

or Rhodo. Trans. San. Ser

9 Rhodo. with scales.

Rhodo 3925? small pink

Non. bonli.

Lloydia
Iris Clarkii
Cassiope

in profusion had just been uncovered by melting snow & seed capsules were still full of food seed. On the edge of the Blue Forest, *Omphal. hirsuta* was seen, while on very ~~steep~~ swampy slopes *O. brachycephala* was again found. As before the flowers of these were mostly 5-merous & 5-partite though a small percentage had six segments. On June 7th I crossed the Umbumbu La ^{13900'}, the last loop of which was deep in snow on the North side. The South face however was ~~free~~ clear except for piles of arabauche snow 1000' down the very steep slopes. It was a beastly day of driving with rain over cold conditions which we had on every single ~~part~~ to Himalayan Pass this year with the ~~exception~~ exception of one fine morning on the ~~hike~~ hike in April. However I was soon compensated for this. We took a last breather behind a rock on the summit before plunging ~~into~~ down the southern slopes, and a compass bearing to help us back as there was no path visible. Almost at once we saw a man of golden yellow Primulas. This proved to be the same as found S of the La in hp at 11500'; but here it was with proper habitat. ~~Observations~~ This has now been named

- X *P. clinogones*. With it there was also ~~another~~ Polaroid Primula *P. tsamensis*, occasionally these two had hybridized & produced a queer but pretty Primula the color of which was about half way between golden yellow & blue violet. These covered the steep slippery slopes for 500 ft, where their place was taken by equally large number of *P. tibetana*, one of the most magnificent of Primulas. Among other Prim found here were *P. pedunculata*, *P. sp. nov. Himalayana*, *P. aff. Clutterbuckii* (1927) *P. Dichroma* var *Pantluzii* Winkl. & *P. barbata*.

The next Pass visited was only a few miles further East - the Chimuin La, of 11000'. Here again snow lay deep on the ~~North~~ face last 100' of the N face, but it was melting fast, & we came across several bands of ~~hops~~ hops who had been overcome by bad weather the previous Autumn. I was surprised to find that

Lonicera dwarf yellow

/ Lonicera hispida var setulosa
Seeds

Parasquilegia

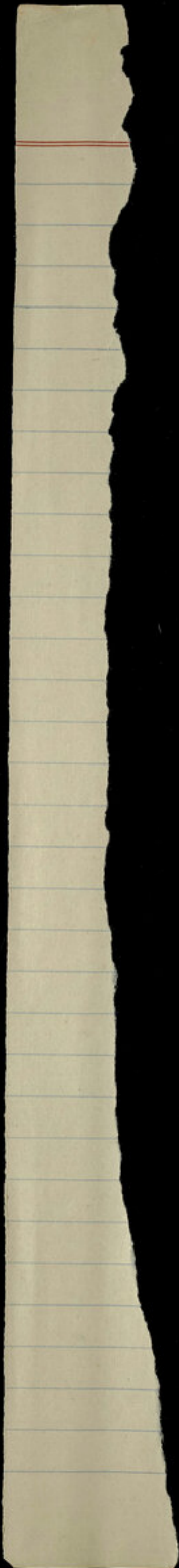
Non-Souls

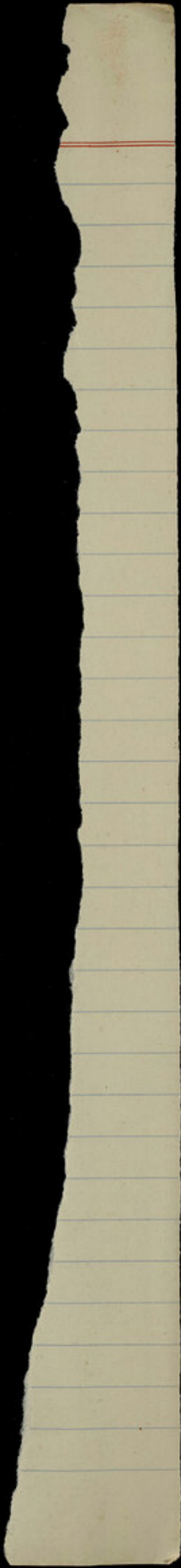
Rhod
5544

Prunus 5537, 38, 39, 40
41

Daphne

Height of conifer zone





beside each body, the owners bow had been stuck in the ground. All
arrows had been taken away, but all their other possessions seemed to
have been left intact, even to the meagre rations of food. Near here,
at the top of the snow slopes, were verticle cliffs, stuck away in
just dry patches, completely sheltered from rain, were fine clumps of *P. lilloidalis*.
A little lower down, at 14000, the first *Dec. simplicifolia* were
coming into flower. Beside this *P. chamaethrauma* was in flower, &
on a steep bank just above this, a little creeping *Lonicera*, only an
inch or two off the ground showed its yellow flowers. On some of the
flat open swamps, flat held masses of a fine *Allium* (No) &
~~some~~ *along* the banks besides streams grow *P. macrophylla* & *macrocarpa*.

There remained, near Langong, one area to visit, that was Tsari
Sama. This is a place of pilgrimage, called Tsari Sama or Sarpa -
the new Tsari - to distinguish it from the better known more important
Tsari Chikchar. The Langong coolies were not anxious to go toward
the pilgrimage, for which I could not blame them. However, they
took me, it was a most interesting trip. As ~~was~~ ^{at} the Loba, there
is in Tsari Sama a fairly extensive seasonally open flat bit
of country, ^{to the immediate} just north of the Himalayas, gradually rising to a
steep rocky ridge. The whole of this area was very rich in
flora. This, to a certain extent, can I think be put down to
the fact that no yaks are kept here in the summer. None of
the dwarf rhodod was now in flower, a *R. campylogyllum*, ⁵⁵⁶⁰ *R.*
⁵⁵⁵⁵ *trichochladum*, *R. fuscum* ⁵⁵⁶⁵. Alt 5568. N

P. Prunella not seen elsewhere. *P. Kuzni* covered acres of open
ground with its deep wine colored blooms, *P. laeta*, a splashed form
of *P. Rosei* *P. pendularia*, *P. gracilipes*

Perhaps the first interesting *Rhododendron* was 5571 (yellow, red spots)

Growing among rocks just below the ridge before reaching the pass to Lopa
territory, we came across a fine large ^{white} flowered new *Daphne*. No seeds.

At Grassing, the starting point of the pilgrimage,

Contrast in Tsauko valley
vegetation from that near
Kiyindou by
Hill Warder.

Shape of side valleys
~~by~~

Various plants normally in South Siam only,
now appear north of the Himalayas, owing to the
increased rainfall which passes the barrier. Among them are *Magnolia globosa*, *Lilium*
giganteum, (*Nymphaea*?)

there are ~~some~~ two huts & a small monastery. A few men & horses had just arrived, with their yaks for the summer - On the swampy slopes in the valley bed were masses of most beautifully coloured primulas - *P. alpicola* in several colours & *P. sichuanensis* subsp in every conceivable colour. One of these was constant in colour down the rocky sides of cascades, until the rich & nearly flat yak pasture was reached. Here it broke out into all colours & shades. I marked many for seed collecting in the Autumn, but in October I could hardly find a seed & indeed I could hardly see a Primula leaf - all had been grazed by yaks.

On June 19th we were back in Lhasa, which we left for, bound for Doko, by a different route, over the Tse La, 15000'. I had time to visit two other valleys before we all met at the end of July, so went down the Tsangpo valley to Nagai on the R bank of the Nagai River - All these rivers from the Himalayas run N. to the Tsangpo were by now ~~very~~ in spate. Bridges in every case had been carried away by flood water & we had some difficulty in crossing, At Nagai the weather cleared up, ~~we had three~~ ~~clear~~ days. Sometimes fording, sometimes by the skin coracles called Kowas and sometimes by a heavy

water lily ⁵⁷⁴⁹ * unmanoeuvrable craft called a tru, which consisted of three or four long logs tied together. Crossing a rapid river by tru was a full days business: first it was towed some hundreds of yards upstream, where it was loaded till the logs were awash. Then two men waded paddle frantically into shells making a yard across for every twenty yards then were carried down stream. Just after crossing the Nagai Chu in this way, the weather cleared up for two days we had sunshine. I went up the Nagai Chu to a pass ~~at~~ over the Himalayas called the Sam La. The ascent, which within a mile of the pass was very slight & for miles we plodded through the swamps. Then reaching the Nam Range suddenly on the third short day march, the path climbed abruptly to a knife edge

X add Nec. Floridae. west extremity
P callisautra starts here, not seen to
this.

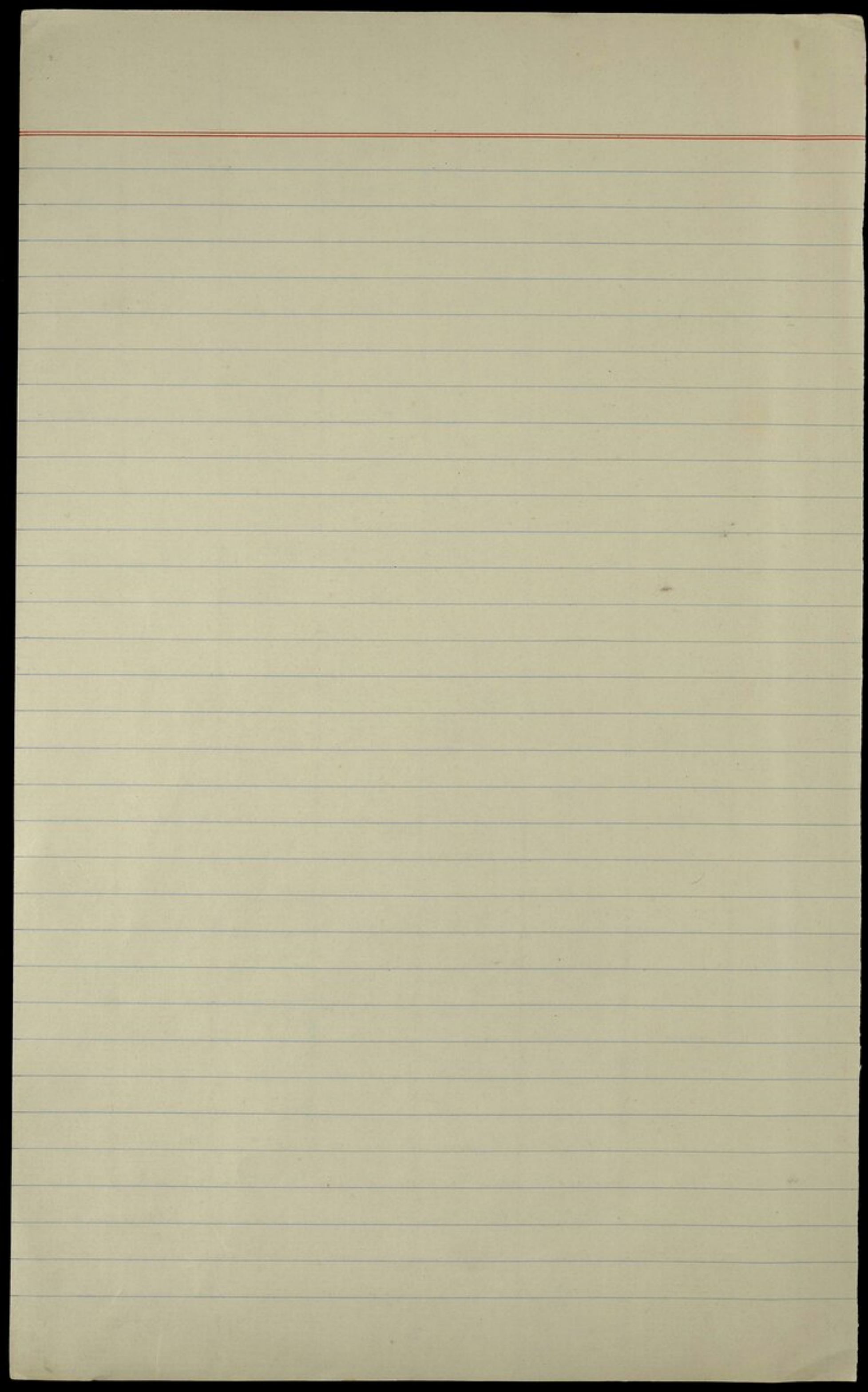
X P Elizabethae meets it here, not seen
E of this

L first found further W on Barbours
or Chickenshake La

~~the first seen~~

ridge. The Tumba is exceptionally low, being only 12000 ft, almost certainly the lowest pass over the Himalayas ~~between~~ ^{after} the Zori ha in Kashmir. ~~The road appears to make it give~~ the appearance of being even lower even than the Zori ha, owing to conifers + Rhododendrons growing on the hills beside the pass - descent on the South side is abrupt. I did not find very much near the Tumba. *P. Elizabethae* was almost over it this, its eastern limit as far as is known. *Nom-Soulei*, *Crepis minus*, *P. barbatula* + *P. calliantha* were common. Here the common form of *P. Dichroma* var *Paulinii* was still in profusion, and on the wet rocky hillside was ~~the~~ ^{that} most striking near prostrate prostrate yellow flowered Rhododendron, with red spots ^{other number.} (6600). After three very uncomfortable days of driving rain mist we returned towards Nagu, on the way took specimens of a water lily (66?) *Nelumbo* ^{lutea} 66- and *Magnolia globosa*. The Nam Phu Chu was the only valley north of the Himalayas in which we found *Magnolia globosa*, as it also was also in which we saw masses of *Lilium giganteum*. I stayed the night ~~at~~ at Nagu where the headman who promptly showed me his kitchen the walls of which were lined with the ~~glacial~~ wooden teapots, peculiar to Konybo, called Tibti. He sent a servant with me to show me the trees from which these teapots were made. These proved to be *Acer caesium* (5740?)

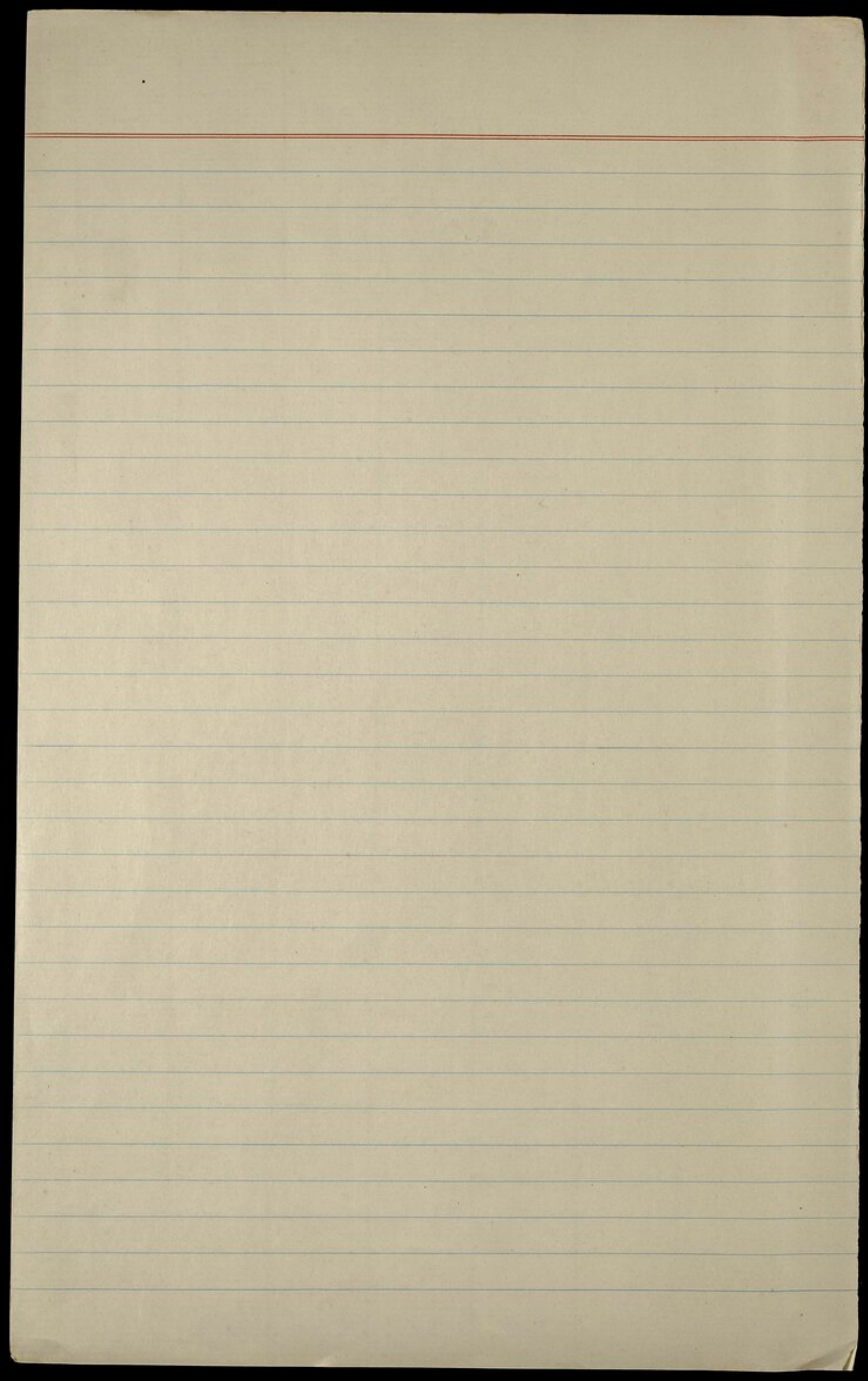
I had intended to visit another pass just east of this, called the Shaha ha, reputed to be even lower than the Tumba, but had no time, & pushed on to Paka. ~~Probably~~ Three streams form the Paha Phu Chu, at the head of each is a pass. I could only manage two, and chose the central and eastern one, the Tsanani ha + the Kuchaha. The western is the most used & many *Nopas* were expected any day by this pass. The ~~Southern~~ ha is probably the highest, but is no longer used. The reason was easy to ~~to~~ see. The final ascent to the North was too steep for men with loads. Only a few hunters ever visit this pass now. From a botanical point of view the area near this pass, would well repay a more thorough investigation. ~~There~~



The momentary glimpses I had of the mountains near the pass showed towering precipices, a short glacier, but the best ground was impossible to reach without spending ~~several~~ ^{some} days in reconnaissance. The last camp was at the extremity of the conifer zone. By now nearly all *Rhododendrons* were over, the only ones found still in flower being *R. campylogynum* (No) and *R. aff. campylogynum* () & a dwarf *R. triflorum* Series? () with one or two crumhorn *Neriiflorum* (). Mixed up with the *R. campylogynum* was *Cassiope Wardii*, this being the furthest west this species was seen. *Primula* however was still in flower among the commonest being *P. Horsfieldiana*, *P. Valenciiana* & *P. ^{Pachamaulana} Tsongpenii*. ~~Later a pretty patch~~ ^{Later a pretty patch} ~~of this~~ ^{of this} ~~was seen~~ ^{was seen} ~~then there was a~~ ^{then there was a} new sp. ever called *P. Tsongpenii*, a member of the *Dryadifolia* Sect, with fruit ^{each} ~~flouring~~ ^{flouring} with a white eye.

We were all glad to leave the Pass. There is little inducement to visit these eastern Himalaya passes. Precipitation is almost constant & between May & the end of September I doubt if there were more than five fine days. But the beauty of the area is that one can escape so easily back to the Tsampo valley, where rainfall is slight.

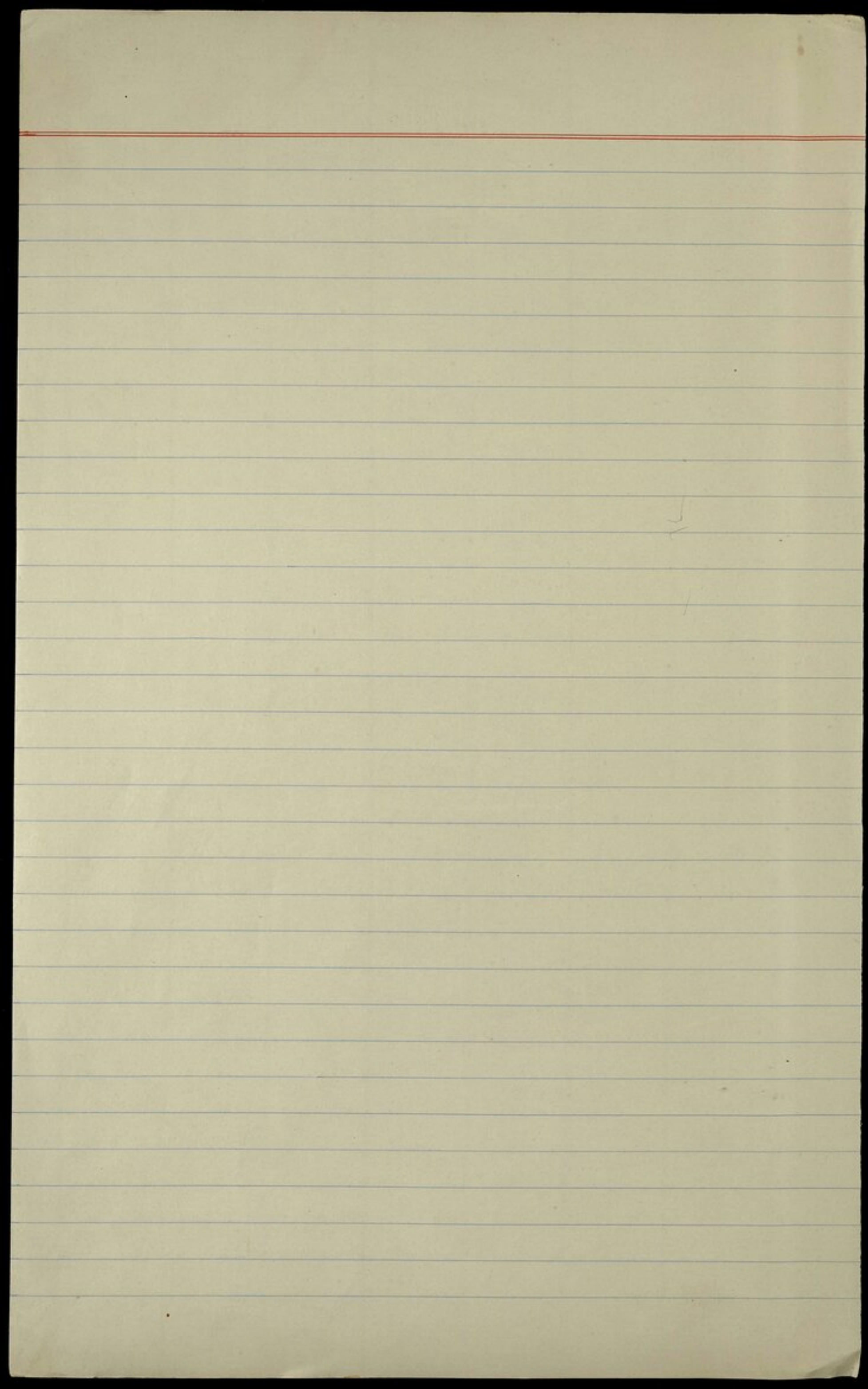
Before visiting the Kuchaha, I worked a spur ~~near~~ ^{only a few miles S of the Tsampo valley.} to the north & through I was rather late should little time, this proved of great interest. The forest in the valley bed was mostly *Quercus flex*. Above this the forest became less dense, & on the rocky spurs we found *P. Baileyana*, & higher up *P. hyacinthina*. Near the top of the spur, called *Go nyi re*, the flora was richest - *Cassiope Wardii* few in proportion, but it was now over, *P. unguida* also over & *P. minor*. *Nec. Florindae* was here common, growing beside *N. integrifolia*. A delightful little saxifrage too, grew on the open scree. Later on, when we returned for seed, I owed what seed we got to the sharp eyes & unfeeling hands of a lama who had never seen the plant before, but who, on being shown one tiny rosette of leaves, managed to retrieve quite a number of capsules from under a ~~thin~~ ^{thin} covering of snow.



From this ridge, through a break in the clouds, I had my first glimpse of the Gyamda Chu, flowing in many channels to meet the Tsampo at Tselo Dzong. Half an enormous river, it appeared to make not the least difference to the size of the Tsampo, in the dirty water of which its clear streams were soon lost.

As a last trip before going to Tse, where Ludlow & Taylor were due on 31st July, I visited the Kuchaba. The Kula Chu, up which we went, was typical of so many of the rivers running north ^{to the Tsampo} from the ^{Eastern} Himalayas ~~in the East~~. We foraged through swamp, with a very gentle ascent until the last mile was reached when the path had precipitously up to a knife edge ridge. Little of interest was found here. Most ~~flowers~~ spring & summer flowers were over. Gentians were just coming into flower.

~~From Tselo Dzong~~ The Dzongpin of Tselo Dz had been most kind to us & provided transport for our two parties when we left on 10th August. Ludlow this time went alone with the Pasumba & Torgyuh Dzong in Ponie as his foal. Taylor & I were to explore the valleys to the west of the Gyamda Chu. We camped near the Dura (15700?) above the Rhododendrons. This area has a considerable precipitation, but is not nearly so constantly wet as the Himalayan Range. Gentians were now appearing in flower, we found *G. Progenalshii*, *G. Suenzi*, & *G. sinuornata*, *G. tsarongensis*, while the beautiful *Homalium oreocharis* was just ~~at~~ making an appearance. *Mec. florindae* was seen still in flower on banks in forest lower down, while the last of the flowering *Necandria* to be seen was *Mec. horridula* var *butia*, here common in one valley, on open boulder scree. The clump of *Thur. filis* beside



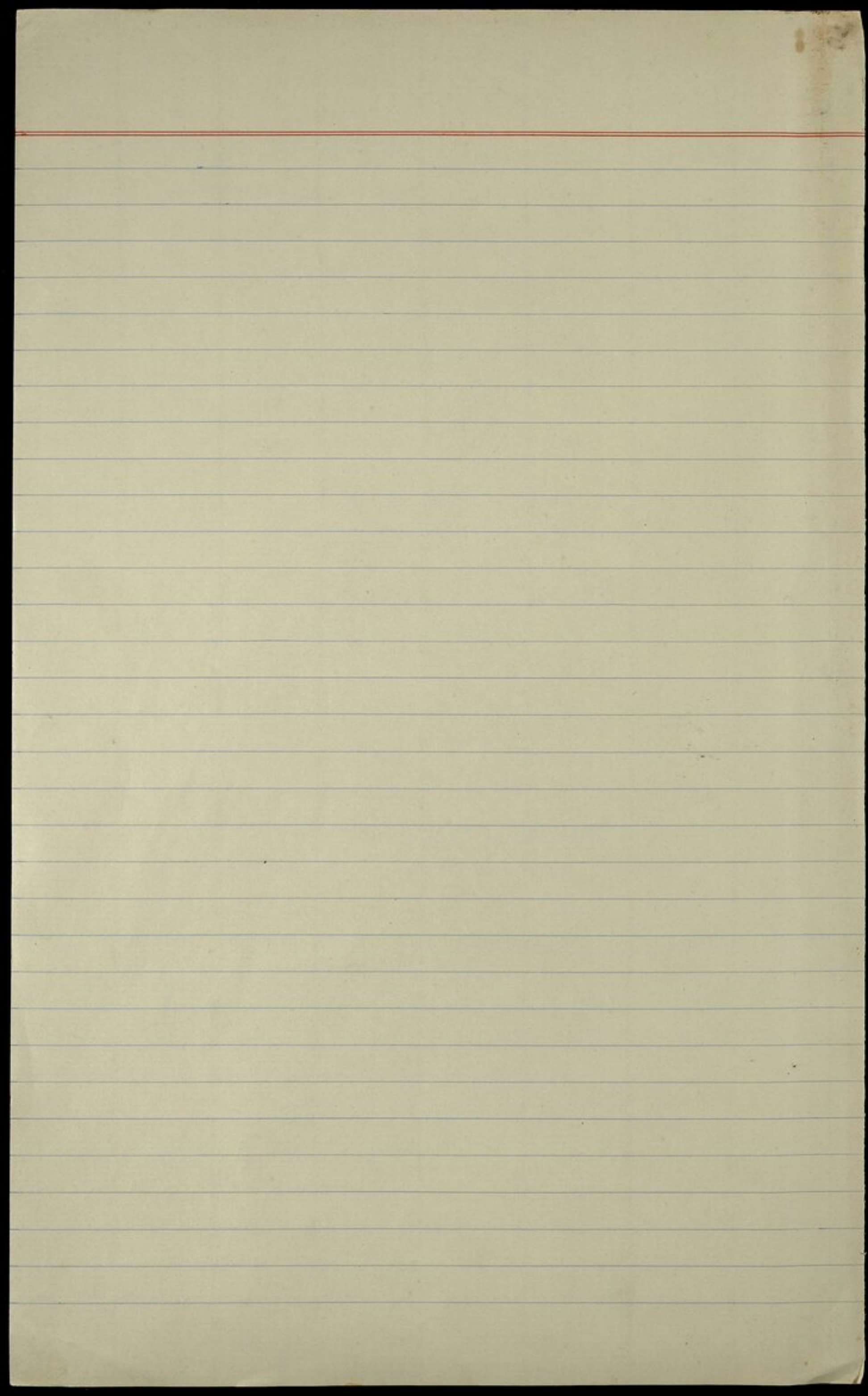
our camp were very fine. On the high rocky slopes were several species of *Cypripedium*, we saw here more fruiting plants of *P. Littledalei* than anywhere else, always growing among in boulder scree, or at the foot of cliffs, in crevices protected from rain: a few were still in flower. Beside them grew *Hec-integrifolia*, some still with an odd flower on them. — Saxifrages too were common here, the prettiest perhaps being a little wine red one only once seen, Sax

— (No 6)

Leaving the Tira La Taylor & returned to the Gyanda Chu, by a valley further north which entered the Gyanda Chu at Chomo Dzong. Here we had to halt a day while khoros were collected to ferry us across the river to the R bank. Barley crops were now ripe we watched the Tibetans collecting the heads by putting two canes together & drawing them up the straws, pulling the heads off, while leaving the straw standing. Later on we watched the more dangerous method used in cutting the straw. In a small field a dozen or more men stepped to the waist, were let loose with murderous looking scythes on long handles. These were not wielded in the sedate way they are at home, but to the tunes of ~~wild~~ shouted songs were wildly swung over the left shoulder & head before being brought down in a sweep within of a professional folder. The men did not advance in line, but wandered about where they fancied. Another occupation, in which the people of Chomo Dzong were busy, was paper making, we watched this very simple & efficient manufacture from the peeling of the Daphne bark to the setting out of the cloth traps to dry in the air.

Unfortunately we could not manage the proposed trip from Kyakden over the hills to the East into the Rang Chu valley & had to ~~turn~~ turn down the river to Dzeng on the Tsangpo.

Mithula was seen on these dry slopes near the valley bed & *Cent. Waltoni* now appeared on all open dry ~~hillsides~~ hillsides.



II

Ludlow. Sherpa

From Molo to Pachakshiri and back. April-May 1940.

We calculated that Taylor would not reach Molo till May 17th, so Ludlow & I had nearly four weeks in which to make a trip to the South of the Himalayas. Eastward from Mago little botanical exploration has been carried out south of the main axis, owing to the unfriendly tribes which inhabit that region. The flora of Sikkim & Bhutan is rich, and owing to increased rainfall as one goes eastward toward the Tsangpo gorge, it probably becomes richer. We therefore left Molo on the 22nd April full of hopes of getting a rich harvest from the Tibetan District of Pachakshiri, which lies south east of Molo.

In 1936, when Ludlow & I visited the Tsari District, we split into two parties in the second half of June. I kept to the area where the various branches of the Subansiri River cut through the Himalayas, while Ludlow went east to Molo, with the intention of getting over the main axis to Pachakshiri. He had not much time, and owing to this, and the difficulty of getting transport to take him to ~~the~~ Pachakshiri he was only able to spend a short time near the ho ha and a day or two on the Nyng ha, near Lhalung. But these few days were ample to show how exceptionally interesting ^{was} the Alpine flora of the district visited. ~~was~~ To take only ~~the~~ ^{the} Genus *Primula*: Ludlow found the following new species on the ho ha:—
P. Elizabethae, *P. lacta*

Obviously there must be more to be discovered here

There are no habitations or villages between Molo and Lhalung. The distance may not be ~~so~~ great, but the path is such that we took six days ~~to~~ over the trip. On the north of the Himalayas there was no great difficulty until we reached about 12000 ft where snow was still lying. We found few plants in flower as yet. *Iris Clarkei* & *Necropsis beloniifolia*

R. clementinae, R. wallichii

— This is a curious feature of the ^E Himalayas, as
similar on most of the forms visited.

were in bud, and a few Rhododendrons - eg. *R. ~~hirtipes~~*, ^{*hirtipes*} ~~*R. ~~hirtipes~~*~~ *R. cinabarinum* var *Rogleyi* were just in bloom. But we did not expect very much on the North side. Owing to fresh soft snow falling, we had to wait one day before crossing the Lo La, but early on Apr 24th we crossed while the snow was still frozen with no difficulty. The ascent up the north side is easy & gradual, but the descent on the South is almost precipitous. Except in the valley bed, there was little snow on the South face, & we came upon our first flower - *P. abrotanata* - almost at once, covering ledges of a cliff. A short way down we reached the Rhododendron & Ardis forest. We were still a little too early for the majority of Rhododendrons, but found *R. exasperatum*, *R. hopsangianum* & *R. Forrestii* in ~~full~~ ^{flower} *R. Hodgsonii* & *R. commodum* in full bloom. The earlier Primulas too were showing. Where the snow had just melted, & even where it had not quite gone, there were many plants of *P. verrucosa*. Close beside it was *Boegocarpum himalaicum*. On the left bank of the Chudi Chu, down which valley we now made our way, there is an inaccessible cliff which was most annoying. Had we been able to scale this our bag would have been much greater. However, avalanches swept over this in the early spring and brought with them seeds or roots of plants from much higher up. Among these was a new Primula - *P. chionogenes* - which showed itself as a compact little golden clump of almost precocious flowers, growing on a bank just uncovered by avalanche snow. On the ~~same~~ cliff was another new Primula (not yet named - like *P. Clutterbuckii*) which we had great difficulty in reaching.

Next day we continued down the Chudi Chu through dense and very wet forest. More Rhododendrons were taken, including *R. unguiculatum*, *R. venustum*, *R. Hookeri* & *R. ciliatum*. At the lowest point reached, about 8500' *R. Lindleyi* was very common in flower.

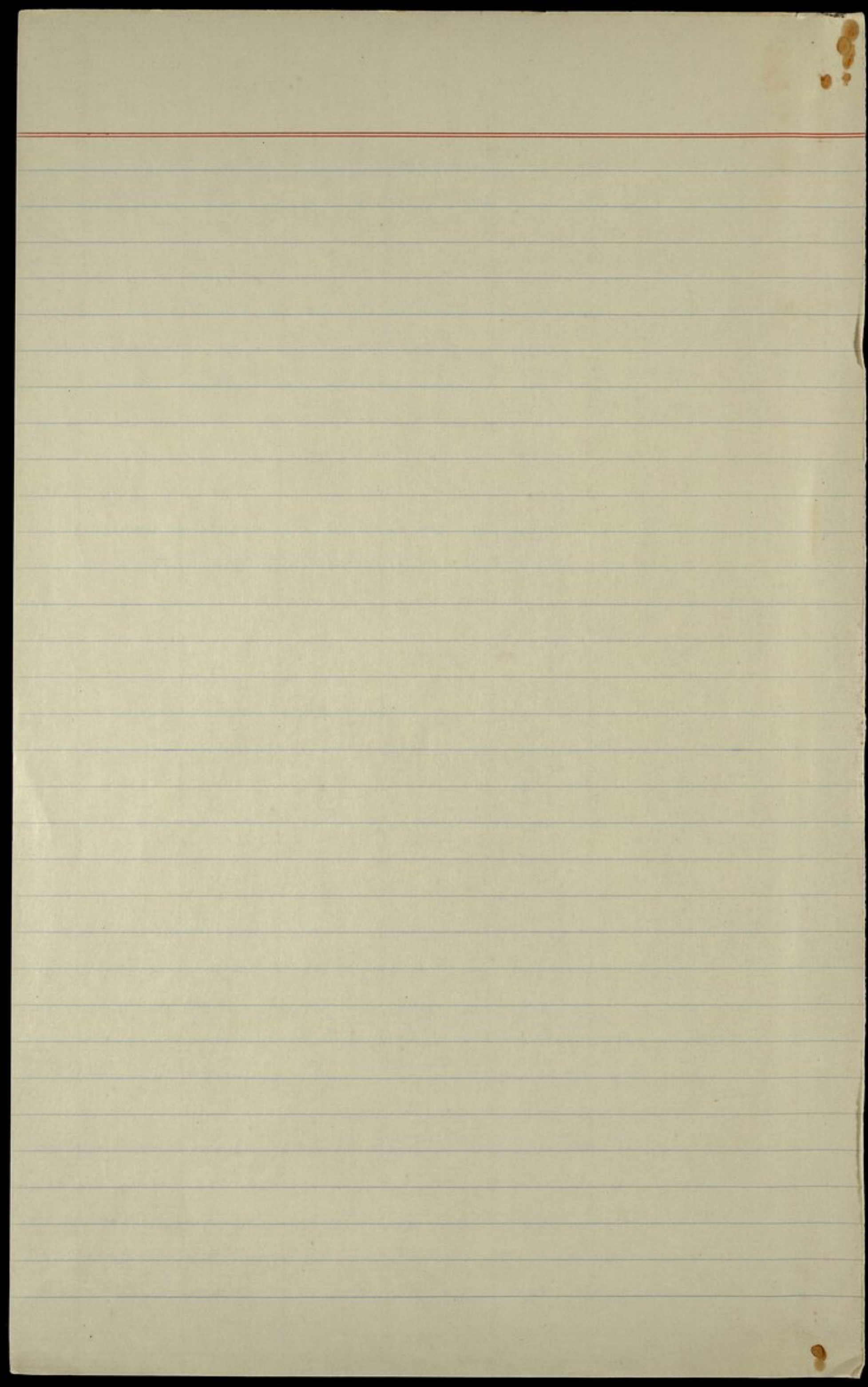
but correct now -

usually hanging over the river.

The people of Molo and Lhalung who use this path do not bother to keep it in any kind of repair. Only when they are unable to get over an obstacle do they do anything. Fallen trees remain where they fell. Rather than cut through them, they place wretched logs over them & in ~~places~~ some stretches one is compelled to ~~negotiate these wretched logs~~ walk more on wretched logs than on path. We found it difficult enough, slipping, wet as the logs always are, & we were filled with admiration at the way the Molo coolies managed with their very heavy loads. In some cases one man chose to carry two loads, thus allowing an extra man to remain at home. These loads, with their own rations for both journeys, may have been as much as 160 lbs., but they did not seem to worry. Along the edges of the path or stream, as it often was, grew two new *Prinulas* - *P. Normana* & *P. latisecta*. Both were in full bloom, & both records show an interesting extension westward. When we returned in May *P. latisecta* was over, and the plants had produced leaves in the axils of the pedicels. The stems then seem to fall over & act as stolons, the new leaves rooting beside the parent plant.

From our camp on the Chudi Chu we now had to climb again over a ridge which was crowned by the Nyng ha. The forest is still dense, consisting of *Picea* (?) *Rhododendron* &, higher up, Bamboo. Among the Rhodos we found *R. rupe*, *R. aureum*, *R. arizelum* & *R. moratum*, while magnificent clumps of *P. tsarensis* var *porrecta* were found at the edge of the Bamboo zone. *P. Borthii* also grows on the Nyng ha, and its discovery here extends its known distribution by — from the type locality in Bhutan.

From the top of the Nyng ha, a view of the Lhalung valley is seen. The valley is broad ~~with~~ & slopes gently to the South east. On the north side there is fairly extensive cultivation,



The forest has been to ~~some~~ ^{some} extent cleared on this side. Elsewhere however the forest remains untouched. There are a few paths said to exist and I tried to follow two of these, one back towards the Himalayas & the other over a spur from the Himalayas towards the South west. In neither case did I get more than a few miles, and that after very hard work cutting trees & shrubs. Plant collecting in the Eastern Himalaya, as Capt K. Ward has often pointed out, would be more profitable & much easier, if there were more paths. The local people told us of one path ~~which was used by hunters~~ ^{which} ~~to the~~ ~~spring~~. ~~It~~ was used by hunters who set traps of poisoned arrows for musk deer & other animals, but they did not like the idea of our going along this track. The last hunter who had gone to set the springs had not returned. He was the only man who knew where the traps were set, and so no one could use the path until they were sure that the springs would have rotted.

