgān by the Little Pamir route, and thence to Kashghar. The same route was followed shortly after by Sung Yūn, passing from Kashghar and Tāshkūrgān. These Chinese pilgrims were followed by the more famous Hwen Tsang, who in his return journey to China in 644, crossed by the Little Pamir to the Kizil Art. I would here mention that I am confident that the great lake he particularly notices is the Great Kārakūl, for it is impossible to believe that he could have ascribed such size to any lake he saw on the Great or Little Pamirs. After Hwen Tsang came the grand old traveller, Marco Polo, who, with his kinsmen, crossed by the Great Pamir to the Kizil Art Plain in 1272–73. He was followed by the lay Jesuit, Benedict Gōes, who took the Little Pamir route to Yarkand in 1602–3. Wood, in 1838, proceeded from Badakhshan to the foot of the Great Pamir Lake, and was the first, however, to give a thoroughly intelligible account of the head-waters of the Oxus, and his clear narrative and precise detail explained away many of the doubts which clung to the meagre descriptions furnished by the old travellers. One of Col. Montgomerie's successful and reliable explorers, known as "the Mirza," crossed by the Little Pamir route in 1868–69; and Faiz Buksh, an *employé* of the Government, crossed by the Great Pamir in 1870.

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Doubtful Points.—1. The ultimate direction of the flow of the Aktāsh Stream (Aksū), rising in the Little Pamir, and flowing east.

2. Names of the lakes of Great and Little Pamir, and names and position of the other lakes and Pamirs.

3. The culminating point and general character of the so-called table-land of Pamir.

4. The direction of discharge from the Kārakūl Lake.

5. The true watershed east and west.

Col. Yule's Essay 'On the Geography of the Valley of the Oxus,' gives a surprisingly correct description of the topography and drainage of the Pamir tracts. Col. Yule perceived a discrepancy in the Mirza's account of the Aktāsh Stream, and saw that an accurate knowledge of its flow, after reaching the valley of that name, was the important point towards a correct idea of Pamir topography; and it will be seen that he was right in his conjecture regarding the drainage of the Great, Little, and Siriz Pamirs. He also reduced the lakes to about their correct number; and with reference to the uncertainty concerning the "Tuz" or "Sussik" Kūl, which led to the idea of Wood's lake being so called, we confirm his (Col. Yule's) opinion that it was "difficult to conceive that a lake with so copious an affluent should have salt waters." Mr. Shaw was the first to throw some light on the story of the double discharge of the Kārakūl Lake east and west, by telling of the two Kārakūls—Great and Small—the one giving a stream to the west, the other to the east. We also found him correct in his idea of the Pamir being traversed by hog-backed ridges, between which the drainage flowed, the eastern drainage, however, not contributing to the Yarkand basin, as he supposed, but finding its way to the west and into the Oxus.

I shall now proceed with a short account of our journey. Capt. Biddulph, of the 19th Hussars, Aide-de-Camp to his Excellency the Viceroy; Capt. Trotter, of the Royal Engineers; the late Dr. Stoliczka, a distinguished member of the Government Geological Department, and myself, left the Mission Headquarters at Yangi-Hissar, Kashghar, on the 21st March, 1874. The signs of approaching spring were showing at Yangi-Hissar when we left; but immediately on entering the hills, 24 miles distant, we found ourselves back in the depth of mid-winter. Nearly all the streams were frozen, and snow lay everywhere, while fresh falls were frequent throughout our journey. As there is nothing very remarkable in the hill-country between the Yangi-Hissar Plain and the Sirikol Valley, and as, moreover, the "Mirza" has already given a good and accurate account of the route, I shall not enter into

any detail concerning it, beyond saying that we crossed, on our way to Tāshkūrgān, the three passes of Kaskasu, Tarut, and Chichik-lik, at an elevation of 12,850, 13,330, and 14,480 feet respectively. We reached Tāshkūrgān, in the Sirikol Valley, on the 30th. The distance from Yangi-Hissar is 125 miles.

The open part of the Sirikol Valley extends south from about eight miles below Tāshkūrgān to apparently a considerable distance towards the Kunjūt Mountains (Hindu Kush or Karakorum range). Its average breadth is about 3 miles. Cultivation is confined chiefly to the western slopes, and is the work entirely of the Tājik inhabitants, who occupy a length of about 15 miles of the valley in the vicinity of the fort. The centre of the valley, through which the river flows, is used as a pasture-ground, for which it is admirably fitted from its rich and abundant grass. The hamlets are at present in a wretched-looking state, the houses having fallen to ruin during the late wholesale banishment of the population to Kashghar. The Amir of Kashghar took possession of the valley in 1868-69, and after the manner of Eastern conquerors, deported the population in 1870, to prevent rising or rebellion. They were sent back in 1872. There are now about 600 families in the valley and the neighbouring Tagharma Plain, representing between 2500 and 3000 souls. They appear contented with the Kashghar rule, and appreciate thoroughly the peace and security they enjoy under it, and their immunity from the cruel raids of the Kunjūtis, Kirghiz, and Shighnis, to which they were formerly much exposed. Notwithstanding fellowship of creed (all being Shiah), the Kunjūtis and Shighnis had no scruples in stealing and selling into slavery their Shiah brethren of Sirikol.

The Sirikolis say that they have been in the valley for seven generations as a distinct people, with a chief of their own, and are the descendants of wanderers who came from all quarters—from Badakhshan, Wakhān, Shighnān, Hindūstān, Kunjūt, and Turkistan. Hence, as my informant (Ali Dāda Shah, a Sirikoli Mūlla) said, "The language peculiar to us is a mixture of what is spoken in all these countries." The Sirikolis, like the inhabitants of the small Shiah States in, and adjacent to, the Oxus basin, appear to be of Persian lineage, and speak the Persian language in common with them.

The present fort held by the Amir's troops occupies a commanding position among the ruins of the ancient Vārshīdī, or Tāshkūrgān. The old fort appears to have been of square or rectangular form, with projecting towers, and built of rough, unhewn stone, in the same style as the village houses and towers in the valley. The village towers were used for refuge

and defence in the slave-hunting raids, which the inhabitants suffered from before the establishment of the Kashghar rule. The ruins of the old fort do not show it to have been of great antiquity, or very remarkable in any way. We could not obtain any reliable information of it being older than the occupation of the valley by its present Tājik inhabitants.

The fort forms the residence of the governor of the district, Mir Taksabai Hassan Shah, an energetic, resolute-looking, one-eyed man, said to be a native of Karātegīn. He was very careful to prevent us visiting his fort, and indicated in the plainest but most courteous manner his determination not to allow any of us or our followers to enter it. Thus we were unable to obtain any view of the old ruins at a closer distance than a few hundred yards.

The valley is 10,250 feet above the sea. The cultivation consists mainly of beardless barley, beans, peas, carrots, and turnips. Willows grow thickly by the streams, and poplars show in sheltered spots close to the hamlets. The domestic animals are camels (Bactrian), yāks, ponies, cattle, sheep, and goats. The yāks are smaller than the Thibetan species. They are used in the plough for agricultural purposes. The climate is severe. Hassan Shah, the present governor, who has had five years' experience of it, says that there are only two seasons there—summer and winter—the former lasting but three months, the latter nine.

The valley extends to a great distance above the fort. The river which flows through it (variously called the Tāghdūngbāsh, Tāshkūrgān, Sirikol, Tisnāf, and Yarkand), taking its rise in the Tāghdūngbāsh Pamir and Kunjūt range. Kirghiz occupy it for pasture as far as the Kashghar boundary, said by the governor to be 20 "tash" (about 80 miles) beyond the fort. The Tāghdūngbāsh Pamir lies to the north of, and parallel to, the Little Pamir, from which it is separated by a broad chain of hills joining with the Neza Tāsh Mountains, and forming one unbroken range. The Sirikol Valley, after extending south for some distance, bends towards the west, and merges into the Tāghdūngbāsh Pamir, which appears to be merely a continuation of the valley at a higher elevation.

The Sirikol River was of considerable size when we first crossed it, March 29th. The perfect clearness of its water, the steadiness of its flow, and equality of volume, day and night, and the severity of the cold there, showed it to be at the usual low winter ebb. It is said to be joined about 50 miles below the valley by the Tang, a stream as large as itself. Should this be found to be correct, it is probable that the Yarkand

River may yet be regarded as rising in the Kunjüt range, instead of the Karakorum.

The Tagharma Plain lies about 3 miles to the north-east of the Sirikol Valley, and is of the same elevation. It is a fine open crescent-shaped flat, about 12 miles long by 7 broad, extending from the south-west to the north-east, and is well watered by a stream which flows through it from the north-east end, and falls into the Sirikol River. This stream is plentifully fed by numerous springs in the middle of the plain. A few Sirikolis reside and cultivate in it; but the main portion of the inhabitants consists of 100 Taiyat Kirghiz families, under their chief, Krumchi Bi, who permanently occupy the plain as a pasture-ground, and visit the Täghdünghäsh Pamir. The pasture in Tagharma is rich and abundant.

This plain is separated from the Kizil Art by a low rounded ridge, formed by projecting spurs from the opposite mountain ranges, the Neza Täsh to the west, and the Tagharma to the east. The ridge forms the watershed between the two plains, the drainage on the Kizil Art side flowing into the Little Kāarakül Lake, said to be about 20 miles distant. The Bārdish Pass leads west from the watershed over the Neza Täsh range into the Aktāsh Valley, emerging nearly opposite the Great Pamir, and about 30 miles above the junction of the Aksū and the Mürghāb.

According to the accounts given by the Kirghiz of Tagharma, and corroborated by Wakhis and others, the Kizil Art Plain extends north from the Tagharma to the Alai, from which it is separated by a mountain chain. The height of the two former plains is about the same, and that of the Alai somewhat greater, but still, considerably less than the elevation of the Pamir. The Kizil Art is similar in character to the Tagharma Plain, being well watered, and abounding with grass and fuel (willow). Its length is about 130 miles. It is enclosed on the east by the mountain range extending and sweeping round from the direction of the Khokand Terek Pass and the Alai, and on the west by the Neza Täsh. The Little Kāarakül Lake lies in the lower, and the Great Kāarakül in the upper end of this plain. The former gives rise to the "Gez" or "Yamanyar" Stream, which flows through the pass of that name under the lofty and massive Mūztāgh, or Tagharma Peak, into the Kashghar Plain, and there joins some of the numerous branches or canals of the Kizil Sū, or Kashghar River. The Little Kāarakül is said to be about 15 miles in circumference, and very deep. The Great Kāarakül is stated to be about 40 miles in circumference, and to give rise to the Mürghāb, which finds its way through the Neza Täsh range, and flows towards Shighnān and Roshān. Four

lakes on the Kizil Art and in its vicinity were mentioned as giving rise to streams: the two Kārakūls already described, the Rung Kul in the Siriz Pamir, and the Yeshil Kul in the Alichor. The two latter furnish tributaries to the Mūrghāb. Further mention will be made of these Pamirs and their lakes later on in this narrative.

The Kizil Art is permanently occupied by 1000 families of Kipchāk Kirghiz, who emigrated from Khokand seven years ago under their present chief, Abdūl Rahmān.

We left Tāshkūrgān for Wakhān on the 2nd of April. We proceeded in a south-westerly direction through the Shindān defile, and over the Neza Tāsh Pass (14,920 feet) to the Aktāsh Valley (12,600 feet), which we reached on the second day. The pass is easy of ascent and descent; but the very heavy snow lying on it made the journey over a very severe one to the baggage horses. The Neza Tāsh range runs north along the eastern side of the Aksū, as the Aktāsh stream is called, from the eastern end of the Little Pamir.

On the 4th we proceeded south up the Aktāsh Valley to its head, where it merges into the Little Pamir, extending east and west, the appearance being that of the same valley making a sweeping turn from south to west. We followed up the Aksū to its rise in the Ghāz or Oi Kūl, the Little Pamir Lake, which we reached on the 5th. Almost the entire journey from the Neza Tāsh to the Ghāz Kūl was made through snow, and against a freezing wind, which cut our faces and inflamed our eyes in a very painful manner.

The Aktāsh Valley runs in a northerly direction from the Little Pamir, across the eastern openings of the Great and Alichor Pamirs, and sweeps into the Siriz Pamir at Ak-balik, the junction of the Aksū with the Mūrghāb. Its length is said to be about 60 miles, and its average breadth, judging from the 20 miles' extent over which we travelled, is about 3 miles. It is a pasture resort of the Kizil Art Kirghiz.

The Little Pamir is similar in character to the Aktāsh Valley, and of about the same breadth. It has the same grassy downs, slopes, and flats. It is bounded on the south by the continuation of the Neza Tāsh range, which separates it from the Tāghdūngbāsh Pamir. The range here appears to sink considerably in height. A broad chain of rounded hills lies between it and the Great Pamir. These hills are low towards the Aktāsh Valley, and rise gradually towards the Lake. The Lake is about 3 miles long, and a little under 1 mile broad. We found it, and the stream flowing from it, entirely frozen. The height is 13,100 feet. The hills on both sides rise some 2000 feet higher, those to the south being completely

covered with deep snow. Extensive glaciers and snow beds lie near the western end of the lake, where the opposite ranges close in considerably. The name Bŭrkŭt-Yursi (corrupted or distorted into Bŭrkat-Yāsui), applied to the lake by some native travellers, is properly that of the rocky ravine at its head, and means the "eagle's place" or "nest." The "r" is dropped in the pronunciation, as is common in many "Turki" words, and thus the mistake may have been made.

At less than half a mile west of the lake a watercourse, filled with ice, appeared, leading west down the valley. This is the beginning of the Sarhadd Stream, which unites with that from Wood's lake to form the Panja. Six miles lower down a stream from the eastern Tāghdŭngbāsh Pamir joins. The valley closes in at a distance of 10 miles below the lake, and the Little Pamir may be said to terminate there. This gives that Pamir a length of 58 miles, calculated to the southern end of the Aktāsh Valley. The Sarhadd Stream from this point runs in a deep set course between steep banks which rise up to the long mountain slopes, along which, by the right bank, the road leads to Langar, 25 miles below the Lake. A stream of considerable size joins there from the south-east.

From Langar the road continues in a general westerly direction along the stream to Sarhadd, 30 miles. In the depth of winter the frozen surface of the river makes passage by this route easy. We found the ice, however, beginning to break up here and there, and our path had to be sought across and back, over the rocky bed, and up and down the steep high banks, making the journey tedious and severe to a degree. In summer the swelling of the streams makes this road extremely difficult, and it is then that the Great Pamir route is followed in preference.

We left the last firewood at the mouth of the ravine leading from the Neza Tāsh Pass to the Aktāsh Valley. Up to that, willow and myricaria are found. No wood of any kind grows on the Pamirs but the wild lavender-plant, which with its woody roots form a good substitute for fuel, is abundant all over them. Twenty-five miles below the Little Pamir Lake, birch, willow, and gigantic juniper appear in thick clumps, and firewood is plentiful from Mat to Wakhān and Badakhshan.

The valley opens out about a mile above Sarhadd, and remains more or less wide to Kila Panja, and beyond. Habitation and cultivation commences at Sarhadd, and continue down the valley, with large tracts of dense, low thorn and willow jungle and pasture flats intervening between the villages.

Resaidar Muhammad Afzal Khan of the 11th Bengal Cavalry,

attached to the Mission, had been sent on with a letter to Mir Futteh Ali Shah, the Chief of Wakhān, announcing our approach; and a letter of welcome from the Mir reached me at Langar, while the Chief's eldest son, Ali Murdān Shah, met us at Sarhadd, and accompanied us to his father's fort residence at Kila Panja.

We reached Sarhadd on the seventh day from Sirikol (Tāsh-Kūrgān), and Kila Panja on the twelfth. We were compelled by the extreme severity of the weather to make short marches the first three days from Sarhadd. A violent and blinding snowstorm met us each day while travelling, accompanied by a wind so intense in its coldness as to freeze the driven snowflakes on our faces. On the fourth day we encamped at Zong, a large village on the right bank of the Oxus, immediately below the junction of the Great and Little Pamir affluents.

We reached Kila Panja on the 13th of April. Mir Futteh Ali Shah rode out to meet us, and conducted us to our camp, which was pitched on an open plain in the close vicinity of his fort. He was an old man, of tall form and good face, but feeble from age and infirmity. He welcomed us to Wakhān, and expressed himself in the usual Oriental complimentary terms, as happy to see us at Kila Panja.

We remained thirteen days at Kila Panja as the guests of the Mir. The weather was very severe most of that time. Snow fell on six days, and an intensely cold wind blew regularly till within three days of our departure.

We were told that the Great Pamir, on account of snow, is rarely passable till the end of June, and were assured that a party like ours could not possibly succeed in an attempt to cross it earlier than the 15th April. I despatched one of our own men with two of the Mir's to report on the depth of snow, and they brought back such an account as induced us to determine on trying the road. The Mir assisted us by every means in his power, and rendered us most valuable service. He expressed a desire to see a direct trade route to India opened up, and made arrangements for a visit by some of our party to the Baroghil Pass. Every incident of our treatment in Wakhān proved the English Government to be honoured and respected, and its prestige to be recognised in a highly satisfactory manner beyond our Indian frontier in that direction.

Wood has given such a very excellent and accurate account of Wakhān and its people that I shall not here record our experiences. On the 26th April we paid a farewell visit to the Mir (who, notwithstanding his feeble state, wished to ride part of the first day's journey with us), and left Kila Panja—Captain Trotter, Dr. Stoliczka, and myself—for the Great Pamir; and

Captain Biddulph, accompanied by Resaidar Muhammad Afzal Khan, for the Little Pamir, taking the Baroghil Pass on the way, a spot in the Aktāsh Valley being appointed as our rendezvous on 4th May.

We (the Great Pamir party) halted the first day at Langar-Kisht, 6 miles from Kila Panja, a considerable village on the right bank of the Great Pamir Stream, and the last in the valley leading to the lake. Near it is the Hissār Fort, built on a solitary rock, standing out high on the plain, and said to be of very ancient date. We examined the ruins, and found them to show no signs of greater antiquity than those of Tāsh-Kūrgān, Sirikol. The mud used as cement in the walls indicated no great age. No hewn stones were seen in the whole place. The Mir's eldest son, Ali Murdān Shah, visited us in the evening, at Langar-Kisht, to say good-bye.

From Langar-Kisht our road lay in a general north-easterly direction at some height along the slopes of the mountains on the right bank of the stream. The mountains on each side rise in a very gradual incline from the deep, rocky gorge in which the stream flows. The Zerzamīn and Mütz streams join from the north at 8 and 19 miles from Langar-Kisht. The upper road to Shighnān leads up the latter. Bār Panja, the capital, is said to be reached in eight days by it, and Shākh Darrah in three days. Shākh Darrah was at one time a small independent Mirship; but is now absorbed in Shighnān, similarly as Roshān. The Kirghiz, who formerly occupied the western end of the Great Pamir, are now located in Shākh Darrah, and visit the Alichor Pamir in summer.

The great Pamir appears to begin 25 miles above Langar-Kisht, and 39 from the lake. Its length from that point to the Aktāsh Valley is 108 miles, with an average breadth of 3 miles. The valley which, up to the point indicated, 25 miles beyond Langar-Kisht, is narrow, the base of the mountains approaching the bed of the stream opens out there, and the hills on either side show low and rounded. Thence the road lay in the same general direction over flats and long easy slopes the whole way to the lake. Birch and willow are plentiful to within 25 miles of the lake. From that point forward the never failing lavender-plant affords an abundant supply of fuel for cooking purposes. Excellent grass, similar to that in the Little Pamir, Aktāsh, and Sirikol valleys, is found throughout. The lake stream, in the first 16 miles of its course, flows between high, gravelly banks which rise to far-extending downs, dying away in the long and easy mountain slopes.

We reached the Great Pamir, or Wood's, Lake on 1st May. It was entirely frozen over, and covered with snow. Its water

is perfectly sweet, judging from what we used for two days high up, from the stream which flows out of it. It extends east and west, and is about 10 miles long by 3 broad. The water-marks on the shores, however, indicate a considerable enlargement in summer. The southern shore is even; the northern broken and irregular. The shores have all the appearance of a sea-beach from their sand and gravel covering. At 3 miles from the fort (western end) a high promontory runs out from the northern shore, and approaches the southern side to within less than a mile. The hills to the south slope very gradually from the edge of the lake, and the peaks rise to a height of 4000 or 5000 feet above it. Broad plains and low undulations, for about 3 miles, lie between the lake and the hills to the north, which appear much lower than those to the south.

Captain Trotter, to whom I am indebted for all my information as to elevation, after most careful observation, made the lake to be 13,900 feet above the sea, or 1700 feet less than Wood's height (15,600). Captain Trotter made his observations for measurement at the point of exit of the stream. I would here mention that Captain Trotter made Kila Panja to be 9090 feet, against Wood's 10,000 feet, at Hissar, 4 miles higher up.

The valley closes in at the head of the lake, and continues narrow for about 8 miles, when it again opens out with a steady fall to the east. Captain Trotter, by examination, determined the watershed to be, at this point, 14,200 feet, which we now regard as the culminating point of the Pamir tracts. Two small frozen lakes were observed at the head of the great lake, under the high, snowy mountains which close from the south. They presented the appearance of ice accumulations; and probably, after furnishing feeders to the lake for a short time, finally disappear in summer. A valley at the head of the lake leads to the Wurm Pass, by which the Little Pamir and Sarhadd are reached in one and two days respectively.

There was a great deal of snow about the lake, and it lay so deep on the high ground at its head, and in the valley leading down east from the watershed, that the easy, regular road that way could not be followed. We were, therefore, forced to seek a path along the low hills to the north, and had considerable difficulty in forcing our way through the heavy snowdrifts.

The snow ceased about 18 miles from the lake. The eastern stream from the watershed is there joined by a large one from 'Shash Darrah' (six valleys), in the range between Great and Little Pamirs. General paths lead from this point to the

Little Pamir and the Aktāsh Valley. Faiz Buksh, whom I have mentioned as passing over the Great Pamir in 1870, quitted the route that Wood and we took to the lake, and travelled along the hills to the north, reaching the lake above its head, and then crossed to the Aktāsh Valley by one of the paths leading from Shash Darrah. We followed the united stream, here called the Isligh, down to the Aktāsh Valley and its junction with the Aksū, over a gentle fall the whole way. The hills from that appeared low and rounded, with great openings and depressions showing everywhere. We were accompanied by a large party of Wakhis, acting as guides and in charge of the horses carrying our supplies. One of the guides, on being asked if paths lay in the direction of certain openings, said:—"Yes; there are paths all over the Pamir. It has a thousand roads; with a guide you can go in all directions."

The distance from the Great Pamir Watershed to the Aktāsh Valley is about 52 miles. From that point we travelled 18 miles, s.e. by s., up to the halting-place, which had been agreed upon with Captain Biddulph as the rendezvous on the 4th of May. Both parties reached punctually, we marching 37 miles that day to keep our engagement.

Captain Biddulph succeeded in visiting the Chitral Passes, and made a most valuable addition to our Pamir exploration. He found the approach to the Baroghil remarkably easy, the distance from Sarhadd short, and the pass to be about 12,000 feet high, which shows a wonderfully great depression of the Hindu Kush Range there. The rise from the inhabited portion of Sarhadd is only a little over 1200 feet. Captain Biddulph undertook this service by himself, and made the long journey back over the Little Pamir alone; doing all in the most complete and successful manner.

The Alichor Pamir runs east and west, parallel to the Great and Little Pamirs. According to Wakhi accounts it is similar in character to them: broad at the eastern and narrow at the western end. It is connected with the Great Pamir by the "Dasht-i-Khargoshi" (sometimes erroneously called Pamir Khargāshi), a desert flat, 20 miles long, which extends across from about 20 miles west of the Great Lake. A road passes along it, and branches from the Alichor to Shighnān and Khokand. A stagnant lake, called Tūz, and Sussik Kūl (salt-putrid lake), lies near the western end. The water of it was described to me as being salt to the taste. Abdūl Mejid noted this lake as being at the first stage from Khargoshi, which agrees with the account given to us. A fresh-water stream rises east of Tūz Kūl, and flows into the Yeshil Kūl lower down

in the Alichor, from which another stream issues, and falls into the Mürghāb, below its junction with the Aksū.

I have already mentioned the Siriz Pamir when speaking of the Aktāsh Valley. This Pamir appears to be a continuation of that valley, similarly as the Little Pamir is, and as the Tāgh-dūngbāsh is of the Sirikol Valley. It seems to run from Ak-bālik in the east, to Bārtang in the west. Bārtang is the beginning of the inhabited and cultivated portion of Shighnān in that direction. It is described as abounding with fruit-bearing trees, and must, therefore, be much lower than Kila Panja, with a very different climate. It is easy to believe this when the long course of the Aksū-Mürghāb, with a steady fall, is considered.

The Kirghiz spoke of the Rung Kūl, a large lake, about one day's journey from Ak-Bālik, and situated in the Siriz Pamir. This, probably, is the Rung Kūl of Pamir Khūrd mentioned in Colonel Yule's Essay 'On the Geography of the Oxus,' the Aktāsh Valley and Siriz Pamir being thus regarded as the Little Pamir, of which they are but the continuation, as I have already explained. By the Kirghiz accounts the Great Kārakūl is four days, the Little Kārakūl three, the Rung Kūl (one), and the Yeshil Kūl two-and-a-half days' journey from Ak-Bālik. I estimate the day's journey in these accounts at about 15 miles in a direct line. Abdūl Mejīd made 7 marches from Khargāshi to the Great Kārakūl. Of these probably one was to the Alichor, two down it to Ak-Bālik, and four up the Mürghāb by the road which is said to traverse its banks.

The animals of the Pamirs are the *Ovis Poli*, ibex, brown bear, leopard, lynx, wolf, fox, marmot, and hare. They remain throughout the year, the bear hibernating for a long time in winter. The wild yāk is not known on or near the Pamirs. Wild-fowl swarms on the lakes in summer. We saw wild ducks and geese at the head of the Great Pamir lake-stream.

We were not fortunate in pursuit of game. On the way over to Wakhān the snow lay too deep to permit of sport, and on the way back our very limited supplies would not admit of a halt for the purpose. The only *Ovis Poli* obtained was one shot by Captain Trotter, on a long march of 37 miles. We saw very large flocks of this gigantic sheep on the Great Pamir. The horns of *Ovis Poli* and the ibex lie in great numbers on the Pamir. These animals suffer heavily from the leopards and wolves, which prey entirely on them. A murrain is also said to have made great havoc among both some years ago. The ibex are similar to the Himalayan species, and accordingly differ from those we saw in the Thian Shan Range, which were of the black species, also found in the Kūen Lūn. I brought

from the Great Pamir a pair of *Ovis Poli*, measuring 65½ inches round the curve, 53 inches in a straight line from tip to tip, and 16 inches round the base. I presented this splendid head to the British Museum, where it is now to be seen.

We experienced none of the symptoms of great height, headache, and difficulty of respiration, on the Pamirs in the degree that native travellers have described. None of our people suffered in any way beyond breathlessness when exertion was made.

There was perfect health among our party throughout the journey. One of the Wākhis who accompanied us with supplies over the Great Pamir died suddenly on the last march to Aktāsh from heart disease, and this was the only casualty or sickness even among the numbers of men who were attached to our camp when crossing and recrossing the Pamirs. All the natives of India with us bore the severe cold and hard work with remarkable endurance and courage.

The Pamir Plateau may be described as a great, broad, rounded ridge, extending north and south, and crossed by thick mountain-chains, between which lie elevated valleys, open, and gently sloping towards the east, but narrow and confined, with a rapid fall towards the west. The waters which run in all, with the exception of the eastern flow from the Tāghdūngbāsh, collect in the Oxus; the Aksū from the Little Pamir Lake receiving the eastern drainage, which finds an outlet in the Aktāsh Valley, and joining the Mūrghāb, which obtains that from the Alichor and Sirlz Pamirs.

Our observations and inquiries show the true East and West Watershed of Central Asia in that quarter to extend from the head of the Tāghdūngbāsh, along the Neza Tāsh Range, to the Kizil Art Plain.

It is remarkable that, while we found the Little Pamir Lake not to be the source of the Sarhadd branch of the Oxus, we discovered it to be the source of a much larger branch of that river if taken in connection with the Mūrghāb. The messenger whom I sent from Wakhān with a complimentary letter to present to Eusuf Ali Shah, the Chief of Shighnān, at his capital, Bār Panja, on the left bank of the Oxus, found, on arrival there, that the Chief was at Wāmar, in Roshān, further down on the right bank of the river. He proceeded there, and on his way crossed at Wamar the Mūrghābi or Bartang River, near its junction with the Panja, as the Wakhān Stream continues to be called there. This name Panja the united streams carry to Kulab, after which the river is known as the Amū or Hāmu. The Mūrghābi at its junction was observed to be larger in volume and more rapid in current than the Panja.

The former was then (11th May) "thick, red, and muddy," while the Panja was "very clear." Captain Trotter has corroborative information regarding the greater size of the Mürghābi over the Panja.

We saw hot springs at Patur, 35 miles below Sarhadd (temperature 130°), at Zong, near Kila Panja, and at Isligh, between the Great Pamir Lake and the Aktāsh Valley. We made repeated inquiries from Kirghiz, Wakhis, and Sirikolis, regarding "Bolor" as a name for any mountain, country, or place, but no one could give us any information of it, and the name is evidently quite unknown among them.

I have already explained how the name of a place has been mistaken for that of the Little Pamir Lake. A similar mistake appears to have been made in the name "Sirikol" given to the Lake of Great Pamir. When speaking of our journey up to the Lake, and inquiring about stages and distances, we were told of halting being possible at "Bun-Bekh and Payān-i-Kūl" (base, root or foot of lake), Mirjān, and Barābar-i-Kūl (middle and half-way up the lake), and Bāla and Sir-i-Kul (a base-head of the lake). Sirikūl was most frequently mentioned, being the usual caravan stage, and it was said in such a way as to lead easily to the idea of its being the name of the lake. When the guides were asked pointedly the real name of the lake, they answered "Kūl-i-Kulān" (the great lake), because there is no other lake in the country equal to it in size." Therefore the name Victoria given by Wood displaces no distinctive local one, and may well continue to be used without fear of causing confusion.

Regarding the name "Pamir," the meaning is wilderness—a place depopulated, abandoned, waste, yet capable of habitation. I was told this on the Great Pamir by one of our intelligent guides who said, in explanation: "In former days when this part was inhabited by Kirghiz, as is shown by the ruins of their villages, the valley was not all called Pamir as it is now. It was then known by its village names, as in the country beyond Sirikol, which being now occupied by Kirghiz is not known by one name, but partly as Chārling, Bas Robāt, &c. If deserted it would be Pamir." The Shewa Plain, a summer pasture resort to the north-west of Faizabād, Badakhshan, is also called Pamir by the people there. It is probable that in Marco Polo's time, and even in Abdūl Mejid's, the Kizil Art Plain was known as "Pamir," according to the meaning of the word as explained. The Kizil land was merely a summer pasture resort of the Kirghiz there, and was only permanently occupied about seven years ago. The difference of elevation between it and the Aktāsh Valley and the Alichor, Great and Little Pamirs, all

lying in the routes travelled, is comparatively small, and the absence of detail as to the flow of rivers, &c., led to belief in the existence of one far-extending "steppe" from Victoria Lake to the Alai range.

The meaning of Sirikol is generally believed to be "the yellow valley," but Hassan Shah, the governor, gave me his opinion that it is a corruption of "Sir-i-koh," as the valley runs up to a considerable elevation. On finding the valley to be a continuation of the Tāghdūngbāsh, I looked upon Hassan Shah's explanation as probably correct, from the fact of its being a literal translation of Tāghdūngbāsh, both meaning "head of the mountain." Nothing seems more likely than that the Persian-speaking Sirikolis should, on settling in the valley, give it a Persian name, literally interpreting its Turki one.

Wakhān on the Pamir owns the western Tāghdūngbāsh from the watershed, the Little and Great Pamirs, and the left bank of the Aksū from the head of the Aktāsh Valley in the south, to Ak-Bālik in the north. The eastern boundary of Wakhān is conterminous with the western one of Kashghar from the Tāghdūngbāsh to Ak-Bālik, and Kashghar also owns the Kizil Art Plain, meeting the Khokand frontier at the Kizil Art Pass which leads to the Alai Plateau. Shignān owns the Alichor and Siriz Pamirs. There is no intermediate tract of country held by independent Kirghiz or other people; the whole of the extent from Herat on the west to Turfān on the east is held by Kabul and Kashghar.

We were very reluctant to leave the Kizil Art unexplored, but circumstances beyond our control compelled us to pass on. We retraced our steps to Tāshkūrgān, and after three days' halt there continued our journey towards Yarkand. We went by the Tagharma Plain, and the Kok Moinok Pass. We had a fall of snow at Chihil Gambaz on the night of the 14th of May, and cold weather till the 18th, when we were at once plunged into extreme heat at Egiz Yar in the plains. We arrived at Yarkand on 21st May, left on the 28th, and reached Leh on 29th June.

Three days after crossing the Kārakorum we suffered the deep affliction of losing by death one of our party, Dr. Stoliczka, a highly valued friend and talented companion. His death is a great loss to the scientific world, for it is not to be expected that his notes on geology, natural history, and other scientific subjects, can be presented to it in as perfect form as the author would have produced.

On our return to India, the Viceroy caused a letter, accompanied with valuable presents, to be sent to the Chief of Wakhān, in acknowledgment of his hospitality, aid, and protection

to us. It was mainly owing to this Chief's friendly assistance that we succeeded in our exploration. He was a very old man, and we found him, as I have mentioned, in a feeble state of health. It was a matter of great satisfaction to us that the letter and presents reached him before his death, which took place early this year. The letter and presents were safely delivered by a trustworthy native officer, who proceeded with them from Peshawur, and replies were received from the old Chief and his son, Ali Murdān Shah, expressing much happiness at being remembered by their English friends. Ali Murdān Shah is now ruler of Wakhān.

What I have now said gives merely the observations of an ordinary traveller, as to what was seen and the information gathered by careful inquiry from many individuals of the different races and clans we met in our journey regarding the countries in the immediate vicinity of our routes. The geography of the scene of our travels has been ably and scientifically dealt with by Captain Trotter, of the Royal Engineers, and the result of the lamented Dr. Stoliczka's valuable researches in geology, botany, and natural history is now being prepared for publication under the orders of the Government of India.

XV.—*Journey to Lake Chad and Neighbouring Regions.*

By DR. NACHTIGAL.*

IF I had not taken advantage of the opportunity afforded by a mission from the King of Prussia—the sending of presents to the Sheik Omar, Sultan of Bornu, science would not have received any benefit from this Expedition, since, if I had not decided to go, the Government would have entrusted a native with the conveyance of the presents. I held it to be my duty, therefore, as far as my feeble powers would allow, to serve the interests of geography and of knowledge. Our home Government, at that time, had no intention of adding any work of exploration to my mission; and as I was myself residing then in Africa, and had resolved on the journey only four weeks before starting, I travelled with the most modest resources, with the most incomplete outfit, and quite alone. Although I do not consider that this light equipment would be a disadvantage in journeys of discovery, properly so called—that is in travelling through or opening up perfectly unknown lands—

* Read before the Geographical Section of the British Association, at Bristol, August, 1875.