

DIARY OF THE 1931 EXPEDITION TO WESTERN TIBET.

By DR. W. N. KOELZ.

JUNE 7.—At 11 we set out from Naggar with 15 horses. Thakur Rup Chand has marked all the parcels and has written in his diary where are located the mousetraps, old newspapers, blotters, cartridges, medicine packets, silver money, and the other things we will need during the four months before we cross the Great Himālayan Range for home. Gyaltsen has had a stubborn fever for several days and will cover the first stage by the motor lorry. The other servant, Dorje, has bought a kilta to carry home to the family in Lahul dainties acquired from the proceeds of his labour. The Lahuli family is like an ant-hill. All the members labour for the benefit of the rest, with the exception that a little money is reserved by the worker for buying a few cheap cigarettes. Our caravan personnel is temporary. One of the party is going to be married to-night and most of the rest are involved in the festivities. In spite of the innumerable things that had to be put into the baggage at the last minute and the endless additions that Miss L. decided were indispensable for the journey, including rosewater, tan remover and an alpaca muffler, all of which have been surreptitiously removed and stored against possible use at home, only an old tin has been left behind. It is dead sure that my nose will be burned raw when we get above 10,000, with or without all the remedies designed to prevent it. Besides, there is no room on the horses for superfluities. Each servant needs a horse for his provisions, since no food can be had for the first 2 months of the journey, and where will be put the heads of big game, dried plants? Although we have broken up our happy home, everyone was relieved to be on the road, after the months of negotiating and planning and then the 2 weeks of strenuous waiting for the first horses to cross the Rothang La. The road to our first halt Manali, that leads along the precipice above the river and about which I was so thrilled last year, has become common place, so habitual have magnificent views and stirring locations become. The mosquitoes that last year at Manali enforced an all-night vigil have not yet taken up their posts. A raucous-voiced woman that perched on a cliff half a mile above us swore at stray horses or humans that trespassed on her vacant fields amused the company till dark, when she descended and invited us who had been the main offenders to be her guests.

June 8.—The bridegroom, a lad of 18, joined the caravan at 10, together with four of his relatives and we set out from Manali. During the night new

horses arrived to replace the feebler ones that had been recruited into the service at short notice. Also two animals were added, loaded with tea and shoes for sale to natives en route. The animals now total 17 and the horse-men 5. Our staff numbers 4 but 21 more men will be added in Lahul and one left behind. The horsemen are all Moslems and our men Buddhists. Gyaltzen has got rid of his fever and there is no longer the prospect of having to start with all new help. Dorje, the last recruit to the service, is blissfully good-natured and painfully smiling but doesn't understand Urdu or Tibetan, his native language any too well, and therefore is of limited usefulness. Besides, he sleeps like a stone and can't be awakened short of inflicting bodily harm and is so innocent that he would willingly give all our possessions to any stranger who asked for them. The need for guarding camp is, however, after to-day no longer urgent. The thieves that operate from Manali do not go beyond the Pass and in the territory ahead, except possibly in Leh, thievery is unknown. The Manali thieves have been especially active of late, having carried off 13 sheep loads in daylight, and the Lahulis, their chief victims, are so exasperated that the next bandit caught will probably be roasted alive, a fate that one met before. Once they let the robbers cross the bridge and then they pulled up a couple planks behind them. When the robbers tried to flee back across the bridge, they fell into the river below and were finished. Four of the bridges on the road to-day were out, the timbers snapt from the heavy snow.

June 9.—At 7-15 we left Rahla (alt. 8,850) and arrived on top of Rothang (alt. 13,400) at 12-15; at Koksar (10,431) at 3-15. A fresh breeze began before daybreak and blew until the top of the Pass. From Sum, 2 hours this side of the crest, to near the river on the Koksar side the path has been on snow. Beyond the crest the snow was soft and the horses often broke through the crust. On the lower stretch, over small rivulets there was such ice that a path had to be cut and the horses led across one by one. One animal loaded with a trunk and a bundle of newspaper slipped and rolled 50 feet down a snow-bank, but nothing was the worse for the slide and a revolution or two. Contrary to all reports and expectations there is hay for the animals at Koksar. The tent-dwelling Tibetans, that like the birds move north and south with the season, we left behind a few miles above Manali, excepting one family that has camped near the source of the Beas, on the valley floor. Last year in Mid-July the advance guard in full strength was encamped in streamer-bedecked tents at Sum. The Lahulis with horse and goat caravans are swarming into Kulu and their worn-out grass shoes mark the path. The horses of one of these caravans fled last night from below Rahla, having first eaten up our horses' breakfast, and were recovered only at Koksar where they tarried on their way home for refreshment. A huge herd of sheep

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and goat with dog supervisors also crossed with us and one lamb was born in the snow and had to be carried down. A little later each shepherd will be stuffed with lambs and kids, that cheerfully let themselves be transported in the folds of the herdsman's woollen blouse with only their heads exposed. Two fakirs, completely naked except that one had an umbrella and a thin cotton sheet, also came with us. Barefooted on snow for five hours against a breeze that chilled their proper dress they went on without faltering, but showed signs of discomfort when we stopped to rest on a little area that the people had cleared of snow for the sheep to halt on. Rup Chand offered them hot tea but it was refused. A cigarette was accepted. I am told that these people make free use of various habit forming drugs, most of them unknown in the Occident, which furnish them with delightful stimulation, transforming dream into reality and in other ways enhancing the psychic life. Flowers are few. Only here and there the little royal purple iris (*I. Kumaonensis*) had formed a bed of bloom, and of the salmon pink primrose (*P. rosea*) that above 11,000 feet makes a bright-hued carpet before the retreating snow, only a stray flower has blossomed. For the first time in this country, I have worn coloured glasses and the results are splendid. The colour of the glasses that at first tints everything is soon forgotten and the snow is seen in its natural white.

June 10.—We left Koksar at 8 and got to Sisu (alt. 9,900) at 1. The road is all right except in perhaps half a dozen miles snow extends across the path to the river. The sheep and goats that are daily pouring across the Pass into Lahul are counted at Koksar and a tax of $\frac{1}{2}$ anna per head is levied on all but youngsters of this year. They are exempt. Herds come from as far away as Palampur to feed on the non-pavil grass that grows on the lofty Lahuli slopes. The Koksar bridge bobbed like a cork on the waves as the droves crossed and I speculated on the probability of my being marooned with the broken bridge between me and my baggage. The bridge, however, did not break. A few miles below, the bridge a few years ago crashed into the stream just as the last horse of a caravan got across. On this trip, though we have passed over this road at least half a dozen times, Rup Chand showed me the 'Zangskar Bay', a place where the West Tibetans and Indian hill people used to meet to trade as they do nowadays some 75 miles farther up the Bhaga River. On the way we met a young lama whom I had counted on to be my helper in plant collecting, driving horses to Kulu. To my amazed questioning, he replied simply that his father could not give permission to go along (the boy is past 30)—he had to stay home and decorate the monastery walls in Kyelang. Gyaltsen was seized with such a violent desire to get home that he would have bolted if he could have carried his things, and taking pity on him, (he is a mere child of 21), I agreed to let him off and replace him in

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Kyelang. Now to have no servant in prospect was too much. I inquired from R.C. what one does in the country when an agreement is broken and learned that one goes to court and collects damages. The threat of obtaining justice by this method cleared away all obligation of the father's prohibition and the lama is cheerfully planning the trip. I had to give a written agreement though not to employ him in anything that involved a gun, tobacco, or bird skinning. He will, however, eat grouse (not duck, snipe or pigeon) and any kind of domestic or game animal, except horses, donkeys, yaks or beef. Kolung lama who helped me last year in buying Tibetan paintings and the Sisu abbot called to-day (the latter completely drunk as usual).

June 11.—At 9.30 we left for Gundla (alt. 10,300) and got there at 2. The climate in this area is more tempered. There is even a good growth of pine and birch on the slope facing the village, and muskdeer are said to live in the birch forest. Patches of purple iris, sometimes in a solid bed 100 feet square area, met all along the road from Koksar, and the common cowslip or marshman gold (*Caltha palustris*), that is the glory of our American meadows in spring, lines the banks of the meandering rivulets that from afar look like fissures in the earth with gold inside pouring out. These flowers in places grow 4 feet high. I found some 10 plant species that I did not get last year, mostly tiny things that shortly will dry up. In the Thakur's garden in Gundla the apples were in full bloom. One of the trees was covered with huge deep purple rose flowers, very fragrant and most attractive. I shall try to introduce the species in Kulu and America. The fruit I saw last year, small red apples (mang-kushu), said to be of nice flavour. Such apples as grow here (there are a few other trees in Kyelang and more in the lower valley) are all said to be of superior flavour. Last year pears and apples from the upper Rampur valley at slightly less elevation were of excellent quality, equal to the best American fruit. The natives, however, have little interest in fruit and rarely plant the trees, or when planted can't bother to protect them from the cattle that gnaw the bark. The horsemen bought a sick sheep for Rs. 1/8/- and after performing halal, skinned it and took it along on the march. An invalid goat they put alive on one of the horses for future uses. Cases of foot rot are frequent in the flocks. Sometimes other epidemics seriously decimate the goat and sheep herds and even affect the cattle. A few years ago most of the cows died off and the horses had to pull the plow. The results were bad. The fields are small and stony and the quick movements of the horse don't fit him for agricultural pursuits under such conditions. In Kulu a horse does no work except to haul goods on the highway but in Lahul wood and manure are hauled on horses. Hay or crops from the fields are not thus transported. In Kulu humans, chiefly women, carry the wood, crops, fodder, or manure.

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June 12.—We left Gundla at 9-15 and got to Kyelang (alt. 10,300) at 2-30. Paljor, last summer's coolie, met me a mile before Kyelang with a bouquet of dandelions and in the village I saw the main citizens, the native school teacher, the doctor, the wazir and the white missionary. Some interesting people had arrived from Danupa, a district of Ladak, en route for Trilokanath, a place which it is this year particularly advantageous for both Hindus and Buddhists to visit for their soul's welfare. These people are partial to brass jewelry and wanted to sell me dried turnips. They are said to eat no meat and some say they don't even use milk from cattle or touch the calves until these are a fortnight old. The weather is decidedly cool and the season backward even here. The barley, potatoes and wheat are just out of the ground, so they have been hoed once, and the fields are being prepared for buckwheat. In all the fields can be seen lines of stones that would intrigue an ethnologist but they have no other significance than that they mark the irrigation channels and are used as needed to dig the mud out of them. The big *Eremus himalayica* that from below Gundla to Kyelang grows in masses, often several acres in extent, is in full bloom and the effect of the masses of tall creamy spikes is stunning. Gyaltsen's mother sent me some apples, very well preserved, of nice colour and excellent flavour. His brother brought 2 sets of chikor eggs, nicely marked, 12 in each set. (The chikor is a grouse about as large as the American Ruffed Grouse.) The eggs of this bird are gathered in quantities and are even salted down for summer's use. Chikor have been numerous all along the way, likewise Snow and Blue Pigeons. The large Snow Grouse has gone back to the peaks and none were seen near the road. The ibex have also gone back to the snow line. Sheep are going forward to-day to cross the Bara Latse Pass. There is much snow and the consensus of opinion holds that we cannot cross. Rup Chand's 'Choti Ma' they said sent me milk and invited me to tea. I knew that Rup Chand's mother wasn't here, but the 'little mother' proved to be his maternal aunts. Similarly a child may call his real father his 'little father', since technically his father must be the eldest brother of the family.

June 13.—I spent the day about town, visiting the chief citizens. The sojourn here was not for that purpose, but the men wanted a day at home and the horses were none too fresh for the hard work ahead. The Wazir, a clever lad of 22, gave me tea and the physician a gifted Plains Punjabi invited me to dinner. The physician has become very fond of his adopted country and his brilliant and devoted labours are much appreciated by the populace, who ordinarily take medical aid quite for granted. The Wazir regretted to hear about the childish pranks of his subjects. He explained that they had seen the tactics employed by their more sophisticated brethren across the Pass (many Lahulis come into the Kangra Valley in winter to work and

it is not uncommon for their employer to disappear after they have finished his work, leaving them nothing for their labour), and observing the success of such methods, many tried on opportunity to emulate them. So excessively simple the Lahulis are for the most part, that their attempts are transparent, often amusing. Theft is almost unknown and lying even is not common. Most of the court cases are the outcome of drunken brawls. The Wazir is very fond of English food, especially tea, cakes, and apologised for the sodden specimens he served by the scarcity of chikor eggs. Ordinarily plenty can be had but this year the birds are in no hurry to lay. I sent him a couple of dozen hen's eggs that the well intentioned family at home had incorporated in the baggage, which so far had served no other use than to make the caravan uneasy. The missionary's wife is fond of flowers and the specimens in her garden would delight any flower lover. I never saw such immense pansies or such tall lupines in my life and the colouring of all blooms was so intense. A lilac bush was in full bloom and the roses were in bud. Tulips, iris and peonies would make a spectacular exhibition under such climatic conditions. In spite of the hard lives they lead and the excessively plain food they eat, many of the Lahulis, I was told, live to be 80 and some to 100. The climate is very healthful and almost no diseases are known. Tuberculosis and cancer, the scourge of the Occident, are totally unknown.

June 14.—We left for Jispa (alt. 10,500) with an over-cast sky which turned into a drizzle and kept on so, for about two hours. At Jispa there is a broad plain with a good growth of cedar trees and at this season good grazing for our horses. As yet we have met pilgrims only from Zangskar across Shingo La, but they say others are on the way across Bara Latse La. Some say there is no grazing on our road above here, which others contradict but all agree that unless the sky remains perfectly clear the snow will be too soft and the horses will not be able to cross the Pass. The Wazir has given orders that coolies are to accompany us to lighten the horse loads, if necessary, but if they sink at all they won't be able to endure the journey, even empty of load. I visited Rup Chand's mother, a tiny quiet woman, who, when I expressed our appreciation of her son, replied as prettily as any woman of superior breeding. She has of course never seen a school and has hardly been outside her little valley. The conversation with her son during the two days he was at home centered chiefly on the subject of his welfare. What sort of food had he had; were his clothes warm enough; he should be careful, etc., from which I concluded that mothers are much alike whether in America or Lahul. The little woman has a tapestry tanka representing the Blue Tārā, done principally in tones of yellow, blue and apricot. It is of so fine weave and of such excellent drawing that except on close inspection it appears the work of the painter. It is apparently of great age but well preserved. The

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lunch served and prepared by an ordinary coolie would have made a first class chef envious. There was a meat stew, prepared with a species of truffle (mokhshe) that grows parasitic on the roots of a species of parsnip (bakhyot). On departure Rup Chand's mother gave him a small silk rag with a knot in that had been sent to her by the Kushog of Hemis and cautioned him to beware of the devil, especially at night. She watched him from the roof till he was out of sight. He is all she has left of a family of three sons.

June 15.—The weather cleared but huge banks of cumulus cloud filled the sky during the afternoon. I gathered some 30 species of plants. The valley is warm and plant growth is advanced. Wild apple trees were in full bloom. In the mouth of a little stream that enters the Bhaga swarms of small fish a species of cyprinid (shiner) were gathering, attracted probably by the warmth of the water. They are said later to collect in still larger schools and are then caught by the natives. I tried to find in the village ancient iron arrows which I heard were occasionally picked up here, but though the natives knew the implements and described their form, no arrows were forthcoming. Around an exceptionally large cedar (*Juniperus*), about 3 feet in diameter, they have built a house with one opening; the walls are about 12 feet \times 12 feet and where the door is about 7 feet high. Behind is a small box-like construction 4 feet \times 4 feet, open to the road, in which is housed a smooth boulder about 2 feet in diameter. On this boulder has been incised the image of a male demon deity riding on a cow, holding in one hand a bellows and in the other a hammar or axe. On the tree are hung numerous rags, these strung mostly in festoons, and in front of the whole on the road edge is a pile of stones and cedar brush, rags, stones and brush—the offering of pious travellers. The figure is the portrait of Tingtingtsi (Lahuli) or Dorje Lekpa (Tibetan), a blacksmith who is feared throughout Tibet as a mischief-maker. If someone wishes to curse an enemy, he comes to the shrine, burns butties and strikes the tree with an axe. It is rumoured that from such a wound blood issues from the tree. To invoke Tingtingtsi is, however, a dangerous practice since he is apt also to do harm to the curser and, furthermore, the populace also metes punishment to those who dare disturb the demon. When a fierce wind blows down the valley the people suspect that someone has thus invoked him and the tree is inspected for wounds. On a certain day in winter, the nearby villagers bring gifts of butter, beer, etc., to the shrine, a mark of respect that is accorded also to Sahibs if the populace is not hostile. A fire had recently been lit inside the house and cedar incense had been burned.

June 16.—We left for Patseo (alt. 12,400). The valley above Jispa grows narrower and narrower till Patseo where there is a broad plain extend-

ings on both sides of the river. About three miles above Jispa two other streams from opposite directions join the Bhaga and here Sumdo and Dartse villages end. One village lies in the Nulla that comes from the Koksar side and two in the Nulla toward Shingo La, the Pass that opens on Zangskar. Just in front of Dartse there is a huge pile covering several acres, basic metamorphic rock fragments which the natives call Zimuk. There is a legend that on the site there was once a rich meadow with a village. One day the people were having a picnic (the Tibetans are fond of picnics), a strange lama appeared. No one paid any attention to the stranger, except an old lady who treated him with proper respect and gave him food. The lama accepted her hospitality and retired. Shortly after a piece of the mountain fell, burying the plain and all the people except the hospitable old lady. She was carried across the river by the wind. A devil Dergott, against whom no powers on earth can prevail, with teeth from ear to ear was born out of the souls of the perished and now has quarters in the rockpile. Certain people have seen him and no Lahuli will spend the night anywhere near his domicile. It seems that there was probably a meadow which was buried by a land slide, except that between the front of the mountain and the rock fragments there is a narrow stretch free of rock. There are a few scattered birches on the right river slope up to 13,000 feet nearly to Patseo, but above that no tree growth. For the first time since Rothang Pass the weather has been perfectly clear. Herds of sheep headed for Rupshu have arrived nearly to Patseo. We have brought along a man from Rerig to show us the best route across Bara Latse La. No coolies are available because all the able-bodied men have gone to Kulu for supplies. I bought a beautifully wrought silver brooch from a Rampuri woman who has been spending the winter at Dartse. A horse to-day developed a swelling on his back and the horseman scared the skin around the swelling which was a good foot across. This is the usual method in this country of treating wounds on animals. There is to the left above Dartse a peak, which is the seat of the God Kundru. In the winter a kid, butter, beer, etc., are offered up in front of the hill by certain villages as far as ten miles down the valley. Worship is performed also in the homes of believers at other seasons.

June 17.—Patseo is a fair ground to which traders come from Rupshu, Tibet, Zangskar, Ladak, Kulu, Chamba, Lahul and Rampur. They begin to arrive toward the end of June and some stay till late September. Each district has its own allotted grounds for camping. Not much money is exchanged, trade being effected chiefly by barter. An unlimited supply of chang is brewed, quality considered first class on account of the coolness of the earth in which it is kept buried, and the days are passed merrily. Swarms of sheep and goats, on which the greatest part of the merchandise arrives,

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through the hill sides and from the peak overlooking the site rags flutter. The place gets its name, I am told, from the fact that a stone bridge spans the river (Patharseo, Hind; Dozam, Tibet.). Above Jispa the road is new to me and to two of my Lahulis. Only one of the men has been above Patseo though all have spent all their lives in Lahul. My Kulu grass shoes gave out here after having served some 80 miles of marching. The morning again dawned perfectly clear and continued so through the day. The pensive whistle of the snow grouse began at daylight and kept up till about 9-30 and flocks of snow pigeons gathered on the plains to pick up the grain spilled by last year's trade. The ibex are said also to frequent the ground for salt thus casually left behind. Our guide from some 15 miles below arrived early on foot and says we may cross the Pass if the weather remains clear. We shall have no fuel for the next two camps so the men are now preparing food for to-night and then we will carry fuel for the camp beyond the Pass. Last night the men gathered some two bushels of sheep manure in a pile and made a fire that lasted 24 hours. They prepared their unleavened bread and then after drying it a little in the sun, buried it in the glowing manure for baking. The odour of the fire is very pleasant and the bread appears none the worse for the unusual treatment. When ready to start, the guide said it was late to-day. We will sink in the snow beyond Zingzingbar and beyond Z. We have to go if we are to cross the Pass on the next day. The horsemen are delighted with the delay. They are afraid of snow and say we must wait for the sheep to go ahead, etc.

June 18.—This morning at 2, the alarm went off and the men got out of bed. At 4 they had not yet gone for the horses but by dint of some brisk hustling from Rup Chand they were ready to start at 5. I don't know whether their deliberate movements were due to fear of the Pass or of the dark; the latter is a fearful thing for most hill people, and I have found before now that nothing can induce most men to travel alone at night. We are a company of eleven though and under such conditions few would be afraid. The grass which was very short, insufficient for the horses to graze on when we arrived in Patseo, has become good pasture. On a meadow Gudingding, some two miles above, there was even luxuriant fodder for this season. At Zingzingbar, about six miles up the river, there is a house for servants (serui) but no rest house. A little farther on we struck the snow. In a few places we had to cut a path for the horses but for the most part the going on the snow was excellent. At 11-30, after a gentle ascent all the way, we arrived at the edge of the Pass (16,200) and camped at Chorten Rangjung, a small level area now free of snow. It is so named because a Chorten like formation can be seen on the side of the 18,000 odd foot peak in front of it. A colony of marmots seems to be occupying the underground portions but the

tenants did not put in an appearance. The horses for the first time to-day sank deep in the last 20 feet stretch of the journey. Five road building coolies are crossing the Pass with us and will help us to-day in constructing a path along the bad places. A few travellers are said to have crossed this season but without animals. We have brought food for our horses from Jispa, for there is no grazing here. Vegetation springs up as soon as the snow melts above Zingzingbar (14,000 feet). I found a little mustard an inch high (*Draba tibetica*) with well-formed fruits and a little purple locoweed (*Astragalus*) was also in bloom though the snow had not retreated from more than a ten rod square. The snow grouse seem to find enough to eat on the occasional bare spots on the lofty peaks that rim the valley. The day has been brilliant, an ultramarine sky and the sun delightfully warm. Streams are gushing out from every snow bank, and horned larks and snow buntings are twittering on the bare places. A bearded Lammergeier soars overhead and three yellow-billed Choughs seem to have business on the Pass or beyond. After two hours rest we all set out to explore the ground to be covered to-morrow. The road is really bad for the reason that by day the heat is so intense that the snow has become granular and the particles are so icy that at night not much solidification occurs. Thirteen men went on about three miles into the Yunnan River bed, one man walking behind the other, each sinking at every other or 3rd step half-way to the knees and for variation, to the waist if some stone chanced to be beneath to absorb the heat and accelerate the melting from below. There is only one bad place, if one does not take into account the sinking, and that is along a little lake near the headwaters of the Bhaga. The banks of snow are very steep and the path must run above. If the horses slip they go into the lake 100 feet below. The lake in its dazzling setting is of exquisite beauty. The winter's ice has broken into irregular plaques of alabaster or purplish snow that float in the sea-green water. All around nothing is visible but the snow plain that forms the Pass crest and the enclosing ranges that are likewise wrapped in a shroud of white. One of the Mussalmans remained behind in the silence and stopping his ears with his fingers burst into a brief musically pleasant chant such as I had heard in the winter twilight from the mosque towers on the Plains of India. In camp we found three more Lahulis who had come from Jispa en route to Kinlung to reconstruct the bridge. They all had a load of provisions and seemed not much fatigued for their march of some 21 miles up-hill. We are now 19 men assembled. All are very congenial together and pass around their water pipes and cigarettes like intimate friends. The hand, however, always intervenes between the pipe stem or cigarette and so the practice is not so chummy as it sounds. The old guide though past 60 is as spry as any of us and knows the Pass well. They say he is not afraid of it in any condition. The fearful winds that make Rothang so hazardous do not blow here and there is only

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the snow to battle. When caught with horses in heavy snow-fall, yaks are brought from the villages below, and their steady plodding opens a path.

June 19.—The night was perfectly clear with a new moon. On all sides peaks of 18,000 feet shut off the view, all wrapped in glistening starched white robes blotched with huge blue shadows where in spring the valley will be. The valley that forms the crest of the Pass stretches to the horizon in the same unbroken white and not a breath or sound disturbs the starlit majesty, except that now and then through the night stray boulders loosened by the frost crash down with fearful roar. Bara Latse is a very easy Pass when there is no snow. For 3 miles or so it is fairly level at the crest, furrowed by several valleys in which 3 rivers rise, the Bhaga, Chandra and the Yunnan. The first two flow on opposite sides of the mountain range for some 40 miles and then join to meet the mighty Sind. The little lake Tso kumtsi of the natives, that is now so lovely and inconvenient a thing, dries up in summer. The camp was again aroused at 2 but in spite of a biting wind the men sat calmly on the snow (there was no fuel for warmth, barely enough to make some tea) and only by virtue of much haranguing on my part did we get off at daylight. The night had been intensely cold but the horses sank deep if they stepped outside the trail we made yesterday. The crest we passed without other mishap than constant sinking, loading and unloading, but the sun had so far risen by the time we entered the Yunnan River bed that the snowbanks were impassable and we had to unload before noon and camp four miles above our destination. There was only a little grain for the horses, no forage of any sort, but we had a bare patch of earth to rest on. The men were not any better off with only a few shavings to make a fire. One of the lads suffered all night from headache and high pulse but was all right after the march to-day. The chocolate bars I distributed to ease the men's starvation diet were almost uniformly despised and all came into the hands of the one man who liked them.

June 20.—The Pass would have been much easier a week ago, or even earlier, as soon as danger of snow slides is over. Every day makes it worse and it will be 3 weeks before it can be crossed without difficulty. The sheep will be on their way to and from Tibet (trading) and to Rupshu (grazing) long before then. This morning we got off at 3. Having nothing to eat and nothing to burn, there was nothing to do but march. Fortunately the night was again fair and the path prepared yesterday had hardened. We crossed the last snow just in front of Kinlung—an almost perpendicular wall—the worst stretch of the trip, and well it was that we were no later. By 8 o'clock the sun had already softened the crust, at best weak, and had we been delayed above, half the horses would have perished. As it was one horse gave

out a mile above Kinlung and in an hour was dead. To find even scanty grazing, we had to cross Yunnan a mile or two below the rest-house. The bridge had been pulled up last fall to save it from destruction from the snow, and the stream had already become so turbulent that fording was difficult. I slipped while wading and got a little ducking, but nothing worse. Four Ladakis with five donkeys and a horse were camped at the fording place. They had bags of dried apricots and were en route for Trilokanath. The apricots (Chulisor Kumanis) are to pay the expenses of travel. The market will be flooded this year. Many Ladakis will be coming on pilgrimage and they have not anything else to sell. The country at Kinlung though over 15,000 feet altitude is a broad valley, broad for this country, with wide plains on its floor. Huge rubble piles line the mountain sides and in some shales I found sandstone inclusion 6 inches to a foot in diameter. The horses annoyed one another considerably by eating each other's manes and tails, these appendages in some cases having been seriously curtailed. One horse had already lost a great part of his tail while in Kulu. At night a native had cut out a huge hank of hair to use in cleaning his silver jewelry. The animals also ate up all the grass shoes they could find and a rope that had imprudently been left exposed. In spite of the fact that we have marched for two days on snow with soaked feet, with food at a minimum and no shelter at night no one has as much as sneezed. The marmots have become very common here and their colourful alarm whistle is sounded at any provocation. We captured two with great difficulty (they are seldom to be seen except at the edge of their burrow into which they tumble at once unless killed outright). The Moslems were scandalized at our skinning the animals, because they consider them wild dogs. The resemblance between the two kinds of animals is not much closer than that both have fur. The Ladakis suddenly decided to cross the Pass too and in vain we attempted to dissuade them. To our amazement they made for the river, now having grown enormously in volume since we came in the morning, and with difficulty effected a crossing. They did not however, make for the Pass, but hid in some of the side ravines. There is no other explanation of their strange behaviour than that they did not like our looks. Here came a bearded barefooted person, probably not recognizable as a Sahib, with five guns, who inquired too minutely into their doings: what was in the sacks, where were they going, but worst of all did they have no silver ornaments! (Here I have Rs. 350 to spend on native jewelry and I have not seen a piece.) Then everyone was so opposed to their going forward to-day. All this could have but one meaning: We intended to plunder them. They in turn told us not to tarry here: a little further down the valley were large numbers of pilgrims (from whom we could have got much loot presumably), all of which was not so as we learned from a lama and two women who arrived toward dark. It is a relief to be able to cook again after having subsisted three days on tea

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and dry bread with chocolate to flavour the bread. Fuel is a little scarce at this season. The dung is wet but we managed a grand fire from some dead scrubby tamarisks growing in the river bed, and a little sheep manure. There is plenty of plant growth but none of it goes to wood. Along the streams there is a bright green lawn and butter-cups and tiny white eyed purple primroses make exquisite patches in the green. A new kind of pigeon has put in appearance here and we saw a red fox. The bridge builders who will have to send a man back home for provisions in a week have taken a letter to the Headquarters, informing them of our crossing the Pass.

June 21.—We left Kinlung at 9 and arrived at 12-30 at Serchu (alt. 14,000) on the boundary between Lahul and Rupshu. The road is on an old glacial plain but descends now and then into the gorges down which flows the drainage from the enclosing mountains. The Yunnan River keeps mostly to the left wall and has cut for itself at Serchu a bed $\frac{1}{4}$ miles wide with cliff walls 50 feet or more in height. The aspect of the country below Bara Latse is completely changed. It is a new world with new geological formations, new plants and new animals. Instead of the sombre rugged snow-capped peaks and narrow terraced valleys of the opposite slope of the Great Himālayan Range, a broad level plain, a mile wide on the average, is bounded abruptly by old worn-down mountains, chastely coloured in tones of purple, pinkbrown and dovegrey, with white confined to patches of snow left in the ravines. Up the sides sometimes halfway, is designed in black a patterned border of the golden flowered drama (*Caragana* Sp.) a thorny shrub that forms dense low clumps and serves the traveller as fuel. Just below Kinlung and extending for about two miles are scattered on the plain conical mounds of glacial rubble 15 to 60 feet high. These are called Gephan's grain piles. Gephan came from Tibet and camped at this spot. It seems he brought immense stores of grain with him, which the people back home decided to recover. When they came, however, the grain was turned into earth and Gephan went to Lahul taking with him a few seeds of each kind, concealed in his headgear. Buckwheat was thus introduced into Lahul. Gephan now resides on one of the most magnificent peaks in Lahul and is an object of worship. There is a serai at Serchu built on a green meadow with nice streams full now of fish from the river. The horses for the first time have had first class grazing. A river from Zangskar joins the Yunnan and about a mile below they enter the Tsarup. This lower plain is entirely concealed from the traveller on the glacial plain above. He is only aware of a deep gorge which from afar appears like a tranquil lake, the dancing heatwaves which fill it, resembling the water ripples. The plant life is totally new—new species of rhubarb, primrose, smart weed, butter cup, plantain, sedges and grasses, and there are birds that we have not seen before. There are a few old friends: the House sparrow that one finds

throughout the north temperate hemisphere and the Mongolian Plover that we last saw in winter on the plains near Delhi. Flocks of Tibetan sand grouse feed on the new grass among the gravel of the river banks. Their call sounds like the honk of a goose and can be heard long before the birds arrive. A party of Ladaki pilgrims was met to-day and a herd of sheep has arrived from Kangra. Opposite the serai in the face of the cliff and perhaps 50 feet from the top is a hole, said to be the mouth of a cave in which is concealed a golden vessel. It is called Ser Bum Chen. The place can now be reached only by a rope from above and that not easily. It is said on the plateau above there is a poisonous lake and many animals die from drinking its water.

June 22.—We waited here for the day so that the horses could recover from the strenuous work and starvation of the Pass. The grass is short, but extremely nutritious, they say. The animals swam the river to where the grass was best. I stayed home and gathered plants and made birdskins. Rup Chand went hunting in the Nulla toward Zangskar but did not see a thing. Even small birds were scarce except on the green plain beside the water. On the way back they met the shepherds with three flocks of sheep (we had seen them up the river yesterday) who told them they should have gone into the opposite Nulla. In that place they promised he would find game in herds and of as many varieties as we wanted. They had crossed the Pass just behind us but had come from Zingzingbar in a day. They had five horses and had great difficulty with them. When our men came home it was late and the river was much swollen. With an alpenstock Rup Chand started across with his servant, arm in arm. When in the swiftest and deepest part, Tashi became dizzy and was seized with a violent laughing fit, so that he was with great risk hauled back to shore. Meanwhile horses were being brought from camp but without waiting Domba the lama dashed into the water and the man was towed across. I roared at them in vain from the opposite bank. None of the men can swim and the river is a torrent over slippery rocks so that a man can easily be swept from his feet, as I had found out in the same stream above. I threatened them with all sorts of consequences if they repeat so idiotic a performance but they will do the same thing again, without thinking a thing about it. The Mussalmans went fishing, using a blanket from their bed for a net and got a good meal. I saw a fish in the river that would weigh 2 lbs. but theirs were much smaller. The fish are nice looking and resemble trout from their habit, possibly, of living in swift water, but they are only shiners. Some Ladakis made camp above us. They arrived too late to cross a little stream that separated them from the good pasture but Domba got across to ask them about the Tsarup that we shall have to cross to-morrow.

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June 23.—We had heard that the Tsarup could only be crossed about 9 in the morning. Ordinarily the streams are lowest before dawn but the water source of this one they say is so far away that its low-water stage is later. We got up at 4 but were not on the road till 8-30. They eat only tea and unleavened bread (roti) or tea and roasted barley flour, but from the time taken to cook it, you would suspect a roast ox was in preparation. My men, for example, never begin the preparation of their own food until mine is served. Just before the Tsarup we met the first Tibetan sheep coming to Lahul to trade. These are owned by Lahulis but are kept in Tibet for the winter. In Lahul there is so much snow in winter that animals have to be fed on hay, but in Tibet they can graze. They come back as soon as the Pass opens and are sheared in Lahul. The wool is the herder's wages and amounts to one or two rupees a head. As a rule the animals go right to Lahul but return to Tibet with grain, rice, barley, etc. This is quickly disposed of and they return in full each with a bale of wool. The wool is sold chiefly in the Kangra Valley and the sheep go back to Tibet carrying the herder's winter supplies. In spite of the strenuous athletic lives they lead the sheep do not become unduly tough. In fact Tibetan and Zangskar sheep are considered the best for eating. Lahul sheep are considered good but anything that originates beyond the Rothang Pass is ruled out. Even spending a summer in Lahul does not raise the rating, unless said animal was a youngster of the year on arrival. The Tsarup we crossed without much difficulty and soon reached the pillars that mark the Kashmir boundary. The boundary used to run above Serchu, I was told (a pillar still stands). The valley now closes and the mountain walls, though still rounded and covered with debris, often show strata. These are now horizontal, now vertical, now dipped away from, now toward the river. The path is stony, sometimes all stone. The river has cut a gorge into the old plain some 60 feet deep and the faces show beautifully the strata of gravel and sand (only a few boulders) that were washed down from the ice caps long since melted. Several species of small birds not seen previously were met to-day, but all were so shy that they were collected with difficulty even with a twelve gauge shot gun. Rachogba, our halting place, is only a place where the horses can feed, but the pasture is on the other side of the river. When we arrived about 1 o'clock the current was violent and the horses with difficulty were made to swim across.

June 24.—This morning the water had not markedly abated and one of the horsemen had to swim the icy torrent to get the animals back. A herd of sheep driven by Tibetans en route for Zangskar appeared on the other side about that time, but nothing could induce the herders to start our horses into the water. At 1 we got started. The path runs along the river to a camp ground called Gyan, then ascends sharply for about two miles. After that for

five or six miles the road runs near the top of a little river valley fairly on the level, until it descends rather abruptly some 500 feet to the bed of this stream. The pass is properly called La Chulung (pass of water and wind). We crossed some twenty streamlets of clear ice water and wind is at you no matter which way the road turns. The wind, however, was neither strong nor cold. Bumble bees now and then hum past, at work on the flowers of the drama that grows on all the hill sides. On the valley's opposite slope can be plainly seen another road, said to have been constructed some eighty years ago by a Lahuli supervisor with forced labour. The site is said to be so hopeless that the route has been abandoned for this one, which is dead easy and has cost a minimum of labour. They did some hard work on the old road, often cutting it into the face of cliffs. It is still apparently in surprisingly good condition. We arrived at 7 at Sumdo, at the foot of the Pass proper, and found a little lawn for the animals to graze on. There is a construction here of walls 5-6 feet high that gives shelter from the wind. A supply of drama left by other travellers gave us quickly a nice fire.

June 25.—At 5-30 we left Sumdo. (There are many places called Sumdo. The word literally means three directions and is applied to places where two rivers meet.) A little snow had fallen during the night. A heavy snow would have blocked passage and starved the horses, a fate that caravans sometimes meet at this place in spring and fall. The ascent to the Pass is easy and the descent very gentle. There were several patches of snow to cross up to the crest and for some two miles below but all were hard, so early in the day, and gave no trouble. Beyond the Pass, we follow the valley of a little stream. It is narrow at the beginning but becomes still narrower until some 8 miles down it turns to the left. Throughout, particularly in the upper half the earth is so stony and barren that not a plant can be seen for half a mile at a time. Here and there along the stream there is a patch of sedge of a few square yards and further down scattered plants of rhubarb or grasses. The slopes are covered with shifting sharp edged gravel and the peaks are towered and turreted. Where the stream bends to the left it loses itself at the foot of a marble peak in a mass of boulders and reappears in a delightful little meadow below. The view at this point is splendid. The peak is somewhat sugar-loaf shaped and rises perpendicularly to a height some 800 feet. Its surface is perfectly smooth except that a huge slab has broken off so that the whole looks like a huge loaf cake with a piece cut out. The mountain is called Gonajil and is worshipped by at least the Lahulis who pass the road. From the base of Gonajil you look down on to the little cliff-bound meadow with the spring stream running through and beyond to a city of steeples and spires carved into the face of the river cliff. The rugged chain of peaks runs straight ahead and a little beyond is buried in snow. The river is bounded

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now by high steep gravel hills on the right and by irregularly terraced earth-covered formations on the left. The stream has cut a gorge some 100 feet deep into the old plain floor and on the steep face of the cliff, set off clearly by the fine gravel of the back ground, are carved fantastic cities; now clusters of finely cut minarets form a mosque of superior architectural beauty; now the lines are broad and firm and you see the clustered houses of an Indian pueblo; or the buildings take on shapes with tilted domes and awry walls that must surely house the goblins that the natives say infest the land. To-day we met a lone native going to Lahul, who inquired whether any Baltis were ahead. The Baltis usually go in a group and plunder any lone traveller they meet, but this is not a route much followed by them. There were also two small flocks of sheep and at the Toze three Tibetans were fording their sheep and loads across with the help of a horse. The perennial wading to and fro must have been too tedious for the poor fellow, who made a desperate effort to join our caravan. The Tibetans began an excited conversation at our approach and then greeted Rup Chand by name, though they had never set eyes on him before. His father had been a powerful and well known figure in West Tibet and the family resemblance was sufficient. The Tibetans had lost their horses' bridle to-day and wanted us to keep an eye open for it. After the Toze we at once crossed another stream, now small, but with a stupendous cliffbound bed running in the direction of Tso Morari. The fairy buildings of the stream above were continued here in beautiful series of castles and cathedrals that stretched to the horizon as far as the eye could reach. At once the stiff ascent of Bong La was begun and we came to the lovely plain of Kyang-chu, encircled by rolling hills. The mountains here appear no longer to be chains but masses scattered at random, chiefly smooth but sharp-crested. The plain is two or three miles wide, strewn with clumps of drama, and with what after the day's march seems a plentiful inter-mixture of other plants: Sedum, Potentilla, Primrose, Sedges, clumpy Sandroots, etc. To the right against the mountain side is a strip $\frac{1}{2}$ to a mile wide that appears light yellow from the dead leaves mixed with the green of a sedge that grows plentifully there. The soil is here a hard gravelly compound so the drama grows flat on the ground and not in mounds as in places hitherto where the shifting sand accumulates among its branches. Here the Kyang, the wild ass of the Tibetan plateau, is first seen. Some half dozen were scattered here and there, apparently feeding on the hard swordlike leaves of the sedge that forms the big yellowish meadow to the right, and Rup Chand dropped one at 400 yards. The Kyang is larger than a mule and very beautifully marked. The Lahulis refused to skin it, saying that dead domestic animals they could not touch and the Mussalmans also refused saying they would have to bathe if they touched it. I said nothing, which the latter interpreted as dangerous (no baksheesh would be forthcoming from an offended Sahib). They held a council and

sent the man who had swum the river to fetch the horses, he being presumably least opposed to a bath. The bath was afterwards heroically performed though everyone was half frozen from the steady wind and there was no shelter except from blankets held in place by his friends. We marched some 20 miles to-day, but no one seems the worse, though the altitude has ranged from 15,300 to 16,600 feet and most of us have never been so high before.

June 26.—Two of the horses wandered off and could not be found till late. The wind continued all morning and the Lahulis were miserable. The Kuluese who never meet such climate at home were not at all uncomfortable. Nothing came to eat the dead Kyang. Two ravens preferred the morsels from our camp to the more abundant feast of the carcass and though a wolf was seen on the plain, he also scorned such fare. The wolf got our scent at great distance and fled. Everything is shy on the plains, though surely no one hunts here. The marmots (phea) run for their holes long before we are within gunshot and even the small birds are so shy that they cannot be captured except at long range. The wolf in his fright drove four large animals from the plain, which we stalked and found to be young nyen (*Ovis ammon*). The marmots seem to live in pairs in their holes. To-day I saw a pair sitting on their haunches in the attitude of embracing. They sat thus *vis-a-vis* with their arms on each others shoulders for fully a minute. I found two horned larks' nest on the bare plain, both with two eggs. The nests were protected on two sides by stubble and on the other two by flat roundish pieces of mica schist about $\frac{1}{2}$ inch in diameter. These stones were clearly transported by the bird as no other stones of the sort were in the vicinity. They were not piled but flagstoned. This lark, by the way, is the same bird that is so common in Northern America. Our stage to-day was to be almost as long as yesterday. We were going to leave the Leh road to-day and camp at Tso Kar, a large salt lake to the left. But no one knew where to turn off to reach the lake and our start had been late, so we decided to halt at the next water. A Tibetan on the way to Lahul with sheep directed us to such a place and offered to show us the road to the big lake in the morning. We camped in the mouth of a Nulla and were shortly visited by a family of nomads encamped above. They have black yak hair tents and swarms of sheep and yaks and a few horses. Most of the Rupshu nomads are camped at Rogchin, some 8 miles above. These people have only lately come from there, fearful of the yak plague that is rampant in the area. There is after all no reason why they should remain in any particular place as long as there is water and forage for the cattle and the site of camping grounds are in fact determined by the caprice of the native. In winter these people go to Kagzhung with their flocks.

June 27.—The sunrise this morning was magnificent. The clouds in ragged masses banked the horizon above distant snow mountains. A broad tattered

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streamer that loosed itself from the banks below floated lightly above, aspiring toward a squadron of fluffy cumulus clouds that hung below the zenith. With the first light blue black blotches showed against the transparent sky. As daylight grew the sun's first rays transfigured the snow edge and the top-most clouds, staining the rest a clear navy blue and illuminating the fleecy borders with pure colourless light. No other colour showed in the sky but the blue of the heavens and the deeper blue of the clouds, and below the smooth surfaced mountains stretched in uniform pinkish grey with deep blue purple blotches marking their ravines. The Tibetan arrived this morning and piloted us to Tso Kar. At the top of Taksumba La he turned back taking with him two letters for the people at home, which he will relay on from Patseo. He said that we will surely get nyen at Tsaka, and somehow we believe him and will go to Tsaka. Ordinarily the natives will tell you game is either ahead or behind, never near. Why, I can't understand, unless they don't want to be bothered by demands for food and by other importunities from the hunter's servants, usually Kashmiris, who clearly understand their superior position as members of the ruling race. From Taksumba La all of Tso Kar is visible in deep sapphire blue. The gem is set in a border of pinkish hills, capped with red in places to the north and the circle backed by higher hills on whose peaks are expensive caps of snow. Between the water and the encircling hills extends a plain, a mile or more in width on the north and south, but much reduced in width at the east and west. The old lake level can be plainly seen 300 or 400 feet above the plain and runs like a highway along the slope. The recession from this high level seems to have been abrupt. No other beaches are nearly so marked. The lake is divided into two parts, the smaller one $\frac{1}{4}$ th the area of the larger, the parts separated by a stretch of about $\frac{1}{2}$ of a mile. A little lizard, like our American homed toad, inhabits the gravelly plain, and hares were seen off and on all day.

June 28.—Yesterday we made camp beside a beautiful clear stream running through a narrow green meadow south of the end of the big Tso. On the hill above camp is an ancient stonebuilt chorten, a structure striking for its size and method of construction. Two pairs of mendicant Tibetan lamas on their way to Korzok arrived in camp, one pair with a two years' old baby that seemed none the worse for beggar's fare. From one I bought a human thighbone trumpet and an old string of lama beads. Such eagerness to possess coin I have seldom seen. The poor devils see precious little of it all their lives. About 4 P.M. in a cloudless sky toward the south Rup Chand saw a bright blue-green light, which he describes as rapidly moving in a straight line, almond-shaped, the large end foremost and darkest, and larger than an average falling star. It disappeared before reaching the horizon. Last night we reconnoitered the fresh water lake and to-day moved a temporary camp to its

shore. There are small pools of fresh water, a rod or two across, scattered along the west, south and north-east ends of the fresh water part. In these pools and in the lake itself is an abundant growth of water crow-foot, Potamogeton, Myriophyllum, Ranunculus, etc., and on the shores a more or less dense growth of sedges. Large russet coloured ducks (sirkab) frequent the pools and lake and in pairs flee with musical cry back and to the stony hill sides in which they are preparing their nests. Brown-headed gulls, common terns, crested grebes and barheaded geese also frequent the lake and one or other of two pairs of black-necked cranes is usually in sight grazing among the pools. A dozen Kyang keep to the north-east shore in the valley that runs to Polokonka, the Pass that leads to the Indus Valley. Goa, the Tibetan antelope are usually abundant around the lake, the people say, but this year there is not one. There are four tents scattered here and there on the plain and herds of sheep can usually be seen.

June 29.—The mornings until about 11 are sunny and calm. Then a wind comes out of the south-west and blows briskly till after dark. The nights are calm. There is no fuel but dung, and a very tolerable fuel it is. Some gives off an odor like burning rubber but in the main the smoke is pleasant. This morning a herd of 50 yaks showed up near camp and stayed all day. I have never seen more than the occasional animal the Lahulis keep to cross with their cows, and the herd was a fine sight. A calf lost the muzzle that keeps it from drinking milk that it should not and we saved the object. It consists of two sharpened sticks bound on to the muzzle in such a fashion that when it comes to drink it stabs its mother and gets kicked. I spent half the day wading across the lake inspecting the grebe nests of which there are half a dozen built of water wards, in the west end. The water freezes every night but rapidly warms and is tolerable to bare legs, except that the wind and alkali crack the skin. The water at the west end is not much above knee deep but the rest is too deep to wade. The tent has been erected for the first time on trip. It is not so necessary for comfort as for shelter against the wind when mounting plants and skinning birds. Last night and the night before I experienced a shortness of breath for about an hour, no distress but a noticeable need for air. I recall that last year at a camp at similar altitude (15,300) in Lahul I had the same experience. Appetite and ambition are excellent and there are no other affects of altitude. The Lahulis have become almost black and lips are much cracked.

June 30.—We found the crane's nest last night on a small hump of earth in one of the pools. The old birds are so wary that they do not come into gunrange. The terns were nesting on a little soda island at the east end and more grebe nests were located in the water there. The geese have no young nor can I find nests. Probably they have been robbed by the natives

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and have given up housekeeping. We interviewed three Rupshu men that have been waiting at our neighbour's tent for the arrival of the Thakur of Karzok, and got information about the game and the journey ahead to Tso Morari. The Thakur is a sort of overlord who is coming to meet a Sub-Tehsildar from Leh at Rogchin. The disputes that have accumulated since last year will then and there be settled and the officers will go back home. The natives have rather a hard life apparently, and don't make more than a bare living. Jewelry is nowhere to be seen, though it may not be worn every day. Herds are the only wealth and these may starve in a heavy winter snowfall or be wiped out by an epidemic, such as this year in sections has exterminated the yaks. And to crown everything, any stranger is apt to rob them of anything he can lay hands on, including the precious irreplaceable tent poles. They were so grateful to our men who went to buy butter for giving them a just price that they added a good dab to the weight. Wool they cut with a knife but goat and yak hair, if the yak is small enough to be overpowered, they pull out, not much to the liking of the animal.

July 1.—The lake level is low this year because, the natives say, there was little snow. The water vegetation has been exposed along the shore by the recession. A large shrimp (*Gammarus*) is plentiful in the lake. If a dead bird remains in the water it is soon covered. I intended to make shrimp meat of them but there was always such an abundance of meat. Swarms of a large gnat are a nuisance on the lake border when there is no wind to blow them away. They rise from the earth at your approach and as is their nature, keep just ahead of you or in your ears, eyes and nose. The terns are carrying fish but I have seen none except in the stream that empties at the south-east corner on the north shore. On the old beach is a small building that is the Thugye Gompa. Since ancient times a cell has existed on the lake according to tradition, and now one lama is said to perform worship in the building. We left this morning to camp on the Pass. Rup Chand and his man went on ahead to see if there is game. The ascent from the lake is very gradual but fearfully tiresome. The road is over soft sand till it crosses the stream (now dry) that comes down from the Pass. Then it becomes stony with large boulders, often granitic. Near the top there are small streams and green places, closely clipped; on the last of these we halted. A Tibetan who was taking his flock to Nima Mud stopped for a visit and I bought an old rosary made from human skull bones, a nicely covered old sandalwood image; a few tiny old tankas, a holy medal and a mold for human ashes. A flock of some 20 yaks also went toward the Pass and some fifty came down. The day has been cloudy for the most part but nevertheless the reflection from the sand has been intense. Fuel is mostly dung. Up to the dry stream drama narrowly fringes the base of the hills and is

scattered above that point. In the floor of the side-valleys there is a thin wash of yellow green where a dry ground sedge grows sparingly but elsewhere there are no plants. Above on the Pass I found a lovely large flowered purple primrose and a lavender stocks, both with intense fragrance. Hares are common and also the Tibetan Snow-Grouse which we have seen for the first time. There are flocks of the birds above camp and their chuckling call can be heard from the rock slopes at almost all hours of the day.

July 2.—We have a clear view of Tso Kar. There are always shifting clouds over the enclosing mountains and the valley with its changing moods is fascinating. Rup Chand went off to a black mountain peak facing the Pass where people said nabo were to be had. He met a flock of seven and brought back one. The poor Mussalmans cannot eat any of the meat because it has not been haled, and they want some so badly. They have not been able to buy a sheep in all Rupshu, and are tired of an unbroken diet of flour. Toward evening I went up to try for a snow-grouse, but though I saw a flock of nine, they were so shy that I could not come within gunshot. Under a rock where some marauder had hidden it I found a well incubated egg of Hodgson's Partridge though no birds of that species have been met with so far. The sirkabs are flying around on all the rocky hills, undoubtedly preparing their nests. They must carry their youngsters to water. They could not possibly walk. Tso Kar is at least six miles away. Above camp there is a nice stream that loses itself before reaching us and along it and on the hills is an abundant (for this country) growth of plants. In all the country I do not recall a single species of plant that grows in Lahul below Bara Latse La. There is here a delightfully fragrant locoweed (*Astragalus*) among some half dozen species of that genus and an extremely tiny mustard. The mustards are abundant in species, most of them an inch or less in height and most of them white. Three of the men complained of pain in the head and stomach and appeared to be miserable. A dose of aspirin and licorice powder made them in an hour come out of their blankets and guffaw. Another has had a little internal disturbance for two days, due, I suspect, to drinking the alkali water in Tso Kar. A dose of cherry brandy promptly cured that. It is difficult nowadays to eat enough. One is constantly hungry. A Rupshu family bearing all their earthly possessions on some 20 sheep arrived from beyond the Pass and camped beside us. One of the sheep bore the tent poles directed aloft and the rest of the household goods were hung here and there on the obliging animals. The head of the family wore goggles which he did not take off all day. He probably has diseased eyes, though ordinarily all sorts of afflictions are readily brought to any sahib's attention. We gave the family three huge hares and they were so delighted that whenever any member came within hailing distance he salaamed

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and grimaced satisfaction. There have been four or five groups of travellers crossing the Pass in various directions which gives it the impression of being a busy thoroughfare. All are Tibetans—the poor in sheepskin clothes, wool inside, and the richer, or less poor, in cloth. All are friendly but not inquisitive, approaching only at our solicitation and never under any circumstance standing curiously near. On none of them have there been any but wretched ornaments: brass rings or poorly executed silver ones, glass or porcelain beads. Only one, a youth, had a string of turquoise and coral, a few of the former first class. Many have no ornaments of any kind. Our poor horses are busy picking at the tiny grass. If the quality were not extraordinary they would never get satisfaction from the grazing we have had since we have entered Rupshu. The tent was again erected on account of the breeze. The men make barricades out of the luggage.

July 3.—We started off at 10 for Tso Morari. During the night some snow fell to cover the ground but it promptly evaporated in the morning. The weather so far has been chiefly cloudy with a little storm coming now out of this little valley, now out of that, suddenly clearing into sunshine, only to begin over again. It reminds of north Greenland weather in summer. Precipitation is always slight and the winds light and since it is the only kind of weather they seem to have in Rupshu no one minds it. At the top of the Pass (alt. 16,400), in the centre of the valley, is a pile of stones, mostly granitic and schist boulders, in all 6 feet high and 18 feet \times 6 feet in base. Surmounting the pile is a pole 6 feet long, heavily hung with particoloured rags. Horns of various animals, chiefly nabo, some yak and a few nyen ornament abundantly the top of the pile. To either side of this central monument extends a line of small irregular stone-caps at irregular intervals (15–30 feet apart). These small piles are about 4 feet long at the base and 3 feet high. Some 23 are found on each side, ending with one about 25 feet up on the hillside. A string hung with rags runs from the central mass to the first small pile toward the south. The piles mark the jumps, made by a wild yak (drong) that Gyepo Kesar was hunting. He got the yak, it is said. The descent from the Pass is rather steep at least compared with the ascent. The path is stony and between boulders. The hills are yellow-green in large patches where the Kyang sedge grows and do not present the barren aspect of the opposite slope. At the bottom of the Pass runs a stream some 4 feet across and along this and along the beds of a dry torrent are luxuriant growths of drama. The bushes are 3 to 4 feet high and often 15 feet across. They are in full flower and bumble bees are numerous. Several species of butterflies are also evident, one a fine big Tiger Swallow tail, swarms of little pink-rumped Finches (Twites) and of the Kansu Great Rose Finch with a few Brown Hedge Sparrows and Tickell's Willow Warblers inhabit the drama and

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on the plains are numerous pairs of Hume's short-toed hawks. Below the drama growth opens a pleasant oasis (the valley has become $\frac{1}{2}$ to $\frac{3}{4}$ mile wide) and ahead a sombre sharp-backed mountain, higher than its neighbours vividly coloured in masses of green and purple, appears to block the valley and to mark another to the south. We have missed the track to Tso Morari and here arrived at Puga. At the approach to the meadow there is a main wall 100 feet long x 6 feet wide and 4 feet high, built in some past age and still well preserved. Up to now no walls so well built have been seen. The frame is of rock and the filling of earth. Beside it are three large chortens, about 15 feet high, probably of the same date of construction. Several Rupshu tents are erected at the base of the cliff that forms the north border of the valley and small herds of sheep and goats and a large herd of yaks are grazing on the plain. One goat had been captured and was being plucked much against his will. The down under the guard haire is often of fine quality (pasham) and is thus collected. The yaks belong to Korzok people who are carrying in relay Kumanis from Leh to Lhasa. They have come from Rogchin and deliver the load to other carriers at Nina Mud to-morrow. This place is famous for its hot and mineral springs. Each spring used to be labelled for the disease it would cure and there was a spring for most diseases but some malicious person destroyed the labels and now it is generally known only that one is good for stomach disorders. There were minor springs at Tso Kar, one of which gave a strong smell of sulphur. There must be many along that lake's shores, because the character of the water varies, in some places it is strongly saline, or bitter or worse. The natives collect salt in certain sections for sale, but it is fit only for cattle.

July 4.—A drizzle started during the night and continued till 7. A thick white mist bank along the top of the valley walls rolled away and showed a thin veil of snow. The purple and green mountain is heavily blanketed to near the base. A caravan passed in the night en route for the Indus. Their dog stopped to eat our supper bones and then realizing he was belated dashed off without a look at a rabbit we had left lying near. I asked the horsemen why they did not tell me that they did not know the road instead of merrily coming the wrong way. They said they could not, I was always ahead, a perfectly satisfactory answer, though they arrived at Puga a good two hours ahead of me. The natives are never at a loss for an answer but its utter simplicity usually provokes laughter instead of anger. There is a pair of cranes on the meadow but they are very shy, and apparently not nesting. At the lower end of the grassy meadow are the springs. They are mostly small, up to 10 feet in diameter, all the way from lukewarm to boiling, some tasteless, some very bitter. A few make a rumbling noise underground. Most of the springs are beyond the meadow where the valley narrows but

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around some in heavy alkali deposits a grass grows luxuriantly. The cattle apparently do not like this grass, though in other places the pasture is very short. Many plants are in bloom on the meadows and along the stream: a purple violet a large yellow clematis, a most deliciously fragrant pink honeysuckle, a fragrant pink mint, a large pink-flowered onion to mention only the largest. Puga is the warmest place we have met. There was no wind, and our people would gladly have tarried. We had to cross two passes to reach the lake we are bound for. The first is about 18,000 feet, to judge from a neighbouring 21,400 feet peak and Polokonka 16,400 feet, and its ascent is steep. The descent is also sharp and the ascent of the second Pass at once begun. This second one is about 17,000 feet and rather easy. From the crest the view opens abruptly on Tso Morari and Kyagar Tso, and a sight it is for a life time. In the foreground is a yellow-green plateau with grazing herds of Kyang (we counted 114). Below lies Kyagar in sapphire blue, edged with green, in front of smooth pink brown hills clouded with yellow-green and flanked by a rugged range from which rise two magnificent peaks of over 21,000 feet. Beyond extends Tso Morari, a vast expanse of blue, to the foot of distant blue gray mountains deep shadowed and stern. Behind, the lofty snowy ranges of the Great Himālayas, with sharp ragged ridges running down from their snowy domes, run straight along the horizon and block the view. Above, roll loose banks of cumulus clouds, blotched with shadows of purple gray with the sky showing blue between but not half so blue as the water below.

July 5.—One of the horses tired and we had to halt beside Tso Kyagar. On the west side are two places where good springs enter the lake and beside the one near the centre we camped on a pleasant little sward. The lake, about a mile long and $\frac{3}{4}$ mile wide, is completely enclosed in low hills and has no outlet and no visible water source but these springs. The water is perfectly clear but brackish. The shelf of shoal water is about 1-2 rods wide along the western shore and the descent to the lake-basin is abrupt. There are a few Gammarus along shore, and a few sirkabs and grebes on the lake. We left early to visit Korzok a half day's journey away. The day dawned clear and remained calm until the afternoon. The view from the hill that looks down on the big lake had changed. The mountains in the quiet clear morning stood grand and majestic. Yesterday stained with cloud shadows their aspect was sinister and weird and from somewhere on the hill, born by the icy air not yet warmed by the early sun, came a most delightful fragrance, elusive, intriguing, suggestive of lemon and verbena, yet like nothing ever known before. The source of the scent was a little mint just appearing above the soil. Its search revealed more of the dainty little violets that I found first under the dry rocks below Polokonka. At the head of Tso Morari

a lively stream enters, flanked broadly with a lawn of sedges until the lake is approached and then giving way to a field of drama. The shrubs here, like those at Puga, are 4 feet high but the height is due to accumulations of sand that their branches have arrested. In the stream was a pair of sirkabs with 12 youngsters, the latter scared to death. Their mother headed downstream and the ducklings followed in file, flapping their wings as if the stream were not already taking them fast enough. The father headed off across our path to divert our attention, but rejoined the family when the situation seemed safe. At the mouth of the stream there is a meadow called Pelda (on the map this and many other places have Le suffixed but none of the people could tell why it was added and none make use of the addition) where several herds of sheep were grazing. The herders and their family had put up their tent nearby. The lake has latterly risen considerably. Sedge-rocks are now covered by 3 feet of water. A native said that the water has been rising for five years and they cannot suggest a reason. Some prayer walls are at the water's edge, but probably they were formerly along the path that ran on the narrow beach between the water and the hillside. Our road ran high up the hill. The few scrubby bushes of honey-suckle on the hillside were in full bloom and scented the air with a pleasant fragrance. The climb was tedious and trying, chiefly because we did not know where we would arrive or whether we would arrive anywhere, but the view finally opened on a closed valley, plentifully green. About thirty black yakhair tents (15×15×6 feet) were scattered on the meadow, and in these dwelt a good percentage of the population of Rupshu. A whitewashed chorten about 20 feet high and a crude rectangular one-story stone hut (15×30 feet) were the only other constructions. Adjoining the hut is a stone foundation on which they said the Thakur, the Raja of Rupshu, spreads a tent. The hut is his too, but they say he prefers to live in his tent and store things in the house. We tried desperately to buy something as a souvenir but there was not a thing but rubbish and very little of that, except one nice turquoise and silver ring which the owner would not part with on reasonable terms. A few Baltis had brought Kumanis and were exchanging them for wool. Though we had had our usual lunch, each man consumed a pound of the dried fruit, including the nice almond-like kernels. A few safety-pins distributed among the children created much satisfaction. A pretty little girl of perhaps 8 who seemed to own not much else but the safety-pins was so thrilled that she whispered 'Thank you, Thank you' all the time it took to fasten the article in her miserable rags. There is a path from the encampments that leads down a narrow valley to the lake. The view opens unexpectedly on the plain at the broadened mouth. A huge building appears on the hillside to the left and beyond it a rather pretentious two storied structure, both buildings architecturally pleasant, as in fact, are all constructions of the Tibetan races in

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Indian Tibet. The appreciation of line is keen in these people and even the humblest hovel will stimulate one to pull out his camera. The larger building is the monastery and the other the Thakur's house. Wood for both was brought from Ladak, a good week's journey by horse. On the slope below are tiny fields of barley, apparently thrifty at an altitude of over 15,000 feet. Small radishes and turnips of excellent quality complete the list of agricultural produce. This year things are bad with the people because of the yak epidemic. Over 1,000 animals died at Korzok and less than 5 per cent. are left. The disease comes about once a generation but none of the old times know of such a holocaust as this. Blood is voided from the intestines and the animal dies. They find the bile enlarged after death. The disease has spread from Tibet where it has killed also the wild yaks. The notice of arrival preceded us and the Thakur at our approach ran hastily to don some particular garment to receive us. He gave each of us a pound of Kumanis, me a goose egg and Rup Chand a white yak tail. We ate half of the fruit and then went home and ate a snow-grouse apiece (a snow-grouse is as large as an average hen) and accompanying rice, such an effect on the appetite has the air of these uplands. Nyen are to be found on the hills near camp, which to-day was brought to Peldo, and the Thakur sent his servant to show us where they stayed. Geese stay at Peldo and sure enough, we bagged two on the way home and wounded two more that will probably drift ashore to-morrow. The birds of this country, in addition to being so extraordinarily shy that even the smallest must often be killed at long range with a shotgun, are very tenacious of life. There were about 15 wild monks in the monastery. The abbot is meditating in a cell in the hills somewhere, and will stay a year. The monastery has a complete set of the Kangyur and some 30 thangkhas, none good, and not much else of interest. The monastery owns the fields we saw; the rest of the populace go to Spiti and Patseo to barter salt for grain. One such man was en route for Patseo and his wife preceded him for some rods of the journey holding a pot of burning incense. The Lahulis also have the custom. The Korzok people live in winter at Tega, but this year had great difficulty in moving because of the yak distemper. The Thakur's things have not yet arrived and will have to come on horses. The lake, they say, freezes in winter to 6 feet of ice and the average snowfall is to the knees, occasionally to the hip. The birds are here as at Tso Kar except there are no cranes, and the numbers are much fewer.

July 6.—Rup Chand left this morning with the guide to hunt on the hills beside camp. The Thakur and the guide say that nyen are sure to be found there, at this season on the peaks. What precipitation there is falls on the mountain summits and the plant growth is much richer there. Possibly the men have spoken the truth. It seems a fact that the natives do not like to

tell about the game, I believe, not so much because they dislike us but because they hunt themselves. The tent-dwellers above the monastery, who knew none of us, said there was no game hereabouts, but one little boy piped up that there were nabo on the hill in front of us. Yesterday a Nina Mud boy said there were plenty of nyen and nabo at and within a day's journey of his village at Tsaka, which agrees with what our Tso Kar guide told us. But the Nina Mud people send all hunters to Lenapa, two day's journey toward Spiti. Our Lama went to the monastery to-day and discovered several good tankas and images I had not seen. The monks told him they had not shown them to me for fear I would carry them off. He learned that the monastery was built in the time of the present Thakur's grand-father. Rup Chand says I committed a breach of etiquette yesterday, by stepping over something covered with cloth on the floor. I recalled that there had been tittering and grumbling when I did it. There was food under the cloth and it will now have to be thrown away. The water at this end of the lake is better and to drink it gives stomach distress, we were told, but lower down it is drinkable. There are some fish in the lake, mostly tiny little bottom dwellers with four barbels. I spent the day in camp making up skins. I finished 40, including two bar-headed geese, four Tibetan grouse, three sheldraks, a raven, twelve Kansu Rosy Finches, six Twites, three Tibetan mountain Finches, two yellow-headed wagtails, a willow warbler and three Brandt's mountain Finches. For supper I devoured a goose with a quart of boiled rice—a fact given not for epicurean considerations but for physiological. The forenoon was fair and warm but in the afternoon it clouded and a stiff breeze blew from the south for a few hours around sundown. The winds have been chiefly from the south since we have been in Rupshu, descending probably from the Great Himālayan Range. To-day ends a month of our journey.

July 7.—The hunters came back toward evening without having seen an animal except Kyang, or even tracks of any. There have not even been snow-grouse since Polokonka. The guide furnished Rup Chand with an account of the funeral rites practised by the population. Corpses are either burned, fed to carrion animals, thrown in the lake or buried. The first two methods are considered best, but the lamas have to consult their books to ascertain which is suited to the corpse at hand. If fed to vulture, the head has to be crushed by a stone or the birds probably assume the person is sleeping, at any rate they won't come to the feast. In any case the corpse is retained in the house for four days, or if the family is rich and the season is cold 21 days. At death a lama is summoned and the lama ties the corpse in a sack. A structure of butter and flour is made and put beside the body and butter burned night and day. Prayers are also read. 49 days after death, if funds permit, a feast is prepared for all the neighbourhood and as much property as possible

is given the lamas, because property so given will be of use to the deceased in the hereafter. Money is also sent to Lhasa and on the death anniversary for 12 years the local lamas are provided with the wherewithal for reading prayers for the repose of the dead. The stream in front of camp runs very low in the day time but last night at 7 with a rush a torrent filled it, just as if a dam above had given way. The night before the same thing happened, though later. The Mussalmans informed me I would have to pay for the horse that died on Bara Latse La in spite of the fact that it was specifically stated in the contract that all dead horses were to be owner's loss, at the same time asking that I engage their extra horse, now free of its load of tea. I told them if I had to pay for all the horses that died and it looked as though half of the poor old fellows might expire, I should have to save my money and could not afford to pay Santa Claus by hiring animals for which I had no use. They appealed to Rup Chand and finally decided to supplant the old horse that broke down on the road from Puga with the tea carrier. This morning Ram Tulla departed with the poor beast, but shortly traded it off to some guileless native for some sheep and goats. He asked a certificate from me addressed to a native, going the same way, to the effect that he was going home on my business and requesting that the native grant him his company. What use he made of it I cannot imagine, since neither the native nor the bearer could read a word of it. Ram Tulla was the laziest man in the caravan and I hope now to get the outfit started in less than four hours. I must first train the cook how to boil rice in less than 2½ hours, the period he usually requires.

July 8.—This morning the men were called and recalled but no stir. Finally I pulled off their bedding, at first to their consternation and later to their amusement. The guide to Unti, the next station, who should have come last night did not appear and finally this morning a lame old lady arrived with butter for the men. She denied she was the guide but certain of the men insisted that by the butter the guide was to be known, but all agreed she would not do. The road is at least 18 miles with a pass and the poor old creature had already come five. The hunting guide had been retained by persuasion and when that wore out by bribery, pending the arrival of this person, and now every attempt was made to induce him to lead the way. Everything was in vain, because he said he had to take salt to Spiti to exchange for grain. I remained firm and when he started off tied him up. Then the old lady confessed that she was deputed to be the guide. There was no one, it seems, willing to undertake the job, so they drew lots (gyen) and she was it. Our men still insisted she would not do and Rup Chand started out to get a man from the village. The woman walked with difficulty and as clearly was past 50. When asked her age she said she had not the faintest

idea. Over one knee-cap were three old scars. I bethought myself of my 75 years old mother who though not lame would have done the job with honour and was willing to give the guide a trial. The roads throughout this area are very poorly marked, except those that are frequented by the traders and it is very easy to follow a sheep trail up the wrong valley. So the lady joined the caravan and we started off. I reflected on what the Travellers Aid Society and kindred organizations would say when they found it out, but there was not anything else to do if we were to get to Unti to-day. For the first 10 miles the guide rested considerably but after that she warmed up and outstripping all but the two best men arrived at Unti in splendid trim. She even wanted to go back that night, but was persuaded to rest, and made camp with the Mussalmans, preferring their society to that of the young men of her race and religion. The road ran some 10 or 12 miles along the east shore of the lake, mostly over torrent plains with no green except at one place a few miles from Peldo. Where a blunt peninsula extends into the lake we turned east up a long Nulla to Chagarchan La. The descent is rather abrupt and one arrives at a little lawn along a stream—Unti. It is evident that the lake has had a level higher than the present one, beach cutting being visible at least 15 feet above, so it may be a habit of the lake to rise and fall periodically. There was evident along the shore a fresh irregular sinuous row of gravel, about 3 feet high at the highest, pushed up by the ice. Being above wave action and there being no rain the formation has persisted. We drank from the lower end of the lake and found the water not bad. The guide said it is better only near the head. We were promptly thirsty again and thirstier than before but there was no help. There is no other water between Peldo and Unti. On the various crests we crossed (of the various nullas debouching on the lake) the natives have, as is usual throughout the Himālayas in this region, erected cairns. These are from 4 to 6 feet high, made of small stones, with preference shown to quartz fragments that crop out here and there between. Quartzitic Shales, and ornamented with all sorts of available horns: yak, sheep, goat, nyen, nabo. Our friend passed not one without adding a stone, sometimes muttering something and once circumambulating with much verbiage.

July 9.—The weather yesterday and to-day was clear, cloudless and warm with a gentle west breeze. Two nyen with two lambs were sighted yesterday on the hills above the lake, the first game seen since Polokonka. Unti and Tega, a few miles down the stream, are the winter quarters of the inhabitants of this region. At Tega there is a broad valley in which a good-sized stream meanders. Our guide called us early for her pay and departed. Nothing could induce her to go to Tso Khyung, the next stage, though money here cannot possibly be earned and no one has any. She even pretended she never

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had heard of the place. Cattle here constitute the chief or sole wealth and the tenure of life of an animal is very uncertain. All may die from epidemics or starvation caused by heavy snowfall but it is not customary to work and no one wants to break the tradition. All through the region among Hindus or Tibetans you meet with inexplicable confessedly idiotic waste of opportunities or materials and the only answer is that it is the custom. The road to Khyung Tso is a steep ascent to either Kyensa La or Salsa La. These passes and the ridge they lie on must be to judge from a 22,000 feet peak in front about 19,000 feet. But such a magnificent view! Below two days' march away the straight awesome row of snowcapped peaks of the Great Himālayas in Spiti bound the horizon. Below them are the somber purple grey hills of the Rupshu frontier that melt into the gentle rolling pink brown hills of the plateau. Two huge masses of these flank the broad green valley in the centre of the vista. This is the valley on which the Rupshu cattle pasture in winter. On the other side of the Pass everything in the foreground is yellow-green, the broad valley and the slopes that bound it. A large hill just below the Pass is grass-green from the loose-green rock fragments that cover it. In this emerald setting lie the two lakes Kyang and Khyung. Kyang in the right foreground is of pastel blue; Khyung is turquoise blue. It lies at the far end of the plain, hard against a range of madder hill, that even tint the loose cumulus clouds above them. Beyond them is a higher range of lighter colour, with crests and patches of snow. Kyang occur on all the hills and we spent much time convincing ourselves they were not something we wanted. And the plants! so interesting and so abundant at 19,000 feet. Even the horsemen got interested and helped to gather them. I have never been so stimulated on the whole journey as on the peak to-day. The altitude and the unparalleled view produced an exhilaration, that approached transport. There are several tents of nomads on the plain and herds of sheep and yaks. The yak epidemic has not reached here. Rup Chand recorded from the Korzok hunter guide an account of the marriage customs here. The groom sends a relative to the father of the girl that has caught his eye, with money and a piece of white cloth, about a yard. If the proposal is acceptable the gifts are retained. In that case, in a few days, if wealthy; the groom sends the girl's father 10-12 maunds (800-1,000 lb) of chang, five sheep and Tibetan tea. These gifts are divided with the bride's relatives, according as these relatives gave presents at previous weddings in the family. The date of the marriage is now decided on this day. On the wedding day, if the distance is far, the groom sends a man with a horse decked out as well as possible; if near, the bride comes on foot. In front of the bride's tent, if rich, they put up 80 stones in a row, if poor, less. The groom's relatives now approach, sing a song for each stone and kick it over. If they cannot sing an appropriate song they pay a fine and kick it over also. The bride's relatives are of course assembled. The final large stone in front of the

tent is not to be had for less than Rs. 12 if there is no suitable song. A singer is usually imported for the occasion. Seven paces beyond this stone is buried an image in devil's shape made of flour. The victor of the last stone then advances seven paces and tries to unearth the image. Failing more fine. Then everyone goes inside to eat, drink and dance. When it is time to go the bride's parents give her clothes and ornaments that are first displayed hung on a white cloth. The bride weeps and the parent's give advice, chiefly in the form of proverbs. The groom must now give the bride's mother Rs. 4 for the milk her breasts have furnished his wife. At the door the neighbour's girls stop the bride's going out and have to be given Rs. 5. And that is not all. The groom of the community (each community has one, not a bridegroom) has bound the bride's horse's legs so that he has to be paid to loosen them. Near her future home the bride is met by a lama bearing an earthen pot in which are samples of all metals, precious stones, etc. The pot is covered with white cloth on which are drawn two crossed dorjes. On the ground is a piece of slate with the same design. At the proper moment the lamas read loudly, and violently throw the earthen pot on the slab, which is then over-turned. Everyone now goes inside. A woman and man are sent from home with the bride. The man bears in his hand an arrow with particoloured rags and cheap ornaments. This man is considered henceforth the bride's brother. At the door of the tent the groom's mother stands with a bracelet, a bucket of milk and a rope for tying up yak calves. The bride enters, her hands are washed in the milk, the bracelet put on and the rope put on her neck. This is a symbol of her future work—looking after the cattle. The bridegroom dressed in his best is seated with a vacant place at his side in front of a table on which is a container ornamented with butter-figures and filled with chang. The bride seats herself in the vacant place. Then a youth whose parents are living, enters bearing in one hand an ornamental image of flour and in the other a piece of sheep intestine, filled with meat and fat. Not an indiscriminate intestine is this but the junction of the large and small intestines. He crosses his hands before the couple who touch the contents and then departs. A little later another man enters with a plate on which there is a little grain. He sits in front of the couple and sings a peculiar song and removes from the heads of both a piece of white cloth they have been wearing for the occasion. These he puts on the plate. A representative of the groom's relatives and the arrow-bearer of the bride collect money for the couple, according as the couple's parents have given to the children of their relatives on previous marriage occasions. This ends the wedding proper. A few days later the bride invites the inmates of her former home to dinner and then goes home with them. She remains some days and on her return brings some cattle as a present.

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July 10.—The plain in which the two lakes lie is roughly 4-6 miles wide, girded with smooth hills that rise to 17-18,000 and even to 22,000 feet. The plain is at an elevation of about 16,000. The soil is sandy and the dominant vegetation is the yellow-green sedge often mentioned before. Some half-dozen small streams 2 feet wide and 6 inches deep come down from the hills to the west and flow into Tso Kyang. This lake is perfectly fresh, about two miles long, oblong, and lies on the plain floor into which it has ploughed beaches of gravel 3 feet high. These beaches are removed from the present shore line by one to two, in places three rods, particularly on the west and north shores. On the east the water is apparently shallow and various spits, lagoons and islands have been formed in this section. The south side to the water's edge is bounded by the carpet of sedges of the plain. The winds apparently are chiefly from the south or east and are sometimes violent to judge from the magnitude of the beaches for so small a lake. The water level has recently subsided a foot or two, and has left behind some water crowfoot plants, now dried in the mud. There are Gammarus in the lake and at least a few Potamogeton plants. The midges that have been present in swarms on all Tsos are here too but to-day on account of the stormy weather (sky overcast all day with squalls from the south and slight precipitation) have taken refuge in the yak tracks. These are full of the black insects. A rich flora of tiny plants flourishes on the plain. Sand-grouse in flocks are feeding along the streams. Two or three pairs of sirkabs are on the lake and on the plains the usual small birds, except that we got a large Sand-Plover, not previously known to breed in the country. Kyang pasture among the flocks of domestic animals. We tried to find a guide for Hanle but no one would work for more than a day, no matter what the compensation and regardless of abundance of leisure. We had yak milk this morning but could not get more from the same people. They said 'ask someone else now!' Money is apparently of no object. We circumambulated Tso Kyung and acquired considerable merit because the lake is sacred, containing the left eye of the deity that makes Tso Mapham so holy. I saw two marmots again embracing as I had seen at Kiangchu.

July 11.—Three Spiti lamas headed for Hanle this morning and we went along, believing it best to have someone to tell us where to stop for the night. Ordinarily places where water and grass can be found are far between but it turned out that we could have stopped almost anywhere after the first 8 miles. The lamas were of the type of minstrel that yearly come out of Spiti in flocks of three or four and entertain their neighbours with various types of performances, such as supporting the body on swords, the points of which rest against the bare belly, thrusting a long needle through the cheek and tongue, splitting a huge rock on the belly of a man, etc. The lamas

to-day had a few goats and sheep, dyed in part yellow and red, that did not want to go to Hanle; so we left the company far behind and did not see them the rest of the day. I looked over Tso Kyang before leaving the plateau, which is our last high camp ground for some time. We descend now daily till the Indus. The lake is irregularly elongate, with maximum dimensions of perhaps one and three miles, its shores much interrupted by sandbars and spits. Though apparently shallow there are no evidences of water plants, probably because of the slight salinity. It lies on a bed of sandy clay with no gravel apparent on the west or north shores. Sedges grow to the edge. Its highest level was some 50 feet above the present one, to judge by extreme wave cutting on steep banks of the east shore. At present it is some 1 or 2 feet deeper than it has been for some time past but has receded 3 feet from a previous recent expansion. This is evident from stumps of drowned sedges on shore and under water. There are several feeders now nearly dry. A few sirkabs were on the water and a coot. The ascent to Da La is easy, amounting to perhaps 1,000 feet. The path then descends in a closed valley along a stream bordered in places with stretches of green. After 2 or 3 miles the stream dries up but reappears 5 or 6 miles further where there is a long-sedge lawn and a cluster of four tents, called Da. The valley was once the bed of a powerful torrent but nowadays little water passes down it. Drama which was absent on the Khyung plain is here abundant. The weather is clear and warm. It froze heavily last night, in fact it has frozen every night since Bara Latse La. Everyone slept lightly last night but was in excellent spirits this morning. Pulses high.

July 12.—We got yak milk again this morning at Da. The milk is a very superior substance, better than any milk one can find from ordinary domestic animals. It is only obtainable in the morning before the calves are turned loose. The mothers impatient for the reunion grunt like pigs. When free, young and old cavorted on the plain with tails in the air, brandishing horns, bumping heads, giving the impression that they knew how to play. One sees the same phenomenon among dogs, and sometimes among goats, but seldom in cattle. The Spitians arrived and stopped at the village to prepare breakfast. They may give a performance here, in which case they will not go to Hanle with us. They always came above our camp to get water, whether from spiritual or sanitary reasons, probably the former. There is a nice closed valley above Da with one side an amphitheatre wall of snow, that probably does not melt. The path to Hanle still continues down the stream in the bare-walled valley. The petrography is bewildering. In one place a stratum of conglomerate, with inclusions a foot in diameter, the whole with the appearance of a concrete pouring, joins a horizontal bedding of quartzitic shale with an interruption vertically of 100 feet of rubble brought down from above.

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The path leads along a sedge-lawn for miles with a clear streamlet meandering in the bottom. Drama is abundant on the valley-floor and fish are numerous in the stream. The Mussalmans did not see these until we were on the march and longingly tried to spear them with my alpenstock. After 6 or 8 miles the stream enters rougher country and the lawn vanishes. The running water now changes to a series of lovely crystal pools on and among clean smooth granite boulders and the vegetation grows chiefly on their banks. Instead of drama above, a magnificent golden clematis and the fragrant honeysuckle claim equal ground, transforming the desert into a glorious garden. As if this were not already enough, but other plants grow abundantly along the water's edge, plants such as we have not seen before. One huge plant of rhubarb, 3 feet in diameter, with stalks as luxuriant and as well-flavoured as the best improved varieties, had somehow come into being among the dwarfed tough plants of the common species. We gathered an armful of the stalks, intending to cook them but ate them all before arriving at camp. When the valley opens, another stream enters it from the hills to the right and an enormous outwash plain, 3 or 4 miles wide, opens to view, furrowed by torrent and lined with rows of huge granite boulders that the raging water has thrust aside. On the floor in the distance are two large chortens and on the edge of the crest of the opposite mountain are visible the ruins of an old monastery. No one knew where to go to reach Hanle, though two of the men claimed to have been here before, so we camped on a little pang where for the first time our horses did not leave the little green all night, but when full, walked from one end to the other to see where it was best, the tinkling of the bells of two that regularly strayed announcing the course of the march. In one of the linnet's (Twite) nests to-day had been incorporated in the soft lining a rabbit's tail. The tail was so prominent that the four eggs had to find a place around it.

July 13.—The valley is the largest and broadest we have seen. Our camp is against the bare west wall, a quartzitic formation so crushed and distorted that its surface is a fascinating confusion of lines. This extends around to form the north wall. Beyond the big outwash plain to the right down which we came are snow peaks. Except for the tip of a Spiti peak to the south-east no other snow is visible. In the centre of the plain is another low rough hill with 2 or 3 miles of plain surrounding it in all directions. The east boundary is a lofty sharp-crested chain that divides the Hanle River Valley from that of the Indus. This is a magnificent range. It is the first ordered range we have seen in Rupshu. The rest of the mountains start off in a given direction but are at once blocked by others coming from other directions, any other direction. No other range has displayed such varied and beautiful colours or such dissected formation or lofty structure. From the

deep purple crests a wash of yellow-green has been poured reaching half way down the sides to where a series of pink pyramids are flanked against the slope. Below these run irregular rolling hills of dark green that merge into the outwash plain of marbled pink and brown. Here and there among the pyramid formations are splashes of blue, gray and madder, to complete the range of colour that adds glory to the grandeur of the stupendous chain. Rup Chand went hunting for the Tibetan gazelle, and I stayed home to gather plants of which a dozen new ones grew in front of the tent, among the small spring pools that lined the sward. A lovely fragrant pink primrose, a royal purple aster, and a golden *Pedicularis* would be the pride of any garden but none had seeds. In the pools grew a tiny *Utricularia*, an inch long, with huge traps. And the birds also provided a thrill. The large Tibetan lark *Melanocorypha maxima* had a nest with three eggs on our lawn and its unrivalled song could be heard here and there over the plain. This bird has not been previously known from the Indian Empire. The big cranes and the usual water-birds are here, also the Hodgson's Partridge, now with flocks of downy chicks and one of the tiny Kingfishers (*Alcedo attis*). Toward evening I started off for the monastery on the north-east edge of the plain, a good 4 miles away. I met Rup Chand on the way and he went along. He saw no game. As usual, one had said, go here, another, go there; one even directed him to our camp. I almost believe the people see very little game, because they do not often go far from their tents. The monastery from my path was not visible until I had come nearly beneath it. The view of the huge white structure on the crest of the ridge 4 or 5 hundred feet straight above the meadows in a country where there are no buildings and where you do not expect to see any, is a sight to bind the traveller. I photographed at every 100 paces and then hastily struggled up the steep ascent behind a yak herd that was bringing drama from the surrounding hills. The abbot is a Tibetan, a man of good parts and very friendly. We were shown all over and allowed to inspect everything. This monastery, he said, was over 800 years old and antedated its superior, Hemis. Previously the river we had seen on entering the valley had been the monastery. The present structure was really a fortress, as all monasteries had to be before English rule, with retainer's quarters below and with a wall and guard turrets on the easiest slope in front. To the east and south are cliff faces and no defence was necessary in that quarter. In the upper temple are a number of brass images, one or two temptingly beautiful. We were allowed to handle the figures but were cautioned not to touch their faces. One of the many-handed or many-headed figures, I forgot which, speaks from time to time. In this room are beautifully executed and beautifully preserved frescoes, that the monks said dated from the building's construction. The drawing and composition remind one of the Tashi Lhunpo Rabjor series and the colour is of requisite richness. I tried to photograph

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one but it was very dark and I fear there will be no result. In the temple below this are more frescoes, likewise old and well preserved but not so pleasant. They are of huge figures representing various lamaistic deities and devils. In this room at the far end is a shrine in which only one priest is permitted to enter. The room is totally dark except for the door and it was difficult to see the tankas that hung abundantly from the ceiling. It was growing late but we stayed to tea, meanwhile expecting our horses to bring camp to the monastery as ordered. The tea was Tibetan and very good of its kind. Sugar was served in abundance and Kumanis, the last always acceptable, no matter that their past history would not conform to our sanitary notions. A man reported that the caravan was visible from afar and fearing that they would lose their way in the bog that makes up a good part of the plain, we sent him to guide the flock to the selected camp ground. We meanwhile had a pleasant visit with the abbot. He said I could not be an Englishman, pointing to my eyes, and when told him I was American wanted to know about the country's size and produce. The scene was illuminated by a lantern and when I suggested we take it to look at the frescoes again they said the temple should not be disturbed at night. Now again in full darkness arrives our messenger to the horses and instead of announcing their presence at the gates said they had pitched camp 3 miles away in the morass but sent a lantern. The march through the marsh to an unknown locus (three fires were visible, as many miles apart). We fired the gun, hoping they would answer from the camp that was ours, but they assumed we were hunting or shooting out of exuberance, or some other assumption and gave no reply. Pulling wearily one leg and then the other out of the mud holes splashing out of the mud puddles that we fell into in the dark, we finally arrived at 10-30 with not many kind thoughts toward our fellowmen. We were told by way of consolation that we had ordered camp to be pitched on that spot.

July 14.—Rup Chand and I went early to the monastery to see if the hunter whom the abbot summoned yesterday, had arrived. He had not, so when our horses showed up we marched. The abbot again gave tea and on parting gave both of us sacred scarves, me a Tibetan sheath knife and Rup Chand a cake of Tibetan tea. First we bought an ancient curiously carved tea-table from the custodian of the monastery. The carving is bold and graceful and of a totally different character from that of the tables nowadays manufactured. The top was soaked in generations of butter imbibed from the tea that had been spilled by the guests of the ages and the gay paint that the people in this country apply to all carvings has been toned to grey-black by similar agencies. The view from the monastery is perfect. To the west the whole green plain with the numerous meandering streams, just wide enough so that in proper places a man can jump, and full of fish. To the east and

north the Hanle River plain for miles, flanked by the line of majestic peaks that stretches toward the Indus as far as eye can reach. There are fields on the southern plain but there are chiefly weeds in them. A field below the monastery had a few healthy turnips and many weeds and one had thrifty barley but the cattle and rodents had eaten half already. The nights, though cold enough to allow the formation of ice, are much warmer than at other places we have been and they could undoubtedly grow things if they knew how. They have recently planted a willow below the monastery and it has grown in a few years into a flourishing shrub, the first shrub larger than a drama bush we have seen since leaving the Tsarup where from afar we saw a similar tree in its valley. The people at Hanle were sometimes good-looking and much friendlier than any we had met in Rupshu. There are perhaps fifty on the plain. Among them was a beggar, a Kashmiri they said, who refused money and begged for flour. We had no flour at the moment but the money was nevertheless not accepted. Our road ran all day along the Hanle River that flows through a plain $\frac{1}{2}$ to 1 mile wide. It is green all the way, from the various sedges. There are shrubs of drama in large patches and on gravel alluvial plains often clumps of pinkish fragrant tamarisk, 6 feet high. In one of the pools was a great growth of tiny butter-cups so fragrant that the passing traveller caught the scent. One of our horses that are now feeling the stimulating effect of the upland grass took fright at some pots he was carrying and stampeded the caravan. Two native boys ahead knew how to stop them and we then collected our effects from various places on the green-sward. All but the two mules that had not even seen fit to run had thrown off even the saddles, yet nothing appeared to have suffered but the lantern; fragments of glass and metal from it strewed the landscape. One of the lads gathered these, glass included, and cached them under a rock. There are several clusters of tents scattered along the river and herds of sheep and yaks are numerous. The yak disease has not reached Hanle. A tent or two of tent-dwellers that spend the winter in Kulu were camped near our halting place and we bought several rings. The Rupshu people display very little jewelry but these, male and female, have their fingers laden if they have any standing at all. We selected a place near water and grass to pitch camp, having already marched some 22 miles, but the horsemen arrived and said beyond the Pass was excellent grass, so on we went. The Pass, Kugzil La, was about 1,000 feet above the plain, and 2 or 3 miles long, of beautiful (from the agriculturist's point of view) soil, no stones and little gravel but not more than half-dozen plants grew in sight all the way. We knew the horsemen had never seen the ground ahead and that they must have got the information from the natives, who by the way, always want to send you on ahead, either from fear of you or to save the grass for their own animals, so we were uncertain as to what we should find after our long trek. But sure

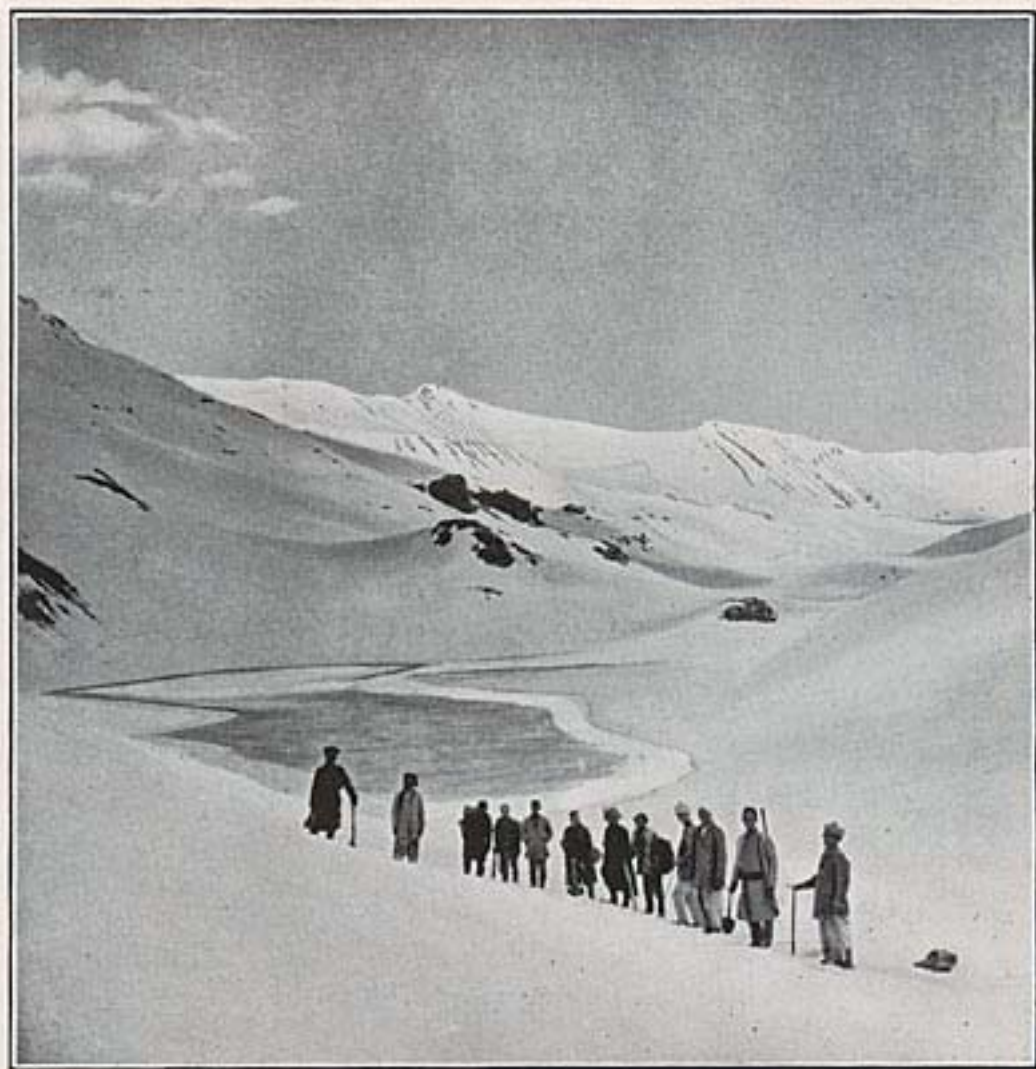
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enough, it was a lovely place—a green meadow against the mountain-wall with the river in three meandering parts in front. We arrived at 6 after eleven hours of march. There are now abundant growths of Ephedra on the hills from Hanle. The British chemists have found the Lahuli Ephedra to be of high virtue and possibly this is also superior. Our lama stayed behind at Hanle to copy a book in which he was interested, and incidentally made inquiries about the diet of the natives. In the morning they make a soup from meat or cheese with some roasted flour (sattu). About 10 they make tea; those well-to-do drink Tibetan tea with butter, the rest drink Kangra tea. Sattu is again mixed with this and is eaten with the bent finger. Spoons are unknown in the hills. The evening meal may be of (1) Kin-dumpling of flour (atta) with fat or meat broth (2) Momo—pounded meat spiced wrapped in unleavened bread (roti). Poorer people eat more simply with more soup and nettles or other weeds. A great luxury is rice on which melted butter and sugar are poured. All grain must be imported. The men go to Tibet for salt, a 2 month's journey. For Rs. 5 and a sheep they get from the Tibetan Government permits to take out 100 sheep loads of salt. This they barter in Lahul, Spiti or Rampur for flour. Everyone must therefore have sheep—sheep are as basic here as land is below. The men's work is this traffic. The women stay at home looking after the flocks that remain and weave clothes and tents. The wool that is sold is usually cut by the buyer. (At Tsultak a Tibetan agreed to sell his wool at 12 As. (about 25 cents) a head. The cutter gets $\frac{1}{2}$ cent.) The buyer promises to come the ensuing year at a certain date.

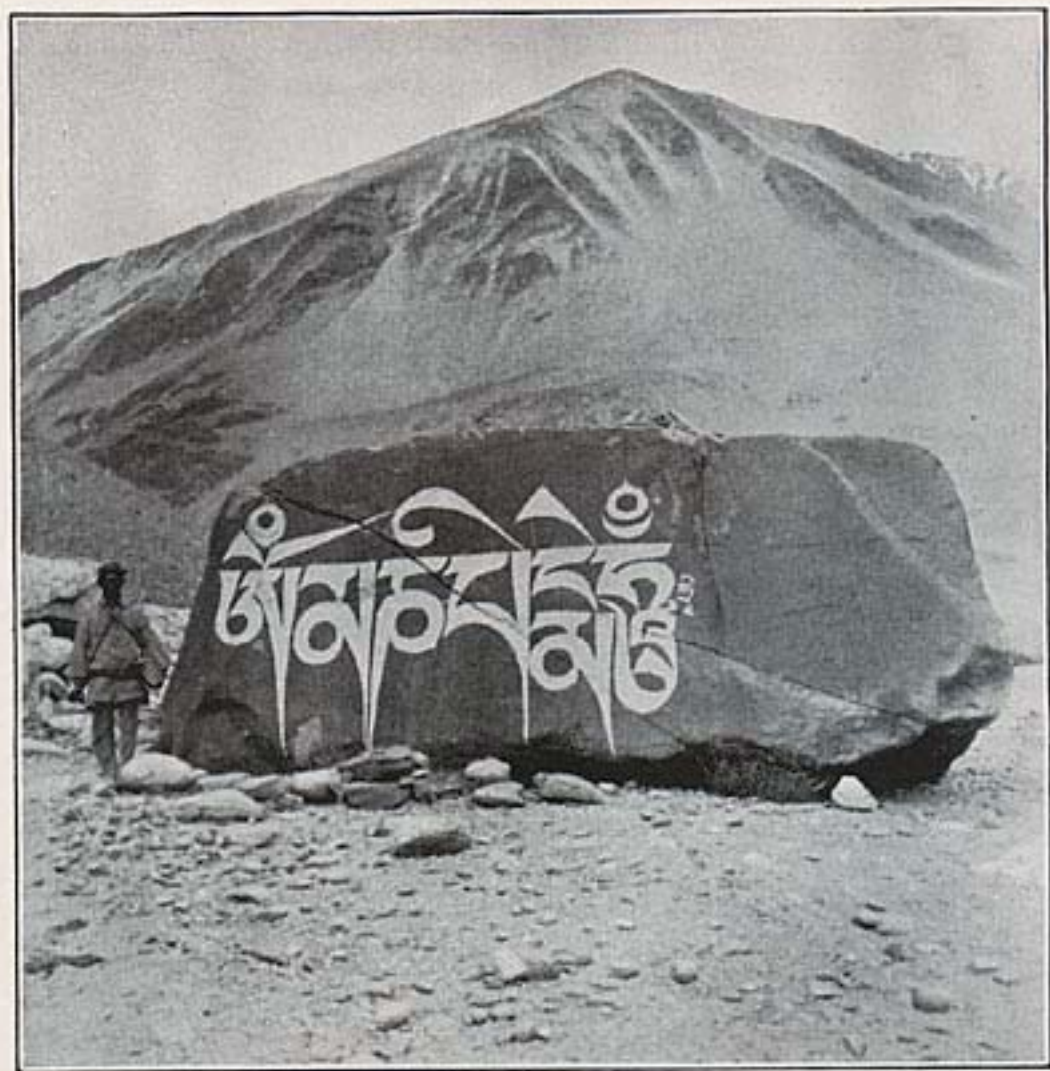
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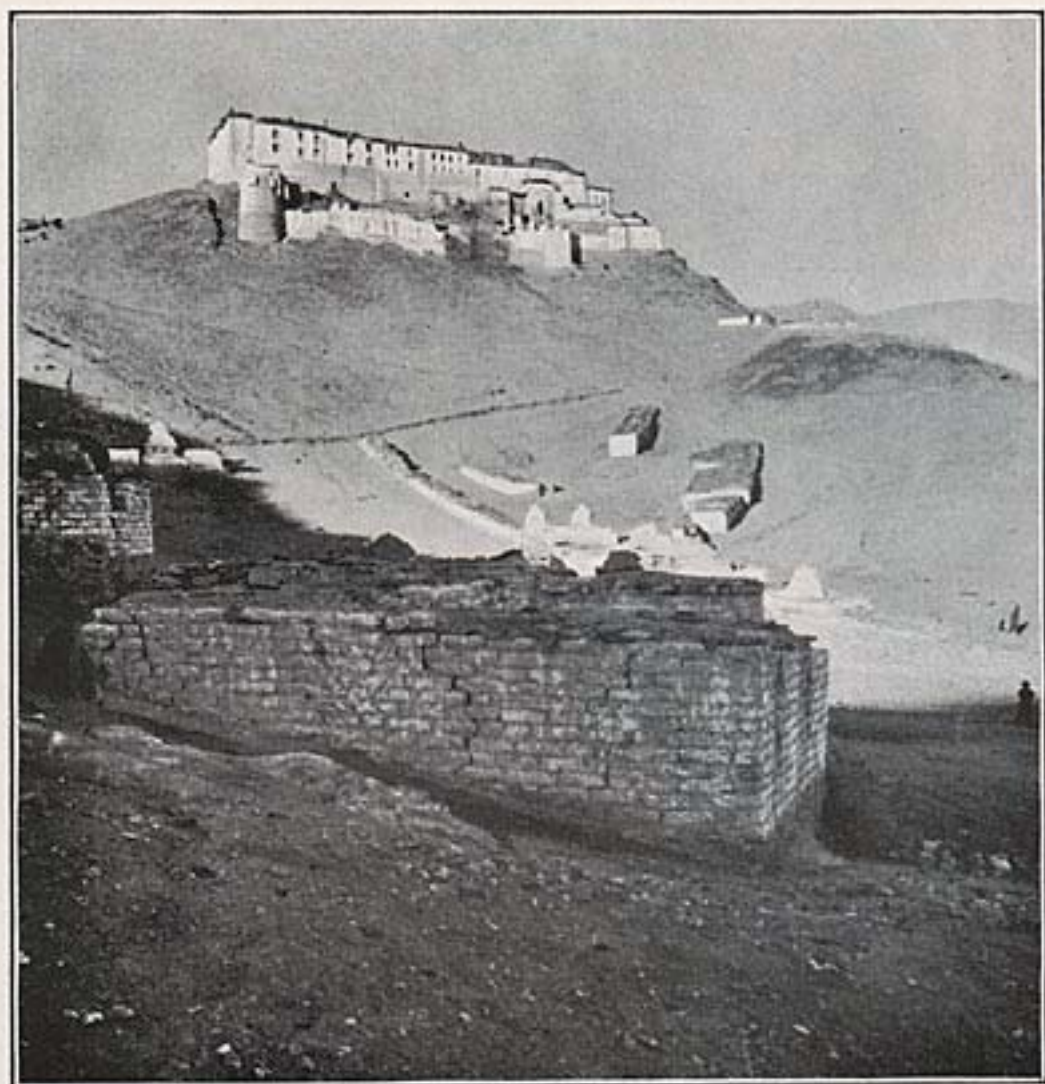
THE ROTHANG PASS.



THE EXPEDITION ON THE BARALATSE PASS, LAHUL.



OM MANI PADME HUM FORMULA CARVED ON A ROCK ON THE TIBETAN UPLAND.



HANLE MONASTERY.