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A JOURNEY ACROSS CENTRAL ASIA.*

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Having been bitten with a desire to procure specimens of that Central Asian rarity, the wild camel, and to travel through an almost unknown country across Asia to Pekin, Mrs. Littledale and I, accompanied by a fox-terrier, left England on January 31, 1893. Deep snow completely demoralized the train service to Constantinople, and the intense cold was a thing to be remembered. Leaving Constantinople by steamer, we stopped at Samsun for a few hours; hearing by chance that there was an English traveller on board another steamer, we concluded it must be Lord Dunmore. On paying him a visit, he handed over to us his Ladakhi servant Ramazan, who had been with him on all his wanderings, and who proved invaluable to us later on. The late Sir Robert Morier, with his usual kindness, had for the third time obtained for us permission to cross Russian Turkistan. On arriving at Batum, we found that the customs officials had received orders from St. Petersburg to assist us in every way, thanks to the kindness of Mr. Howard, Secretary of the British Embassy, who had interested himself most effectually on our behalf; the result being that our mass of baggage, guns, etc., was passed through unopened and without a moment's delay. In crossing Central Asia we met a host of old friends, whom we were delighted to see again. We also paid a hurried visit to the grand ruins of Samarkand, but the weather was too cold for sight-seeing. We travelled from Samarkand by tarantas. At Marghilan, General Korolkof took immense trouble trying to find our old servants, whom we wished to re-engage. Reaching Osh, we found waiting for us, at the club, Azim, our old chef, who

* Paper read at the Meeting of the Royal Geographical Society, April 9, 1894. Map, p. 540.

had been on two expeditions with us on the Pamirs, and who was described to me as being the best cook and the greatest blackguard in Central Asia. We were horrified to hear of the awful fate of Iris, a Jiguit who had crossed to India in 1890 with us. He volunteered to take a Russian dispatch from a post on the Pamir to Marghilan, some Kirghiz having previously tried and failed. Owing to the fearful weather his horse died, and on foot he fought his way for days through the snow; then his feet were frost-bitten, and, having fired away all his revolver-cartridges to keep off the wolves, he defended himself with his sword. His hand then became useless, and he was found lying in a dying state by some Kirghiz, who carried him to Marghilan, but too late, alas! to save his life. Thus perished one of the truest, bravest, and most faithful servants we ever had.

Our old friend, Colonel Grombchefsky, now Naichalnik at Osh, kindly arranged that we should be put up at the club, and took all trouble off our hands by organizing our caravan to Kashgar, consisting of thirteen baggage and five riding ponies, at the reasonable hire of eight roubles apiece. We were in despair about an interpreter, as ours had proved most unsatisfactory. While we were talking, I remarked to Grombchefsky that he was probably at that moment listening; walking quickly to the door, I flung it open, to find him with his ear at the keyhole.

On the 8th of March we left Osh. Nothing could exceed the kindness of Colonel Grombchefsky; he made arrangements that each night we should find sheep, firewood, and two yurts ready for us, doing away with all necessity of pitching our tents. Certainly the Russians are the most hospitable people in the world. There was a good deal of snow on the road between Osh and Gulcha. In the mornings the tracks were very slippery; but the sun had great power, and in the middle of the day the ice became slush. We met numbers of Kirghiz leaving their winter quarters at Osh, and going in the direction of Marghilan for the young grass; later on they return, and gradually follow the Gulcha river to their summer quarters on the Alai.

A couple of easy marches from Gulcha took us past Kirgil Kurgan to Suffi Kurgan; from thence we were obliged to carry two days' supply of firewood. We had been warned that we were not to attempt to cross the pass if a Jiguit, who had been provided, said the weather was doubtful; but next morning, all being propitious, we started for the Terek Davan. At first the ascent was gradual, but after the track had turned up a narrow valley the snow changed to ice, and it was bad travelling. There had been a partial thaw, the water had come down the valley over the snow and been frozen, and it was with the greatest difficulty we advanced. The bright sun on the glistening ice, which had formed into most fantastic shapes, made the scene most beautiful. We met a caravan coming down; the men said we should find it very bad higher

up. We had not much comfort to offer them as to the lower portion, having already seen one of our horses slide downhill a considerable distance in a sitting posture. A few weeks later the Terek becomes utterly impassable, and all caravans have to take the longer route by the Taldik pass and the Alai plateau until the ice in the ravine is melted. Before reaching the summit the valley opens out, and at Ravat there is a rest-house, an enclosed courtyard with sheds for horses, and two small rooms; the cook, of course, occupied the one with a fireplace, and we spent a miserable night in the other. The weather was bitter even at Gulcha; a glass of water would freeze during breakfast or dinner. Next morning we followed a steep icy path to the top of the pass; height by aneroid, 13,350 feet. We were badly in want of felt shoes, as our shooting-boots were not adapted for the low temperature. At this point our poor little fox-terrier decidedly thought life was not worth living.

Down the other side the descent was not so steep; the water there had apparently again flowed over the snow and frozen. With a toboggan we could have had a charming run of about ten miles. Our yurt was pitched at Kok Su, in a delightful grassy spot, with glorious views—a perfect ibex country. Close to our camp there were some curious circles formed with stones; the Kirghiz said they were graves of a giant people before their time. The river had washed away the bank, and half a circle was gone. Climbing down, I found some bones exposed. I scraped away and got the skull, which after dark I smuggled into camp, fearing to arouse any superstition. To Irkistan, the frontier post of Russia, was a longish march, but the scenery quite repaid us for any fatigue; the mountains were magnificent. In a couple of marches we reached Ulukchat, the Chinese frontier post, and we noticed at once a different type of feature among the Kirghiz. The Chinese amban was civil, and wished to provide food for the horses; but I explained that they were all hirelings, and it was unnecessary. The old gentleman had been kicked on the ankle by a horse, and he was most anxious we should prescribe; in our ignorance we did our best.

The second march after leaving the fort was through the most desolate and weird scenery imaginable; dark narrow passages (you could hardly call them anything else), where in many places it would be impossible for two pack-animals to pass, led through hills sometimes of red clay, at others sandstone weathered into the most grotesque shapes. It was like a goblin's den in a pantomime. We had noticed for some days a misty appearance in the sky, which completely hid the sun; this we attributed to dust from the desert. We reached Kashgar on March 22, having taken fifteen days, and marched 250 miles from Osh. Mr. Macartney most kindly put us up, and helped us in many ways. We are also deeply indebted to Monsieur Petrofski, the Russian political agent; he and his wife both tried hard to dissuade Mrs. Little-

dale from attempting the journey we proposed, but when they found that we meant business, M. Petrofski's unique knowledge of the country and its ways made his advice and assistance invaluable. Our precious interpreter was drunk in the bazaar, and that was the last straw; so we packed him and the cook, who was no better, home again. And there we were, without cook or interpreter. Mr. Macartney got us another Ladakhi, Rozahun by name; but neither he nor Ramazan could speak a word of English, and my Hindustani was decidedly elementary. When engaging him I promised to give him the same wages as Ramazan; the latter meekly remarked I had never promised him anything, and at the same time he took the opportunity of asking where we were going. It shows the faith Englishmen have inspired in the natives of India when a man would be willing to start off on a long journey, with perfect strangers, without knowing where or for how long he was going. We also engaged a man who spoke Turki and Chinese. If I wished to ask a Chinaman anything, I first had to speak to Ramazan in Hindustani, who translated it into Turki, and our interpreter retranslated it into Chinese; so every question involved six translations before I received the answer, which frequently had nothing in common with the question.

We purchased in Kashgar about 5000 roubles' worth of silver yamboos, known on the China coast as sycee silver; they were chunks of silver of various weights, no two of a size, and making nearly two pony-loads. What can be expected of a country where such a barbarous currency exists? In making a bargain, it was not only requisite to arrange the weight of silver to be given, but also whose scales were to be used—a very necessary stipulation, as with the pair I had there were three different arrangements by which the scales could be fraudulently altered to suit yourself, as you might happen to be a buyer or seller; and then there was the endless question as to the quality of the silver. I always, if possible, contracted that my scales were to be employed, and, whenever their accuracy was impugned, triumphantly pointed to a stamp, which I was informed and believed was that of the Taotai of Kashgar; months after I discovered that my much-vaunted stamp was simply the price of the scales!

On March 29 we left Kashgar with three covered carts, each having one horse in the shafts and three abreast in front; the carts had large wheels. By putting our tents on the bottom and our bedding above, and by arranging curtains to keep of the dust, we really made them not uncomfortable; they travelled so slowly we were able to read and play piquet. Sometimes we would travel by day, sometimes by night, and occasionally both day and night. The owners of the horses seemed to think that an extra feed of corn was quite equivalent to a rest. In this remote part of the world the horses are made to wear bearing-reins, which the carters tighten as remorselessly as the most orthodox London

FIG. 1.—KOK SU. TIAN SHAN.

coachman. We usually slept at one of the Chinese official rest-houses, which were all very much alike. A large gateway, often having a room over, leads into a courtyard about 80 yards square, with sheds for horses; another gate leads into an inner yard with two or three suites of rooms. Each suite was usually a room in the centre, with a smaller room on either side; the windows were covered with paper, and the furniture consisted of a rickety table and two or three still more decrepit stools, everything half an inch deep in dust. The entire house was made of mud. After a week's hard rain, not a wall, house, or caravanserai would be left standing—they would simply melt away; but rain in this country is almost unknown. Owing to the thick, dusty haze we hardly ever saw either sun or stars, and although we had the high range of the Tian Shan close to the north of us, I can only recall one occasion on which it was visible. We tried by offering rewards to get some old manuscripts; an illustrated book was brought, which our Chinese interpreter pronounced to be three thousand years old. On examining it, I found a picture of a frigate, and another of a man filling his wine-glass from a decanter; so, in spite of its age, I did not buy.

At Aksu a very large proportion of the Turki population had goitre; I did not notice the malady amongst the Chinese. We passed a considerable number of Chinese soldiers on their way to Kashgar; they were straggling along the road in twos and threes, without any pretence of military discipline, and wretchedly armed. Nobody in their senses would dream of pitting them against European troops. Whenever we saw any quantity of these gentlemen approaching, we pulled down the curtains of the cart, as we wished above all things to avoid a row, and they have the reputation of being very bumptious when in overwhelming numbers. On one occasion, seeing an Afghan trader break a chatti over the head of our caravan bashi, I stepped forward to stop the fight. The Afghan declared he had not been paid for something; our men vowed he had stolen their money. On his mouth being prized open with a bit of wood, there was the missing chunk of silver. The people were very inquisitive, examining all our belongings most carefully. A Chinaman wished to know the use of a safety-pin; so I securely pinned the two sleeves of his coat together, and then proceeded to box his ears, much to the delight of the spectators, who repeated the joke to everybody who came afterwards. We passed, on one occasion, a native wearing a heavy iron collar round his neck, to which was attached by a chain a bar of iron about five feet six inches long, and as thick as my ankle; he had to wear it for the rest of his life for stabbing a Chinaman.

On arriving at Kuchar, I tried at once to get a guide to take us to the tombs at Mingui. No one would go; the difficulty consisted in the fact that the man Captain Bower had bribed to show him the road afterwards got two hundred strokes by order of the amban for having

done so. I bearded that worthy in his den, demanded and was promised a guide; it was noised abroad that I had received permission, and then half the town wished to go. I arranged for some men and horses to be ready at daylight, so that, if the amban broke his promise, I should be independent. Next morning no guide from the amban was forthcoming, and we started. We went by a short cut, which proved a couple of hours longer than the ordinary road, and when we arrived at Mingui the promised men were waiting for us, having come the shorter way. The caves are chambers cut out of the sandstone and clay which form the precipitous sides of a valley, through which rushes a rapid river; a great many of the caves are quite inaccessible from below without long ladders, or from above without a rope. Most of those I saw had arched roofs covered all over with endless pictures of Buddha; on one roof I counted twenty-four rows of thirty-six figures in each row. The walls had more Buddhas, and faces of a Chinese type; opposite the doorway was usually a buttress, on which was carved a large figure of Buddha, with nearly always a tunnel round at the back. On a steep rocky promontory there was an opening, entering which we scrambled up by aid of holes for the feet and hands, and found ourselves in a gallery; to the right were a succession of tombs, and to the left an opening in the rock, through which we looked at the river foaming below. I should dearly like to have had a few quiet days' digging with pickaxe and shovel. Evidently somebody else had been of the same opinion, for there were traces of the ground having been disturbed in some of the chambers. Rozahun, who accompanied me out to the cave, said there were plenty of similar ones in Ladakh.

We arrived at Kurla on May 1, the journey of 650 miles from Kashgar having been rather uninteresting. Wherever there was water there was vegetation, and sometimes cultivation, but there were long stretches of monotonous desert country. We immediately set to work to organize our caravan. With the aid of the aksakal we purchased twenty ponies, which with their pack-saddles, ropes, picketing-pins, etc., averaged £3 apiece, and twenty donkeys, which with their fittings cost £1 2*s.* apiece. We engaged six men to look after the animals; we took five months' food for the men; we also hired twenty-five or thirty donkeys to go as far as Lob Nor, on which we piled as much grain as they could stagger under; we also hired a few extra donkeys to go with us for a week, to save our supplies of grain.

I experimented here and at Kashgar with the sextant and artificial horizon lent by the Society. Unfortunately, after receiving a few lessons from Mr. Coles, an accident confined me to bed for several weeks, and I was thus prevented from making myself as competent an observer as I could have wished. Nevertheless, I had obtained sufficient knowledge to enable me to make good use of the instruments lent by taking observations for latitude and time. Jolting in the tarantass had ruined the

glass of the artificial horizon, making observations very difficult except on calm evenings. Mrs. Littledale volunteered to note the time by my watch of the sextant observations, and I am afraid it proved to be no small addition to her fatigues, having to stay awake sometimes for hours while I tried under the lee of the tent to catch the stars on windy nights. Finally the prismatic compass succumbed to the accidents of travel, and had to be patched up with silk; therefore I hope allowances will be made, and my first attempt at map-making judged leniently. Making our arrangements with all possible speed, it was May 10 before they were completed. The aksakal, a kind of petty judge, wished to come to Lob Nor with us, and as we hoped to make him useful in getting a guide, we agreed at once. At starting we found that the only men who understood anything about packing were our two Ladakhis. Before engaging any men, I made them thoroughly aware of the fact that they were to walk the whole distance; I told them that if, later on when our stores decreased, we found we had spare animals, then they might ride. After leaving the oasis of Kurla, we crossed some barren country, and the second day reached a sluggish muddy stream, about 30 yards wide and very deep, which eventually joined the Tarim river. Some people from the Lob passed our camp in dug-out canoes. Going down stream, they told us they would reach Abdul in four days; our caravan took sixteen.

On the seventh day we came to where the Chinese are building a new city, 300 yards long and 200 broad. The only name I could hear was Yangi Shahar, new town. Like every other town in that country, it was surrounded with a high wall of mud; they were building it by filling up a wooden framework, which was raised as the mud got hard below. I arranged that Ramazan and the aksakal should go to Chaklik to get a guide, some more Indian corn, and camels or donkeys to carry it for some distance along the Altyn Tagh, while we went direct to Abdal to let the caravan rest. There was good grazing most of the way; the young chi grass was springing up well, and our animals were putting on flesh; but the vegetation is confined to the neighbourhood of the river and a mile or two on either side; beyond was hopeless desert. We had to cross the Tarim twice; our animals swam across, and our baggage was ferried over in canoes. We lashed a couple together side by side, so there was no fear of an upset. As we got nearer Lob Nor the weather became hotter, and at night the temperature did not often go lower than 80°. On May 27, at Kurgan, we caught our first view of the Altyn Tagh. High, desolate, and barren they looked; as the sun rose they faded away. On the following evening a strong gust of wind struck the tent, which was followed by others till there was a furious gale blowing, that lasted all night and the following day. By placing sacks of grain on the tent-pegs, the tent weathered the storm. Nearly all our stores had been ferried across on

the previous afternoon, but it was quite impossible, in the teeth of the gale, to take the remainder of our things over or cross ourselves, though the river was only about 70 yards wide.

We reached Abdal, which is a miserably poor village consisting of four houses and about twenty inhabitants, on May 28. The water of the Tarim here, curiously enough, was very cold, though three days previously it had been warm, and there had been no change in the weather to account for it. When the natives came to pay their respects, they put their hands below their waists, and then bowed in a manner very suggestive of sour apples. Their features were in several instances strangely Irish in type. They told us that the mountains we saw were called Chong Tagh, and that the real Altyn Tagh are far to the south. Ramazan and the aksakal arrived from Chaklik; they had purchased some grain, which came by boat. Neither camels, ponies, nor donkeys were to be procured there; every animal had been hired to carry supplies to some natives who were mining on the other side of the Altyn Tagh, and whose animals had died. The guide they brought, on being cross-questioned, proved a fraud, and only knew the road to Gass; so we sent him back, and relied on an Abdal man who had once been to Saitu. We arranged that twenty of the hired donkeys should go on at the hire of three and a half seers a month apiece, with two men and a boy to look after them.

We left Abdal on June 3, having given presents to everybody who had been of any use to us, and to many who had not. At first all our animals were carrying very heavy loads of Indian corn, but with the numbers we had to feed the daily consumption was large, and we reduced the loads of the weaker animals first. To avoid some of the marshes we retraced our steps a few miles up the Tarim, and then turned south-east along the edge of the marsh. The travelling, in places, was very bad; the earth looked as if it had been steam ploughed, harrowed to break the furrows, and then baked by the sun almost as hard as iron: it wore the shoes of the ponies very much; if they chipped off a piece of earth it rang when it fell, like metal. We camped by the edge of the swamp; the water by the shore was very salt, but by wading in some distance we got some just drinkable. The Kalmuks had marked the way across the desert by forming here and there bundles of reeds into tripods. We saw the Lob Nor swamp stretching away, a green patch, far to the east. At Abdal the natives said the river flows about three days' journey and then sinks into the sand, and that there are no permanent habitations beyond Abdal; there are distinct evidences of the swamp having been at one time much larger than it is at present, and, judging from the number of the roots, there must have been a considerable forest where there is nothing now but arid desert.

The houses of the people of Lob are primitive: a rough framework

is made of logs tied together, against which are placed bundles of reeds standing on end, which are fastened to the logs; the roof is the same, and, as high winds are prevalent, they are frequently laid flat. The Altyn Tagh were very distinct, and did not appear to be one-third the distance away that we knew they really were; their higher summits were covered with fresh snow.

We had now a long waterless stretch to the mountains, about fifty miles as the crow flies. At Astchi bulak there was grass and some water, but too bad even for the donkeys. We marched up a gradual slope of gravel for about ten hours, then stopped to rest and feed our animals. When the moon rose we started again: the night was cool, and we travelled fast, and reached our camp at the Kurgan bulak about noon

FIG. 2.—LOB NOR (AFTER PRJEVALSKY).

the following day. The stream was excessively bitter, but we found a spring, the water of which, though bad, was fit to drink. Shortly before we reached the Kurgan bulak we passed a stream of deliciously cold, muddy water: it was from the melted snow, our guides said; they had never seen any water there before. The sand-grouse had found it out, and were collected near in thousands. Some of the donkey-men before they reached water had been marching for thirty-four hours with only one rest of two hours. We had now attained an altitude of about 6600 feet, and the weather was much cooler. We marched a couple of days up the valley, in the bottom of which springs of bitter water were numerous, and there was plenty of chi grass for our animals; the hills on each side were clay, and devoid of vegetation. There was an old

ruined fort, at the point where we left the road used by the Kalmuks going to Tibet. Our men said, whenever Kalmuks were spoken to about this road they always spit to show how they disliked it. After crossing the pass, a long distance has to be travelled before water is found, and it is customary among the Kalmuks to employ one animal out of every six or eight to carry water for the others. We turned more to the east, still following up the valley, and the grass grew scarce. It was here we first saw the tracks of the wild camel. The country gradually assumed a more Alpine character, and we had several small passes to cross; the rocks were covered with loess, and the coloration of the mountains then became very peculiar,—the lower part was light brown loess, out of which rose cliffs of black rock and, a little further on, very red granite. The contrasts were startling. We were now, on June 10, at an elevation of 10,862 feet, and we had a long march in drenching sleet and rain, and all the men shrivelled up at once; they are not used to it, and the rain made travelling most disagreeable. Owing to the usually dry climate there was deep dust everywhere, which quickly became slippery mud, fatiguing to both man and beast. We were marching parallel to the Altyn Tagh, along its northern slopes; the summits rose 2000 or 3000 feet above us. We had to surmount a succession of ridges and valleys, water and grass being scarce. The first of our horses gave out here—a short-legged thick-set strong animal, but he would not eat grain, and grass was too scanty: we gave him a chance for his life by leaving him beside a spring where there was a little grazing; we felt rather sad next morning, when we marched away and left him to his fate.

I followed down one of the valleys to try for wild camels. The mountains were very savage and grand; the black colour of the rocks gave them a very gloomy aspect: they gradually sink down into the desert, and, finally, little peaks are seen peeping up through the sand. The following day, June 14, we reached Galechan bulak. The Altyn Tagh have mostly got a thin veneer of loess: the tops are bare, but lower down the coating of loess becomes thicker. From the deep ravines formed in the loess by water, one might suppose that the rains are heavy and frequent; but, judging from the channel our scanty morning tub when upset cut in the soil, one realizes that a little water makes a great show. A couple of days later the mountain ahead became impassable, and we had to turn down to the desert and skirt along the base of the hills. Water became very scarce, and there was no grass; there were a few low shrubs, on which our beasts had to do the best they could, and, as they rarely got water oftener than every second day, they lost flesh rapidly, and, owing to the lower elevation, the heat was greater, and their sufferings from thirst were increased. Our guides were most unsatisfactory, and we could not trust them in any way, their palpable object being to wreck the expedition. At one place, having vowed and declared there was no water, Ramazan caught them going secretly to a

spring in the night, the existence of which they had previously denied. I climbed a peak, and with my telescope swept an immense extent of desert; I could see no camels, nor could I see any sign of a range of mountains marked on the Society's new (unpublished) map of Tibet as branching out from the Altyn Tagh and running north-east.* But far away to the north, probably 40 or 50 miles, there was a range of sandy hills running nearly east and west. The men stated that the desert route to Saitu, which is only possible in winter, follows along their southern side. Marco Polo, in describing his journey, does not say which of the two routes he followed, but if he chose that by the mountains the country must have dried up enormously since then, for we did not find water in anything like the number of places he did—I think he mentioned twenty-eight. A couple of days later we caught sight of the snowy peaks of the Anembarula Mountains, and we then felt independent of our rascally Lob Nor guides. We were continually being delayed by the straying during the night of some of the animals: the poor beasts used to wander to try and find something to eat; and the men who were supposed to watch them were doubtless curled up in their sheep-skins, and no reward or punishment that we could devise would stop it.

Mrs. Littledale, a couple of men, and myself usually went ahead of the caravan, on the chance of stumbling across game. Seeing the fresh tracks of camels, I with one of the men followed them up, Mrs. Littledale and the other man going to try and find water for their horses, for they had had none since the previous morning. Doing no good with the tracks, we hurried on. Eventually I saw Mrs. Littledale in the distance, waving her handkerchief; I thought she simply meant to tell me that they had found water, so I went on taking bearings with the prismatic compass; finding her still waving, I pulled out my handkerchief, waved an answer, and returned to my compass. I then saw her frantically flourishing a handkerchief in each hand, and I realized that I was urgently required, and my footsore pony had to put his best leg foremost. Mrs. Littledale told me there was a camel on the other side of some rocks, and that the guide had left her half an hour before. On looking over the rocks I saw the camel half a mile away on the plain. I had just begun to crawl towards it when it galloped in our direction; I had a long shot, and mortally wounded it. I had just reloaded when another camel, which up to that time I had not seen, followed its companion's steps, only to meet the same fate. It turned out that the guide had seen the camel, and, wishing to shoot it before I arrived, had made a long round, the wind being then in the wrong direction; just as I came the wind shifted, the camels smelt him, and galloped past me. The men said that one of the camels was thirty-five or forty years old; Mrs. Littledale, who tried to eat some of it, saw no reason to doubt that statement.

* The necessary correction has been made in the map of Tibet, which will be published shortly.—Ed. *G. J.*

Two days after I got a couple more, so one of the objects of the trip was fulfilled.

We had several more days of desert, with little or no water and grass. One afternoon, after the daily march was over, I fancied I saw through my glass a faint greenish patch on the mountain-side, and as our water supply was at a very low ebb, I climbed up to see if I could find a spring; not finding what I sought, I thought, as I was halfway up, I might as well climb the rest, and see what was on the other side. When I reached the summit I found it was the top of the Altyn Tagh. Stretching away to the south was a great desert plain. At the base of the mountains, I should think about 4000 feet below, the sand was dark coloured, further away it became yellow, and I could see the dry bed of a stream where some water had evaporated, leaving a salt deposit. Away to the east, about half a mile, there was a wild yak close to some snow; but I had no rifle, and there was no time to get one before dark. On my way down I found under a rock a patch of snow, where apparently all the feather population came to drink. After quenching my thirst, I carried down to the camp, in my handkerchief, a mass of snow, feathers, and dirt; when melted it did not by any means prove to be an ideal drink, but it was without salt.

On June 24 we were close to the Snow Mountains, and at Nanambal we camped by a considerable stream with good grazing; there was a yurt there, the inhabitants apparently consisting of two men and two women; directly they saw us they jumped on their horses and bolted up the hillside. They returned very gradually; I went forward to try and talk to them, but as I advanced they retreated. Then Mrs. Littledale tried her hand; she thought she would get on better with her own sex, and she used all the blandishments she could think of. The women eventually turned out to be two young men, lamas; what they thought of her I don't know. It took us quite an hour to establish friendly relations; we were particularly civil to the young lamas, as we hoped to enlist them as guides, but at the first opportunity they slipped away. These were the first inhabitants we had met since leaving Lob Nor. I offered heavy bribes to the two Chinamen if they would show me a pass over the mountains, but the answer I received was they did not know any road; it was only some time afterwards that I discovered that our interpreter, who was the greatest coward that ever stood six feet in his stockings, had played us false; he was so thoroughly frightened that his only wish was to lead us to some Chinese town where he could desert. The Lob Nor men refused to come any further, and we took one of the Chinamen, hoping to pick up somebody who would take us across the mountains; but the further east we went the higher they got, and I do not think in that part there was a pass across the range. We had now left the extremely dry country behind us, and were in a more fertile district. We really hoped our water troubles were over, but

after we left the mountains we marched across a broad plain and then down into the yellow sand. We went on and on; the Chinaman persisted we were all right; horses and men began to be played out, and a more hopeless outlook for water could scarcely be imagined, when suddenly, on surmounting a hill of drifting sand, we saw down below us in a valley a vividly green patch of grass and a spring; the water which sank into the gravel at the foot of the mountains reappeared here. We had decided that as we were, owing to the treachery of our interpreter, now so near Saitu, it would be better to go there, procure a guide and a fresh supply of horseshoes, as we had used more than we counted upon, and then strike into the mountains again. The evening lights were beautiful, the brilliant green of the valley contrasting with the different tints of yellow and brown sand and the snow-peaks of the Altyn Tagh; it was the only pretty scenery we had seen since crossing the Tian Shan fifteen weeks before.

The day before reaching Saitu our path for seven or eight miles followed an embankment which was four or five feet high and about ten yards across; where our path branched off, the embankment continued as far as we could see. I never heard that the Great Wall of China extended beyond Suchau, but this certainly much resembled parts of the wall that we afterwards saw, and if it was not the wall I am quite at a loss to say what its use could have been. We invested in some sheep, but we did not own them long, for during the night the wolves made themselves merry at our expense, and a bone here and a bit of skin there was all there was left of them next morning.

On Sunday, July 2, after winding through fields and gardens, we camped on a green meadow just outside the walls of Saitu, and our camp was at once surrounded by Chinese, who were extremely curious to see Mrs. Littledale. My first step was to buy horseshoes, after which we felt quite independent. I then went to call upon the head amban, who commanded the soldiers. He was very civil, but laughed at the idea of there being a road to the mountains; at this time of the year, he said, there was no water, and the horses would all die. He requested us to return in the winter, and he would help us. I then called upon amban No. 2, governor of the town, who stated that the road to the mountain was at this season quite impassable; owing to the melting snow, the rivers were unfordable. He had just heard that some Kalmuks had had their camels swept away and drowned; how did I expect my donkeys to cross? I replied that I had nearly forty, and the loss of two or three would not matter. Suppose your wife was drowned? Here was a question bristling with difficulties, so I turned the subject. No. 3 was less polite, and relations were speedily strained. All were determined that we should go by the main road; they enlarged freely on the danger from robber tribes. Negociations went on for three days. I announced, and stuck to it, that, guide or no guide, I should start on

the 6th. Things looked very black for our men, who, exhausted with their journey, now in addition were terrified at the tales they heard of the Tonguts, and absolutely refused to go any further. One of the reasons advanced was, that we had given them water out of a cup that our dogs had used. Mrs. Littledale used to carry water especially for our fox-terrier and a Kalmuk dog in an Indiarubber hot-water bag strapped on to her saddle, and they drank out of her cup, and one of the most trying things on the expedition was to have to refuse water to these poor dogs. One day, when the only water any one had left was a small quantity which Mrs. Littledale had in her water-bottle, the caravan bashi, who was terribly exhausted, felt the bottle and asked for a drink; she gave half a cup to each man, and glad enough they were to get it, notwithstanding their Mahomedan tenets. Our two Ladakhis and one Kulja man alone remaining faithful, I told Ramazan that he was to see that every man had a big supper, and then he was to talk to them, expatiating upon the enormous wages they were receiving, and the presents they would get in addition, and how awkward it would be for them if they were left without money or clothes. That, and the threat that the Chinese would certainly imprison them, did the business, and next morning they all came and said they would go. The amban's wife came to see Mrs. Littledale; we made things very pleasant, loading her and her boy with presents, and she announced that the amban would give a guide. On paying off the Chinaman who had brought us to Saitu, I saw there was something wrong. As a matter of policy, I had paid him five times what he was entitled to, so I did not think he could possibly be dissatisfied. On being questioned, he explained that it was the custom, when a big man gave a present, for the receiver to knock his forehead on the ground; but were he to do so, all the people would see and know that he had received something, the amban would hear it, he would lose his money and get into trouble, so he hoped I would forgive him. To be more independent, I was obliged to purchase outright the donkeys I had hitherto been hiring, and to keep their late owners on wages like the other men.

In a humble way we are able to confirm the accuracy of Marco Polo. He mentioned that it was a month's journey from Lob to Saitu. Colonel Yule, in a note, questions the correctness of the time. It took us exactly thirty days to travel the distance. He further said the inhabitants flee into the desert from invading armies, and the wind quickly blows the sand over their tracks. One day I stayed behind to help a donkey out of a swamp, and, although our big caravan was not half an hour ahead, every trace of their track had been obliterated by the wind. But I am afraid somebody must have been imposing on the great traveller when they told him that spirits inhabit the desert, who call travellers by their names, and lure them away to destruction. I regret that we really cannot help him out with that statement, though the wind on the

sand certainly does make peculiar sounds. We left Saitu on July 6, without regret; the heat had been great—104° to 106° in the tent. After a few miles we left the oasis, and, crossing a strip of desert, we reached another valley, where there was water and grazing. In the north side of this valley, which was composed of a gravelly rock, there were excavated an immense number of Buddhist caves; they extended for nearly half a mile, and there were three or four tiers of them, very similar to Mingui. There were two large Buddhist figures; the foot of one of them, minus his toes, was sixteen feet long. I measured them with a clinometer, and made them to be upwards of 80 feet high.

FIG. 3.—TONGUT GUIDES.

They were cut out of the rock, and where it was faulty the flaws had been filled up with clay. Each figure had a cave to itself, with openings cut high up in the rock, so that light was admitted. Over the head of the taller one, which reached to the top of the rock, there were the ruins of a building like a temple, apparently built to protect the figure from the weather.

Our next march was to the edge of the same gravelly plain that we had crossed about seventy miles further west, when leaving the mountains. Next day we made a long march, and had to camp on the plain without grass or water. Had we, instead of going to Saitu, followed along the base of the mountains, we should have shortened our

march ten days, and saved our animals a lot of wear and tear. A wolf killed a sheep in broad daylight within 50 yards of our camp, and chased another for several minutes, though everybody was shouting and trying to drive it away. I fired three or four fruitless shots at it with a repeating-rifle, but, as they doubled backwards and forwards amongst the boulders, I was afraid of hitting the sheep. We crossed a pass which we thought might be over the Humboldt range, but it proved to be only a spur, which I think it would have been better to have gone round, as we had to climb up and down 3000 feet. From the summit we had a good view of the snow-covered Humboldt range facing

FIG. 4.—YAKS CARRYING WOOL FROM THE KOKO NOR TO HSI-NING.

us. I saw no glacier at this end, but further along almost every valley had a small one. Our guide, a Chinaman, had brought his son, a child of five or six. He was away all night looking for his horse. Our men asked the boy to come and sleep near them; he declined because he had his father's things to look after; so he slept alone, a hundred yards away from the camp. Imagine an English child of that age doing the same! The father afterwards sold the boy to some Kalmuks.

We marched up a valley five to ten miles wide, with the fine snowy Humboldt range on our right; as we went east the mountains got higher. We passed several places where there had been gold-mining; some of the shafts were a good depth, but all were abandoned. We

stopped at a yurt belonging to some lamas, and were offered sour milk; Mrs. Littledale (to avoid hurting their feelings) drank it. The lama took the empty bowl from her, and then the longest, broadest, and reddest tongue I ever saw curled round inside the bowl a couple of times, and it was replaced on the shelf washed, as before. After watching this cleansing process, my wife wished she had not been so polite. Our guide only knew the road to Hsi-ning by the Tsaidam-Gobi, so we stopped a day to negociate with some Kalmuks for guides. One man looked intelligent when Buhain gol was mentioned, and said it flowed to Koko Nor; but he afterwards denied all knowledge of it. Bribes were tried in vain, and I had actually hold of his horse's rein to seize him and compel him to come, when a man appeared who was willing to go in return for a horse and some money.

To the north the country was composed of barren clay hills of no great elevation, with sandy valleys; but there was to the north-east a rather high snow range, which seemed to start from the Nan-Shan and run north-west. We had been eight days ascending this valley; we crossed a small pass which was only over a spur of the Humboldt. What I saw from the top was quite unexpected. It appeared from the distance as if the Nan-Shan were not connected with the Humboldt at all; between the two there was a broad plain with hardly a perceptible rise, with lakes which apparently formed the watershed; to the east the water would probably run into the Koko Nor, and to the west into the Gobi desert. Nearly due east we saw the Nan-Shan, magnificent snow-peaks, some of them very high; the guide said it would take three days to reach them across a barren country. A few miles after crossing the spur we turned south and crossed the Humboldt by a low easy pass. Ping Dawan being the Chinese name, Captal Dawan the Mongol; height by aneroid, 16,178 feet. On getting to the south side of the Humboldt, we found there was another much higher range of mountains, running parallel with them, as far as I could see, in a north-westerly direction; there was a good deal of snow on them. Some of the peaks were high. One in particular to the south-west, with its cone of snow and large ice-fields, was a conspicuous landmark; it remained in sight towering above its neighbours for several marches. I estimated its height to exceed 20,000 feet. The Tongut name was Amnermurgil. There was another peak a little further away that was also very high. Proceeding in a southerly direction, we crossed the chain by the Yangi Dawan; then over a barren undulating plateau strewn with granite boulders, little lower than the pass itself on which we camped.

When a horse or donkey fell sick, the treatment was to run a large packing-needle through the animal's nose. Our caravan bashi, who suffered from the elevation, forced one right through his own, probably reasoning that what was good for an ass certainly ought to suit himself.

Our next camp was in a broad valley, 14,573 feet, with a small stream which flowed west, in which direction we saw a line of distant snow-peaks coming from the north, probably a continuation of the Hartung-Sueisan. We turned east, and, crossing a low divide, commenced to descend. The mountains to the south became higher. We saw quantities of yak—there were between seventy and eighty in one herd; antelopes and kyang in thousands. We were approaching the Tongut country, and our guide wished to return. This we would not hear of. I must say, with the exception of the two Ladakhis, all our men were now in a great fright. On our camp being pitched a few miles from a Tongut encampment, one of the dreaded tribe arrived. Even the greatest cowards laughed when our foeman proved to be a small boy of fourteen. Next day I went to interview the chief.

The tents used by these people are quite different from the felt yurts of the Kirghiz and Mongols. They are made of a rather porous woollen cloth in two pieces, which are loosely laced together, leaving a slit in the roof about a foot wide from end to end, to let out the smoke. The roof being nearly flat, and the sides having a very gradual slope, they cover a great extent of ground, and, not being high, do not catch the wind. I was offered, and declined, tea flavoured with butter and salt. Our Tongut guide dipped his fingers into the rancid butter floating in his bowl of tea, and smeared it over his hands and face. The chief examined me carefully from head to foot, and, having asked my nationality, then said, "The Englishman has wonderful guns, but very bad clothes." Then the guide topic was introduced, and after the usual objections had been overcome by the transfer of some of my property to the headman, two guides were forthcoming. Our old guide declined to leave at once, saying he would go with us till nearly the end of the march; then, by lagging behind, he could slip away unnoticed. For he said, if our new guides knew he was going, they would certainly turn back and rob him. By this arrangement he would be able to pass the large encampment during the night. Our guides did not stay long. They professed to be in fear of their lives, and they departed, leaving us to find our own way. But we were now in a better grazing country, and there was water everywhere, so one of our great anxieties was over. Only those who have experienced it can realize the horror of travelling in a waterless country with treacherous guides. Scarcity of fuel was another though minor source of trouble. We always carried a sack, in which was put as we marched along the smallest piece of wood or dropping that we could find, to make our camp-fire. With the exception of the Kurgan bulak and the neighbourhood of Saitu, we saw no trees between Lob Nor and Koko Nor. The river that we had been descending turned to the south through the mountains, which were here particularly fine and bold. We ascended a valley in an easterly direction, and camped at the foot of a prominent peak, whose altitude by aneroid

and clinometer I made out to be 18,000 feet, and next day crossed the Katin La, about 15,800 feet. It was steep and stony ascending; the descent was in some places soft clay. To the north there appeared to be a rolling, stony plateau; to the south, rocky peaks, some of them vertical enough to suit the tastes of members of the Alpine Club; to the east, the valley of the Buhain gol. As we marched down, the mountains to the south sank rapidly, and about 20 miles from the Katin La there was apparently to the south only rolling grassy hills. Further on the mountains rose and became abrupt and snowy again.

We saw across the Buhain gol some Tonguts galloping about in a great state of excitement. The Mongols profess to be afraid of the Tonguts, and the Tonguts, it now appeared, dreaded the Mongols, whom they supposed us to be. We invited them across to see us. They carried a sword stuck through their belt, and a lance at least 14 feet in length, and most of them a matchlock gun as well. I gave them a practical explanation of the repeating-rifle, omiting to inform them, however, that after firing five shots it was necessary to reload, and they left under the impression that it went on shooting indefinitely. Some days after, about one hundred and twenty similar gentlemen stopped about a mile from our camp, and our Turki men said we were about to be attacked. I held a consultation with Ramazan and Rozahun, and we decided it would be best for them to go to the Tonguts and ask for a guide; it would show them that we knew they were there and were not afraid of them. Each taking a rifle, they interviewed our friends. The repeating-rifle was expounded with such marked effect that when Rozahun proposed to explain the beauties of a revolver, they begged him to put it by. Whatever their original intentions may have been, they were far too great cowards to face us when they saw we were prepared, and they rode away, looking with their long lances very wild and picturesque.

We had now rain regularly every afternoon, and the grazing was luxurious. Our horses began to gain flesh and spirits; one of them actually bucked his load off. Poor beasts! they deserved some good grass after the rough time they had had. They showed their increased strength by marching three geographical miles an hour, in place of two and a half.

A large stream had joined the Buhain gol from the north, and the river was now of considerable size. It took us some time to find a ford, and we crossed to the left bank. Seeing four mounted Tonguts about a mile to our left, I rode towards them; they began to edge away and at last commenced to gallop. Armed with a white umbrella, I started off in hot pursuit. As they fled I saw them working away at their matchlock guns, but apparently could not manage their flint and steels on horseback. My pony was so weak he was soon outpaced, and I gave up the chase.

On August 3, the sixth day after crossing the Katin La, we camped a few miles away from the Koko Nor; we had for some days been very excited to know whether we were right in our calculations as to our position in regard to the lake, and when at last we saw right ahead its blue waters dancing in the sunshine, we knew that our dead reckoning was not much wrong. The north shore of the lake was very flat and looked swampy—there were many antelopes and kyang feeding; the south shore was bounded by mountains, but not of any great altitude. Fifteen to twenty miles south-east, in the lake, I saw an island; to the north-west the horizon was rolling grassy hills; on the north-east stood the Nan-Shan with patches of snow. We marched for a couple of

FIG. 5.—BRIDGE NEAR HSI-NING.

days along the shore of the lake. The third day we pitched our tents near a large Tongut encampment; thousands of sheep and yaks were feeding on the hills. At the door of almost every tent was a spear stuck in the ground, and standing like a flagstaff; I tried to buy a spear, but nobody would sell. They were now kind enough to offer us a guide to Hsi-ning, but we respectfully declined. Next morning our five sheep were missing; thinking they had joined one of the flocks near, we started, leaving a couple of men behind to bring them on. They overtook us in the evening, and said the sheep had been stolen and were not to be found. Our two Ladakhis, who had the greatest contempt for the Tonguts, were most anxious to start back at once; they said that if our own sheep were not forthcoming, they

would take fifty sheep to replace them, and, if the headman objected, they would bring him along too. I have not the least doubt they would have done so had I allowed them to go. Among the sheep was one that we were extremely sorry to lose; he had followed the caravan all the way from Kurla; he used to sleep by the kitchen fire, and was the pet of the camp.

We reached the busy, prosperous-looking town of Hsi-ning on August 9, four days from Koko Nor. A few miles from the town we had the pleasure to meet a Mr. Obrucheff, the Russian geologist to the Potanin expedition; he had come from Suchau by a route to the south of the south Koko Nor mountains and the lake itself.

Some Tonguts had told us that an old lama lived alone on the island in Koko Nor, and that in winter numbers of people crossed the ice to see him; others had told Mr. Obrucheff there were three hundred; Prjevalsky reports eleven. So much for the dependence to be placed on information obtained in this country.

Soon after we arrived, Mr. Hunter, a Scotch missionary, visited us; he helped us in many ways.

Two marches from Hsi-ning the road to Lan-chau bifurcates. The left-hand one, a cart-road, takes ten days; and the right, a rough mule-track along the Hoang-ho, only seven: we chose the latter. In crossing a ferry, one of the horses carrying our precious burden of wild camel skins got frightened and went overboard; but the men held on to the load, and fortunately saved it going into the river with the horse. We passed a number of water-wheels, some of them 60 feet high; they lift the water from the river to irrigate the land, principally growing poppy. In this loess-covered country water has a disastrous effect on the roads. It is of no unfrequent occurrence to see a small hole in the road; on looking down, you find the ground you are standing on is a mere shell, and the cavern beneath of considerable depth.

We had made up our minds that we would if possible get a raft and float down the Hoang-ho; so directly we arrived at Lan-chau I called upon Mr. Redfern, an English missionary. He told me that rafts did go down, but no European had been, and he did not recommend Mrs. Littledale to try it. This was the very last argument that would divert my wife from our intended route; and by next day he had arranged a raft to take us to Ning-hsia. Our craven-hearted interpreter here announced that nothing would induce him to go any further, and Lan-chau was ransacked in vain for another. One of our Turki caravan men, who spoke a few words of Chinese, agreed to come; but he spoke so little, he added much to our difficulties.

For a journey like ours, when four or five months' food for man and beast has to be carried, and where the water troubles are so great, donkeys are far preferable to ponies; mules would probably have done better than either, but we could not buy any at Kurla. Out of our

twenty ponies, though twelve actually reached Lan-chau, only four or five would ever be much good again; while out of our forty-one donkeys, about thirty of the thirty-four which survived would only require a fortnight's rest and good food to put them to rights. Our horses ordinarily carried 3 maunds = 290 lbs., and were given 4 lbs. of grain a day; and we had a man to look after each four horses; the donkeys carried 2 maunds and had 2 lbs. of grain, and one man easily managed ten or twelve. Horses walked about half a mile an hour quicker, forded streams better, and were pleasanter to ride, but there their advantages ended. We handed over our horses and donkeys to our men, as they had on the whole done well, the Kulja man for having stood

FIG. 6.—WATER WHEEL ON THE HOANG-HO.

by us in the Saitu revolt taking the lion's share, and they started back to Kurla immediately by the high-road.

Our raft was about 50 feet by 18; it had three sweeps at each end, with which the crew of twelve men were able to give it a slow crab-like motion. We pitched our tent, and with a floor of planks made ourselves comfortable. One of the raft-men had bought some baskets of peaches as a speculation; they were rather in our way, but we took toll, and it gave the headman a stake in the safety of the raft, so he was more likely to be careful.

On the Han river there is an organized system of wrecking. A gang of men will tow a boat halfway up a rapid, then the head of the gang says unless he gets so much extra the men won't pull any more; if the

owner refuses, they let go the tow-rope and the boat is smashed on the rocks, and then the rascals save as much of the cargo as they can, for as salvers they are legally entitled to half.

The missionaries came to see us off. It is impossible to speak otherwise than in the highest praise of the zeal and devotion of these men, who are spending their lives in an endeavour to Christianize the almost hopeless heathen Chinaman.

The rapid current whisked us off, and Lan-chau was quickly lost sight of. We floated nearly all day through a gorge, and went down a small rapid—we had heard there was one—and prematurely congratulating ourselves that it was past, we tied up for the night. We started at daylight, and soon the gorge became narrow, the raft dashing down at an alarming pace; the sides of the gorge were nearly vertical. The river every few minutes made sharp turns, boiling and surging, and at the bends the water would be heaped up against the rocks, higher than my head as I stood on the raft, and then flow away in a succession of whirlpools. I thought if the river was going to be like this all the way there was not much chance of the raft keeping intact, for we had bumped once heavily, fortunately not in the most rapid part, but sufficiently so to break some of the logs and to knock the raft all askew. What did not exactly increase our confidence, was the discovery that each man had an inflated sheepskin handy. At one place I don't think the river was more than twenty yards wide. Fortunately, after a couple of hours the gorge came to an end, and the river widened out and went at a more sober pace. Here half our crew put all their worldly goods into their skin bags, which they re-inflated, and then paddled themselves ashore. They had, it turned out, only been engaged for the dangerous part. In spite of all their efforts, the raft had on several occasions spun round in a decidedly awkward manner. In the gorge there were, of course, no habitations, but below there were scattered villages.

The ferry-boat of the country was made like a sheep-hurdle, under which were fastened about nine inflated skins; the ferryman paddled it like a coracle, and the passengers sat behind. As we got lower the river separated into several channels, and then our troubles began. Owing to the unwieldiness of the raft, we were not always able to take the most promising channel, and we constantly stuck fast. The raftmen used to tie six or eight of their longest and biggest logs together, making a thick boom nearly as long as the raft; one end was tied close to the raft, the other had a very strong rope, which kept the boom at right angles. In the strongest current there was a great strain, and off the raft used generally to come; but sometimes the water was so shallow that we had to pull the whole raft to pieces, and float it down log by log over the obstruction, and rebuild it below. We passed some flat-bottomed boats; the owners were very anxious to take us down to

Bautu. We declined, as we thought we should get a better choice of boats lower down; but it was a great mistake, and anybody descending the river ought to engage the first available boat after passing down the gorge; no boats ever come through the gorge, for even if they got safely down they could never return. The river, as we descended, flowed through so many channels that none were very deep, and the raft exhausted our patience, for no sooner had we rebuilt it at the foot of some shallow and started, than it would stick fast again, and there was every prospect of our taking a month to reach Ning-hsia. Our raft-men had all one morning been taking logs off our raft and making a smaller, they said, to tow us off. They then put their peaches on to the smaller one "to lighten the big one," immediately cutting the rope; and away they went, leaving us on the remains of the raft with only three men. Fortunately, I soon after arranged with the owner of a scow piled up with wool that happened to pass, that they should take us and our baggage to Ning-hsia. It was a fortunate thing for the absconding men that our boat never overtook the little raft, for assuredly, had we done so, their fruit should have gone into the river. From our elevated position on the top of the wool we had a capital view of the country, and we constantly saw the Great Wall of China, twisting and turning like a great snake. It was not usually a very magnificent affair, being built of stones where they were plentiful, otherwise of sun-dried brick and mud. We arrived on August 28 at Ning-hsia, or rather at the landing-place, for the town itself was several miles away from the river. The only boats available were a couple of scows laden with grain. They agreed to take us and our baggage to Bautu in nine days for twenty-two taels; after we had paid our money, some Chinamen came on board and said the boat could not start till the boatmen paid them some money. I suspected a swindle, so told them the boat would start in ten minutes; if they could not arrange in that time I would give them a passage to Bautu, and they could see the mandarin there. They became very abusive, so they were summarily ejected; then four or five of them held on to the painter, and I had the greatest difficulty in restraining our two Ladakhis, who were eager for a fight, from using unnecessarily strong measures. We had not gone far when both our boats grounded, and remained fast several hours. A boat-load of soldiers arrived with our old antagonists; they did not come to our boat, but we saw a violent altercation going on in the other. The boatmen finally told them that if they did not go they would fling them into the water, soldiers and all. It was impossible to pitch the tent on board, it caught the wind too much, but I arranged a small awning, and we used to camp on shore at night. There were very few inhabitants along the river-side; here and there a village, but the greater part of the way the desert comes pretty close to the river, and the hills from a distance look very barren. The river when we first saw it was a deep

red colour, but it now assumed a dirty grey look; it was generally about a quarter of a mile wide, rather shallow, and the banks covered with bushes and willows, and beyond nothing but drifting yellow sand. One of our boatmen complained of his eyes, so we gave him a couple of pills.

A Chinaman was overheard asking another why we gave two pills; the reply was, "He has two eyes; do you think he only wants one cured?"

Between Ning-hsia and Bautu there is a considerable traffic. Scows loaded with wool or grain drift down to Bautu; they are then towed by their crew of five men upstream again, taking two to three months on the round trip. As we approached the place where the Hoang-ho commences to bend to the east, we saw more frequently sheep and cattle, especially on the left bank. On nearing Bautu, the mountains which had been distant on the west and north now ran close to the river, and there was a small lamaserai on each side of the river.

We arrived on September 12 at the small walled Chinese town of Bautu, having taken twenty-five days to drift down from Lan-chau. We hired five carts to take us to Kwei-hwa-cheng for 35,000 cash. The price was not as ruinous as the high figures would imply, the equivalent of a seer or tael (1 tael = about 4*s.*) being about 1400 cash. The carts were like dog-kennels on wheels, being about 2½ feet wide, 3½ long, and 3½ high, drawn by a pair of mules harnessed tandem; the driver sits in front with his legs dangling over the shaft, as near the centre of the cart as the good nature of the passenger allows.

We passed through a country abounding in ruined towns and villages, not one-fifth of the houses in some of them being inhabited. The ground was frequently terraced right to the summit of the hills, but only the most fertile plots are now cultivated. Such is the result of the disastrous Mohammedan rebellion of 1861, which caused the destruction of nine-tenths of the population, and from which the country, after a lapse of so many years, is only just beginning to recover.

By promising rewards we reached Kwei-hwa-cheng on the third day. We were most hospitably received by Dr. Stewart, a medical missionary. In describing the difficulties of the Chinese language to beginners, he told me, among other things, that the words for chicken and wife closely resembled each other. Once when prescribing for a sick Chinaman he found he had told him to cut his wife's throat and make broth of her. Another missionary ordered his servant to go to the bazaar and buy a chicken; the man was gone nearly all day, and returned saying that good-looking women were awfully scarce just then, and he would have to pay thirty taels for a young one.

In this town there were a colony of Swedish girls living alone; they had been sent out to China through the instrumentality of an American. These poor ladies had been exposed to many insults on their way up country, and to daily ribald remarks in the streets at Kwei-hwa-cheng.

and one shudders to think what may be their fate. It is difficult to speak temperately of a society or individual that, in the name of religion, lightly takes the responsibility of sending these women out wholesale to a country like China, and when there, leaves them practically without supervision or protection and with most inadequate means. It will scarcely be credited that, though they usually go about in pairs, a girl hardly speaking a word of the language will sometimes be sent alone with a Chinaman several days' journey in a cart to visit some town where there is no European. Altogether, I don't think Mrs. Littledale or I have ever felt more sad than the day we left those kind, enthusiastic, open-hearted Swedes.

We travelled by day in our carts over a thinly inhabited and sparsely cultivated country, pitching our tent at night if there did not happen to be a clean inn. After going four days, we had to change the axle-trees of our carts, the roads from here to Peking being in many places too narrow for the broad-gauge carts in use further west; and besides, the ruts were so deep it would have been impossible to travel unless the wheels fitted them. The inhabitants of the country became more numerous, and, as "foreign devils" were no novelty, we suffered no annoyance, except ludicrously extravagant bills used to be presented for our night's accommodation.

On September 27 we passed through the Great Wall by a rather mean gateway. The wall looked very picturesque, winding up and down the hillsides in apparently rather an aimless manner, and sending out a branch wall here and there without any apparent reason; it was made of mud, and faced with either brick or stone, and had a crenulated parapet. Although there was only room on the top for two carts to drive abreast, in place of the six I read about in the days of my youth, it was on the whole rather imposing. Down the Nankau pass and over atrocious roads we jolted for three days. Shortly before reaching Pekin we passed three large antiquated-looking castles; they were built after the model of Tibetan strongholds by the Emperor Chien Lung, when meditating a campaign against Tibet, so that his soldiers might see the kind of fortresses they would have to attack, and practice scaling the walls. Another tradition has it that they were erected by the emperor to commemorate a successful (?) Tibetan campaign. One of our carts sank to its axletrees in indescribable filth, and stuck fast for a couple of hours. The whole traffic of Pekin by that gateway was stopped in consequence; there were at least a hundred carts delayed, and yet not one of their men would help our cart, and so clear a way for themselves.

Our arrival at a comfortable little hotel in Pekin may be considered the end of our journey; the rest was plain sailing. We paid our plucky Turki interpreter in rouble notes, which he sewed into the lining of his coat; and he started alone on his long journey of four months back to Kurla. Ramazan and Rozahun accompanied us to

Hong-Kong, where we saw them on board a direct steamer to Calcutta, from which place they would return through Kashmir to Ladakh.

Should we ever wander into inner Asia again, the day we secure the services of those two good little fellows the difficulties in front of us will be already half overcome.

Before the reading of the paper, the PRESIDENT said: We have the pleasure this evening to welcome back to England Mr. Littledale, whose interesting paper after crossing the Pamir tablelands will be remembered with pleasure by most of us, for it was actually read very little more than a year ago.

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

The PRESIDENT: Mr. Littledale's interesting paper suggests many topics of reflection and discussion and inquiry, but the central point of all is, perhaps, the wild camel. I hope Sir William Flower will kindly give the meeting some opinion respecting the animal he has seen from the collection of Mr. Littledale.

Sir WILLIAM H. FLOWER: I am in the habit of dividing travellers who go into remote regions of the world into three classes—those who slay the animals of the countries they pass through and leave them where they were killed; those who bring home their trophies and carry them off to distant and perhaps inaccessible parts of the country where they may happen to reside, to hang them up in their halls, where in process of time moth, dust, and decay destroy them; and those who recollect that there is in London, in the Cromwell Road, an institution where such trophies as are of scientific interest will be preserved for the benefit of all who are capable of deriving any advantage from them. I am happy to say Mr. Littledale is one of the third class, and that zoological science has very much benefited, not only by his last adventurous journey, but other equally remarkable and adventurous journeys which he, accompanied by his brave and heroic wife, has undertaken. One of his earlier expeditions enabled the museum to exhibit, for the first time in Europe, specimens of the largest and finest of all the sheep tribe—that which was seen years ago by Marco Polo, and which, when rediscovered recently, was named after him the *Ovis poli*. A beautiful group of these animals is now mounted in the mammalia gallery of the Natural History Museum. From another expedition he brought home from the almost inaccessible mountains of the Caucasus specimens of that interesting animal, the bison, which in former times ranged over the whole of Europe and our own islands, allied in many aspects to the bison of North America. It has become extinct in the old world except in two regions—a forest in Lithuania, where a small herd has been preserved by the Emperors of Russia, from which one specimen was sent many years ago by the Emperor Nicholas to the Zoological Gardens, and is now stuffed in the Natural History Museum; the second locality is this region of the Caucasus, where Mr. Littledale shot a bull and a cow, now exhibited in the museum. On this last expedition, of which we have just heard such an interesting account, beside some smaller though hardly less interesting animals, he succeeded in bringing home the wild camel. As we all know, there are two forms of the domestic camel—the one with two humps, found in Central Asia, Persia, and the south of Russia; and the one-humped species, or dromedary, found in India, Arabia, and throughout a considerable part of Africa. Wild camels, until recent times, had been quite unknown, and the origin of the domestic camel was, as is the origin of many of our domestic animals, involved in mystery. The history of the camel, as has been revealed by recent geological explorations, is a very curious one. Though now living in Africa and Asia, we have not at present found any fossil remains of camels in early formations in the old world, but most

unexpectedly, during a survey that began about twenty-five years ago, remarkable fossiliferous deposits were found in pliocene, miocene, and even going back to eocene times in the western part of North America, and there was discovered the original home of the camel, and the American palæontologists have traced it from a primitive generalized form of the group to which the existing camel belongs by a succession of minute changes; but, curiously enough, it became entirely extinct in the region where it seems to have been originally developed. Some, however, emigrated to South America, remaining there in the form of the lama, vicuna, and alpaca found in the Andes of South America and Patagonia; and the other branch appears to have crossed that bridge of land which once extended across the North Pacific, and spread over the regions of the old world indicated just now. Unfortunately, it is impossible to say whether these camels which run wild without owners in the western parts of the great desert of Gobi, discovered by the celebrated Russian traveller, Prjevalsky, and afterwards by Mr. Littledale, are really wild, that is, descended from camels which have never at any time been domesticated. About a year and a half ago a skin was exhibited at the Zoological Society by Mr. Blanford, brought home by Major Cumberland, which was the first evidence of the wild camel brought to this country; but Mr. Littledale is the first to bring home complete specimens, not only skins, but also skeletons, which give the full characteristics of the animal, and which will soon be ready for exhibition in the Natural History Museum. It belongs to the two-humped species, as may be supposed, as the tame camels of Central Asia are two-humped; but the humps are poorly developed—in fact, in the specimens at the museum, scarcely developed at all. In all probability the primitive camels had no humps, as the lamas of the present day have no humps, and the great humps developed in our domestic camels are the result of domestication, cultivation, and selection, and also depending for their size upon the condition of the animal, developed by good feeding. These wild camels were certainly in very poor condition, and, being also just changing their coats, have a rather shabby appearance compared with some of the domestic animals we may have seen in their fine winter coats; nevertheless, they are most interesting animals, and we are all very much indebted to Mr. Littledale's energy, endurance, and courage in going so far in search of them and bringing them safely back to our national museum. I think the other specimens Mr. Littledale brought home I had better leave Dr. Günther to mention, as he has most carefully examined them all, and probably will tell us something interesting about them.

Dr. GÜNTHER: I can hardly add anything to Sir Wm. Flower's remarks. The other animals which Mr. Littledale has collected consist of species which are of great interest to zoologists, but which do not demand the same attention that so remarkable an animal as the wild camel does. I followed the course of Mr. Littledale's expedition with some anxiety, he having mentioned at the outset that he meant to come home through China, and I therefore thought there was but little prospect of seeing specimens of the wild camel. The wild camel was discovered by Prjevalsky some fifteen years ago; he succeeded in bringing five specimens to the St. Petersburg Museum, and I humbly hoped that a specimen of so interesting an animal might be obtained for the British collection, but the authorities of the Russian museum seemed to be anxious to keep them all. The animals Mr. Littledale brought home are in very good condition, particularly the skeleton. There is not the least reason to doubt that the camels, whether tame originally or not, have multiplied in a wild state, and are now perfectly adapted to life in wild nature. It is singular that within a recent period we have become acquainted with a similar instance; I allude to the dromedaries in the south of Spain. It is reported that some years ago dromedaries that had been used as beasts of burden were turned adrift

and had multiplied; and I heard only yesterday that the Comte de Paris, who takes special care of them, has now a herd of forty or fifty individuals of this one-humped camel in a perfectly wild state, existing without the assistance of man. There is only one other remark I have to make. Mr. Littledale has now obtained so many spoils that there is only one other left for him to gather, and I hope Mr. and Mrs. Littledale will have retained energy and health enough to accomplish this feat too, and, that is, to obtain specimens of the wild horse which is still roaming over the plains of Central Asia.

General WALKER: It is so late that I will only point out that the hand-map prepared for general use this evening is divided into two parts: the lower contains the journey of Mr. Littledale from Batum to China, but the upper part contains what is really of very great geographical value, the journey from Lob Nor to Saitu, and from Saitu to Koko Nor. The lines over which he has travelled in this portion of his adventurous journey are perfectly new; no European ever travelled over them before, at least, since the time of Marco Polo. I think it very remarkable that a journey of this nature should have been accomplished by a gentleman travelling with his wife; it is the most remarkable feat for a lady to have accomplished that I ever heard of. Mr. Littledale has given an exceedingly modest account of it all, but really, when one comes to think it over, it is all the more astonishing that any lady should have performed a journey over such a difficult and dangerous line of country. Saitu is a point reached by a number of Europeans: Prjevalsky coming from the north; Messrs. Carey and Dalgleish from India; the Indian explorer A-K (Krishna), who gained great credit for his adventurous explorations in Tibet; and Count Széchenyi, the Austrian traveller, coming from China. Mr. Littledale has travelled from Lob Nor to Saitu as no European has done before since the time of Marco Polo, and then from Saitu to Koko Nor, which, I believe, is wholly new ground. I think he deserves every honour that the Society can pay him, and I only regret that Mrs. Littledale is not here this evening in order to receive the recognition which, I am sure, she would receive from every one here present.

Mr. DELMAR MORGAN said that, besides the zoological facts brought to our notice by Mr. Littledale, he had done much to elucidate the geography of an almost unexplored region. His route lay along the northern foot of the Kuen Luen, a system of mountains the very existence of which was unknown before Alexander von Humboldt's time. It was at the suggestion of this learned geographer that the British Government sent the Brothers Schlagintweit in 1856 to explore its western extremity, and the late Sir R. Murchison had said of these travellers that they were "the only geographers to visit these localities and sustain what Humboldt had affirmed, that his Kuen Luen presents all the characters, relations, and attributes of an independent chain." More recently Baron von Richthofen had ascertained the continuity of the system through upwards of forty degrees of longitude into China. The late Gen. Prjevalsky had visited central parts of the Kuen Luen, but it was reserved for Mr. Littledale to fill in a gap left by that eminent traveller between Lob Nor and Sha-chau. This was the route along which passed the Chinese silk trade, and Marco Polo had been the last European traveller to describe it. Within historical times the region in question had been very different to its present condition. Three hundred and sixty of its flourishing cities are said to have been buried beneath the drift sand. Mr. Littledale mentioned a range of mountains to the north-east of Sha-chau. M. Potanin, in crossing this part of the Gobi, also met with chains of mountains in about the same parallel, and saw some snowy peaks. He called these ranges "Gobi Altai," taking them to be south-easterly ramifications of the Altai system, which apparently extends to the borders of China.

"Gobi," according to this Russian traveller, is not a desert in the sense that the Sahara is a desert; and the word "Gobi" is applied locally to raised plains, not arid tracts. There were other points suggested by Mr. Littledale's interesting paper, but at that late hour of the evening it would be impossible to discuss them.

The PRESIDENT: There are several interesting points on which it is too late to dwell with reference to the paper of Mr. Littledale. I think, however, that there is just time for me to express regret that he should cast a doubt upon the statements of Marco Polo, that spirits whisper the names of travellers as they pass through the deserts, and hear other travellers passing by them who are invisible. At all events, it is a well-known fact that in many deserts drums and fifes are heard, and tattoos are beaten in the early morning. Mr. Littledale acknowledges that he has heard sounds like drums. Lieut. Wood went out of his way to hear this music, and Sir F. Goldsmid has experienced it also. I have heard similar sounds in the deserts of Peru, such as may have appeared to Marco Polo to be the whispering of his own name. If I remember rightly, Sir Henry Yule collected a good many instances of such sounds being heard in the deserts of Asia, which are extremely interesting. We have not had time to discuss the loess caves where the statues have been carved, and the figures on the roofs, which, I have no doubt, merit very careful investigation. One other thing I should like to refer to of not so pleasant a character, and that is the reckless way in which missionaries seem to have sent a number of respectable young women into the centre of China, and to have left them alone with very meagre resources. It is, I think, a most disgraceful story, and I trust Mr. Littledale will take care to have it brought strongly before the notice of the Swedish Government. I think you will be glad to hear that the fox-terrier arrived safely in England again, but very thirsty, because it drank nothing from Pekin to London. We all regret that through illness Mrs. Littledale has been unable to be present with us this evening, but I am sure you will unite with me in offering our most hearty and cordial congratulations to Mr. and Mrs. Littledale on having accomplished this wonderful journey, and in returning our very grateful thanks for so interesting a paper.

MR. LITTLEDALE'S MAP FROM LOB NOR TO KOKO NOR.—The starting-point on this map is Abdal, to which the same position is given as that assigned to it on the Society's map of Tibet. It has been constructed from a compass route survey by Mr. Littledale, checked by astronomical observations. The distances travelled were most carefully estimated by pacing at intervals for a fixed distance beside the caravan and observing the time occupied, by which the speed at which the caravan was travelling was arrived at. Mr. Littledale carried a watch which kept a steady rate throughout his journey, and he was thus able to fix his longitude by frequent observations with a sextant of the sun and stars for time. Observations of *Polaris* were taken for latitude every evening when the day's march was over, and the work was plotted and inked in on the map every night. A large number of aneroid readings were taken for the determination of heights, as well as compass bearings to all prominent objects within sight of the route followed.

MAP OF THE HOANG-HO.—The starting-point on this map was Lan-chau, the position of which is that assigned to it by Prjevalsky and Rockhill. Compass bearings were taken of the course of the river, and prominent objects in sight from the aft on which they journeyed down the river. Every evening sextant observations of Polaris were taken on the river-bank for latitude, and numerous aneroid readings were recorded.