THE RHODODENDRON COLLECTORS: LUDLOW & SHERRIFF

Julian Taylor-Whall

The Rhododendron Collectors:

Forrest - F; Kingdon-Ward - KW; Wilson - W; Rock - R; Ludlow and Sherriff - L&S; Cox - C; and Clark - AC: initials and names most rhododendron enthusiasts will be familiar with from avidly seeking out the labels dangling from the lower branches of the plants those collectors introduced, mature specimens of which can be found populating all the principal UK gardens that specialise in the genus and are open to the general public throughout the flowering season.

Yet the exquisite treasures they discovered have never before been gathered together and illustrated within the pages of a single volume, each opus highlighting the work of an individual plant hunter.

So a host of photographs portraying those plants in UK cultivation - images captured over the course of the last three decades on a myriad of visits to the leading horticultural establishments of England, Scotland and Wales - have been gathered together across the heptad, with each volume augmented with pertinent texts and articles, most written at the time the expeditions took place, plus full field number listings of all the species and natural hybrids that were so painstakingly amassed on those trips across the rhododendron-rich regions of Southeast Asia.

THE RHODODENDRON COLLECTORS

Julian Taylor-Whall

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LS&H 17521 - *R. cinnabarinum* ssp. *xanthocodon*

- Title Page -
L&S 1396 - *R. erosum*

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George Sherriff and Frank Ludlow in the mid 1930s.

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Historical Texts:

Frank Ludlow (1885-1972).

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Biography:
British teacher and naturalist who spent much of his life in India. Frank Ludlow is known, along with George Sherriff, for making pioneering collections of plants in the eastern Himalayas from the early 1930s to the late 1940s. As well as dried specimens they sent a large volume of living material to gardens such as Kew and the Royal Horticultural Society at Wisley, leading many new Asian plants to be introduced into cultivation.

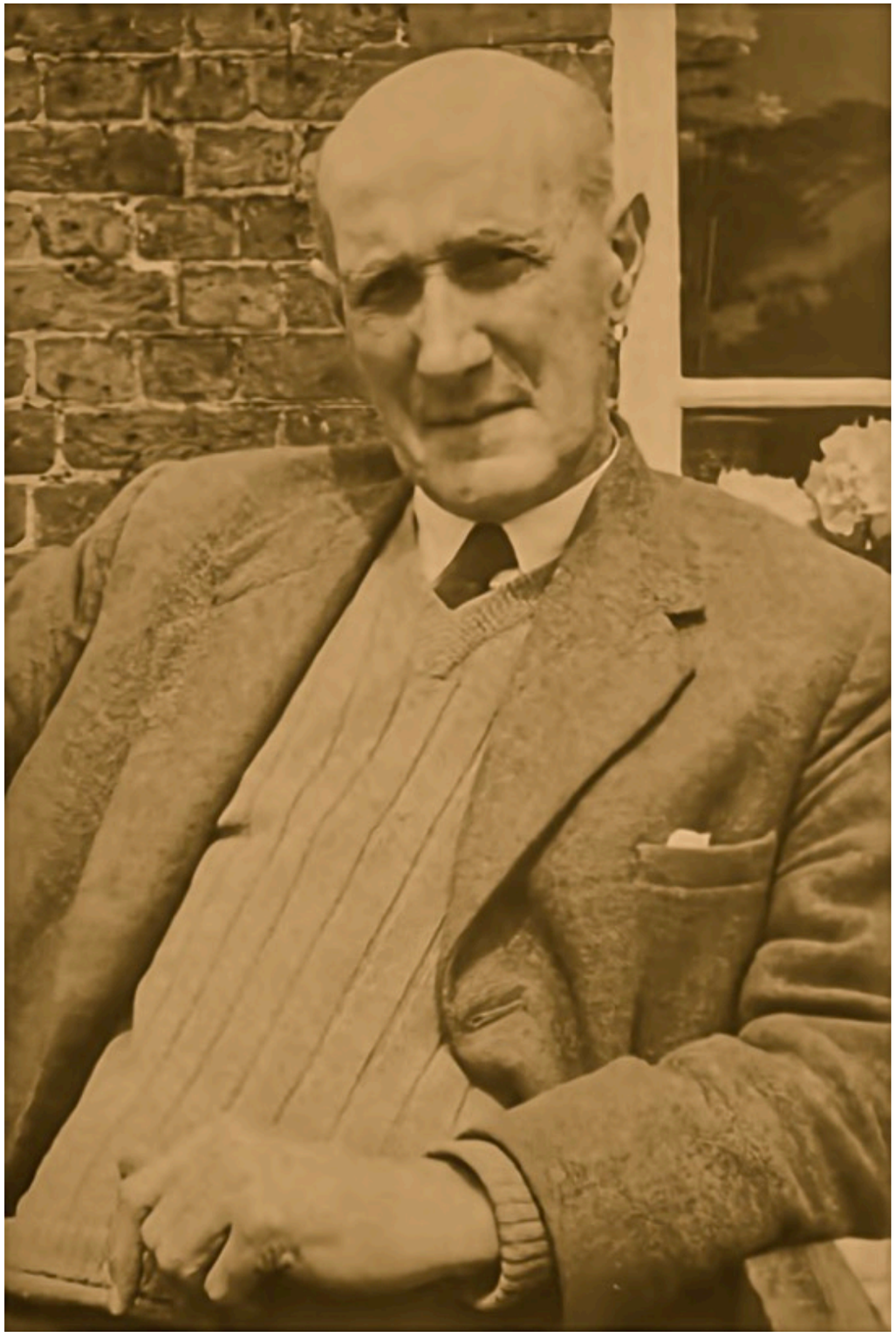
Ludlow was born in Chelsea, London, and attended Sidney Sussex College, Cambridge. After graduating with a bachelor's degree in natural science in 1908 he travelled to India, where he taught at Sind College, Karachi. With the onset of World War One, Ludlow signed up to the infantry and survived service in Mesopotamia. Returning to India he went into the Indian Education Service as an Inspector of European Schools. In 1923 he was invited to Gyantse in south-eastern Tibet to set up a European style school, a chance at which he leapt, for he was eager to escape the searing heat of the Indian plains. In fact, Ludlow had been asked to supply names of candidates to head the new school, amongst which he successfully put forward his own name. While there he studied the birds of the region and after his retirement in 1927 (when the school was forced to close) lived in Srinagar, Kashmir, where he also collected birds. It was while on an expedition to Chinese Turkestan in 1929 that he met retired army officer George Sherriff in Kashgar, and the pair's fruitful collaboration began.

Political resistance to outsiders entering the territory meant that Europeans had little explored the Himalayan region east of Sikkim. Ludlow and Sherriff were thus met with a region virtually unknown, botanically. Their path in gaining permission to explore was eased by the good reputation Ludlow had earned while working in the Tibetan education system. Neither were botanists by profession (Ludlow was more interested in ornithology and shooting and Sherriff was a keen gardener) but it was their collecting work that first revealed the floristic riches of the area. Plants certainly became Ludlow and Sherriff's dominating interest in their later years. In all they gathered more than 21,000 specimens, adding greatly to the knowledge of plant distribution in the eastern Himalayas.

Their first expeditions were to Bhutan in 1933 and 1934, and to the Mago district of Tibet. Over the next 15 years they carried out a series of expeditions reaching eastward to the great bend of the Tsangpo river, assisted by a band of men hailing from Bhutan, Sikkim, Kashmir and Lepchas. Occasionally they received grants from the British Museum (Natural History), but it was mostly Sherriff who financed the trips. They were at one point joined by a botanist from the British Museum, Sir George Taylor.

Ludlow and Sherriff's activities were interrupted by the Second World War, during which Ludlow became Joint Commissioner in Ladakh and then in 1942 took charge of the British Mission at Lhasa, Tibet. He returned to Ladakh in 1943 and come 1945 was able to resume his expeditions with Sherriff, travelling to the Kongbo and Pome districts of south-eastern Tibet. After a sojourn in England in 1947-1948, Ludlow returned to India and then to Bhutan in 1949. He settled permanently back in England in 1950, working for the rest of his life at the British Museum (Natural History), where he studied his own collections and those of others made in the Himalayas. He became particularly interested in the genus *Corydalis* and his paper "New Himalayan and Tibetan species of *Corydalis"* was published posthumously. His work *Reliquiae botanicae Himalaicae* also appeared after his death, edited by W.T. Stearn. After a fall in 1962 his health never returned entirely, though he continued to work in the museum until his death ten years later.

Ludlow's ornithological work was equal in significance to his botanical exploits in Asia. He published a number of papers on the birds of Bhutan, Sikkim and Tibet in the ornithology journal *Ibis* and collected nearly 7,000 bird specimens, which are now in the possession of the Natural History Museum, London. The museum also holds his manuscripts and correspondence.



George Sherriff (1898–1967).

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https://plants.jstor.org/stable/10.5555/al.ap.person.bm000153980

Biography:
Scottish explorer and plant collector George Sherriff is known for his joint activities with Frank Ludlow, with whom he made extensive, pioneering collections in the eastern Himalayan region. The pair gathered some 21,000 dried plant specimens as well as sending much live material for introduction to European horticulture.

Sherriff was born in Carronvale, Stirlingshire, the fourth of six children. His father was a businessman and his mother a keen gardener. Determined to follow an army career, he attended the Royal Military Academy at Woolwich and was commissioned in 1918, fighting in the First World War in France. After being gassed in June 1918 he spent the remainder of the war in hospital.

Once recovered, Sherriff went on to serve in India, being posted to a mountain battery at Nowshera, Waziristan, in 1919. He enjoyed exploring the remote mountain region and readily accepted the appointment of British vice-consul in Kashgar, Chinese Turkestan (Xinjiang, China), in 1927. It was here, in 1929, that he met Frank Ludlow, who was invited to stay in Kashgar by the consul, Frederick Williamson. Ludlow, a retired teacher and schools inspector who had been working in India, was on his way to the Tien Shan mountains. Finding that they shared an interest in exploration, ornithology and plants, Sherriff and Ludlow saw an opportunity to collaborate in the future.

Sherriff and Ludlow made their first expedition together in 1933. They travelled to Bhutan along with Frederick Williamson and his wife, separating from the latter couple to continue through Tibet to Nangkartse, and then back to India, gathering 500 plants along the way. A plan to work their way eastwards through Tibet to the great bend of the Tsangpo river was formulated at this time and realised in a series of expeditions over the coming years. They were occasionally funded by the British Museum, but most often relied on Sherriff's means, and were occasionally accompanied by botanists (as well as their party of local assistants). Among those that joined Ludlow and Sherriff were Dr Kenneth Lumsden in 1936 and George Taylor of the British Museum (Natural History) in 1938, on an exploration of the area from Molo to Gyala in Tibet.

The Second World War interrupted the collectors' plans, with Sherriff resuming military service in Assam and conducting politics in Sikkim. In 1943 Ludlow finished a two-year term in charge of the British Mission in Lhasa, after which Sherriff took over the role. At this time he married Elizabeth Hannah, daughter of a missionary. Continuing to collect plants, Sherriff also made films of Tibetan ceremonies, recording some rites no longer practised.

After the war, having settled at Kalimpong, north-east India, Sherriff resumed his travels with Ludlow, setting out for south-east Tibet and the great gorge of the Tsangpo in 1946. They were accompanied by Sherriff's wife and Colonel Henry Elliot of the Indian Medical Service, but separated when they reached the junction of the Tsangpo at Gompo Ne, for Sherriff was suffering heart problems. Sherriff and Ludlow made a final expedition together in 1949, returning to their first port of call together, Bhutan. (They had hoped to collect in the Mishmi hills of northern India that year, but were refused permission.) A further 5,000 items were amassed on this last venture.

Sherriff was a skilled photographer, and in addition to the plants he gathered, provided a great wealth of images to document his travels. Among the horticultural introductions credited to Sherriff and Ludlow, meanwhile, are *Paeonia lutea* var. *ludlowii* and *Euphorbia griffithii,* as well as a number of rhododendrons and primulas.

After returning to Britain, Sherriff settled on an estate near Kirriemuir, Angus, where he created a fine garden with many Himalayan plants. He was awarded the Order of the British Empire (OBE) in 1947 and received the Victoria Medal of Honour from the Royal Horticultural Society. Sherriff's papers and films are to be found at the Royal Geographical Society, the British Museum (ethnography department), the National Film Museum and the Royal Botanic Garden Edinburgh.

The Ludlow-Sherriff Expeditions to Bhutan and South-East Tibet.

by William T. Stearn.

Summary:

The botanical collections made in Bhutan and south-eastern Tibet between 1933 and 1950 by Frank Ludlow (1885-1972), George Sherriff (1898-1967) and their companions on a series of expeditions amount to over 21,000 gatherings from areas hitherto virtually unknown and constitute a contribution of first importance to knowledge of plants of this area. The first set of their specimens is in the Department of Botany, British Museum (Natural History), with duplicates in other herbaria.

Introduction:

Mainly for political reasons, which long prevented European entry into the Himalayan region east of Sikkim, i.e. into Bhutan and adjacent south-eastern Tibet, this large area remained botanically almost unknown until 1933 when Frank Ludlow (1885-1972) and George Sherriff (1898-1967) began to reveal its floristic richness by their massive collections. William Griffith had visited Bhutan in 1837 and 1838 and R. E. Cooper in 1914 and 1915 but seemingly William Booth, many of whose collections are attributed to 'Bootan', never got beyond the Balipara Frontier Tract of Assam in 1850, as Ludlow has shown. Thus above all to Ludlow and Sherriff belongs the credit for bridging that gap in our knowledge of the Sino-Himalayan flora between Yunnan and Sikkim. Neither was a botanist by profession. Ludlow's hobbies for many years, while an educationalist and political officer in India, were ornithology and shooting. Sherriff was an army officer who became a keen and successful gardener. From the Royal Horticultural Society, Sherriff in 1953 received its highest honour, the Victoria Medal of Honour, for his services to horticulture by the introduction of plants, but Ludlow, who was justly offered the same honour, refused it, his excessive modesty proof against entreaty. For both, however, plants became their dominating interest during their later years.

As their botanical collections, now in the British Museum (Natural History), amount to over 21,000 gatherings, which have added much to knowledge of plant distribution in the eastern Himalaya and have included many species new to science, it is fitting to summarise their expeditions here.

Few naturalists have been privileged as they were to spend so much time virtually on the roof of the world in virgin territory abounding with beautiful unknown plants; probably none could have made better use of the opportunities thus presented.

Concerning these expeditions, Ludlow wrote in 1968:

"In all matters connected with our expeditions Sherriff and I thought alike. There was no disagreement. Our main object was to survey botanically and ornithologically the temperate and alpine regions of Bhutan and South Tibet, and all our efforts were subordinate to this purpose. We realised at the start that the success of our expeditions depended almost entirely on having a happy and contented staff. Our staff was a very mixed one. It consisted of Bhutanese, Sikkimese, Kashmiris and Lepchas, so there was always a danger that on a long journey squabbling and quarrelling would occur. This never happened. Sherriff had the gift of getting the best out of his men - they were well fed, well clothed, well paid, and he made them feel that their work was of great importance, as indeed it was, so they gave of their best. But Sherriff and I were always acutely aware that such success as we achieved was almost entirely due to their loyalty. Without their aid we should not have got very far or done very much.

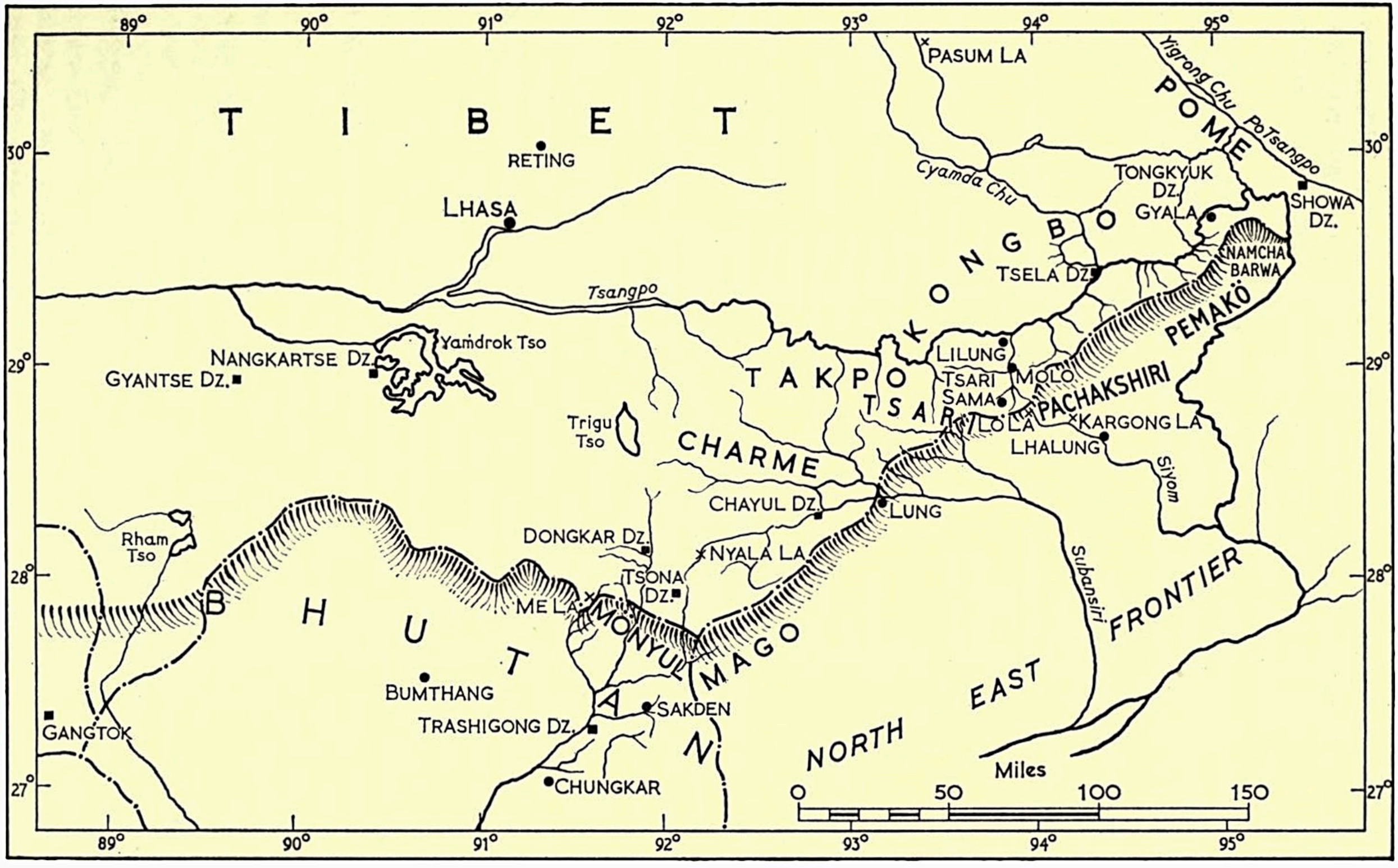
"Sherriff was a skilled photographer. When we started collecting in the early thirties photography was a much more tedious process than it is today and a vast amount of time was spent in calculating exposures, changing plates and setting up tripods. Yet despite

Frank Ludlow and George Sherriff, at Kalimpong, West Bengal, November, 1934.

these difficulties, Sherriff obtained thousands of pictures, in colour, and in black and white, of the majority of the plants we met with. These are housed in the British Museum (Natural History), and are available for scientific study.

"Transport of living plants by air was in its infancy when we started to collect and Sherriff was one of the first to use this method of transportation. The seeds of some species of plants - petiolarid primulas for instance - become infertile soon after collection and so it becomes necessary to despatch living plants or plants in a dormant state if they are to be introduced. Sherriff sent by air, at no little personal expense, many crates of such plants, which on arrival in England were sent to Kew, Wisley, Edinburgh and private gardens.

"Although transport and supplies in Bhutan and Tibet were cheap, expeditions on the scale we organised were not run without incurring considerable expense. Occasionally we received grants from funds at the disposal of the British Museum (Natural History) and members of the expeditions at times contributed according to their means, but it was Sherriff who defrayed the greater part of the costs. So without his financial help, our efforts would have been far more restricted and our collections much more modest".



Map showing the area of the Ludlow and Sherriff expeditions.

1933:
April 26th / October 7th - Bhutan and Tibet - Nos 1-537.

"This was our first expedition. In company with the Williamsons, Sherriff and I travelled along the central highway of Bhutan from Ha to Bumthang. The road is aligned at right angles to parallel ranges given off from the main Himalayan axis and so we were constantly crossing passes and dipping down into adjoining valleys.

"At Bumthang we met His Highness the Maharaja and then Sherriff and I set off on our own for the Me La on the East Bhutan boundary. This pass, which means in Tibetan the "Pass of Flowers", held a rich flora and we returned to it twice in after years! From the Me La we crossed into the valley of the Kuru Chu, and entered Tibet by the Kang La. Proceeding northwards past the Pomo Tso we struck the Lhasa road at Nangkartse and thence turned west to Gyantse and so back to India. Our collection of five hundred gatherings of plants was small compared with those made on subsequent expeditions. Perhaps the most interesting find was the rediscovery of *Meconopsis superba,* previously known in the wild only from the type-collection of 1884. At the end of this journey Sherriff and I decided on a plan of campaign for the future. In brief this was to work gradually eastwards through Tibet along the main Himalayan range, each succeeding journey overlapping its predecessor, until we reached the great bend of the Tsangpo. Thus progressing gradually eastwards we hoped to obtain valuable information concerning the distribution of plants. In addition to herbarium material the collection of seeds and living plants was also very much in our minds, and also the collection of birds, as the avifauna of the country we proposed to visit was totally unknown".

1934:
June 23rd / November 9th - Bhutan and Tibet - Nos 538-1116.

"In accordance with the plan outlined above we made preparations to work the Tsona and Mago districts of Tibet, the former lying north and the latter south of the main axis. Our start was disastrous. Owing to delay in the receipt of our passports we reached rail-head at Rangiya on June 17, the very day the monsoon broke and we were forced to spend a week on a tea estate at the foot of the Diwlangiri ravine waiting for the floods to subside. Eventually we got away and took the road to Trashigong and Tsona. On the third day at Chungkar (6,000 feet) we had an extraordinary piece of good fortune. On a cliff face just out of reach Sherriff spotted a lovely mauve primula. Standing on a branch of a large shrub, he discovered another primula, a little scrubby thing, growing in a clump of moss. All three plants were new! The mauve primula became *Primula sherriffae,* the large shrub *Luculia grandifolia* and the little scrubby plant, *Primula ludlovii.* After this we had more bad luck. At a place called Sakden the whole party, except Sherriff and our two Lepchas, were stricken with malaria, and again we were held up for a week. For a time it looked as if the expedition would have to be abandoned, but we had a good supply of quinine and after a while were sufficiently recovered to proceed to Tsona. It was at Sakden, by the by, that Sherriff found a particularly fine form of *Meconopsis grandis,* known to horticulture as "L&S 600". From Tsona, where *Paraquilegia anemonoides* grew in all its delicate loveliness, we went east to Mago and then returned to Tsona and crossed into the Nyam Jang Chu valley to Dongkar and then south again to the Me La and East Bhutan. Six hundred gatherings of plants resulted from this expedition. We were still too selective in our choice of plants".

1935:
July 11th / September 24th - Kashmir - Nos 1401-1536.

1936:

February 14th / May 3rd - Bhutan and Tibet - Nos 1117-1400.
May 3rd / November 26th - Tibet and Bhutan - Nos 1537-2917.

"In 1936, with Dr. K. Lumsden, we returned to Tsona and then turned eastwards across a high pass called the Nyala La (17,150 feet) into the valley of the Chayul Chu. This river forms the western branch of the Subansiri and we followed it down to Lung (9,000 feet) where it cuts its way through the main range in a heavily forested gorge. Here we encountered a semi-barbaric tribe of Daphlas. From Lung we crossed into the valleys of the Char Chu and Tsari Chu, both of which held a rich flora, particularly the latter. Tsari is holy ground, a place of pilgrimage where cultivation and even grazing are forbidden. As can be imagined it proved a plant hunter's paradise. Whilst Sherriff remained in Tsari and acquired merit by performing the circuit of the holy mountain called Takpashiri, Lumsden and I went east to Molo and then south over the Lo La into Pachakshiri.

"From a horticultural point of view this 1936 expedition was one of the most rewarding we ever made. Amongst the sixty different species of primula collected fourteen were new and the same may be said of rhododendrons of which thirteen were new. In addition, Sherriff discovered the beautiful pink *Meconopsis sherriffii.* The flowering season over, we returned to India by the route followed on our upward journey with nearly two thousand gatherings of pressed plants, two crates of living plants, and innumerable packets of seed".

1937:
April 24th / August 26th - Bhutan - Nos 2918-3573.

"Sherriff spent the flowering season in Central Bhutan collecting in the vicinity of a high peak called the Black Mountain, retuning with a valuable collection of six hundred gatherings".

1937:
November - Tsingpen - Nos 3575-3579.

1938:
February 20th / November 26th - Tibet, Sikkim, Bhutan - Nos 3580-7289.

"In 1936 we had collected in the upper reaches of the Subansiri. This year we decided to collect within the drainage of the Tsangpo from the vicinity of Molo on the Lilung Chu down to Gyala at the entrance to the gorge. Dr. G. Taylor - now Sir George - was our companion on this occasion. Medical reasons prevented him from joining the expedition at Kahmpong in February, so we agreed to meet at Molo in mid-May, and set out for Pachakshiri via the Tsangpo valley. Pachakshiri lies south of the Main Range which had to be crossed by the Lo La - the pass I had used in 1936. The Lo La was deep under snow when we reached it in late April but we scampered over it at night whilst the snow was frozen and in four days reached Lhalung (6,700 feet) on the Siyom. We did well with plants during the twelve days we spent here, but leeches, ticks, and blister flies made life very unpleasant and we were glad to return to Tibet. We reached Molo on May 17, and before we could even pitch camp Taylor arrived from England! Some staff work. A few days were spent in getting reorganised and then we separated.

"Taylor and I worked the Main Range, down to the gorge, while Sherriff collected from Tsari Sama to the Kucha La. We met again at Tsela Dzong the end of July, and then I set off alone for the Pasum La leaving Taylor and Sherriff to work the ranges on the lower Gyamda Chu. A fortnight later I received an alarming message from Sherriff. Taylor was seriously ill with suspected appendicitis. Happily this was not the case, and I returned to find Taylor still

weak but on the road to recovery. Eventually he became strong enough to begin the rather arduous return journey to India via Tsari, Tsona and East Bhutan.

"On this expedition we amassed a vast amount of herbarium material, over four thousand gatherings. With Taylor urging us to be less selective in our methods, we took everything we saw, from lichens to lilies. We collected seed on a large scale and living plants as well. It is sad to reflect that the outbreak of World War II largely nullified our efforts".

1939:
June 16th / August 17th - Simla Hill States - Nos 7300-7540.
August 20th / September 24th - Kashmir - Nos 7560-8577.

1941:
August-September - Assam - Nos 10092-10094.

1942:
March 16th - Kashmir - No. 8578.
March 30th / October 5th - Sikkim and Tibet (Lhasa) - Nos 8579-9103.
August 7th / December 24th - Sikkim - Nos 10095-10114.
October 6th / October 18th - Sikkim and Tibet - Nos 10000-10091.

1943:
March 10th / October 11th - Sikkim and Tibet (Lhasa) - Nos 9444-9962.
June 21st / August 27th - Kashmir - Nos 9104-9385.

1944:
July 9th - July 13th - Tibet (Reting) - Nos 9963-9999.
July 13th / September 13th - Tibet (Lhasa) - Nos 11000-11155.
October 24th / October 25th - Mishmi Hills - No. 11156.

1945:
April 28th - Tibet - No. 11157.
May 30th - Sikkim - No. 11158.

"The war, of course, destroyed all hopes of further expeditions, at least for as long as it lasted. However, in the spring of 1942 I was sent to Lhasa as Assistant Political Officer in charge of the British Mission and was succeeded in this post by Sherriff with his wife in the spring of 1943. During our stay in Lhasa we collected most of the plants that grew within a radius of 60 miles. There were a number of novelties especially from an area called Reting 60 miles north of Lhasa. One of our more interesting 'finds' was the re-discovery of *Meconopsis torquata* first obtained in 1904 by Walton on the Younghusband Mission".

1946:
May 24th - Kashmir - No. 9402.

1946/1947:
October 21st / October 4th - Tibet
Nos 12000-12692, 13000-13390, 13500-15831.

"The war over we set out again for S.E. Tibet, this time with Betty Sherriff and Colonel Henry Elliot of the Indian Medical Service. We decided on winter travel to enable us to reach our collecting grounds in Pome and the great gorge of the Tsangpo by early spring. Travelling through the familiar Tsangpo valley we reached Tongyuk Dzong in Pome on Xmas day and Trulung (6,000 feet) on the Po Tsangpo early in the New Year. After visits to the lower Yigrong and Showa we returned to Trulung where the Sherriffs descended the Po Tsangpo to its junction with the Tsangpo at Gompo Ne. About this time Sherriff, who never spared himself on any expedition, began to suffer from an overstrained heart, and after consultation with Elliot he decided, very reluctantly, to return to lower altitudes in India.

"The departure of the Sherriffs rather upset our plans, but Elliot and I agreed that at all costs we must explore the Tsangpo gorge, so we set out for Gyala at the entrance, and after four difficult marches, reached Pemakochung, a small flat at the mouth of a glacial valley descending from Namcha Barwa. All around us rhododendrons flowered in great profusion, but there were no paths as the gorge is uninhabited and the only tracks were those of Takin. We had to hack our way through this jungle and did not progress more than 1,000 yards from the fiat on which we were camped. Nevertheless in the four days we spent at Pemakochung we obtained twenty-three different species of rhododendrons! Someday someone will spend a flowering season in this great gorge and what a harvest he will reap!

"After our descent of the gorge, Elliot and I separated, he to work valleys in the upper Yigrong whilst I worked the southern slopes of the range north of Shoga Dzong. Our Lepcha plant collector we sent to Showa in Pome, but here he found the inhabitants uncooperative and returned prematurely. This was to prove our last Tibetan expedition though we didn't realise it at the time. In October, Elliot and I began our return journey via the Tsangpo valley, a barren route, botanically uninteresting which we did not wish to take, but which we were compelled to follow".

1948:
February 28th / April 19th - India and Sikkim - Nos 15832-15847.

1949:
March 27th / October 23rd - Sikkim and Bhutan
Nos 16000-17572, 18500-21484.

"We had both left India and this was to be our final fling. Strange to relate we planned to separate. Sherriff was attracted by the Mishmi Hills and I by the vision of a summer in the Tsangpo gorge. Both our applications were refused so we turned again to Bhutan, and once more His Highness the Maharaja gave us permission to travel wherever we wished. On this occasion we decided to work the whole of temperate and alpine Bhutan from west to east, and for this purpose we split up into three parties. Dr. J. H. Hicks, who had joined us as Medical Officer and Mrs Sherriff went to East Bhutan, Sherriff to Central Bhutan, and I to the western region. Our collection of five thousand gatherings was the largest we ever made, and included the remarkable *Lilium sherriffiae* with tessellated brown and yellow flowers. An unfortunate accident, however, marred this last journey in July. Owing to a loose saddle girth Mrs Sherriff fell from her mule and broke an arm. Hicks was not able to set this and it was thought advisable for her to return to India for an X-ray. On reaching Kalimpong it was found that all was well and further treatment unnecessary. And so we came to the end of our travels".

1950:
Bhutan - Nos 21486-21599.

William Stearn's article was originally published in *The Bulletin of the British Museum (Natural History) Botany,* Volume 5, 1973-1977. The itinerary tables and the gazetteer of collecting locales that were included within the text have been omitted. Frank Ludlow's contributions all come from the obituary he wrote for George Sherriff that was published in Volume 93, Part 1, of *The Journal of the Royal Horticultural Society,* January 1968.

The Sources of the Subansiri and Siyom.

by Frank Ludlow.

The following account describes our journey in 1936 to the sources of the Subansiri and Siyom in greater detail than the short note which appeared in last year's Journal. This journey was the third we had undertaken in the eastern Himalaya in search of natural history specimens. In 1933 Mr. G. Sherriff and I collected in western and central Bhutan; in 1934 we worked eastern Bhutan and the Tibetan province of Monyul; in 1936 we decided to continue eastwards and work the upper basin of the Subansiri.

These three journeys formed part of a general plan, which we conceived some years ago, of working the Himalayan range, botanically and ornithologically, from the western frontier of Bhutan to the bend of the Tsangpo. There remains a fourth journey which we hope to complete in 1938.

In the account that follows, the heights have all been worked out and checked at Dehra Dun from hypsometric readings taken on the journey. All the illustrations, including those in natural colours, are from photographs taken by Sherriff. The map was also drawn by him. I have included a list of all primulas, rhododendrons, and poppies collected on the journey in an appendix which follows the paper.

Owing to the inhospitable nature of the Dafla and Abor tribes inhabiting the southern slopes of the main range, we chose a route to the north which passes through the Tibetan districts of Chayul, Charme, and Tsari. The consent of the Bhutan and Tibetan governments having been obtained, we left Kashmir on the 9th February 1936 for Diwlangiri on the Assam-Bhutan frontier. Dr. Kenneth Lumsden came with us as medical officer. He had many patients during the course of the journey, but no member of our party, I am glad to say, gave him any trouble.

A few days before starting we learnt to our dismay that Captain Kingdon Ward had just returned from one of his classic expeditions to the eastern Himalaya, and that he had traversed the very area we intended to visit. Although plant-hunting was not the only item on our agenda, it was, perhaps, the most important; and we realised that if Kingdon Ward had made the upper Subansiri the centre of his activities, there was little hope of new discoveries. We therefore wrote explaining the situation to him. Back came a reply by return air-mail giving his itinerary and recommending areas likely to yield profitable results. He emphasised the hurried nature of his visit, the richness of the flora, and ended up by assuring us that he had not collected a tithe of the wonderful plants that grew. It was a generous and comforting letter, and it sent us on our way rejoicing.

We reached Diwlangiri on the 14th February, where we spent a week collecting birds and reorganising our baggage. We were rather ashamed of our eighty loads, but as we were a party of ten in all, and planned to be away for nearly a year, it could hardly be helped, though certainly none of us belonged to the 'wash-your-face-in-the-frying-pan' school of travel.

On the day we left Diwlangiri, the 22nd, four skeins of greylag geese passed low over camp, battling against an adverse wind. They were migrating, and we watched them through glasses circling to gain altitude. This attained, they headed due north, and we calculated that they would be over the Tibetan plateau in four hours, whereas we, with much toil and labour, would take four weeks.

At Ghungkar (6,500 feet), where we halted for three days amidst the flaming red blossoms of *Rhododendron arboreum,* we discovered our first primula in flower at a little over 6,000 feet, which in these latitudes is low for primulas. This was *Primula filipes,* discovered in this very locality by Dr. Griffith a century ago. In June 1934 we had found two new primulas on this rain-swept Chungkar ridge. One of these, *Primula Sherriffae,* a lovely lilac flower with a very elongate corolla-tube, received the Royal Horticultural Society's Award of Merit in 1936. It is raised easily from seed and promises to grow into an even finer plant in England than it is on its native soil.

From Ghungkar we passed on to the Yonpu La (8,000 feet), a pass on a spur overlooking Trashigong. Our camp on the grassy downs on the summit commanded entrancing views of the snowy range to the north. Within the splash of cascades grew the pink *Primula Boothii.* A week later we found its near relative, *Primula Whitei.* Both are charming primulas, well worthy of cultivation. At the time of our visit, however, neither had been introduced into home gardens. On our return in the autumn, we sent living plants by air-mail to the Royal Botanic Gardens, Edinburgh, where they bloomed in 1937.

On the Yonpu La we obtained three specimens of Beavan's Bullfinch (*Pyrrhula erythaca*). So scarce is it in collections that the female was unrepresented in the National Collection at South Kensington until we procured it on this pass. We were elated, but a few weeks later we found it abundant on the upper Subansiri, so the bird is not so rare after all. There are exceptions of course, but a plant or animal is seldom rare in a state of nature, though Man may make it so by persecution and interference. Once the real centre of distribution of plant or animal is discovered, it is generally found to be common. An example of this is Beavan's Bullfinch. Its real home is in the Assam Himalaya where no collecting has ever been attempted; Sikkim, whence it was previously recorded, is on the extreme fringe of its distribution, a fact which accounts for its supposed rarity.

Cantilever Bridge over the Kulong Chu, Eastern Bhutan.

We reached Trashigong on the 2nd March and were received with great hospitality by our good friend the Dzongpon whom we had met in 1934. In his early days he had been a mendicant monk, and had travelled extensively in Bhutan and Tibet. Then, abandoning his vagabond life, he had settled in eastern Bhutan where his administrative ability was soon recognised, and he became governor of an important frontier district.

At Trashigong we received a present of two maunds of fresh butter from His Highness the Maharaja, and one of a maund from the Dzongpon, so we did not suffer from a deficiency of fats in our diet. This supply lasted for many months, and never became rancid. We were informed that no preservative was used in its preparation, that it was washed thoroughly, and that it would keep fresh until we had finished it. We were sceptical, but fresh it remained. Why, I cannot explain.

Lumsden had many patients during the three days we spent at Trashigong. Goitre was very prevalent, also leprosy, and there were several cases of cataract.

It was still early in the year for flowers, and as there was no point to be gained by reaching the upper Subansiri much before the end of April, we set off on an excursion up the valley of the Gamri Chu. At the end of the first stage the party split up; Sherriff went south over the Choling La (11,100 feet) to Mera, whilst Lumsden and I continued up the valley to Sakden. Here Sherriff rejoined us on the 13th March by way of the Nyuksang La (13,600 feet). This part of Bhutan has never been surveyed, so the existing map (78 m) is conjectural and difficult to understand.

Wherever we went in Bhutan prepared encampments always awaited us, many of them elaborate with structures. One camp, in particular, in the Jiri Chu valley impressed us greatly. There were separate bamboo huts for the three of us, and a summer-house in which to have our meals. The latter was decorated with orchids and huge epiphytic harts'-tongue ferns. Avenues of tree ferns and wild bananas shaded the pathways which led from our quarters to the summer-house. Inside, our huts were furnished with bamboo tables, chairs, and beds. The floors were strewn with the freshly plucked needles of *Pinus longifolia*. There were quarters for our servants, a cook-house, and stables for our mules. Thus we roughed it in Bhutan!

We returned to Trashigong on the 18th March and left the following day for the valley of the Nyam Jang Chu.

A steep descent of a thousand feet brought us to a fine chain suspension bridge over the Dangme Chu, or Manas river. This bridge is approximately 200 feet long, 6 feet broad, and hangs 50 feet above the river. The footway and sides are of bamboo matting to permit the passage of animals such as ponies and cattle. The iron links of the chains are a foot in length, and the chains themselves are attached to wooden blocks built into masonry piers at either end. This is the only chain suspension bridge I have ever seen in Bhutan, but there are several in Tibet. There is one, for instance, over the Tawang Chu; a second spans the Sutlej at Toling; and in former days a third bridged the mighty Tsangpo at Chaksam near Lhasa. Who forged the iron links of these chains? The answer to this question I have never discovered. The local inhabitants are entirely ignorant of their history.

A day's march up the river brought us to the junction of the Kulong Chu which we crossed by a massive wooden cantilever bridge. Massive is certainly the correct term to apply to things Bhutanese. Bridges are built to last for generations; dzong are designed to house the whole countryside in time of war; whilst the people themselves are veritable Sandows, though this is not so apparent in eastern Bhutan as in other parts of the country. On the 21st March we reached Changphu. A few hundred yards beyond the village a dry watercourse was pointed out to us as the Tibetan frontier.

We were astonished that such an insignificant geographical landmark should be used as a boundary when the large Nyam Jang Chu valley was only a short distance ahead. But the Tibetan has not the passion for watershed and river boundaries that we Europeans have - a fact which has led in the past on several occasions to misunderstandings in frontier disputes. We now entered the valley of the Nyam Jang Chu which Bailey and Morshead discovered in 1913.

As befits a river which has cut its way through the main range, the valley is built on magnificent lines. It is nowhere wide, but the mountain slopes on either bank tower precipitously upwards to great heights and are densely forested. At Pangchen and Lepo the river meanders silently through grassy meads, but elsewhere it is a swift torrent. It pierces the main range a few miles above Trimo where it is confined to a narrow gorge. At the junction of the Tsuk Chu the river bed is so clogged with gigantic boulders that the waters are invisible. Despite the precipitous nature of the valley, there are numerous villages. The inhabitants as far as Trimo are Monbas, and are under the jurisdiction of Tawang.

We halted at Trimo for two days to arrange transport for the crossing of the Po La into Tibet proper. Serow and barking-deer fed in the barley-fields close to our camp. The Monba may be a hunter in other parts of Tibet, but it was evident that he did not molest wild animals in the valley of the Nyam Jang Chu.

The hillsides were now gay with many species of rhododendrons, whilst the magnolias at 8,000 feet were superb. As yet, however, we had found few primulas; the height of the primula season was still many weeks ahead, and we could afford to wait.

On the 12th April we started off up the Trimo valley for the Po La. The path was steep but good, and we reached the summit by noon (14,900 feet) after an ascent of 4,000 feet in 6 miles. There were 2 feet of snow on the pass. The descent on the far side was trifling. Undulating country stretched away in front of us for mile upon mile; we had reached the Tibetan plateau in one huge step. In a very short time we joined the Tawang road which we had traversed in 1934, and reached Tsona in the late afternoon. We camped near the steaming thermal springs.

Tsona was just awakening from its winter sleep. Two primulas, *atrodentata* and *pumilio*, were already in bloom. The bar-headed geese on the lake were in pairs; brahminy duck were inspecting nesting-sites in cliffs and ruined buildings; the screams of gulls brought recollections of the sea-side.

Tsona is a trade mart of some importance, but apart from this it has nothing to commend it. Like Phari it is a collection of filthy hovels on a wind-swept plain. We spent three days at the place, and then left for the headwaters of the Subansiri. With a caravan of forty skittish yaks we struck eastwards across the bleak plateau, passing a number of gazelle, ammon, bharal, and kiang.

On the 18th April we crossed the Nyala La (16,990 feet) which is on the watershed between the Manas and Subansiri, and followed the Loro Karpo stream down to the little village of Loro To where we exchanged our Tsona transport for zhos and donkeys. From there we descended a wide arid valley eastwards to Chayul Dzong. On the way, at Tongme Gompa, the Loro Nakpo joins the Loro Karpo from the south, and it was here that we first struck Kingdon Ward's route of the previous year.

We found no flowers of any note save a pretty iris which grew in abundance on the borders of cultivation. Of birds there were two new sub-species - a form of the Giant Babax (*Babax Waddelli* sub sp.?), and one of the White-browed Rose Finch (*Propasser thura trans-himalayensis*). Another very interesting bird was Prince Henry's Laughing-Thrush (*Trochalopterum Henrici*) generally supposed to be a great rarity, but like so many other birds whose real home is in south-eastern Tibet, it is rare only because it inhabits inaccessible country. In the upper Subansiri, and in the Tsangpo valley, it was common. We

saw it every day. It was the dominant laughing-thrush in these districts.

We found the Chayul Dzongpon anxious to do everything in his power to help, and as his word was law within his district we were fortunate. He readily agreed when we asked his permission to descend the Chayul river as far as Lung, and told us he would send men with us who understood the Loba dialects.

We left Chayul on the 24th April. A mile beyond the dzong the Nye Chu comes in on the left bank. Junipers and wild gooseberries now began to appear, whilst high up on the northern slopes of the main range we could distinguish conifers and rhododendrons. We were fast approaching a wetter zone. Three miles beyond the village of Kap we crossed to the left bank by a high and shaky bridge, and then ascended a cliff face by an almost vertical ladder 40 feet high. The gorge country we were now passing through was most imposing and the side valleys that came in on either bank were mere gashes in the mountain-side.

We halted for the night at Tron. Three miles beyond this village we came to a rocky spur which we were informed was the frontier. Here a dramatic change came over the scenery. Conifer forest and a dense undergrowth of shrubs clothed the hill slopes and descended to the river's edge.

The day's march yielded a rich harvest of flowers. We camped on a grassy flat at Natrampa and halted the following day to explore the surrounding country. There were a few deserted huts and abandoned fields at Drotang, whence a track led up to the Kashong La (16,400 feet), a pass on the Great Himalayan range.

Here we were able to correct a slight error on the map of Bailey and Morshead, for the Karutra temple is a few miles north of the Kashong La and not below Lung.

On the 27th we marched 7 miles down the right bank of the Chayul Chu to Lung (9,500 feet). The path was rough but presented no real obstacle except in one place, where notched logs led up a cliff face. A mile above Lung the Char Chu tumbles headlong down a terrific gorge. The valley widens below its confluence with the Chayul Chu and we found a good deal of abandoned cultivation.

Lung consists of half a dozen ruined houses, the sole occupants of which were an old man and woman. We camped by a spring midst a pigmy forest of *Lilium giganteum*. A yellow peony, *Paeonia lutea,* grew everywhere, and the hill-sides were ablaze with rhododendrons, most of which were new to us. We were still too early for primulas, however, the wine-red *Roylei* and the blue *Whitei* alone being in flower, though it was obvious that this part of the Himalayan range was a botanist's paradise, to which we must return at a later date.

The avifauna of the Chayul valley gave much food for thought. All the five pheasants between Lung and Natrampa differed from those of the Manas basin. We had entered a new area where the influence of western Chinese forms of bird life was becoming very apparent. These five pheasants were, Elwes's Horned Pheasant (*Crossoptilon Harmani)*; the Tibetan Pheasant (*Tetraophasis Szechenii*); Temminck's Tragopan (*Tragopan Temminckii*); Sclater's Monal (*Lophophorus Sclateri*); and the Yunnan Blood Pheasant (*Ithaginis Kuseri*).

During our halt at Lung we met a party of Lobas ascending the valley with huge bundles of madder. As soon as they saw us they dropped their loads and fled, but after a time we were able to reassure them, and a very picturesque lot of ruffians we found them.

- page 18 left -
The Chayul Valley above Chayul Dzong.

- page 18 right -
View up the Chayul Chu from below its junction with the Char Chu, altitude 9,500 feet.

The majority wore skins of animals such as takin, barking deer, and monkeys. A few had black shoulder capes which at first sight looked like bear skins, but eventually proved to be made of palm fibres. Many wore close-fitting bamboo skull-caps furnished with a spout. This was kept in place by a brass or wooden skewer which pierced a knot of hair hanging over the forehead. Some had 1am-mergeyer's [the Deartled vulture] feathers stuck into their head-gear. All carried bamboo bows about 4½ feet long, iron-shod at one end, which they used as a khud stick whilst on the march. Their arrows were smeared to the barb with the deadly aconite. Many bore long lances and clumsy swords. They smoked tobacco continuously out of metal pipes. The head-man had a two-pronged musket, and wore a chuba reaching to his knees. His gay young wife looked like a Tibetan and dressed like one. Aware of her good looks she enjoyed being photographed.

We met these semi-barbaric tribes on several occasions and frequently sought their help to show us the jungle paths, but they always failed us. They cross the main range into Tibet annually for purposes of trade, carrying heavy loads of madder, rice, and cane, which they barter for salt, cloth, and swords. They are allowed to visit certain trade-marts only, and are not permitted to wander about the country at large. Tibetans, when speaking of their savage neighbours, do not distinguish between the various tribes, but lump them all together under the comprehensive term ‘Loba’. It is a convenient word and I have used it frequently in this article to hide my ethnological ignorance.

Our next objective was the monastery of Sanga Choling. Our quickest route thither lay up the gorge of the Char Chu, but the bridge over the river at Raprang was reported unsafe. The Drichung La route followed by Kingdon Ward was still deep in snow. We therefore returned to Chayul Dzong and crossed into the Char Chu valley by the Le La (17,100 feet). We halted at Kyimpu in a rhododendron fairyland where we found *Primula hyacinthina* in flower.

Sanga Choling is situated in a gorge, and like many other Tibetan towns one comes on it with unexpected suddenness. The monastery is a striking building with golden spires on its roofs. We were ushered into a private garden, for a suitable camping-ground was hard to find in this narrow gorge.

A pretty Tibetan girl took a keen interest in the pitching of our camp. Her cheeks and lips were nearly as vivid as the labels on our Craven A5 cigarette tins. ‘Cosmetics’, we sighed, dismayed at the thought that rouge and lipstick should have penetrated Tibet! We were wrong, however, for the complexion was quite natural, and the young lady was none other than the daughter of the late Drukpa Rimpoche, the holy incarnation of the monastery. Personally, I had no idea that incarnations married; but again I was wrong, for ‘Rosy Cheeks’ intimated that her mother would like to call on us. ‘Was it convenient?’ ‘Of course’, we said. ‘Delighted!’ And delighted we were, for mother was as charming as her daughter and sat down and chatted merrily away as if she had known Europeans all her life.

Sanga Choling lies midway between the valleys of the Tsari Chu and Chayul Chu. We had already decided to work these two valleys intensively for flowers, so the monastery offered obvious advantages as a base. Having deposited our surplus baggage with our kind hostess, we left on the morning of the 14th May with the monastery mules for transport. There was no holding the animals. They knew they were bound for the lush meadows of Tsari, whither they are sent each spring to graze, so they came along at a spanking pace. We camped at Zimsatti at the south foot of the Cha La (16,600 feet) and the following day crossed the pass and descended to Chosam.

The whole of the Tsari valley is extremely wet; and, below Ghosam, its mountain slopes are densely forested. Why this should be I cannot explain.

The head-waters of all the other branches of the Subansiri are dry until a point is reached where they cut through the main Himalayan axis. In the case of the Tsari Chu this occurs two stages below Ghosam.

Tsari is holy ground. The circuit of the mountain called Takpa Siri is an act of merit which attracts pilgrims from various parts of Tibet. No life may be taken within the valley, and no crops grown. The inhabitants of the various villages subsist entirely on the money they can earn by providing transport for the numerous pilgrims, and by begging in outlying districts.

There are two pilgrimages, a long one and a short, called respectively in Tibetan, Ringkor and Kingkor. The former takes place every twelfth year and occupies a month. The latter is an annual pilgrimage which is completed in a week or ten days.

A few miles below Chosam the valley widens out into the extensive Senguti plain which is 6 miles long by half a mile broad. The magnificent Shou or Shao, the Sikkim stag, still enjoys sanctuary in the virgin forests of this beautiful valley. We found a very symmetrical pair of horns at Chikchar, where, according to local information, this animal grazes with the cattle in winter.

From Chikchar we passed on down the valley to Migyitun. From Podzo Sumdo, midway between these two places, a track branches off northwards to the Bimbi La (15,700 feet).

On the Survey of India ½-inch map 82 h, this track is incorrectly shown taking off below Podzo Sumdo. The Tso Kar lake is also erroneously placed on the right bank of the river half a mile north of Migyitun. It should be on the left bank of the Tsari Chu 9 miles east of Migyitun.

The Tsari Chu falls in a continuous cataract between Podzo Sumdo and Migyitun and appears to be cutting its way through the main range. At Migyitun the valley widens and there are many scattered houses and a good deal of cultivation.

The interdiction as regards the taking of life and growing of crops does not apply here. Although, politically speaking, Migyitun is in Tibet, the people did not appear to us to be true Tibetans. They seemed to have Loba blood in them, indeed many appeared to be true Lobas. The unfortunate inhabitants of this village must be the most tax-ridden people in the world, for not only do they pay taxes to Sanga Choling, Kyimdong Dzong, and Guru Namgye Dzong, but also to the Lobas as well.

We spent nine days at Migyitun and explored the country in all directions. We then returned to Podzo Sumdo and camped halfway up the valley leading to the Bimbi La where we discovered a new species of willow warbler (*Phylloscopus tibetanus*).

Botanically the Tsari valley was fulfilling all our expectations. Hardly a day passed without the discovery of some desirable plant. The flowering season was now at its height, and we were anxious to be in a dozen different places at once, so tortured were we with the fear of prizes eluding our grasp. We therefore devised the following plan and separated. Sherriff was to return to Chikchar, work the Kingkor, and then cross the Drichung La into the Chayal valley and collect on the main range above Lung and Natrampa. Lumsden and I were to go east into Pachakshiri, and then visit the Tsangpo valley. We agreed to reunite at Sanga Choling on the 31st July.

On the 12th June we parted, and I must now ask the reader to accompany Lumsden and myself to Pachakshiri.

Crossing the Bimbi La, we entered the drainage basin of the Tsangpo, and descended to Kyimdong Dzong, a miserable tower-like fort perched on an alluvial fan. Above Kyimdong Dzong we found Kingdon Ward's Giant Cowslip Primula (*P. Florindae*) growing to perfection near some springs. Some of the plants were nearly 4 feet in height. We also found *Primula Jaffreyana,* and a pretty violet iris, *Iris decora,* which only opened its flowers in the day-time. We stumbled on a black bear with cubs, and were astonished to see flocks of parakeets (*Psittacula Derbiana*) feeding in the fields.

From Kyimdong Dzong we turned east up the Palung Chu, crossed the Lang La (16,100 feet) which yielded a number of rare Parnassius butterflies, and descended the Ne Chu to Molo. Here we reached a large river, called the Langong Chu, draining from the south. It contained so large a volume of water that we suspected it must drain a much more extensive area of the Himalayan range than was shown on the map. And so it proved. As far as Molo we had travelled in Kingdon Ward's footsteps. We now left his route and turned south up the Langong Chu towards Pachakshiri, a district no European had ever visited before. Quitting Molo on the 25th June, we marched 12 miles up the left bank of the river until we came to the encampment of Singo Samba where a small stream comes in on the right bank from the Lo La. We crossed the Langong Chu by a bridge made from a flattened tree-trunk which was raised on stone piers 20 feet above the river. There was no handrail, the tree-trunk quivered horribly, and I found the crossing very trying. But Lumsden made light of it. We were obliged to halt at Singo Samba for a week whilst our coolies returned to Molo to attend an annual fair. We chafed at the delay. Our camp was very circumscribed, the roar of the river in spate was deafening, and we were tormented with biting midges. Moreover, we were anxious to push on into Pachakshiri. Singo Samba, however, possessed one advantage which compensated us for every discomfort. We were within reach of the easy Lo La (13,600 feet).

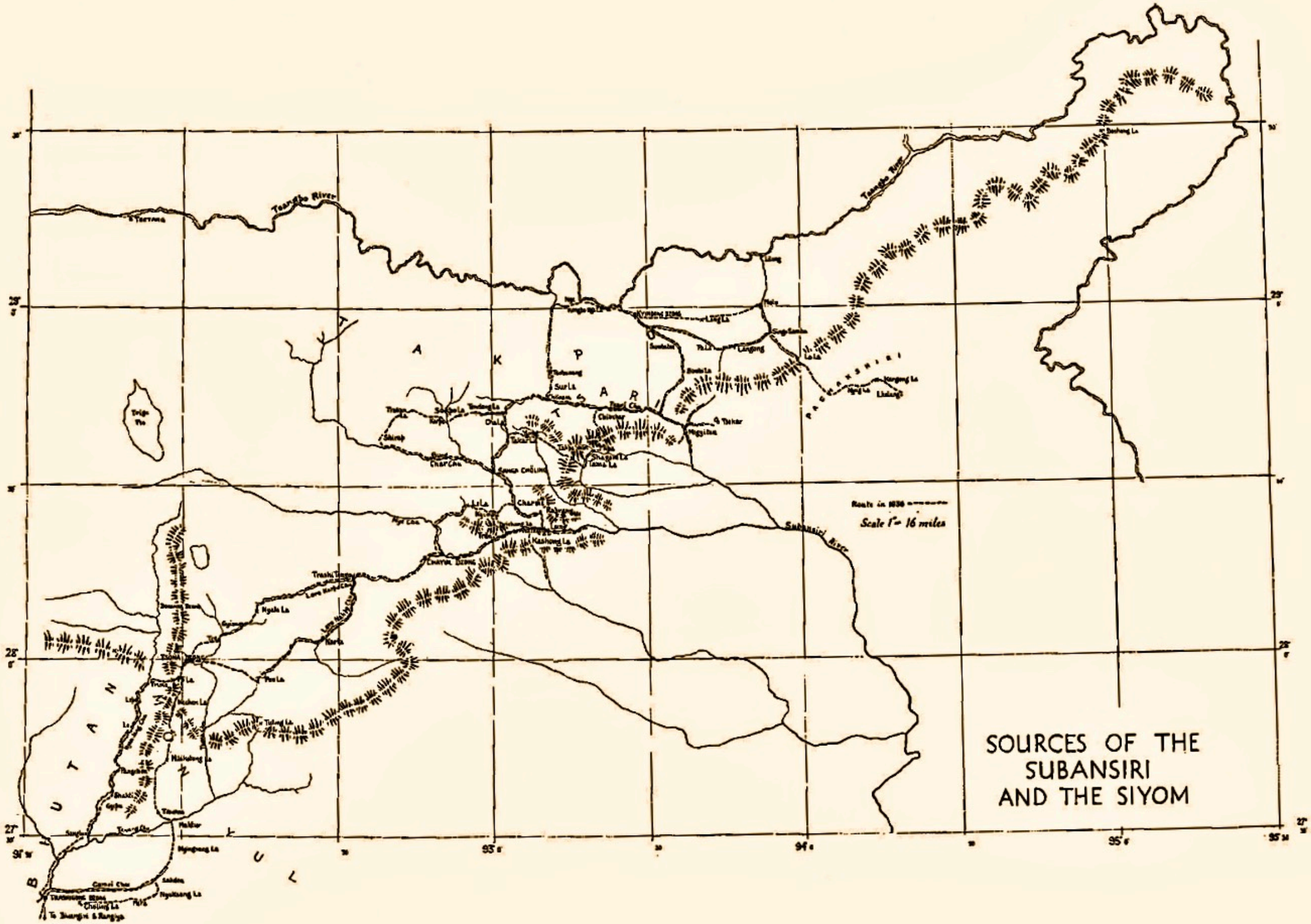
My visit to this pass gave me one of the greatest thrills of my life. On its northern slopes, in a region of incessant rainfall, grew the most amazing variety of plants I had ever seen. Day after day we scoured the hillsides, and always we returned with a bulging press and floral treasures new to our collection.

I am no botanist, but I am interested in Himalayan ornithology. Immediately we entered the Subansiri basin I was struck with the number of forms of bird-life characteristic of south-west China, i.e. Szechuan and Yunnan. The pheasants already referred to are a good illustration of this point. There are many others. As we proceeded eastwards the evidence grew, and I began to wonder if the plants we were collecting would also show increasing affinities with south-west China. It seemed a logical supposition at the time, and though the whole of our collection has not even yet been worked out, enough has been done to show that this is so. As an instance of this, we obtained in all more than sixty different species and varieties of primulas of which at least 30 per cent, occur in the Chinese provinces of Yunnan and Szechuan.

Geologists inform us that the Himalayan chain bends southwards east of the Tsangpo gorge, but botanical and zoological evidence seems to indicate a continuation eastwards into south-west China. This, however, is a controversial subject, and it is time we returned to our alpine garden on the Lo La. Only the briefest reference to a few of the most outstanding plants can be made.

First of all there was a new yellow rhododendron belonging to the Lepidotum series. Then there was *Rh. campylogynum,* a Yunnan shrub from 3 to 4 feet high bearing clusters of flowers the colour of muscatel raisins, glaucous bloom included. Another extraordinary rhododendron was a shrub which crawled along the ground bearing one, and sometimes two, scarlet flowers, as vivid in hue as the uniform of a government chaprassi. This was *Rh. repetis* [specific name unrecognised, but probably *R. forrestii* var *forrestii* Repens Group]*,* which also is known in south-west China

Amongst the primulas, *P. Valentiniana* grew in crimson mats on the summit of the pass; *P. vernicosa* spangled the sodden turf laid bare by the melting snow.


Tsangpo River
Tsangpo River
Subansiri River
Route in 1936
Scale 1" = 16 miles
SOURCES OF THE
SUBANSIRI
AND THE SIYOM

There were four new species of primula. The most beautiful I have named *P. Elizabethae* in honour of my mother. It is allied to the lovely Chinese *P. Agleniana,* and is remarkable in that the scape bears one, occasionally two, rarely three, huge primrose yellow flowers inches in diameter. Another new species, almost equally lovely, was a plant bearing flowers of the darkest damson, *P. laeta*. The two others were a small plant *P. subularia,* and *Omphalogramma brachysiphon*.

We left Singo Samba on the 2nd July, but as our coolies arrived late we were forced to camp 500 feet from the summit of the pass. The next day we crossed the Lo La and descended abruptly a boulder-strewn watercourse. The track was execrable and the rain merciless. After 7 miles we camped in a forest clearing called Shingja (10,700 feet). On the 4th July we continued along the banks of the Chudi Chu for another 6 miles. The track was again heart-breaking and we found it impossible to average much more than a mile an hour.

From the Lo La we had so far been marching due south. We now turned east and ascended the Nyug La (11,300 feet) a minor pass on a spur running south from the main range. We halted at 9,000 feet in the forest and spent the next five days collecting, whilst our interpreter went down to Lhalung to obtain supplies and coolies. Lhalung - not Halung, as on the map - is roughly 12 miles from the Nyug La. From the pass the track descends eastwards to the unfordable Chachurong Chu which is crossed by a felled tree, and then ascends to the Kargong La, another minor pass on a spur. From this pass there is a descent of 3 or 4 miles to the Lhalung Chu which is spanned by a good bridge. Two miles farther on is Lhalung, one of the many villages in the valley, where there is a small monastery, called Lhatse Gompa, containing fifteen monks. The Chudi Chu, Chachurong Chu, and Lhalung Chu all unite to form a large river called the Yargyap Chu which must be the Pachakshiri name for Siyom. No altitude was obtained for Lhalung, but it is probably about 7,000 feet, as rice, maize, and chillies are grown. The inhabitants are Monbas and Lobas, and the country belongs to the Lhalu family in Lhasa. From the Nyug La we retraced our footsteps to Singo Samba where we decided to follow an unexplored route to Kyimdong Dzong via the Pa La.

From Singo Samba to Langong is 14 miles. Four miles above Singo Samba a pilgrim route branches off southwards to a holy mountain called Tsari Sama which must be either on, or very close to, the main range.

We did not explore this route but followed up the Langong Ghu for another 10 miles to Langong (12,100 feet). The river gradually bent westwards until at Langong itself it was flowing very nearly west and east and running parallel to the main range. Seven miles below Langong the valley widened out into magnificent grassy meadows which were gay with the many colour forms of *Primula alpicola*.

There is no cultivation at Langong. The inhabitants breed cattle and horses, housing them in winter in well-constructed wooden huts.

On the 18th July we left Langong and marched up the broad valley for 2 miles when a large stream came in from the south. There is a pass at the head of this valley over which Marang Lobas come in the autumn. This pass is also called the Lo La, and it would appear that, in this district, any pass used by Lobas is called Lo La, which is confusing. We continued up the main valley for 3 miles, when suddenly and unexpectedly we turned first north and then north-west and ascended by steep zigzags to the Pa La (16,200 feet) rising 4,000 feet in 4 miles.

The Pa La, apparently, is on the same northward-trending range as the Lang La and the existing 1-inch map (82 h) hereabouts is at fault. On crossing the Pa La we entered the valley of the Ka Chu which is shown on the map as flowing into the Palung Ghu, whereas in reality it joins the stream from the Bimbi La 3½ miles above Kyimdong Dzong.

We reached this latter place on the 21st July, and after a day's halt followed the Kyimdong Chu downwards for 4 miles till it joined the mighty Tsangpo. The dignified and majestic flow of this river, its vast volume, and its gigantic whirlpools and eddies, impressed us greatly.

We now marched up its right bank for 10 miles to Tungkar Gompa and camped at Nge where flocks of parakeets were feeding on the crops which were being reaped.

Above Nge the Tsangpo enters a gorge. The road leaves the river and climbs steeply to the summit of the Kongbo Nga La (14,570 feet), a pass on a spur running down to the Tsangpo. We halted on the summit for lunch, picked mushrooms, and caught butterflies. Amongst the latter were two specimens of the Camberwell Beauty. From the pass we dropped down to the village of Chote Shu near Nang Dzong, and then turned south up the unexplored Laphu Chu valley. On the second day we came to a chain of four lakes a few miles below the summit of the Sur La (16,000 feet). The name given to this area is Tsobunang, and I cannot recall a more beautiful encampment in all my Himalayan wanderings.

The lakes were transparently clear and were fed by a stream from the Sur La. The two upper lakes were ½ mile long by 300 yards broad, and the lower ones smaller. On either side fir and rhododendron forest crept down to the water's edge.

From Tsobunang a steady ascent of 2,500 feet in 3 miles led to the summit of the pass, where we saw Chosam almost vertically below us, and only a mile distant.

From here we returned to Sanga Choling via the Cha La, where we met Sherriff on the 30th July and eagerly exchanged notes.

Lumsden and I rather prided ourselves on our collection of flowers, but when we compared our results with Sheriff's much of the conceit was taken out of us. We had done well, undoubtedly; but Sherriff had done very much better.

From the Takpa Shiri circuit came a rare white poppy (*Meconopsis argemonantha*) first discovered by Bailey on his adventurous journey with Morshead in 1913, and a unique yellow variety of *Meconopsis horridula.*

Of primulas - and here. I must confine myself solely to new species - there was a deliciously fragrant *Sikkimensis* with pendant clusters of violet bells. This was *P. ioessa* from the Tama La.

From the hills above Chikchar came *P. odontica,* first cousin to *P. Valentiniana,* which grew in such profusion in certain areas as to make the hillsides blush; and *P. tsariensis,* a lovely purple flower belonging to the Petiolares section. In addition to the above were *P. jucunda,* happily named, and a new mauve variety of *P. vernicosa*.

From the Drichung La, overlooking the Chayul valley, came the gem of the whole collection - a new poppy, rose-pink like the first flush of dawn on the snows. Very appropriately it bears the name of its discoverer - *Meconopsis Sherriffii*.

From the Kashong La, on the main range above Natrampa, came two new Petiolarids, *P. chamaedoron* and *P. hilaris;* the former violet with flowers over inches in diameter, and the latter pale yellow with a large orange eye, almost equally large and imposing. *P. barbatula* belonging to the Bella section was a small pretty flower which crowded the rocky hill-slopes at 15,000 feet.

- page 23 left -
The gorge of the Chayul Chu, four miles below Lung, altitude 8,500 feet.

- page 23 right -
Kills above Migyitun.

Of rhododendrons Sherriff had obtained no fewer than twelve new species and two new varieties. Perhaps the two most striking species were *Rh. Sherriffii,* a tree 20 feet high bearing flowers of the deepest crimson, and a shrub 4 feet high which bore similar coloured flowers. This latter has been named *Rh. Lopsangianum* after the late Dalai Lama of Tibet, an ardent flower lover.

One of the new varieties, *Rh. lanatum* var. *luciferum* [now *R. luciferum*], was of local economic value. The dense indumentum on the under surface of the leaves is stripped off in large quantities and sent to Lhasa, where it is rolled into wicks for the butter lamps in the monasteries.

And now we must return to Sanga Choling and begin a new journey; and as much of our time of late had been spent in the wet zone, we now decided to explore the dry. On the 6th August we therefore ascended the Char Chu to Bung, marching leisurely to Shirap, where we halted at the foot of the Traken La (17,200 feet). The Tibetan partridge (*Perdrix Hodgsoniae*) was very common; also mushrooms of which we were all inordinately fond. Rare Colias and Parnassius butterflies rejoiced in the sunshine.

We crossed the Traken La on the 12th August, and descended to Karpo, where we found one of the loveliest gentians I know of just coming into bloom - *Gentiana Waltoni*. It is a large plant for a gentian, with stems 15 inches or more in length, bearing from six to twelve sea-blue flowers 1½ inches long.

From Karpo we continued eastward crossing two high passes, the Sokpo La (16,900 feet) and Mihrang La (17,300 feet), neither of which is marked on the existing map. We then crossed the Tendong La (16,900 feet), and came out on the Sanga Choling Tsari road a mile north of the Cha La. Then after spending a week at Tsobunang we descended the Tsari valley once again to Migyitun.

Before leaving India we had provided ourselves with packets of vegetable seeds. We had sowed these seeds at various places, Trashigong, Sanga Choling, Migyitun, etc., and now we began to reap our reward. Our garden at Migyitun was terribly overgrown, but we managed to rescue a very welcome supply of carrots, turnips, lettuce, spinach, and cabbages from the rank herbage. The Trashigong garden, however, yielded the best results, and at a later date we obtained from it a wonderful crop of tomatoes.

We spent a week at Migyitun, another on the Bimbi La, and then having dispatched two of our collectors to the Lo La for seeds, we returned to Sanga Choling to prepare for our departure.

Before we left we were invited to lunch. We always enjoyed Tibetan lunches. Perhaps the course we appreciated most was gyathu. It is a kind of spaghetti mixed with minced meat and rice broth, served in pretty China bowls. To this one adds as fancy dictates, morsels of chopped vegetables, chillies, prawns, bamboo shoots, etc. Chang - slightly alcoholic barley water - was of course available, and 'Rosy Cheeks' waited on us and saw that our cups were full.

The most interesting member of the party was the Chandzo or treasurer of the monastery. He had travelled far and wide, and had many interesting tales of Lhasa, western Tibet, and encounters with Lobas. Then, somehow or other, the conversation turned on doctors. The Chandzo held the British medical profession in high esteem, and insisted on its superiority over the Tibetan profession. I agreed, and laughingly remarked that if one lost a limb, or an eye, or a nose or ear, all one had to do was to pay a visit to the doctor and he gave you a new one.

Lumsden blushed, and a look of incredulity spread over the features of our Tibetan friends. Then suddenly we saw the Chandzo fumbling with his mouth, and before we could realise what was happening he brought his right hand down on the table with a bang, opened it, and displayed to our astonished gaze a gleaming set of artificial teeth.

'The Sahib speaks truth', he said. 'Look at that' ! We looked, and keeping straight faces with difficulty, politely admired the denture.

On the 27th September we said good-bye to our kind friends at Sanga Choling and left for Gharme. We halted here a couple of days and explored the Char Chu down to the Loba village of Raprang. It is at Raprang that the river cuts its way through the main range and hurls itself down a. tremendous gorge. The change in scenery is startlingly abrupt. Above the village the hill-slopes are comparatively bare, but 4 miles below are the dense forests of Lung. As we stood by the rickety old bridge at Raprang in brilliant sunshine we could see the rain falling in torrents 2 miles down the valley. We watched the dark clouds surge up the gorge, and disappear as if by magic as they met the dry air from the plateau.

In July Sherriff experienced an even more abrupt climatic change on the knife-edge pass of the Kashong La. On the summit and down the southern slopes rain fell incessantly, yet 200 yards below the pass on its northern side, butterflies flew gaily in the sunshine.

On the 1st October we reached Kyimpu, and here we split up forces once more. Sherriff returned to the Chayul valley via the Drichung La to collect the seed of his beautiful Meconopsis and other plants on the Kashong La. Lumsden and I returned to Tsona and eastern Bhutan.

Gentians were now at their best. During our trek we obtained approximately forty different species. A rival to *G. Waltoni* was *G. sino-ornata,* which grew in all its glory on a spur behind our camp at Kyimpu. Its lovely trumpets of liquid blue were often massed together in incredible numbers. One patch in particular thrilled me with ecstasy. It grew midst moss on a ruined wall, and within the circumference of a circle 1½ feet in diameter were over a hundred blooms.

At Kyimpu we found the Himalayan Crossbill - a bird I have sought in vain for many years. It suddenly appeared on migration, keeping entirely to the larch trees on whose cones it fed. We saw it nowhere else.

We left Kyimpu on the 7th October and reached Tsona a week later. The monsoon was now over, and the icy grip of a Tibetan winter was beginning to be felt on the plateau. At Tsona we were held up for two days by a heavy fall of snow. Then, crossing the main range by the Kechen La, we reached Trashigong on the 28th October via Tawang and Sakden. Here we halted for a while as guests of our good friend the Dzongpon.

Our first night was a very disturbed one. We had been given excellent quarters in the dzong, but at dusk we found our rooms crawling with bugs, so we beat a hasty retreat and put up our camp beds on the crazy pavement of the spacious courtyard. About midnight I was aware of a procession of monks filing into the lha-khang, or house of the gods. They bore images, long telescopic copper trumpets (tungchen), smaller trumpets (geling), cymbals, and other instruments of music. 'A service toward, no rest to-night', I said to myself. Soon the cymbals clashed, the trumpets brayed, and there were murmurings and intonations from the interior. This went on for hours. I dozed. In a semi-conscious state I heard the patter of hoofs on the pavement, a grunt, a baa. Then I slept. At dawn I awoke with a start. A strange apparition with large flopping ears gazed fixedly at my prone length on the bed. I rubbed my eyes. Was this the twentieth century or the Middle Ages? The apparition resolved itself into a mule accoutred in medieval saddlery and gay silk trappings. A loose tether-rope trailed behind it. I jumped out of bed and gazed around me. The stalls of the courtyard were filled with a variety of animals all bedecked in old-world saddlery and silks. There were horses, mules, cows, sheep, goats, pigs, and, most ludicrous sight of all, a cock, the latter lying exhausted on its side with a gaudy silk scarf bound tightly round its body, vainly endeavouring to crow.

Presently the Dzongpon appeared. He apologised profusely about the bugs, and explained the invasion of the farmyard. Apparently each year during the full moon of the 8th Tibetan month, a special service is held in the monastery for the various domestic animals in the district. It is an annual affair, and our visit happily [sic] coincided with the occasion.

From Trashigong we proceeded to Diwlangiri, where Sherriff rejoined us on the 24th November. We had been away ten months, and thirsted for the luxuries of civilisation. We ordered up a dozen beer from the refreshment room at Rangiya to celebrate the end of an enjoyable and successful journey.

Frank Ludlow's write-up of the 1936 expedition was first published in *The Himalayan Journal,* Volume 10, which went to print in 1938. The appendix to the article contained a complete list of all the Primulas, Rhododendrons, and Poppies collected during the journey, and this can be perused online at:

https://www.himalayanclub.org/hj/10/1/the-sources-of-the-subansiri-and-siyom/

Campsite in Tibet, 1936.

Takpo and Kongbo, S.E. Tibet.

by Frank Ludlow.

Large tracts of the Himalaya still remain unmapped and unexplored; still larger areas offer virgin ground to the field naturalist. Not all the ground Sherriff and I planned to work in 1938 was virgin, but a good deal of it was. The main range between the Bimbi La in Tsari and the Doshong La near Namcha Barwa was 'new', and so too was Pachakshiri. As for the rest, Bailey and Morshead in 1913, and Kingdon Ward and Cawdor in 1924 had traversed the Tsangpo valley, but only the two latter had explored the Gyamda Chu. We felt pioneers and were thrilled at the thought. It was good to be living in an age when new lands and flowers and birds still awaited discovery.

We decided to visit the Pachakshiri district first, for it lies south of the main axis and plants would be in bloom there long before they would be in flower on the colder northern slopes of the range.

The route we followed in 1936 would probably have been the shorter, but we were fearful of snow in the Tsari district so early in the year, and so chose a more circuitous one which passed through Gyantse, Tsetang, and the Tsangpo valley. We therefore left Kalimpong on the 22nd February 1938 and took the road to Gyantse.

Dr. G. Taylor of the Botanical Department of the British Museum was to have joined us in Calcutta, but cabled shortly before we left Kashmir to say that he had to undergo an operation. This promised to upset our plans, but a few days later we received another cable stating that his operation had been completely successful and that he would like to join us at a later date if possible.

On arrival in Calcutta we rang Taylor up on the 'phone in his London hospital and were cheerfully informed that he proposed reaching India in early April, and that if we would leave behind a cook and instructions as to the route, he would follow in our wake. We suggested Molo as a meeting-place, a small village in the Kongbo province which Taylor had never even heard of, and it speaks volumes for the staff work of the expedition that the very day we returned to Molo from Pachakshiri, Taylor arrived there from England! But this is anticipating. Now I do not propose to say anything about our journey to Gyantse, and from thence to Chaksam on the Tsangpo, two stages from Lhasa. Tibet is not so strictly 'purdah' as she used to be, and the Kali to Lhasa road has often been described before. Not so the Tsangpo, however; this is still worth a little printer's ink.

When we reached Chaksam on the 19th March we found the Tsangpo valley pleasantly warm compared with the bleak plateau we had been travelling over since leaving Phari. Willows and poplars were bursting into leaf, and iris leaves and green grass were already thrusting their way through the sandy soil.

At Gongkar we hired six yak-skin coracles and floated lazily down the Tsangpo to Tsetang, which we reached on the 23rd March. This part of the valley is very wide and the river itself must have been nearly a mile across, and deep enough in the main channel to float quite a large steamer. Great quantities of sand choked the valley and formed extensive dunes on the mountain slopes many hundreds of feet above the river. Every day a violent wind sprang up before noon, raising such clouds of sand as to obscure, on occasions, the sun's rays.

Bar-headed geese, black-necked cranes, and Brahminy duck were seen in large numbers; gulls of two species plied up and down the river, and cormorants dived for fish in its turbid waters. We shot one of the last-named birds with a catapult. It had just swallowed a fish over a pound in weight and was unable to rise. We ate the fish, and our servants ate the cormorant. '*Chacun a son gout!*'

At Tsetang we met a Mohammedan trader named Atta Ullah who had befriended Bailey and Morshead in 1913 and had cashed the former's cheque after he had been robbed of all his money. The old trader produced Bailey's letter of recommendation and also one written by Kingdon Ward in April 1924. He was very proud of both these letters and begged us to give him a third, which we did.

Below Tsetang the Tsangpo cuts through a range of hills and descends in a series of rapids through a narrow gorge. The road now leaves the main valley and ascends that of the Changra Pu Chu to a pass called the Putrang La (16,470 feet). At the foot of the pass lies the rich and important dzong of Lhagyari, perched on a cliff in a seemingly impregnable position, overlooking the river.

A pleasant surprise awaited us when we reached the summit of the pass.

Except for willows and poplars growing in cultivated areas we had seen no trees since leaving Phari, and now on the eastern slopes of the Putrang La we were obviously on the threshold of a less arid region, for here were dense thickets of rhododendrons (*Rh. vellereum*) and patches of birch and juniper forest. Two pheasants skulked in the thick undergrowth, the Eared Pheasant (*Crossoptilon Harmani*) and the Tibetan Pheasant (*Tetraophasis Szechenyi*).

From the Putrang La we descended to the level of the Tsangpo at Dzam, where pollarded peach trees with trunks 5 feet in circumference were in blossom, and marched along the right bank of the river to Nang Dzong.

Although the actual bed of the valley was dry and sandy and supported a xerophytic type of vegetation it was evident from the forest on the mountain slopes above us that the rainfall at these higher altitudes was considerable.

At Nang Dzong we again left the river to avoid a gorge, and ascended the Kongbo Nga La which Lumsden and I had crossed in 1936.

Amongst the burnt larch trees halfway up the pass we saw a strange satanic-looking woodpecker about the size of a jackdaw, jet black, save for a flaming crown and crest. This was the Great Black Woodpecker (*Dryocopus martins khamensis*), recorded from Yunnan by George Forrest, but quite undreamt of so far west as the 93rd meridian - another example amongst many of the close relationship between the avifaunas of S.E. Tibet and S.W. China.

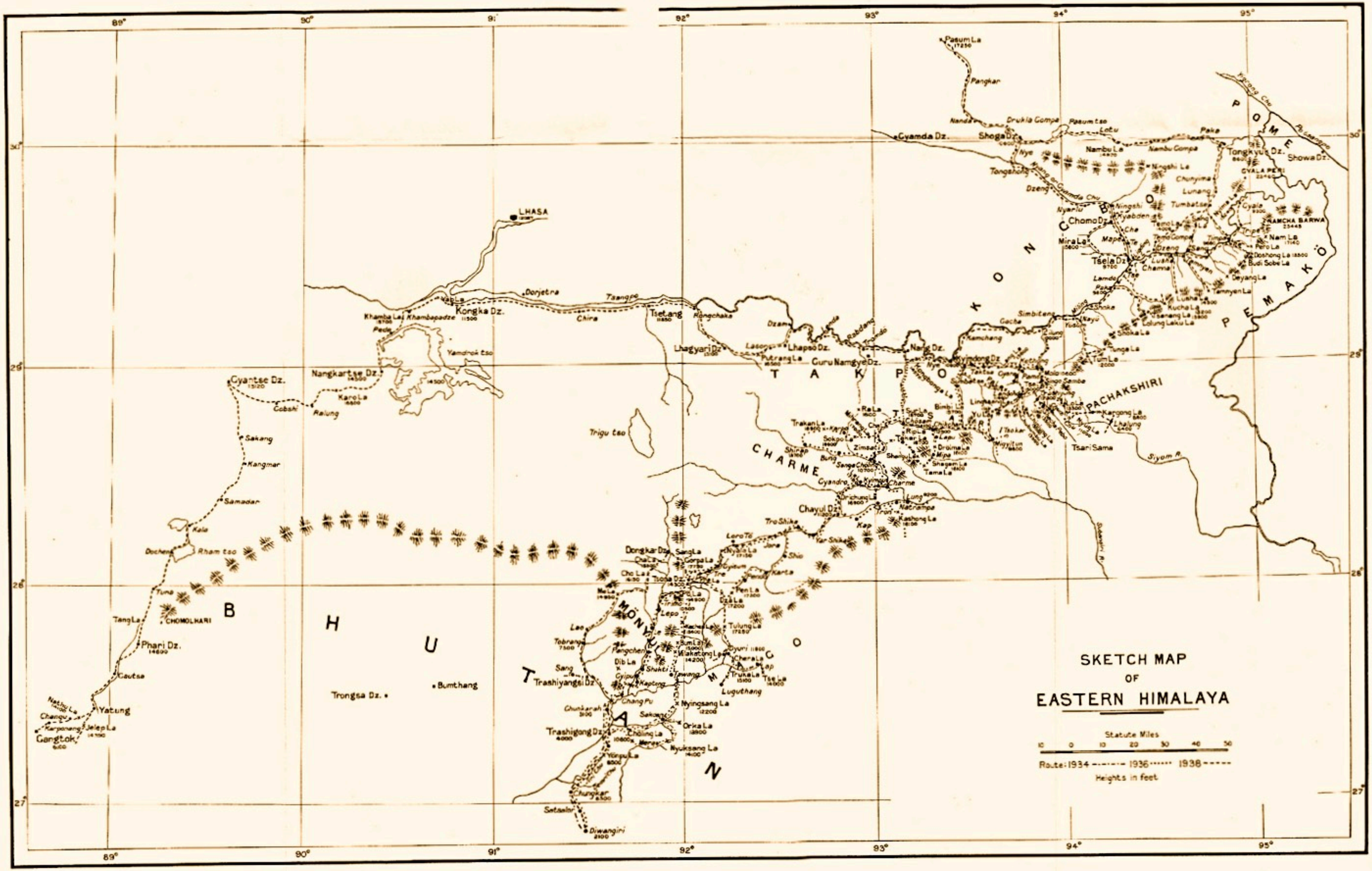
At Kyimdong Dzong we were held up for five precious days by the ineptitude of a conceited young dzongpon before we could obtain transport for the passage of the Lang La, and we did not reach Molo until the 14th April.

We were now within easy reach of Pachakshiri, though the main range still separated us from our goal. As soon as we mentioned our intention of visiting this district all manner of objections were raised, the most important being that there was still too much snow on the Lo La. But snow on a pass may be a help as well as a hindrance; for if the distance be not too great it may often be crossed at night with the utmost ease when everything is frozen. The Lo La is such a pass. It belongs to the knife-edge type, and we found that there were not more than 3 miles of snow on the north face and 2 miles on the almost vertical south face. This was no obstacle; and after camping just below the snow-line we scampered over the pass before dawn next day, and by sunrise were well down the southern slopes and within the conifer zone.

And now things began to happen.

- *opposite left* -
Junipers growing alongside the Tsangpo, above Nye, 5th April 1938.

- *opposite right* -
A side valley near Lhalung, with the Great Himalaya in the background, 5th May 1938.


SKETCH MAP
OF
EASTERN HIMALAYA
Statute Miles
10 0 10 20 30 40 50
Route: 1934 1936 1938
Heights in feet
LHASA
Tsangpo
Kongka Dz.
Tsetang
Yamdrok tso
Nangkartse Dz.
Gyantse Dz.
Kangmar
Rham tso
Phari Dz.
Yatung
Gangtok
Jelep La
CHOMOLHARI
B H U T A N
Trongsa Dz.
Bumthang
Trashiyangsi Dz.
Trashigong Dz.
Chungkar
Diwangiri
MÖNYUL
Tawang
Dongkar Dz.
Lhagyari Dz.
Lhapso Dz.
Guru Namgye Dz.
T A K P O
CHARME
Chayul Dz.
Trigu tso
Tsari Sama
PACHAKSHIRI
Siyom R.
Subansiri R.
Cyamda Dz.
Shoga Dz.
Pasum La
Pangkar
Pasum tso
Nambu La
Tongkyuk Dz.
Showa Dz.
P O M E
K O N G B O
Chomo Dz.
Tsela Dz.
Mira La
NAMCHA BARWA
P E M A K Ö
M Ö N

For two months, almost, we had been tramping over bleak plateaux and sandy wastes with never a flower to waylay the tedium of the day's march.

Suddenly we saw a rhododendron in bloom. It was only a common 'Grande', but the sight of it quickened our pulses, and we plucked a huge truss of its rosy flowers and arranged them, almost reverently, in the press. As we descended more and more species burst upon our view - blood-red Neriiflorums, golden-yellow Triflorums, snow-white Maddeniis, and many others. Primulas too peeped through the melting snow, blossomed by the track, and clung to the rock faces. Though we sank to our knees in quagmires, crawled up notched logs, and stumbled over fallen tree-trunks along the most execrable of tracks, we were happy. The rhododendrons and primulas were in bloom, and spring in God's great Himalayan Garden had come.

In 1936 I did not visit Lhalung and had then guessed its altitude to be 7,000 feet; but our hypsometer in 1938 made it only 6,300 feet. The Lhalung plain is wide and open, and the hill-slopes to a height of 1,500 feet have been cleared of forest and are covered with rich pasture lands, which support large herds of most excellent cattle.

The Siyom river flows placidly throughout the valley for a distance of at least 7 miles. It is too wide to bridge, and dug-outs are the only means of communication between the villages on either bank.

The Pachakshiri district, as I have already mentioned, belongs to the Lhalu family in Lhasa; it is bounded on the south-east by the territory of the Palo Lobas and on the south-west by that of the Morang Lobas. Both these savage tribes are a source of continual anxiety to the Pachakshiribas.

The Palo Lobas live only a day's march below Lhalung. A few years ago the Tibetan government sent a detachment of troops to Lhalung to punish these Lobas for various offences. But the troops did nothing, and when they retired to Molo the Palo Lobas came up and revenged themselves on the unfortunate people of Lhalung.

At the time of our visit, however, the Pachakshiribas seemed more afraid of the Morang Lobas than the Palo Lobas, chiefly because the former had, during the previous winter, ambushed and killed a number of Lhalung men at Ghudi - a stage on the road to Molo at the foot of the Nyug La.

One of the greatest drawbacks to life at Lhalung was the abundance of biting insects, especially a species of *Simulium* which raised an itching blood-blister wherever it bit. I seemed to react more to the bite of this fly than anybody else, and at the end of a couple of days my hands and arms had puffed up to a size which would have rivalled those of the brawniest washerwoman.

Eventually I had to wear gloves, despite the heat.

We spent ten days at Lhalung, during which period we obtained several interesting birds. The most important, perhaps, was the Bar-wing (*Actinodura* n. *daflaensis*), first discovered by Godwin-Austen in the Dafla Hills in 1875, and then completely lost sight of until we procured it again on the Nyug La. Another interesting bird was the Spine-tailed Swift (*Hirundapus* c. *nudipes*), a high-speed 'Spitfire' of the air whose cruising speed is anything between 150 and 200 miles per hour.

I must also mention two other birds, Temminck's Tragopan (*Tragopan temminckii*) and Sclater's Monal (*Lopophorus sclateri*). I would not like to say how many fruitless hours we spent in 1936 trying to secure specimens of these rare and beautiful game-birds. The net result of a whole year's labour was one female Tragopan. But in 1938 our luck changed. We had learnt by experience the habits and habitats of these pheasants and within the space of a week obtained all the specimens we wanted, despite the fact that the best valley opening into the Lhalung plain was forbidden ground.

This particular valley was closed because a few months before our arrival a Loba had gone up it to dig pit-falls for game and set traps with poisoned arrows. Whilst so employed he died, and nobody knew where he had placed his traps. So nobody dared venture up the valley!

From Lhalung we returned to Molo by the one and only route via the Lo La, which we crossed on the 16th May. There was still much snow on the pass, and though it was melting rapidly we estimated it would not be clear for another month. By mid-October it would be covered with snow once more, so all the lovely plants that grew there would have just four short months in which to come to maturity and set their seeds.

At Singo Samba the quivering tree-trunk bridge was even more terrifying - at any rate, to me - than it was in 1936, and it was interesting to note the various ways in which we all crossed it. The normal method, of course, was to walk across bolt upright, but some of the gay young lads of Molo took it at the run. On the other hand several went down on their hands and knees and crawled across, whilst a few of the really timid ones had to be blindfolded and carried over.

We reached Molo - I like to be particular about the hour - at 2 p.m. on the 17th May. At 2.30 p.m., before we had even pitched camp, Taylor arrived from England. Since our telephone talk in Calcutta we were completely ignorant of Taylor's plans, and we could only guess the approximate date of his arrival. On the whole I think we guessed rather well.

The ensuing week at Molo was an extremely busy one. Taylor had brought with him two-months' mail and this had to be read and answered; in addition, there were the specimens to dry, films to develop, and stores and kit to reorganise.

In order to cover as large an area as possible we decided to separate for the height of the flowering season. Sherriff was to work the main Himalayan range from the head-waters of the Lilung Chu to Tsela Dzong, whilst Taylor and I were to work it from Tsela Dzong to Gyala, and also visit Pemako. We were to meet at Tsela Dzong on the 31st July. On the 24th May, Taylor and I left Molo and marched down the well-wooded Lilung valley. The Lilung river must be one of the largest affluents that the Tsangpo receives on its southern bank. Certainly there is no other right-bank tributary that can compare with it in volume between Gyantse and the gorge.

There were two new sub-species of birds and several other rarities between Molo and Lilung. The new varieties were a Nuthatch (*Sitta europea kongboensis*) and a Greenfinch (*Hypacanthis* s. *taylori*), both closely allied to forms from Yunnan and Szechuan. The rarities were the Chinese Parakeet (*Psittacula derby ana*), the Himalayan Crossbill (*Loxia* c. *himalayana*), Siskin (*Spinus tibetanus*), and Rubythroat (*Calliope davidi*).

It is five easy marches down the wide Tsangpo valley from Lilung to Tsela Dzong. The Tsangpo and main range have by now converged to such an extent that it is barely more than a day's march from the river to the summit of the various passes. In the bed of the valley there are still vast accumulations of sand, but the forest has crept so low that we actually saw pine-trees growing out of the sand-dunes.

We crossed, sometimes with great difficulty, many swollen torrents which came down from the main range. One of these, the Nayii Chu, was in high flood, and the bridge, which had collapsed, was being reconstructed by a party of workmen, amongst whom were a number of Lobas. These Lobas were said to be slaves, and the price of a slave was reported to be a dagger for each limb, a sword for the head, and a sack of flour for the body! But as all the so-called 'slaves' enjoyed complete freedom, and could have returned to their own country if they had so wished, the term 'slave' seems hardly merited.

The Loba women were very diminutive and not above 4½ feet in height. They were resplendent in blue bead necklaces, and were all giggles and smiles.

Later on in the year Sherriff explored the Nayii valley and discovered at its head a pass over the main range called the Turn La. (The Nayii La of map 82K. But the name Nayii is only used for the village at the mouth of the Nayii Chu, never for the pass. Just east of the Turn La, at the head of a large tributary of the Nayii Chu, is another pass, the Tunga La. The Tunga La, on map 82k leading into the Pachakshiri country, does not exist. Another pass, east of the Tunga La, called the Shoka La, is reported to be even lower than the Turn La). The Turn La is only 12,000 feet in height and, except for the Zoji La in Kashmir, is the lowest pass across the main Himalayan axis. Conifers grow on its summit, and it is reported to be open from April to December.

We reached the little village of Tse opposite Tsela Dzong on the 30th May, and the following day were ferried across the Tsangpo to call on the dzongpon. The Tsangpo is here a mile wide and the crossing took 35 minutes.

At Tsela Dzong the huge Gyamda Chu comes in on the left bank from the north-west and joins the Tsangpo in several large branches. The Gyamda valley is at least 2 miles wide at the junction.

Tsela Dzong is the most important dzong in Kongbo and we were rather surprised that the dzongpon was a comparatively young man of 27. We had expected somebody older and more experienced. The young dzongpon was very pleasant and gave us every assistance during the long time we spent in his province but when we broached the question of Pemako he particularly asked us not to go there as there was an epidemic of smallpox in the district. This we discovered was perfectly true, but the real reason which prompted him to withhold permission was that the administration in Pemako was having rather a difficult time, and our advent might complicate matters.

The dzongpon's wife was a gay young lady whose only worry in life appeared to be freckles. Despite our protestations to the contrary she insisted that the freckles on her face were a great disfigurement. In vain we emphasised the fact that only the fair were freckled, that Sherriff himself had a pair of magnificent freckled arms. Nothing would satisfy her but a little beauty treatment. So we prescribed lime-water and milk as a face-wash, and presented her with a packet of scented soap, a tube of glycerine jelly, and a tin of boric talcum powder.

We made Tse rather than Tsela Dzong our base as it was more conveniently situated than the latter for our work on the main range.

Leaving Tse on the 5th June we marched down the right bank of the Tsangpo to the village of Lusha, lying at the mouth of a large valley coming in from the south. Our march up this valley was typical, as we found later, of that up almost every other valley in this area leading to the main range. What struck us most about these valleys was the very gradual ascent (during which we barely rose a thousand feet) for three-quarters of the distance, followed by an abrupt ascent during the remaining quarter.

For the first mile or two the track would lead through the holly-oak zone of the dry Tsangpo valley into a belt of pine forest, and then, as the rainfall increased, through spruce, larch, poplar, and birch forest, with here and there extensive meadow-flats and bogland. As soon as the track began to rise steeply the Abies zone was entered, which in its turn gave way to a dwarf-shrub moorland, and the alpine region of rock and snow.

On the 8th June we pitched camp amidst a cirque of rocky crags just below the timber line at 12,000 feet, and here we remained a week working all accessible ground on both sides of the pass.

The Lusha La (14,600 feet) held an extremely rich flora, but space only permits a reference to its most striking plant. This was a lovely grape-purple Nivalid Primula with a yellow eye, growing in masses on the mossy boulders in the alpine zone. So certain was I

View north from below the Turn La, showing the typical slow-flowing river and swampy riverbed, 8th July 1938.

that it was new that I had even decided its name, and it was rather a shock when I was politely informed that it was *Primula calliantha* from far-away Yunnan.

It rained on this pass throughout the entire week we were there. There was no respite; night and day it just rained, and rained, and rained. Nor was the Lusha La peculiar in this respect; all the other passes we explored on the main range - the Tamnyen La, Doshong La, Pero La - were equally wet.

An amazing variety of plants grew in this atmosphere of perpetual drizzle, but birds shunned the area, and only a few species lived in the dripping woods and sodden moorland. Amongst those on the moorland was the Wood Snipe (*Capella nemoricola*). From its trivial name one would never expect such a habitat, yet it was not uncommon, and we often flushed it by day and heard it drumming by night. Never before has the Wood Snipe been recorded from anything like the altitudes at which we procured it on this and previous expeditions.

On our return from the pass we found the Lusha Ghu coming down in spate, and the ford near the village difficult and dangerous. There was no bridge, and no alternative but to wade. A woman - carrying a flower-box - was swept off her feet, but both she and her load,

About to cross the Tsangpo in a 'tru' at Tamnyen, 25th June 1938.

The sand dune above Sang with two Kowas in the foreground, 25th June 1938.

were rescued, and no harm was done.

Sherriff and I have always had the best of good fortune with our collections and have never lost anything of real value. Perhaps the most amazing example of good luck happened later in the year at Lilung, when we were homeward bound. A mule with a load of pressed plants, representing months of toil and labour, stumbled and fell whilst crossing the bridge over this large river. The girth rope snapped, and the two yakdans fell one on each side of the mule. The mule rose and, without touching either box, walked quietly on, leaving the two boxes balanced precariously on the extreme edges of the bridge, and actually overhanging the rushing waters.

From Lusha we continued down the right bank to Tamnyen and marched up the valley to the Tamnyen La, where we remained for several days, and then beat a hasty retreat to the sandy Tsangpo to dry our specimens.

We now decided to leave the main range for a space and collect on the passes on the left bank of the river. Hitherto we had always crossed the Tsangpo in a yak-skin coracle called a 'kowa'. We were now introduced to a weird-looking craft called a 'tru' which consisted of two conifer dug-outs, each about 40 feet long, lashed together. It was a most unwieldy craft, but carried a big cargo. Having embarked (with a certain amount of trepidation) we were swept a long way downstream by the powerful current and finally landed near Sang village, where an enormous sandhill over 300 feet high is popularly supposed to cover a large dzong and much hidden treasure.

From Sang we ascended to the Sang La, where Taylor saw a sight he will long remember.

Perhaps I ought to have explained before this that my travelling companion, in addition to being a botanist of repute, is an - the perhaps would be more correct - authority on the genus Meconopsis, and that one of his greatest ambitions on our 1938 expedition was to see, growing in their natural surroundings, plants with which he was so familiar in gardens and herbaria.

Of the 42 species of alpine poppies known to science, Taylor saw 17 on this expedition, and of these 5 grew on the Sang La.

The first and most striking of these plants was *Meconopsis integrifolia,* which grew amongst dwarf rhododendrons and *Potentilla* scrub on the open moorland. With stems 3 feet high bearing half a dozen flowers 6 inches in diameter in the axils of its cauline leaves, it was easily the most conspicuous plant on the pass. Associated with it was *M. simplicifolia,* with sky-blue flowers borne singly on basal scapes 2 feet high; and the so-called Ivory Poppy, the latter being a natural hybrid between the two. *M. speciosa,* is one of

the loveliest members of this lovely genus, with from 20 to 30 liquid blue flowers springing from a stem 18 inches high; a robust form of *M. horridula* formerly known as *M. Prainiana;* and *M. impedita,* the smallest of the five, with a dozen or more purplish-red flowers borne singly on basal scapes 12 inches high, were the three other poppies which flourished on the misty uplands of the Sang La.

From the Sang La we descended into the Rong Chu valley by an overgrown, unused track, and pitched camp at Tumbatse, which Kingdon Ward and Cawdor made their home in 1924, and which the former has described with such charm in his *Riddle of the Tsangpo Gorges.*

From Tumbatse we ascended to the Nyima La, where we were drenched to the skin in a cloud-burst, and dropped down to the Tsangpo valley again at Timba. The next day, the 6th July, we crossed the Tsangpo in a dug-out and camped at Pe at the mouth of the valley leading to the Doshong La.

We knew from Kingdon Ward's writings of the richness of the flora on the Doshong La, so in order to break new ground we decided to explore a neighbouring pass called the Pero La. We were grievously disappointed. Although the two passes practically adjoin, none of the wonderful plants Ward writes of was to be found on the Pero La, and we returned to Pe with nearly empty presses.

The Doshong La is all that Ward describes it to be. It is an alpine garden of wondrous beauty. But day and night we were assailed by the wind and the rain, and it was only the lovely flowers which grew there that saved us from acute depression. On the 20th July we left Pe for Gyala in the gorge.

It had rained hard in the night; it was raining hard when we breakfasted, and there was no apparent reason why it should not continue to rain hard for days, even weeks.

We set out, dejected. But when we reached Tripe at noon the clouds lifted, the sun shone, and there at the head of the valley, almost vertically above us, stood Namcha Barwa in all her snowy splendour. We congratulated ourselves on our good fortune; little did we guess its magnitude. Not for a day, but for a whole week the skies were clear. We had struck a break in the monsoon at the very time we ourselves would have chosen had Providence vouchsafed us the choice.

At Pe the Tsangpo is still a placid river half a mile wide. There is, as yet, no hint of the astounding change that is to follow. But 3 miles below Pe the path leaves the river and rises to a terrace some 800 feet above it. Immediately there comes a muffled sound of rushing waters, and in the distance the Tsangpo is seen to enter a rapidly contracting valley, where its waters first become ruffled and finally break into rapids.

This is the entrance to the gorge.

A few more miles and the path leaves the terrace and descends to the level of the river at the village of Kyekar, where two glacial torrents come hurtling down from Namcha Barwa. The scene here held us spellbound. The mile-wide Tsangpo we had seen at Tsela Dzong was here confined to a narrow gorge, 100 yards in width, down which it leapt in one appalling cataract. Where giant boulders choked the bed, great waves were flung high into the air, to fall hissing and seething into the cauldron below, and over the river hung a permanent cloud of spray in which rainbows danced in the sunshine.

We camped that day at Tripe on a pleasant meadow far removed from the turmoil of the river, and immediately underneath Namcha Barwa and her satellite, Atsam Ne.

The next day's march to Gyala was a fatiguing one of 15 miles, but intensely interesting. Beyond the village of Langpe we climbed to a river terrace and suddenly saw before us the other mighty sentinel that guards the gorge - Gyala Peri.

On we went, threading our way through the dense riverine forest, with the Tsangpo

The northern spur of Namcha Barwa running down to the Tsangpo Gorge, seen from Gyala, 21st July.

almost doubling on its tracks and flowing now westwards, and now north-eastwards. Twice we were forced to climb cliff faces to avoid projecting spurs and inundations of the river. And always there was the roar of the waters in our ears, until at last we reached the flat on which Gyala stands, where the Tsangpo flowed in gurgling whirlpools in a narrow chasm of unplumbed depth. Gyala is the last Tibetan village on the Tsangpo and we halted here for two bright sunny days. From a sulphur spring 3 or 4 miles below Gyala I had the most perfect view of Gyala Peri and the Sengdam peaks framed in a foreground of conifers. Unfortunately I had no camera, and when Taylor went down to the spring on the following day a cloud obscured the view.

From Gyala we hurried back to Tsela Dzong to keep our appointment with Sherriff and were all reunited again on the 31st July.

We found another mail awaiting us at Tse, and, after this had been read and disposed of, the two botanists opened up their collections and compared notes.

Sherriff was rather pessimistic because the Singo Samba bridge had been wilfully destroyed to prevent him reaching the Lo La. But it was soon evident that he had worked the areas to the west and east of the Lo La so thoroughly that it is doubtful if he missed much by not being able to visit the pass.

Gyala Peri, 23,460 feet, from the camp at Gyala, 21st July 1938.

Personally, I was amazed at the vast amount of pressed material that had been collected. Already there were over 3,000 numbers collected in triplicate, representing 15 coolie-loads. All available boxes and packing-cases had been filled, and others had to be ordered from Tsela Dzong.

As Sherriff and Taylor had both had spells of solitude it was now my turn to be on my own. I had by now a fairly accurate conception of the avifauna of the Tsangpo valley and was anxious to explore other areas. There were two particular biotopes I wished to work: the high plateau region on the Kham border; and the low semitropical region in the gorges. I therefore decided to go to the Pasum Kye La at the head of the Shoga Chu, the largest tributary of the Gyamda river, and from thence turn east into Pome and work the humid forests at Trulung, at the junction of the Tongkyuk and Po Tsangpo rivers. Taylor and Sherriff meanwhile would work the lower side valleys on both banks of the Gyamda Chu, and meet me at Tongkyuk in early September.

I left Tsela Dzong on the 10th August and marched up the Gyamda Chu for a week along a most excellent path. Alluring side valleys came in at frequent intervals inviting exploration; and I could not help wondering how long it would take to exhaust the botanical possibilities of this huge valley. A decade probably! So the young botanist can take heart, for if it is going to take a decade to explore the Gyamda Chu properly, a generation at least must elapse before we know all there is to be known about the flora of S.E. Tibet.

A few miles above the Shoga Chu confluence I crossed to the left bank by a magnificent cantilever bridge, and ascended the Shoga Chu to Drukla Gompa.

The Drukla monastery is a large one and is situated at the mouth of a wide valley coming in from the Yigrong range. Above Drukla, perpendicular granite cliffs drop sheer into the valley, their summits jagged like a fever chart.

Beyond the cliffs we entered a long marshy valley full of migrating snipe and teal and reached Pangkar, the last village in the valley, on the 20th August. From Pangkar it was two marches to the Pasum Kye La, and here a bitter disappointment awaited me, for there were none of the birds I had hoped for on the pass. From its summit (17,230 feet) I could see the dry plateau stretching away northwards and another two marches would probably have brought me in contact with the birds I sought. But I had not the time to spare and if I was to keep my appointment at Tongkyuk not a day was to be lost.

However, if the birds on the pass were a disappointment the flowers were a joy, and I added 30 species new to my collection in a single day.

I returned to Pangkar on the 24th. It was a long and tiring march, rendered more difficult by the roughness of the road and the perversity of my yaks. Yaks are hopeless creatures in wooded areas, as they will never march in file, but burst through the undergrowth wrenching off their loads. On this particular day one brute suddenly dashed away and swam the river. It carried my bedding and I was furious. I am afraid I cannot view a sodden bedding roll with that philosophic calm which all good travellers should possess.

Next morning we were loading up when there was a jangle of bells and one of our Tibetan servants arrived at a fast amble. He bore a most disquieting letter from Sherriff to say that Taylor was seriously ill with something which looked very much like appendicitis. This was indeed alarming, and I decided to do double marches to Kyabden, in the Gyamda Ghu, where Sherriff and Taylor were halted. But at Shoga Dzong the following day I was relieved to get a further note from Sherriff to say that Taylor was much improved and that he would meet me at Tongkyuk as arranged. I therefore adhered to my original plan and marched eastwards into Pome via the Pasum Tso and Nambu La.

The Pasum Tso is a fine sheet of water 12 miles long and 2 miles broad, densely wooded on its southern shore. Here *Primula latisecta* grew in great abundance, also a lovely *Cyananthus*, and a Gentian that was probably *G. Veitchiorum*. Towards the north-east was a lofty snow-peak called Namla Karpo, from which a large glacial torrent drained into the lake. To the west of Namla Karpo were other large valleys, all well wooded, which would certainly have repaid botanical exploration. I now began to reproach myself that I had not separated from Taylor at Tumbatse in early July to work the western slopes of this wonderful Yigrong range. It would have paid us had I done so, for the flora of this area is remarkably rich. I crossed the Nambu La on the last day of August and descended a wide valley, which reminded me of Tsari, to Nambu Gompa. Opposite the little monastery, on the south side of the valley, is a pass called the Ningtsi La which leads in two easy marches to a village of that name in the Gyamda valley.

I was now in Pome. On the next day's march down the Nambu Ghu the path was alternately good and atrociously bad. I got some handsome plants, including a beautiful aconite (*A. volubile*) 8 feet long, which trailed over the ground bearing numerous large purple flowers.

During the night a small mammal invaded my tent and disturbed my sleep.

When I awoke in the morning I found that it had constructed a nest in one of the poacher's pockets of my coat, and deposited therein upwards of fifty fruits of the size of a walnut - a sure sign of approaching winter.

The next day we camped near the junction of the Nambu Ghu and Tongkyuk Ghu.

Five or six years previously a large lake which had been impounded some distance up the latter valley broke its bonds and a terrific flood ensued. Uprooted trees lay everywhere in the scoured riverbed, and the high-flood mark was clearly visible 40 feet above the normal level of the river.

I reached Tongkyuk Dzong on the 3rd September, where I received another letter from Sherriff to say that Taylor was again seriously ill. There could be no question now of descending the Tongkyuk river to Trulung, so I posted up the Rong Chu to Tumbatse, crossed the Temo La, and rejoined Sherriff and Taylor at Dzeng, near Temo Gompa, on the 7th.

Taylor certainly looked a wreck, but neither Sherriff nor I had any idea what was wrong with him. At times we thought it was dysentery, and then at times we thought it was liver. There was one consolation - it certainly was not appendicitis. We had to try some treatment, however, and eventually we came to the conclusion that the safest thing to do was to starve Taylor. Taylor consented, and we kept him on milk and egg flips for a week, and gave him some cholera pills to keep his 'tummy' in order.

Now, whether Taylor was cured because of our treatment, or whether Nature effected her own cure despite our treatment, I really cannot say. I only know that our patient was cured. By the end of the first week he was a new man and clamouring for something solid, so we gave him a chicken. This did no damage, so we gave him another, and by the end of a fortnight his ration of chickens was two a day, one of which was made into soup. At the end of the third week the ration was increased to three, and it now became quite a problem, especially when we were halted, to obtain sufficient chickens to satisfy Taylor's somewhat inordinate requirements. However, at the end of the fifth week Taylor went off the chicken standard and returned to a normal diet, thus solving the problem.

By the 16th September Taylor had made such splendid progress that we were able to put into force the plans we had made for the seed harvest.

Sherriff returned to Molo via Lilung to collect on the Lo La and the passes on the main range in the Langong valley. From Langong he explored a new direct route to Migyitun via the Lingtsang La, and then returned to Diwangiri by the route we traversed in 1936.

Taylor and I meanwhile floated down the Tsangpo in coracles and pitched camp at Lusha. From here we dispatched our collectors to the Tamnyen La and Doshong La, whilst I went up the Lusha La myself. Taylor convalesced at Lusha.

We had the usual foul weather on the passes, but reaped a rich harvest. In addition to seeds we also dug up living plants of many of the rarer and more difficult species, and these were sent home by air on reaching Calcutta.

On the 23rd September we left Lusha and completed the first march on our long journey back to India. Taylor, though still weak, stood the test well, and henceforward gave no further cause for anxiety.

On the 1st October we reached Lilung and were annoyed to find that the bridge over the river halfway to Molo had been cut the previous day. Much of our kit, including our warm clothing, had been dumped at Molo, and this had to be rescued somehow. We therefore sent an intelligent Bhutanese servant up the Lilung Ghu by a difficult hunter's track, whilst we marched up the Tsangpo to Kyimdong Dzong, which we reached on the 8th. Four days later our loads from Molo arrived via the Lang La, and we left for Tsari the same day.

The Gyamda Chu, with Chomo Dzong in the upper middle of the illustration, 26th August 1938.

It was on the Bimbi La, the pass that leads into Tsari, that we saw the most glorious display of autumn colouring that either of us had ever seen in our lives. On the south-facing slopes above Sumbatse there grew a Berberis - I am proud to think it bears my name - not in hundreds or thousands, but in tens and hundreds of thousands, whose fiery red leaves glowed so vividly that the whole hillside for mile upon mile seemed to be ablaze. Here and there in the midst of this burning fiery furnace shone the rich orange-bronze of a rose; but the dominant colour was red - the red of glowing embers seen at night. We collected the fruit of this Berberis, and it is to be hoped this handsome shrub will one day flourish in British gardens.

To label, press, and preserve plants for the herbarium was never the sole object of our botanical expeditions. Few, save the expert, ever spend much time in herbaria, but the living plant, that grows in our gardens and parks, is a joy to all who behold it. And so we experienced just as big a thrill when we garnered the seeds of some dry and shrivelled

- *page 35 left* -
Carduus sp., on the Mira La, 14th August 1938.

- *page 35 right* -
Lilium gigantium Wall, in the Nayii Phu Chu, north of the Great Himalaya, 9th July 1938.

plant in autumn as when we plucked it in all its floral loveliness in spring - for others, perhaps, would now be able to enjoy its beauty.

The trials of a seed hunter are numerous, and we often used to wonder how many of the people who received our seeds ever paused to think of the labour entailed in their collection. Only a few, I fear.

Yet the labour at times was great, not a mere snatching of capsules and berries by the roadside as we passed by. To climb 3,000 or 4,000 feet and find the seeds all shed, or green and unripe, eaten by grubs or birds or cattle, or buried ‘neath a blanket of snow, were some of the difficulties with which we had to contend.

And even when we had collected good and ripe seed we could never be quite certain that it would germinate.

Perhaps the three loveliest primulas we obtained on this journey were Kingdon Ward's *Primula falcifolia,* the Abbé Delavay's *P. callianttha,* and our own beautiful *P. Elizabethae.* We collected ripe and abundant seed of each, and we sent these seeds to at least fifty expert gardeners in Great Britain. All failed; not a seed germinated. [Since the above was written, one report has reached me that seed of *Primula calliantha* has germinated - G. Sherriff].

In addition to seed, we sent home living seedlings of these three primulas by air, and when I was home in the summer I went to see them in their new abode. Some were alive, a few had even flowered, but all looked unhappy, and none, I fear, will survive. Compare these results with *Primula Jaffreyana,* which we dug up in a desiccated state on the Bimbi La and used as packing material in the plant crates we sent home by air. On its arrival in Scotland *P. Jaffreyana* was reported dead beyond all hope of recovery. Knowing how brittle and seemingly dead it was in its natural habitat in winter, we wired imploring experiment and trial. The dried-up remains were planted, and *P. Jaffreyana* flowered to perfection a few months later.

We did well with seeds on the Bimbi La, and Taylor was particularly pleased to obtain fruiting specimens of *Meconopsis argemonantha* and *M. bella,* which we had not seen farther east.

When we reached Tsari we found most of the inhabitants had already departed on their annual begging pilgrimage, but transport was forthcoming and we reached Sanga Choling on the 18th October.

It was nice to see our good friends of Sanga Choling once again, but ‘Rosy Cheeks’ was disappointing. The charming complexion of 1936 was hidden ‘neath a horrible smear of caoutchouc which had been applied to ward off an attack of neuralgia.

We left Sanga Choling on the 21st, resolved to travel quickly as Taylor had a boat to catch, and the railhead was still nearly a month's journey distant.

We reached Chayul Dzong on the 24th and Tsona five days later by the route we had followed in 1936.

This was perhaps the most trying and uncomfortable part of the whole journey. Every day we rode in the teeth of a violent wind, which raised clouds of grit that seared our faces like sandpaper. Our lips cracked and bled, the skin peeled from our faces, and day after day we rode with heads bowed on our breasts in stony silence. The climax came on the summit of the Nyala La, where we met an icy wind of such tempestuous violence that we had to lean forward at an angle during the descent and had the greatest difficulty in breathing. That evening I was afflicted with a sneezing fit which lasted more than an hour and left me quite exhausted.

On the 30th October we left Tsona soon after sunrise and reached the summit of the Po La well before noon.

Down we dived, into the fir and rhododendron forests above Trimo, happy in the knowledge that the Plateau lay behind us, and the last pass on our long journey had been crossed. A fortnight later we reached Diwangiri and looked down on the plains of Assam half-hidden in a smoke haze. And so back to a life which - let it be whispered - seemed rather flat and tame after the one we had just been living.

The source of the Living Chu, west of Langong, with the Lingtsang La in the background, 21st October 1938.

- *opposite* -
George Sherriff, Frank Ludlow and their team of assistants.

Frank Ludlow’s write-up of the 1938 LS&T expedition was first published in *The Himalayan Journal,* Volume 12, which went to print in 1940.

Ludlow and Sherriff.

by Sir George Taylor, FRS.

This is slightly edited version of Sir George's 'Historical Introduction' preface to *A Quest of Flowers: The Plant Explorations of Frank Ludlow and George Sherriff told from their diaries and other occasional writings,* written by Harold R. Fletcher, and published in 1975 by the Edinburgh University Press.

It has been my good fortune to know most of the noted plant collectors of this century who have revealed the amazing richness of the the flora of south-west China and the neighbouring Himalayan region. The first whose acquaintance I made was George Forrest, and his vivid verbal and written accounts of his field experience fired my youthful hopes of one day savouring the joys and risks of plant collecting in remote parts. As a post-graduate student at Edinburgh working on his material I was greatly influenced by his splendid collections; the specimens, beautifully prepared and most adequately labelled, were indeed an inspiration and left an enduring impression on me, and there is no doubt that their perfection was a standard to which I aimed in all my later collecting activities. Forrest's vast botanical collections and superb introductions to British gardens have been amply chronicled; suffice it here to say that this sturdy and indomitable Scot is commemorated in one of the most impressive chapters in the history of plant exploration.

During my years at the British Museum (Natural History) I frequently met with Frank Kingdon-Ward, one of the most celebrated and tenacious of plant collectors, who became a very good friend and with whom in correspondence and conversation I shared vicariously his later expeditions. Ward, who travelled in austere fashion, had the happy knack of spotting elite plants suitable for gardens in this country, and his most noted introduction is probably the superlative Blue poppy. He was also gifted with a facile pen, and the descriptive narrative of his many expeditions is forcefully recorded in his many books. I acted as his sole executor on his death in 1958.

Latterly when I became Director at Kew I met Joseph Rock, and his annual visits were always packed with incident and far-ranging talk about exploration in remote areas of western China. Rock was a most remarkable man, for some years Professor of Botany and Chinese in Hawaii, who settled in Yunnan to devote his life to exploration of the country and intensive study of its history and culture. He had mastered the language and thus the literature of the region and published several impressive, beautifully-illustrated scholarly works. In addition he made substantial natural history collections and introduced a number of fine plants to cultivation, but he was forced to leave Yunnan when the wave of Communism engulfed the country.

It is to my greatest friends in the field of botanical endeavour, Frank Ludlow and George Sherriff, that I now come, and I find it extremely difficult to express my feelings adequately in regard to these men, staunch and wonderful companions, who contributed most significantly, with the help of one or two fellow-travellers, to our knowledge of the fauna and flora of south-eastern Tibet and who enriched our gardens with many lovely species. Their backgrounds were very different and it was a happy and fortuitous event which brought them together to forge an enduring friendship which led to the series of expeditions in the Eastern Himalayas.

Ludlow graduated from Cambridge in 1908, taking a BA in the natural science tripos, and during his course he read botany under Professor Marshal Ward, the father of Frank Kingdon-Ward. On leaving the university he became Vice-Principal of Sind College in Karachi where he was simultaneously a Professor of Biology and a lecturer in English. He was indeed an outstanding naturalist but also one who was steeped in English literature and with a deep appreciation of poetry, which he could quote at length. In my notice of Ludlow, published in the *Journal of the Royal Horticultural Society* in September 1972, I emphasised his penchant for reciting passages from Shakespeare and Tennyson, but he also had a fondness for the ditties of Gilbert and Sullivan and frequently for his own amusement and that of his friends he devised doggerel verse in the style of Gilbert generally with a theme of Sullivan in mind. Here are two examples in this idiom, the first prompted by publication of my book on *Meconopsis:*

'The offspring of *discigera,* or shall we say its progeny,
Are placed by Dr Taylor in a section called Discogyne,
Because the flattened disc upon the ovary's an impediment.
To penetration by the rain, or any element.
Torquata too, from Lhasa, where the Dalai Lama rules the land,
Is placed within this section, which is very small, you'll understand,
Though in loveliness its members are unequalled in the genus,
One's as handsome as Adonis, t'other's beautiful as Venus'.

'*Concinna's* mauve, *superba's* white,
Paniculata's yellow;
Punicea red - a lovely sight,
Blue *grandis* - a fine fellow,
Sherriff-i-i, I really think,
'S the only poppy purely pink'.

The other was in a letter from Ha, Bhutan, in April 1949 where he was enjoying wonderful trout fishing: 'I dare not fish for more than an hour at a time for fear of catching too many; 4 and 5 pounders are an everyday occurrence. The consequence is I am blasé. To put things in a Glibertian nutshell, here is a little poem which sums up my contentions:

When anyone can roam this state,
And thrust his nose in any gate,
Then L&S sad to relate
Become no more than trippers,
If every time I cast a fly
A lusty trout is doomed to die
For lusty trout I cease to try,
Up goes the price of kippers.'

After the first World War, in which he was commissioned with the 97th Indian Infantry, he went into the Indian Education Service and became Inspector of European Schools, where his jurisdiction extended from Bombay to the Central Provinces and from Karachi to Derwa. In 1922 a request came from Delhi to submit the names of any candidates for the post of Headmaster of a school to be opened in Gyantse, in Tibet, where Tibetans of good family could be taught the rudiments of western eduction. The work and the prospect of living for three years in a mediaeval surrounding appealed to him, and he submitted his own name and was eventually selected. Thus occurred a vital turning point in Ludlow's life. He gave up the certain rewards of an assured career in the Indian Education Service for the chancy prospects of a brief spell as headmaster of a school still to be founded. (In a Memorandum bequeathed to me, along with his other papers, there is an account of all the difficulties he had in establishing this school and amusing anecdotes of his experiences with his boys). Clearly, he sensed a challenge to his adventuresome nature,

and, indeed, as a result of his three years in Gyantse the spell of Tibet and its mountains held him in thrall. From this decision to help the Tibetans stemmed the realisation of the explorations in the eastern Himalaya. although the Tibetan Government, fearful of Ludlow's influence on the young impressionable Tibetans, closed his school, he was allowed access to Tibet, then very much a forbidden land, with chosen companions.

In 1927 Ludlow retired to Srinagar, in Kashmir, intending to travel extensively in the Himalayas collecting specimens, particularly of birds and only incidentally of plants for the British Museum (Natural History). In 1929 he was invited by Mr F. Williamson, then Consul General of Kashgar, but previously British Trade Agent in Gyantse, to spend the winter with him and he jumped at this chance. His diary graphically describes his journey to Kashgar and later, his trip to the Tian Shan. He left Srinagar in May and reached Kashgar at the end of September, collecting birds and plants but also, at the request of the Punjab Government and accompanied by a surveyor, investigating the state of the embankment impounding the 14-mile long Shyok Dam [see *The Himalayan Journal,* Volume 1, published in 1929, for the article, *The Shyok Dam in 1928,* written by Ludlow].

When he first saw the dam in 1928 he thought it was in such an uncertain state that it would not retain the water for long unless it was strengthened. This premonition was confirmed before reinforcement could be made and the dam burst in 1929, fortunately without loss of life. Ludlow stayed at the Consulate with Williamson, meeting there Williamson's friend George Sherriff, and for five months greatly enjoying their companionship and especially the frequent forays with Sherriff on shooting trips. Together with Williamson (who was destined to occupy the key post of Political Officer in Sikkim) he and Sherriff discussed plans to explore Bhutan and Tibet in the years ahead, and these eventually came to splendid fruition as is recorded in the following pages.

Ludlow left Kashgar at the beginning of March 1930 for the Tian Shan Mountains, and his finely-prepared herbarium specimens from these mountains were amongst the first collections that I had to identify after my appointment to the British Museum. Ludlow returned to Srinagar in mid-November, having covered some 4,000 miles and having obtained over 800 bird skins, 2,000 butterflies, 6-700 birds eggs and about 200 different species of plants. I remember particularly two extremely attractive species - *Acantbolimon venustum* and a magnificent *Eremostachys* - which I thought would be most desirable garden plants.

The meeting of Ludlow and Sherriff in Kashgar was the beginning of a long friendship which led these two comrades to explore together for over twenty years with outstanding success. They were two very independent individuals with differing backgrounds: Ludlow, Sherriff's senior by fifteen years, very much in the scholarly academic mould and to whom anything mechanical was a closed book; Sherriff, equally talented in his chosen line, the precise efficient professional soldier who was an expert mechanic and electrician. The affecting and abiding magic of Tibet had touched Sherriff from his experiences on the Ladakh-Tibet border, and the two men resolved to travel to Tibet whenever it became possible to do so. Their common love of out of the way places, of flowers, birds, fine music and field sports sealed the bond between them, and they shared a dislike for the conventional social scene.

- above right -
The Chong Kumdan Dam from the south.

- below right -
Kashgar, 1930:
Frank Ludlow and George Sheriff (seated).
From the left standing - Pantsiloo, Williamson, unknown, Schomberg, Swedish missionary, Ridley.

I cannot now recollect when I first met Ludlow and Sherriff, but it must have been in the early 1930s when they visited the British Museum to discuss plans for future expeditions. Afterwards, I became very closely associated with them and was privileged to join their expedition in 1938. Living together for weeks on end in isolated country, often in most austere conditions, is a real test of compatibility, but on that journey, and over the later years, I was impressed by the great mutual respect they had for each other, their utter selflessness and harmony of views. I never knew of any friction or serious argument between them, and Ludlow actually dubbed himself Sherriff's *Fidus Achates.* Yet over the years of their long friendship they somehow could not bring themselves to address each other by their Christian names, and always used surnames. They concerted their series of expeditions with precise planning, so far as that was possible in the varying and often uncertain political climate and domestic conditions of Tibet at the time. I acted as their home agent and was responsible for the distribution of the seeds and living plants from all their travels.

Sherriff excelled at games at Sedbergh, where he delighted in the glorious country around the school, and on leaving he determined on a career as a professional soldier. So he went to the Royal Military Academy at Woolwich whence he was commissioned in the Royal Garrison Artillery early in 1918. Soon after going to France he was gassed and spent the rest of the war in hospital. In 1919 he was on the North-West Frontier as a gunner serving in the 117 Pack Battery in Mountain Artillery, and saw action in Waziristan where he was mentioned is dispatches. He was an outstanding young officer, and his skill at games and generous nature made him very popular with his men. He entered the Consular Service in 1928 when he was appointed British Vice-Consul in Kashgar, eventually becoming Consul before leaving in 1932. He sensed that the Communist influence in Turkistan would lead eventually to the subjection of that country, but his opinion was not shared by his superior officers and he felt that these differences were so grave that he resigned. Thus he was able to animate the plans which he and Ludlow had for expeditions to the eastern Himalayas which, since they met in Kashgar, had become their lodestar. Sherriff's consular activities enabled him to travel widely in Turkestan and Ladakh, and he kept exact diaries in which he recorded day-to-day events and his impressions of the countries and their people. On these and all his later journeys he showed supreme artistry with the camera, as the illustrations in this book reveal.

The outbreak of the War put a temporary end to the Ludlow and Sherriff expeditions. Sherriff rejoined the artillery and for a time commanded an anti-aircraft battery at Assam, but he was brought back to political duties and based at Gangtok in Sikkim until in 1943 he succeeded Ludlow as British Resident in Lhasa, where he remained for two years. He made a unique series of colour cine films of life in Lhasa, with marvellous portrayals of the colourful distinctive ceremonies, and these are a wonderful and fascinating record of a culture which has been extinguished.

In 1950 Sherriff retired to Scotland where at Ascreavie, Kirriemuir, at an altitude of 900 feet he and his wife created a garden strongly reminiscent of the Himalayan scene, where many of the lovely plants which had been the fruit of his expeditions flourish as luxuriantly as they do in their native habitat.

Sherriff's training and temperament made him an ideal organiser and his proficient planning, typical of his strict military practice, ensured that the primary object of the expeditions were achieved. He was responsible for arranging the commissariat, and even contrived to have vegetable seeds sown at intervals on the long journeys and to have porters collect the produce as it matured and bring it to the advance camps. Thus we frequently had tomatoes, lettuce, turnips and radishes in superb Russian salads prepared by Doud, our gifted Turki cook, who also excelled in baking succulent fruity cakes full of tasty ingredients but whose *tour de force* was an invigorating dish called *Tukpa* - a sort of rich vermicelli which took hours to prepare in the mixing, kneading and rolling of eggs and flour and the chopping of meat, the resulting dish being served piping hot as a delicious nourishing ragout.

Much foresight was exercised to ensure the comfort of the entire party. Sherriff knew success depended on all members being comfortable, contented, fitly shod, fairly paid, well-fed and when deemed necessary - and for the principals that was every night - suitably fortified with the highly concentrated Jamaica rum and 'Treasury Whisky' from the family distillery at Bowmore, Islay. He spared no effort in his preliminary preparations and he bore by far the greater part of the expenses of mounting these costly expeditions. Thus the polyglot band of collectors, servants and porters were kept in good spirits largely by Sherriff's intuitive command. He also showed timely resource as a nurse, and I was immensely grateful for his sympathetic ministrations when, in 1938, I was floored by a puzzling and painful illness which immobilised me for about a fortnight. Following his care I was able to resume a full part in the activities of the expedition.

To keep in touch with the outside world Sherriff provided a massive short-wave radio and two recollections of significant events are particularly memorable. Naturally, at a time of international tension when we were isolated by weeks of travel from India we were concerned to know the trends of events at home, as there was a distinct likelihood that we might have to abandon the expedition and return to more serious duties. Surging over the radio when we were in camp at Melin on 30th September 1938 came the voice of Neville Chamberlain announcing his agreement with Hitler over Czechoslovakia, and this gave us borrowed time to complete the expedition. The other highlight which we relished was the commentary on the Test Match at the Oval in August when Len Hutton made his record score of 364. This episode did much to hearten me as I lay stricken with illness at Kyabden.

Nor was the need for agreeable reading matter overlooked. A pleasurable element amongst the store boxes was a small library, mostly of Nelson's Classics, including novels by Scott, Trollope and others. A thin paper copy of Kipling's poems was much used and so also Palgrave's *Golden Treasury.* Opportunities for reading only came at night when we retired to our respective tents with candles, and I remember being particularly engrossed and burning a good many candles into the night with Wilkie Collins' *The Lady in White.* As space in the cases became necessary for our collections the books were discarded.

Both men were splendid marksmen, Ludlow especially with a catapult and Sherriff with a gun. The skill of being able to hit small birds with catapult slugs was a tremendous advantage in certain parts of Tibet where there was a complete ban on the taking of life and stringent veto on the use of firearms, so that the silent despatch of rare birds by means of a catapult added many valuable skins to the collection. Ludlow's prowess with the catapult was balanced by Sherriff's proficiency with the gun. His crack marksmanship in bringing down such birds as diving swifts was quite extraordinary.

The combined results of the Ludlow-Sherriff expeditions - botanical, horticultural, ornithological and entomological - are a magnificent contribution to our knowledge of the natural history of a region of breathtaking grandeur still greatly unexplored. Inevitably an end had to come to these rewarding expeditions, but it was sad that the Ludlow and Sherriff partnership was unable to put a seal on the exploratory work in the Tsangpo area. This vast and topographically difficult country is surely the greatest existing sanctuary of horticultural and botanical riches still untapped, and without doubt there remains to be discovered many first-class plants of garden value. Let me quote from a letter from Ludlow dated 17th June 1949:

'It would be grand if I could conclude my research with an investigation of the Tsangpo Gorge, wouldn't it? Just think of the plants there, there were 20 different Rhodos at Pemakochung in four days and we didn't go more than a coupe of miles from the monastery or ascend higher than 10,000 ft. Nature has run riot there. New species by the dozen flaunting their blooms asking for discovery and demanding a name'.

In this prefatory chapter it may be of interest to summarise the history of plant collection in the area chosen by Ludlow and Sherriff for their main collecting activities. Their expeditions are described in detail in the main part of this work and thus there will be a degree of factual repetition here to maintain the chronological sequence, but this will not detract in any way from Dr Fletcher's detailed account. Ludlow, Sherriff and I had in mind eventually to prepare an account of the series of expeditions to the eastern Himalayan area and as a longterm project with the collaboration of the Department of Botany at the British Museum to elaborate the results into a catalogue of the plants of the Tsangpo drainage area north of the Himalaya and of Bhutan and outliers of Tibet to the south. Preliminary notes for this object were prepared by Ludlow, Sherriff and myself, and as it now seems unrealistic to expect this work to proceed it might be useful to list chronologically the significant collections made in the region. In compiling this list with its ancillary comments I have relied heavily upon and quoted freely from Ludlow and Sherriff's voluminous notes and long series of letters. This account embraces the following areas in the Himalaya: (a) Bhutan; (b) the drainage of the Tsangpo, as far north as the 1st parallel and lying between the 89th and 96th meridians; (c) Tibetan-administered districts south of the Himalayan axis lying between the above meridians. A glance at the map will show that this area comprises roughly that part of south-east Tibet lying between Chomolhari in the west and Namcha Barwa in the east, bounded to the north by the Ninchentangla and Yigrong ranges, and to the south by the Tibetan-administered districts of Chumbi, Monyul, Mago, Pachakshiri, and Pemako. The whole of the Bhutan comes within this compass. But Sikkim is excluded and also the montane and sub-montana tracts of Northern Assam, inhabited by the Akas, Abor, Daphlas, Mishmis and other barbaric races.

1838-1839:
The first important collection of plants from the area was made by Dr William Griffith in Bhutan in 1838-39. George Bogle in 1774 and Samuel Turner in 1783 both passed through Bhutan when despatched by Warren Hastings to the Tashi Lama at Shigatse, but neither left any account of the floras of either Bhutan or Tibet. Dr William Griffith however, is in a totally different category. Already a botanist of international repute, he was attached as medical officer to a political mission led by Capt. R. B. Pemberton to the court of Bhutan in 1838. The mission entered Bhutan by way of Diwangiri in December, travelled northwards through Biaka and Trongsa to Punaka, which in those days was the capital. Here they remained for a month, and then turned south making their exit from Bhutan to Buxa in May 1839. During the four and a half months Griffith spent in Bhutan he collected 1,500 species of plants, and so thorough and methodical was his work that at the present day it is possible to trace from his diaries and charts almost the exact locality in which each species was collected. In addition to his botanical and medical work Griffith also helped to collect birds, and for this purpose engaged as his assistant a taxidermist called Monteiro. Several hundred skins were prepared, but exactly how many we do not know. Griffith, however, was no ornithologist and the labels written in French by Monteiro, were not very informative, and omitted all dates and locations. However, the amazing thing is that Griffith, despite his multifarious duties, was able to make such a large and comprehensive collection of plants in so short a period and at a time of the year when most of the plants he encountered were either dormant or just waking from their winter rest.

1849-1850:
A decade passed. J. D. Hooker was in Sikkim, and had already completed the first of his great journeys and had returned to Darjeeling with a collection amounting to eighty coolie loads. The horticultural world was astounded at the richness of the Sikkim flora and clamoured for further research and more seed, and so Thomas Booth, a nephew of the American botanist Thomas Nuttall, was despatched to India by his uncle for the express purpose of collecting rhododendrons, orchids and ferns. And hereby hangs a tale which deserves to be told, although strictly speaking the activities of Thomas Booth do not concern us. At the present time it is widely believed that Booth collected his specimens in Bhutan, but this is not so. Not a single locality mentioned by Booth is to be found on any map of Bhutan. Such localities as he gives occur to the east of Bhutan in what is nowadays called the Balipara Frontier Tract. *Rhododendron nuttallii,* for example, unsurpassed in the genus for the beauty and fragrance of its blooms, was discovered by Booth on the banks of the 'Papoo Bootan', a river that rises in the Dafla Hills and flows south-eastwards into the Bhareli River with which it unites at approximately latitude 27° 15', longitude 93° 3'. Again, *Rhododendron windsori* [*R. arboreum* ssp. *arboreum*] was collected at 'Roophry' which is the same place as Rupa, a village on the Tenga river in latitude 27° 13', longitude 92° 24' and the Tenga river itself is the type locality of *Primula boothii* which is still recorded as having been collected by Booth in Bhutan (*Trans. Roy. Soc. Edin.* LXL Part 1, p. 281).

In Hooker's *Journal of Botany* and *Kew Miscellany* (Volume 5, p. 353, 1853) Nuttall described twenty-two species of rhododendron collected by Booth in 1849-50 of which sixteen were new. (In this same *Journal* Booth described *Rhododendron nuttallii,* which was also new). Dr Anderson, however, of the Botanical Survey of India ('Report of the Political Mission of the Honourable Ashley Eden to Bootan', p. 134) speaks rather disparagingly of Booth's efforts, and remarks 'the contributions made by Booth to our knowledge of the flora of Bootan are very meagre', and goes on to say that Booth appeared to have devoted himself to the collection of seeds, ferns and orchids. Dr Anderson, it will be seen, was also under the delusion that Booth collected in Bhutan though the maps of his day show quite clearly the eastern frontier of Bhutan in exactly the same position modern maps show it today, i.e. along the 92nd meridian.

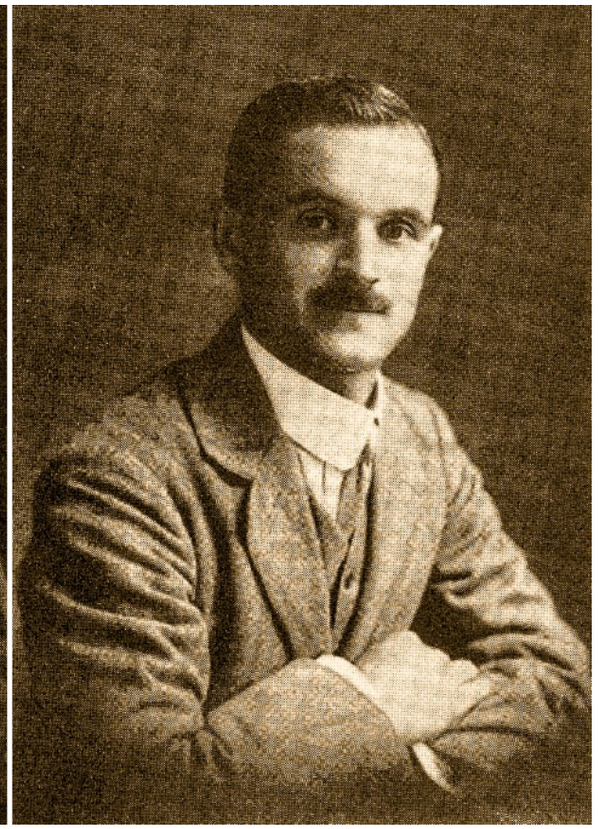
And now, for more than half a century, there is no evidence that any collections of importance were made either in Bhutan or Tibet, though in 1888 H. A. Cummings of the RAMC, who served as Assistant for India for a time in 1906 at Kew and later became Professor of Botany at Cork, was medical officer with the British Forces that defeated the Tibetans and advanced into the Chumbi Valley. He made a collection of plants which are preserved at Kew. In 1863-64 another political mission under the leadership of the Honourable Ashley Eden proceeded to Punaka via Kalimpong, Sipchum Ha and Paro. Many obstacles were encountered by this mission and there is no record of any plants having been collected. In the '80s and '90s a few plants were collected by various botanists along the southern frontier of Bhutan, and in so-called 'British Bhutan' which for the most part means the Kalimpong district. It is probable that some of these specimens were actually gathered within Bhutanese territory, but no one collected during this period very far across the border, and it was not until the Younghusband Mission of 1903-04 that any noteworthy botanical collections were made.

1903-1904:
When Colonel Younghusband led his famous mission to Lhasa he had on his staff Colonel L. A. Waddell and Captain H. J. Walton, two officers from the Indian Medical Service who both

William Griffith.

Thomas Booth and his family.

Colonel Frederick Marshman Bailey.



Captain Henry Treise Morshead.

collected plants and birds. A complete list of Waddell's plants, totalling 160 species, was prepared by Prain and appeared in an appendix to Waddell's fascinating book *Lhasa and its Mysteries.* No list ever appears to have been compiled of the plants collected by Walton. Many new species were discovered by these two medical officers, and these have from time to time been described in the pages of the *Kew Bulletin.* Perhaps the most striking of these new plants was the Lhasa Poppy (*Meconopsis torquata*), which was discovered by Walton, or one of his collectors, in the vicinity of Lhasa. Plants collected on this expedition are preserved in the herbarium of the Royal Botanic Gardens, Kew.

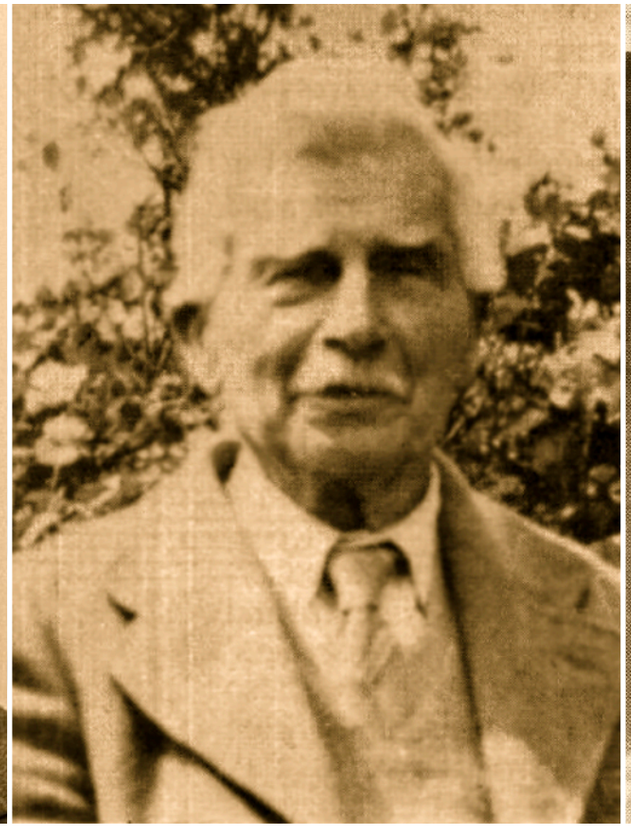
1905-1907:
Sir Claude White, Political Officer of Sikkim, toured extensively in Bhutan. In 1905 he journeyed to Punaka to present the KCIE to the Maharaja, and returned to Sikkim via Lingshi, Dzong and Phari. The following year he explored eastern Bhutan and crossed the main Himalayan range into Tibet by the twin passes Kang La and Bod La (Pö La). In 1907 he paid yet another visit to Punaka. White took more than a passing interest in plants and made several small collections. His name is commemorated in *Primula whitei* which, along with *Primula jonardunii,* now regarded as the equivalent of *Primula dryadifolia,* he discovered on the Kang La in 1906.

Major H. M. Stewart made a small collection in Gyantse in 1907, and two Lepcha collectors, Ribu and Rohmoo, in the employ of the Royal Botanical Garden, Calcutta, collected in the Chumbi Valley and elsewhere in Tibet in the neighbourhood of Phari.

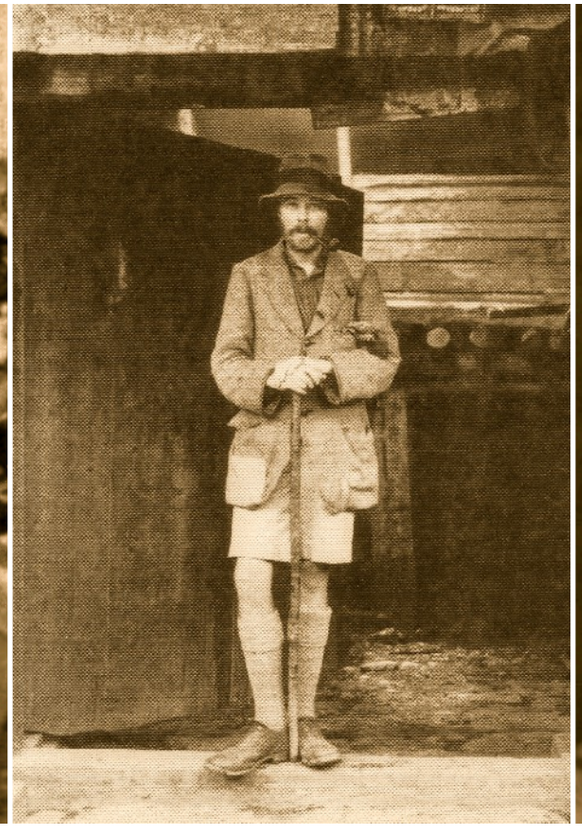
1913:
The first man to reconnoitre thoroughly the lower Tsangpo valley in Tibet and to reveal something of the natural history riches of the region was Frederick M. Bailey, who was one of the most remarkable and least acclaimed explorers of this century. He was proud of his Edinburgh stock and was educated at the Academy of that city. He accompanied the Younghusband mission to Lhasa in 1903, and in 1913 with Captain H. T. Morshead of the Survey of India, he penetrated into south-eastern Tibet through the outlying province of Pemako. They were the first to confirm that the mighty Tsangpo did in fact cut through the Himalaya to emerge in India as the Dihang, a major tributary of the Brahmaputra. The painstaking report of this journey, printed as a confidential document by the Government of India, is a most impressive document and a remarkable tribute to his powers of observation and recording. On the journey, Bailey collected fragmentary botanical specimens and also seeds. From his imperfect material Prain described two new species of *Meconopsis,* of which one was the celebrated Blue Poppy which bore his name but which, alas, is only a local variant of the previously known *Meconopsis betonicifolia* from south-west China. The *Rhododendron* which commemorates him was described from plants raised from seed which he sent to the Royal Botanic Garden, Edinburgh. Bailey also collected butterflies and birds.

- opposite -
FMB 4 - *R. arboreum* ssp. *arboreum* 'Morsheadianum' at the Royal Botanic Garden, Edinburgh.

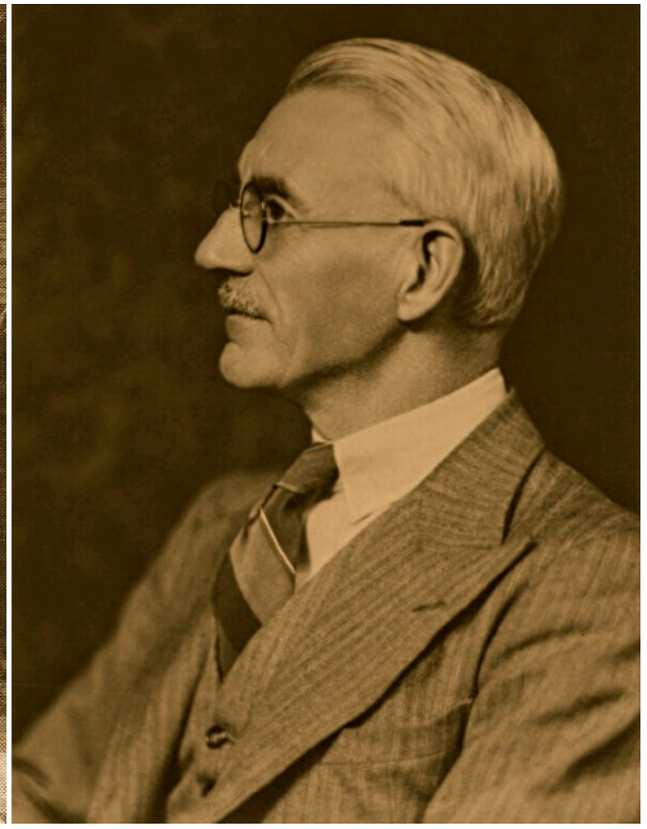
Roland Cooper..



George Cave.



Lord 'Jack' Cawdor.



Frank Kingdon-Ward.

1914-1915:
Considerable collections were made by R. E. Cooper in Bhutan in 1914 and 1915. He became aware of the richness of the Himalayan flora when under the tutelage of W. Wright Smith who was in Indian Government Service at the Royal Botanic Garden, Calcutta, and who collected in alpine areas within Sikkim. Cooper made two journeys for desirable garden plants for A. K. Bulley who had also been a patron of Forrest and Kingdon-Ward. He discovered a number of new species and introduced several plants to gardens in this country, though in the midst of World War I his material suffered from lack of attention. Cooper has written about his journeys in *The New Flora and Silva,* Volumes 1 and 11, and in Volume 18 of the *Notes from the Royal Botanic Garden, Edinburgh.*

1920-1950:
Unquestionably these were the golden years of exploration in the area and resulted in the formation of many plant collections. Though some were small in size they were all of botanical interest. Such were those made by G. H. Cave in his visits to the Chumbi Valley and on the one occasion when he reached Gyantse. And so too were those made by the various Everest expeditions, although for the most part they are outside the scope of this review. These later small but valuable collections are all housed in the Royal Botanic Garden, Kew, whereas Cave's material is in the Calcutta herbarium. It was whilst in the employ of the Tibetan Government at Gyantse from 1923-26 that Ludlow first began to collect plants. All his specimens were plateau plants and were gathered either at Gyantse or in the vicinity. In all there were 200 gatherings. Unfortunately, he left untouched the rich flora of the Chumbi Valley in the mistaken idea that it was well-known. Ludlow's plants are in the British Museum (Natural History).

The one outstanding plant collection of the 1920s, in fact more important by far than the previous ones, was that made by F. Kingdon-Ward and Lord Cawdor in 1924-25. They entered Tibet via the Chumbi Valley in March 1924 and proceeded to Gyantse, which they reached in early April. Then they struck eastwards along the shores of the Yamdrok Tso to Tsetang and followed the Tsangpo river as far as Tsela Dzong, the capital of Kongbo. Leaving Tsela Dzong in May, Ward crossed the Temo La to Tumbatse in the Rong Chu Valley and made this delectable spot his base for the botanical exploration of Kongbo. Ward's principal gatherings were made on the Doshong La and Nam La on the main Himalayan range, and on the Temo La, Nyima La and Tra La on a subsidiary range on the left bank of the Tsangpo. In addition to working these passes Ward and Cawdor also collected on the Nambu La and Pasum Kye La and reached the great Tibetan highway known as the *gyalam* at Atsa Gompa. In November 1926 Ward and Cawdor began their remarkable exploration of the Tsangpo Gorge below Gyala. On their return journey to India in December and January they again crossed the Nambu La to Gyantse, and thence journeyed in a south-westerly direction across the Kumba La to Tsetang. From Tsetang they continued south across the frozen plateau to the trade mart of Tsona, whence they crossed into east Bhutan, by the Pö

La, and reached the railhead at Rangiya in Assam in February 1925. A full and fascinating account of this great journey is contained in Kingdon-Ward's *The Riddle of the Tsangpo Gorge.*

Botanically and horticulturally this was one of the most fruitful of all Kingdon-Ward's expeditions, and forcefully demonstrated for the first time the astounding richness of the flora of south-east Tibet - a flora equal in its wealth and variety to the 'Eldorado' Forrest had discovered in north-western Yunnan. It was from seed gathered on this journey that *Meconopsis betonicifolia, Primula florindae* and *Primula alpicola* were first introduced into British gardens.

Hardly any less notable was Kingdon-Ward's lightning journey of botanical and geographical exploration in south-east Tibet in 1935. Leaving Charduar, an outpost on the Balipara Frontier Track, on 26th April, he penetrated northwards into Monyul and Mago and thence crossed the Tulung La and Pen La, two passes on the Himalaya range each over 17,000 feet into Tibet. Descending the Chayul River he reached Chayul Dzong on 19th June and the large monastery of Sanga Choling ten days later. Tsari, a botanist's paradise where no cultivation is permitted, was reached via the Cha La and a visit paid to Migyitun, the last Tibetan village on the upper Subansiri. Leaving the Tsari district by the Bimba La, Ward turned north to Kyimdong Dzong and then crossed the Lang La to Molo and Tsela Dzong, whence he was on ground already familiar to him as a result of his 1924-25 journey. Crossing the Temo La he reached his base at Tumbatse on 27th July and descended the Rong Chu to Tongyuk Dzong. The sight of the unknown snowy Yigrong range had excited Ward's explorer instincts in 1924, and he now determined to ascend the Po-Yigrong river to its source and place it on the map. From Tongyuk Dzong he crossed the Sobhe La to Tsona Chamna at the head of the Yigrong Tso, and from there commenced his ascent of the great river. The track was always difficult, often dangerous, and involved dizzy cliff climbs and frequent river crossings by means of rope suspension bridges, but in seventeen days Ward found the source of the river in two longitudinal glaciers, and made his exit from the Yigrong by a pass called the Lochen La. Ward now turned south to Gyantse Dzong on the *gyalam,* proceeded southwards to De, and reached Tromda on the Tsangpo via the Ashang Kan La on 5th September. Still continuing south he crossed the Kongmo La into Tsari, the Dip La into Charme, and the Mo La into Chayul whence he retraced his footsteps along the route he had followed in the spring of the year to Charduar. On this journey, which lasted for six months, Ward marched 1200 miles and crossed thirty major passes. Constantly on the move, and with minimum transport, Ward nevertheless brought back a large number of valuable plants. The important geographical results of this expedition were many, but of more moment in this survey was his discovery of the rich alpine and forested areas of Tsari on the Po Yigrong. Ward's specimens are in the British Museum.

Although F. M. Bailey, Political Officer in Sikkim, paid an official visit to Lhasa in the summer of 1924 and collected a few plants in the process, it was during the 1930s that several collections were made in and around Lhasa. In 1935 there was the C. S. Cutting and A. S. Vernay Lhasa expedition, which also visited the important towns of Gyantse and Shigatse. Cutting and Vernay made a collection of about 200 numbers, amongst which were one or two new species which were described by C. G. C. Fischer in the *Kew Bulletin* of 1937. There was the journey to Lhasa in 1936 by F. Spencer Chapman, when he accompanied Sir Basil Gould on the latter's mission to Lhasa and collected assiduously both along the treaty road and at Lhasa itself. About 500 species were obtained, a list of which, prepared by C. G. C. Fischer, can be found in an appendix to Chapman's book *Lhasa the Holy City.*

In 1939 H. E. Richardson, whilst in charge of the British Mission in Lhasa, made a

Left to right:
Arthur Stannard Vernay (1877-1960), an unidentified Tibetan official, and Charles Suydam Cutting (1889-1972).
The photo is undated, but was taken in Tibet.

collection of approximately 400 gatherings which he presented to the British Museum (Natural History).

Sir Basil Gould, Political Officer in Sikkim, made official visits to Bhutan in 1938 and 1939, during which he collected 2,500 numbers. The bulk of the material was obtained along the Ha-Paro-Bumthang highway, but Sir Basil also dispatched collectors into other areas. The collection was a valuable one and contained several new species. All the specimens are in the herbarium at Kew.

Although somewhat outside the boundaries of this review, yet impinging upon it, it seems desirable to mention here a very important collection of 3,500 specimens made by my friend and former colleague at Kew, Dr. N. L. Bor, in the Aka-Sherdukpa country in the Balipara Frontier Tract of northern Assam in 1931-33. An account of this collection is to be found in India Forest Records (Botany), Volume 4, entitled 'A Sketch of the Vegetation of the Aka Hill, Assam'.

For the rest, the thirty years under review are dominated by the seven journeys of plant exploration made by Ludlow and Sherriff and their colleagues, during the course of which they botanised in all the areas traversed by those who had collected before them and, in addition, ventured into many previously unexplored regions in both Bhutan and south-east Tibet. The first was a five-month journey in 1933, chiefly to the Trashiyangse Valley in eastern Bhutan, to the Me La in the extreme north-eastern corner of Bhutan, and then over the main Himalayan range into Tibet. The result was a collection of close on 750 bird skins and 500 gatherings of plants which included several species new to science and the rediscovery of *Meconopsis superba* in western Bhutan, as well as a renewed determination to undertake a series of journeys gradually working eastwards through Tibet along the main Himalayan range, each succeeding journey overlapping its predecessor until the great bend of the Tsangpo was reached.

Towards this end in 1934 Ludlow and Sherriff visited the basins of the Tawang Chu and Nyam Jang Chu in Tibet, entering and returning by the Trashiyangse Valley in eastern Bhutan. 600 gatherings of plants, with a predilection for the more aristocratic genera, as well as almost 1,000 bird skins resulted from this five-month trek. In 1936, accompanied by Dr. K. Lumsden, their objective was the exploration of the upper reaches of the Subansiri, the district Kingdon-Ward had visited in the previous summer. Again, the route out and back was through eastern Bhutan, and during the ten months they were in the field they made nearly 2000 gatherings of plants, sending home to Britain two big crates of

Standing (left to right) - Frederick Williamson; Frank Ludlow; George Sherriff; Dorji.
Seated (left to right) - Aji Wangmo; Margaret Williamson (Peggy); Maharani of Bhutan; Aji Pedon.
Photographed in Bumthang, Bhutan, on July 16th, 1933.

living material (which travelled in the cold room next to the butcher's shop on a P & O liner) and numerous packets of seeds. Although on this particular journey Ludlow and Sherriff's gatherings were somewhat limited, these contained such a large percentage of new species that this expedition to the Upper Subansiri must certainly rank as one of their most successful ventures. In the genus *Primula,* out of sixty-five species and varieties gathered fourteen were new, and with the genus *Rhododendron* fifteen out of sixty-nine were novelties. In *Meconopsis* there was a new species of great beauty (*Meconopsis sherriffii*) and a new yellow variety of *Meconopsis horridula.* In July 1937 Ludlow was occupied with work in Kashmir and so was unable to accompany Sherriff to the high massif in Bhutan called Dungshinggang by the Bhutanese and the Black Mountain by the Survey of India. Sherriff made 600 gatherings of plants during his four-month journey, paying special attention to the genera *Primula* and *Rhododendron.*

In 1938 Ludlow was free to join Sherriff and I was asked to accompany the two friends on a ten-month journey within the drainage of the Tsangpo from the vicinity of Molo on the Lilung Chu down to Gyala at the entrance to the Tsangpo Gorge. The collections made on this memorable journey embraced every form of plant life and totalled nearly 4,000 gatherings, a vast quantity of seeds and many living plants, which probably for the first time in the history of plant exploration and certainly in this region of the world, were dispatched to Britain by air. The results of this expedition were satisfactory in every way, and Ludlow has described it as producing the largest and most comprehensive collection of plants that has ever come out of Tibet in one season, the collection being all-embracing and of great taxonomic and horticultural value. Alas, the outbreak of World War II prevented proper care being given to the living plants and the seeds so that the horticultural results were largely nullified, though a number of species were introduced and still survive in gardens. Unfortunately too, the bombing of the British Museum severely damaged some of the herbarium material.

Whilst Ludlow, Sherriff and I were in south-east Tibet, Kingdon-Ward was collecting in Monyul, a district whose boundaries are ill-defined and which at the time of Ward's visit was being administered by Lhasa through the big monastery at Tawang. Ward followed the usual Assam-Tibet trade route from Charduar to Dirang Dzong after which, with Dirang Dzong as his base, he spent the greater part of the flowering season exploring the Poshing La, Ze La, and Orka La passes. He returned from Assam in October with a valuable collection of 800 gatherings.

During the years of the war plant exploration on a large scale in the eastern Himalaya was quite impossible, though Ludlow and Sherriff seized any limited opportunities they had to collect. From April 1942 to April 1943, Ludlow was in charge of the British Mission in Lhasa, and he was succeeded by Sherriff who went to Lhasa with his wife and remained there until April 1945. The story of these Lhasa years is charmingly told by Mrs Sherriff on pages 227-46 of this book [*A Quest of Flowers*]. Plants were collected at intervals between their official duties, chiefly around Lhasa, but collectors were also sent as far afield as Reting, sixty-nine miles north of the capital where the rainfall is heavy and the vegetation more luxuriant in consequence. The flora of Lhasa and its neighbourhood is of great interest and contains a number of endemics, but by far their most important find was the Lhasa Poppy (*Meconopsis torquata*), until then very imperfectly known from a single gathering made by Walton or one of his collectors in 1904. It was rediscovered by Ludlow and Sherriff on the mountains overlooking the city.

The end of the war gave Ludlow and Sherriff the opportunity of continuing their botanical exploration of south-east Tibet, and in 1946 their objectives were the Po Yigrong range and the low-lying gorge country in Kongbo and Pome. Mrs Sherriff accompanied the party on this expedition and Colonel Henry Elliott joined as Medical Officer. They travelled in the winter to enable them to be on the rich collection grounds by early spring. From January to March 1947 the members of the expedition collected in the lower reaches of the Po Yigrong and the Po Tsangpo and visits were paid to Showa Dzong and Gompo Ne. In March the expedition split up. The Sherriffs made preparations to return to the Yigrong and Po Tsangpo whilst Ludlow and Elliott left for the gorges of the Kongbo Tsangpo below Gyala. Unfortunately a catastrophe now occurred which upset the carefully-laid plans. Sherriff, who had strained his heart badly in his exertions in 1938 and was also affected by his length residence in Lhasa, now began to suffer so acutely from his old strain that he was compelled to return to India. In spite of this ill-fortune the fourteen-month journey produced close on 4,000 pressed plants, four crates of living plants which were sent home by air freight from Calcutta, and a vast amount of seeds. The journey was the most ambitious of all the Ludlow and Sherriff expeditions and had it not been for Sherriff's unfortunate illness the results would have been more eminently successful.

This proved to be the last of Ludlow and Sherriff's Tibetan expeditions. In 1949, Ludlow planned to return to Tibet to work the gorge of the Tsangpo whilst Sherriff, mindful of his heart, planned to work at a lower altitude in the Mishmi Hills from a base near Rima. But both these projects came to naught as neither the Tibetan nor Indian Governments would accord the necessary sanction. The shadow of communist China was already descending on the great Himalayan frontiers. Thus foiled in their plans to work independently two of the richest areas left to the field botanist, Ludlow and Sherriff decided to undertake another joint expedition and carry out as complete a botanical survey as possible in temperate and alpine Bhutan from west to east. Once again Mrs Sherriff accompanied her husband and Dr. J. H. Hicks also joined the expedition both in a botanical and medical capacity. Fortunately Dr. Hicks was at hand when Mrs Sherriff, as a result of a loose saddle-girth, was thrown from her mule, fractured her arm and had to return for medical treatment to India. During the seven months Ludlow and Sherriff and Hicks were in the field they made approximately 5,000 gatherings of plants for the herbarium, numerous bulbs and tubers and almost one hundred living plants, which Sherriff had flown to Britain from Calcutta, and seed in such bulk that it was possible to distribute 20,000 packets. One of the most noteworthy plants discovered was a new lily named *Lilium sherriffiae* in honour of its discoverer, and another important find was the rediscovery of the beautiful pink *Meconopsis sherriffii* growing in great quantity on the upper Po Chu and Mangdo Chu. This last expedition of the Ludlow and Sherriff series was certainly crowned with success and a magnificent climax to their years of endeavour.

Like Forrest, and quite unlike Kingdon-Ward, Ludlow and Sherriff were both loth to put pen to paper and apart from the occasional brief article neither made any attempt to make the story of their exploits generally available. Ludlow did however publish a good many papers recording the ornithological results and also, in later years, on the botanical collections, while Sherriff in his retirement was often willing to lecture and show his remarkable films. However, methodically and conscientiously they both kept a daily diary of all their travels and it is these records, as well as their copious field notes, which have formed the basis for Dr. Fletcher's narrative. As both men regarded their expeditions as essential scientific their diaries in large measure reflect this attitude, Sherriff in particular often writing at considerable length on the plants in which he was particularly interested. Thus while it is not very difficult to obtain a clear idea of the plants they were collecting there is no real indication in their personal writings of the country and the terrain from which the plants were taken.

The Ludlow & Sherriff Plant Hunting Expeditions:

The 1934 Bhutan & S Tibet Collections:

L&S 569	maddenii	L&S 595	thomsonii
L&S 570	maddenii	L&S 605	campanulatum
L&S 582	dalhousiae	L&S 606	wightii
L&S 583	rhabdotum	L&S 613	hodgsonii
L&S 586	arboreum	L&S 616	campanulatum
L&S 588	keysii	L&S 619	campanulatum
L&S 589	camelliiflorum	L&S 622	campanulatum
L&S 590	leptocarpum	L&S 624	campanulatum

L&S 634	lepidotum	L&S 1082	campanulatum
L&S 638	anthopogon	L&S 1083	tsariense
L&S 647	cinnabarinum	L&S 1084	fulgens
L&S 661	hypenanthum	L&S 1085	campanulatum
L&S 716	lepidotum	L&S 1091	anthopogon
L&S 811	aganniphum	L&S 1105	arboreum
L&S 976	lindleyi	L&S 1115	arboreum
L&S 1081	unidentified species	Sherriff 6/38 *	xanthocodon

Trashigong.

Near the tree limit (12,500-13,000 feet), a mile south-west of the Me La.

* Sherriff 6/38.
RBGE Accession number:19380362 - Rhododendron *cinnabarinum* ssp. *xanthocodon* (Hutch.) Cullen, Purpurellum Group (RHS).
Collected in the Sakden District of Bhutan by George Sherriff, on July 10th, 1934 (per the RBGE Living Collections database entry), it is not included in the listings for that trip, but as a separate entry, under the Sherriff designation.
More intriguingly, it was gathered two years before those same plant hunters first collected *R. cinnabarinum* var. *purpurellum,* which they originally discovered in 1936 at Natrampa, Chayul Chu, in southern Tibet (L&S 1354).
Technically, the corolla is shorter than the type, campanulate and coloured deep plum-purple through pinkish-mauve. The leaves are also somewhat smaller.
A botanic description, written by John Cowan, can be found in *Notes from the Royal Botanic Garden, Edinburgh,* Volume 21, published in 1953.
Botanically, of all the subsection *Cinnabarina* plants, it is the closest to *R. oreotrephes* and intermediaries between the two species can be found in the wild.
The taxon was transferred to ssp. *xanthocodon* in the Edinburgh Revision primarily on the basis of corolla and leaf shape, and then sunk, though RHS Group status maintains the name,
thus it is now classified as *R. cinnabarinum* ssp. *xanthocodon* Purpurellum Group.

L&S 1084 - *R. fulgens*

L&S 1084 - *R. fulgens*

L&S 1084 - *R. fulgens*

L&S 1091 - *R. anthopogon* ssp. *anthopogon* ‘Betty Graham’ AM 1969


L&S 1091 - *R. anthopogon* ssp. *anthopogon* ‘Betty Graham’ AM 1969


L&S 1091 - *R. anthopogon* ssp. *anthopogon* ‘Betty Graham’ AM 1969


L&S 1091 - *R. anthopogon* ssp. *anthopogon* ‘Betty Graham’ AM 1969

Sherriff 6/38 - *R. cinnabarinum* ssp. *xanthocodon* Purpurellum Group

Sherriff 6/38 - *R. cinnabarinum* ssp. *xanthocodon* Purpurellum Group

Sherriff 6/38 - *R. cinnabarinum* ssp. *xanthocodon* Purpurellum Group

Sherriff 6/38 - *R. cinnabarinum* ssp. *xanthocodon* Purpurellum Group

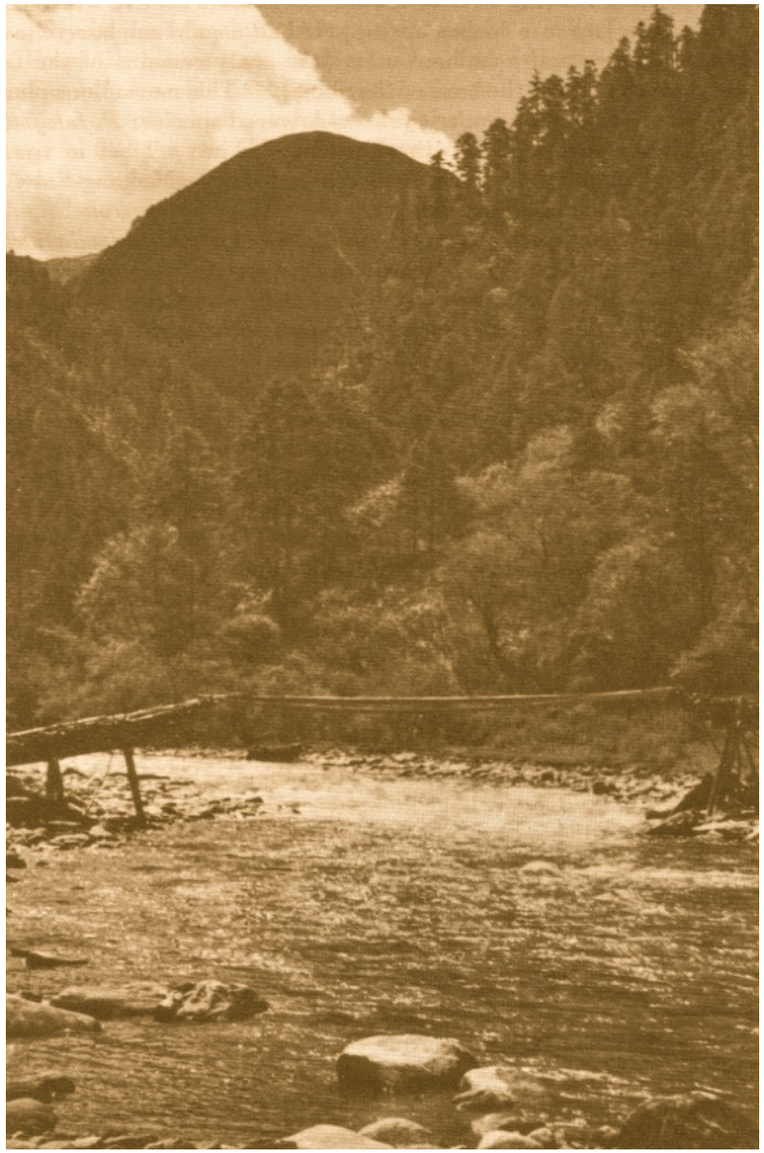
The 1936 Bhutan & S Tibet Collections:

L&S 1134	grande	L&S 1297	fulgens
L&S 1141	maddenii	L&S 1302	wallichii
L&S 1142	maddenii	L&S 1303	tsariense
L&S 1143	arboreum	L&S 1304	argipeplum
L&S 1148	grande	L&S 1305	arboreum
L&S 1181	camelliiflorum	L&S 1306	wallichii
L&S 1182	arboreum	L&S 1307	arboreum
L&S 1183	camelliiflorum	L&S 1308	arboreum
L&S 1184	zeylanicum	L&S 1309	pendulum
L&S 1185	arboreum	L&S 1342	vellereum
L&S 1186	grande	L&S 1346	virgatum
L&S 1193	papillatum	L&S 1352	neriiflorum
L&S 1204	rhabdotum	L&S 1353	triflorum
L&S 1205	dalhousiae	L&S 1354	xanthocodon Purpurellum
L&S 1206	kendrickii	L&S 1355	glaucophyllum
L&S 1208	grande aff.	L&S 1356	ciliatum
L&S 1209	camelliiflorum	L&S 1357	fulvum
L&S 1227	kendrickii	L&S 1358	arizelum
L&S 1235	grande	L&S 1359	populare
L&S 1251	edgeworthii	L&S 1360	dekatanum
L&S 1252	papillatum	L&S 1361	megeratum
L&S 1257	neriiflorum	L&S 1362	pumilum
L&S 1258	grande	L&S 1364	tsariense
L&S 1260	papillatum	L&S 1365	amandum
L&S 1261	arboreum	L&S 1366	virgatum
L&S 1262	triflorum	L&S 1380	arizelum
L&S 1266	lindleyi	L&S 1381	fulvum
L&S 1269	lindleyi	L&S 1383	fulvum
L&S 1276	arboreum	L&S 1384	fulvum
L&S 1279	virgatum	L&S 1385	hodgsonii
L&S 1280	kendrickii	L&S 1386	pudorosum
L&S 1281	arboreum	L&S 1387	erosum
L&S 1282	argipeplum	L&S 1389	luciferum
L&S 1283	thomsonii	L&S 1390	sherriffii
L&S 1285	baileyi	L&S 1391	populare
L&S 1296	wallichii	L&S 1392	vellereum

L&S 1396	erosum	L&S 1677	neriiflorum
L&S 1397	vellereum	L&S 1702	lindleyi
L&S 1541	erosum	L&S 1715	lindleyi
L&S 1542	fulvum	L&S 1718	lopsangianum
L&S 1549	vellereum	L&S 1720	phaedropum
L&S 1555	vellereum	L&S 1728	x pallidum (NH)
L&S 1557	luciferum	L&S 1730	x pallidum (NH)
L&S 1558	luciferum	L&S 1741	pumilum
L&S 1559	vellereum	L&S 1751	leptocarpum
L&S 1564	dignabile	L&S 1756	anthopogon
L&S 1565	anthopogon	L&S 1757	concatenans
L&S 1566	dignabile	L&S 1760	aganniphum
L&S 1567	aganniphum aff.	L&S 1761	x agglutinatum (NH)
L&S 1568	unidentified species	L&S 1762	luciferum
L&S 1575	cinnabarinum	L&S 1770	x agglutinatum (NH)
L&S 1583	cephalanthum	L&S 1771	calostrotum
L&S 1598	nivale	L&S 1772	fragariiflorum
L&S 1606	anthopogon	L&S 1773	pumilum
L&S 1607	dignabile	L&S 1776	lopsangianum
L&S 1608	luciferum	L&S 1779	nivale
L&S 1610	luciferum	L&S 1788	nivale
L&S 1612	pudorosum	L&S 1796	primuliflorum
L&S 1619	dignable	L&S 1855	lepidotum
L&S 1624	pumilum	L&S 1860	vellereum
L&S 1628	campylocarpum	L&S 1863	mahogani
L&S 1629	erosum	L&S 1870	lepidotum
L&S 1634	pumilum	L&S 1873	cerasinum
L&S 1636	tsariense	L&S 1881	tsangpoense
L&S 1647	pruniflorum	L&S 1882	campylogynum
L&S 1649	calostrotum	L&S 1883	forrestii Repens
L&S 1651	lopsangianum	L&S 1889	pumilum
L&S 1653	anthopogon	L&S 1890	mekongense
L&S 1656	caloxanthum	L&S 1893	campylocarpum
L&S 1666	megeratum	L&S 1894	cinnabarinum
L&S 1675	triflorum	L&S 1895	loudlowii
L&S 1676	neriiflorum	L&S 1896	mekongense

L&S 1904	keysii	L&S 2758	trichocladum
L&S 2085	wardii	L&S 2759	megeratum
L&S 2108	leptocarpum	L&S 2760	camelliiflorum
L&S 2109	trichocladum	L&S 2761	megeratum
L&S 2160	laudandum	L&S 2762	pumilum
L&S 2210	tsariense	L&S 2764	glaucophyllum
L&S 2225	lepidotum	L&S 2765	camelliiflorum
L&S 2244	lepidotum	L&S 2766	tsariense
L&S 2300	nivale	L&S 2767	unidentified species
L&S 2332	crassum	L&S 2770	virgatum
L&S 2334	keysii	L&S 2797	vellereum
L&S 2335	trichocladum	L&S 2816	unidentified species
L&S 2338	crassum	L&S 2817	unidentified species
L&S 2378	pumilum	L&S 2818	lepidotum
L&S 2447	lepidotum	L&S 2824	anthopogon
L&S 2505	megeratum	L&S 2825	arboreum
L&S 2552	pumilum	L&S 2826	thomsonii
L&S 2622	bulu	L&S 2827	unidentified species
L&S 2627	vellereum	L&S 2828	anthopogon
L&S 2652	cinnabarinum	L&S 2833	maddenii
L&S 2652	pumilum	L&S 2835	griffithianum
L&S 2653	forrestii	L&S 2836	edgeworthii
L&S 2654	campylogynum	L&S 2837	rhabdotum
L&S 2736	lopsangianum	L&S 2843	rhabdotum
L&S 2738	vellereum	L&S 2845	camelliiflorum
L&S 2739	ciliatum	L&S 2846	fulgens
L&S 2743	unidentified species	L&S 2847	thomsonii
L&S 2744	lindleyi	L&S 2848	unidentified species
L&S 2745	edgeworthii	L&S 2849	camelliiflorum
L&S 2748	kendrickii	L&S 2850	camelliiflorum
L&S 2751	sherriffii	L&S 2851	unidentified species
L&S 2752	pudorosum	L&S 2852	camelliiflorum
L&S 2753	arizelum	L&S 2853	camelliiflorum
L&S 2754	fulvum	L&S 2855	camelliiflorum
L&S 2755	erosum	L&S 2856	tubiforme
L&S 2757	ciliatum	L&S 2857	leptocarpum

L&S 2858	tsariense	L&S 2896	baileyi
L&S 2859	wightii	L&S 2898	pendulum
L&S 2860	unidentified species	L&S 2903	campanulatum aff.
L&S 2891	dalhousiae	L&S 2906	campanulatum aff.
L&S 2892	maddenii	L&S 2907	unidentified species
L&S 2893	campbelliae	L&S 2915	fulgens
L&S 2894	tsariense	L&S 2916	wightii
L&S 2895	wallichii	L&S 2917	rhabdotum



The bridge at Singo Samba.

L&S 1352 - *R. neriiflorum* ssp. *neriiflorum*

L&S 1352 - *R. neriiflorum* ssp. *neriiflorum*

L&S 1352 - *R. neriiflorum ssp. neriiflorum*

L&S 1352 - *R. neriiflorum* ssp. *neriiflorum*

L&S 1353 - *R. triflorum* var. *triflorum*

L&S 1353 - *R. triflorum* var. *triflorum*

L&S 1353 - *R. triflorum* var. *triflorum*

L&S 1353 - *R. triflorum* var. *triflorum*

L&S 1360 - *R. dekatanum*

L&S 1360 - *R. dekatanum*


L&S 1390 - *R. sherriffii*


L&S 1390 - *R. sherriffii*


L&S 1390 - *R. sherriffii*

L&S 1396 - *R. erosum*

L&S 1396 - *R. erosum*

L&S 1396 - *R. erosum*

L&S 1396 - *R. erosum*

L&S 1396 - *R. erosum*

L&S 2738 - *R. vellereum*

L&S 2738 - *R. vellereum*

L&S 2751 - *R. sherriffii*

L&S 2751 - *R. sherriffii*

L&S 2752 - *R. pudorosum*

L&S 2752 - *R. pudorosum*

L&S 2752 - *R. pudorosum*

L&S 2752 - *R. pudorosum*

L&S 2752 - *R. pudorosum*

L&S 2752 - *R. pudorosum*

L&S 2754 - *R. fulvum* ssp. *fulvum*

L&S 2754 - *R. fulvum* ssp. *fulvum*

L&S 2764 - *R. glaucophyllum* var. *glaucophyllum*

L&S 2764 - *R. glaucophyllum* var. *glaucophyllum*

L&S 2764 - *R. glaucophyllum* var. *glaucophyllum*

L&S 2764 - *R. glaucophyllum* var. *glaucophyllum*

L&S 2766 - *R. lanatum* ssp. *tsariense*

L&S 2766 - *R. lanatum* ssp. *tsariense*

L&S 2766 - *R. lanatum* ssp. *tsariense*

L&S 2766 - *R. lanatum* ssp. *tsariense*

L&S 2797 - *R. vellereum*

L&S 2797 - *R. vellereum*

L&S 2846 - *R. fulgens*

L&S 2846 - *R. fulgens*

L&S 2846 - *R. fulgens*

L&S 2847 - *R. thomsonii*

L&S 2847 - *R. thomsonii*

L&S 2847 - *R. thomsonii*

L&S 2847 - *R. thomsonii*

L&S 2893 - *R. arboreum* ssp. *cinnamomeum* var. *campbelliae*

L&S 2893 - *R. arboreum* ssp. *cinnamomeum* var. *campbelliae*

L&S 2893 - *R. arboreum* ssp. *cinnamomeum* var. *campbelliae*

L&S 2893 - *R. arboreum* ssp. *cinnamomeum* var. *campbelliae*

L&S 2895 - *R. wallichii*

L&S 2895 - *R. wallichii*

L&S 2895 - *R. wallichii*

L&S 2895 - *R. wallichii*

The 1938 SE Tibet Collections with George Taylor:

LS&T 3587	vellereum	LS&T 3677	ramsdenianum
LS&T 3589	unidentified species	LS&T 3680	grande
LS&T 3600	vellereum	LS&T 3689	unidentified species
LS&T 3601	primuliflorum	LS&T 3692	lindleyi
LS&T 3607	vellereum	LS&T 3702	neriiflorum
LS&T 3609	vellereum	LS&T 3706	rude
LS&T 3613	thomsonii	LS&T 3709	edgeworthii
LS&T 3618	clementinae	LS&T 3720	edgeworthii
LS&T 3619	unidentified species	LS&T 3726	xanthostephanum
LS&T 3620	lanatum	LS&T 3728	edgeworthii
LS&T 3623	vellereum	LS&T 3731	campylocarpum
LS&T 3624	hirtipes	LS&T 3736	leptocarpum
LS&T 3628	vellereum	LS&T 3741	lindleyi
LS&T 3629	kongboense	LS&T 3749	arizelum
LS&T 3631	hirtipes	LS&T 3750	x pallidum (NH)
LS&T 3632	exasperatum	LS&T 3751	charitopes
LS&T 3635	lopsangianum	LS&T 3752	charitopes
LS&T 3641	sulfureum	LS&T 3753	lopsangianum
LS&T 3642	forrestii Repens	LS&T 3761	concatenans
LS&T 3643	hodgsonii	LS&T 3765	cerasinum
LS&T 3644	sulfureum	LS&T 3766	lopsangianum
LS&T 3645	tsariense	LS&T 3768	lopsangianum
LS&T 3646	hodgsonii	LS&T 3769	tsariense
LS&T 3652	hookeri	LS&T 3777	dignabile
LS&T 3654	ciliatum	LS&T 3778	tsangpoense
LS&T 3655	hookeri	LS&T 3783	forrestii Repens
LS&T 3656	phaedropum	LS&T 3784	pumilum
LS&T 3657	megeratum	LS&T 3785	riparium
LS&T 3663	grande	LS&T 3786	x chamaephytum (NH)
LS&T 3664	tsangpoense	LS&T 3792	pudorosum
LS&T 3665	lindleyi	LS&T 3793	luciferum
LS&T 3666	xanthostephanum	LS7T 3795	mahogani
LS&T 3667	lindleyi	LS&T 3797	hirtipes
LS&T 3670	rude	LS&T 3801	cinnabarinum Roylei
LS&T 3674	arizelum	LS&T 3802	kongboense
LS&T 3676	hookeri	LS&T 3805	nivale

LS&T 3829	dignabile	LS&T 4489	mahogani
LS&T 3830	nivale	LS&T 4496	bulu
LS&T 3849	wardii	LS&T 4536	vellereum
LS&T 3861	anthopogon	LS&T 4620	wardii
LS&T 3878	clementinae	LS&T 4621	dignabile
LS&T 3900	laudandum	LS&T 4711	calostrotum
LS&T 3902	x agglutinatum (NH)	LS&T 4738	campylogynum
LS&T 3925	pumilum	LS&T 4747	wardii
LS&T 3933	kongboense	LS&T 4751	forrestii Repens
LS&T 3938	lopsangianum	LS&T 4755	cephalanthum
LS&T 3939	callimorphum	LS&T 4757	tsariense
LS&T 3940	lopsangianum	LS&T 4765	pumilum
LS&T 3941	ludlowii	LS&T 4773	wardii
LS&T 3942	forrestii Repens	LS&T 4781	anthopogon
LS&T 3975	calostrotum	LS&T 4781a	cephalanthum
LS&T 3976	luciferum	LS&T 4784	nivale
LS&T 3994	campylocarpum	LS&T 4785	fragariiflorum
LS&T 3995	forrestii Repens	LS&T 4808	dignabile
LS&T 3997	populare	LS&T 4826	nivale
LS&T 3999	nivale	LS&T 4902	trichocladum
LS&T 4028	grande	LS&T 4902	campylocarpum
LS&T 4029	arboreum	LS&T 4916	charitopes
LS&T 4031	arboreum	LS&T 4946	puralbum
LS&T 4034	thomsonii	LS&T 4955	cerasinum
LS&T 4035	argipeplum	LS&T 4996	bulu
LS&T 4046	mahogani	LS&T 5010	x agglutinatum (NH)
LS&T 4139	primuliflorum	LS&T 5032	mahogani
LS&T 4140	vellereum	LS&T 5042	laudandum
LS&T 4253	nivale	LS&T 5182	lepidotum
LS&T 4277	bulu	LS&T 5198	campylogynum
LS&T 4359	luciferum	LS&T 5198a	charitopes
LS&T 4360	dasycladum	LS&T 5198b	pumilum
LS&T 4361	cinnabarinum Roylei	LS&T 5237	charitopes
LS&T 4362	dignabile	LS&T 5240	cephalanthum Nmaiense
LS&T 4396	wardii	LS&T 5243	mekongense
LS&T 4440	bulu	LS&T 5261	campylocarpum

LS&T 5283	nivale	LS&T 6548	wardii
LS&T 5431	lepidotum	LS&T 6549	lanatum
LS&T 5544	chamaethomsonii	LS&T 6556	pumilum
LS&T 5555	mekongense	LS&T 6560	xanthocodon
LS&T 5558	esetulosum	LS&T 6561	lopsangianum
LS&T 5559	pumilum	LS&T 6562	lindleyi
LS&T 5560	campylogynum	LS&T 6563	phaedropum
LS&T 5565	charitopes	LS&T 6565	keysii
LS&T 5568	x erythrocalyx (NH)	LS&T 6567	viscidifolium
LS&T 5571	ludlowii	LS&T 6568	ciliatum
LS&T 5572	forrestii	LS&T 6569	rude
LS&T 5581	tsariense	LS&T 6572	monanthum
LS&T 5583	campylocarpum	LS&T 6573	manipurense
LS&T 5584	callimorphum	LS&T 6576	hypolepidotum
LS&T 5599	lepidotum	LS&T 6579	hookeri
LS&T 5664	bulu	LS&T 6580	sulfureum
LS&T 5679	wardii	LS&T 6581	edgeworthii
LS&T 5768	cerasinum	LS&T 6582	xanthostephanum
LS&T 5769	charitopes	LS&T 6583	kasoense
LS&T 5783	campylocarpum	LS&T 6586	wardii
LS&T 5844	trichocladum	LS&T 6587	cerasinum
LS&T 5847	campylogynum	LS&T 6588	riparium
LS&T 5848	charitopes	LS&T 6590	mekongense
LS&T 5855	calostrotum	LS&T 6591	wardii
LS&T 5868	wardii	LS&T 6598	forrestii
LS&T 5869	cerasinum	LS&T 6599	wardii
LS&T 5883	xanthocodon	LS&T 6600	ludlowii
LS&T 6213	bulu	LS&T 6602	campylocarpum
LS&T 6302	vellereum	LS&T 6608	clementinae
LS&T 6342	pumilum	LS&T 6612	x doshongense (NH)
LS&T 6349a	xanthocodon Purpurellum	LS&T 6626	neriiflorum
LS&T 6350	lepidotum	LS&T 6633	leptocarpum
LS&T 6411	cinnamomeum	LS&T 6638	miniatum aff.
LS&T 6424	wallichii	LS&T 6645	vellereum
LS&T 6533	pumilum	LS&T 6648	argipeplum
LS&T 6538	trichocladum	LS&T 6652	lanatum

LS&T 6656	baileyi	LS&T 6754	maddenii
LS&T 6657	tsariense	LS&T 6776	arboreum
LS&T 6659	wallichii	LS&T 7012	crassum
LS&T 6660	pendulum	LS&T 7190	vellereum
LS&T 6661	tsariense	LS&T 7200	clementinae
LS&T 6676	crassum	LS&T 7291	lepidotum
LS&T 6694	dalhousiae		

Yak-skin coracles on the Tsangpo.

LS&T 5679 - *R. wardii* var. *wardii*

LS&T 5679 - *R. wardii* var. *wardii*

LS&T 5679 - *R. wardii* var. *wardii*

LS&T 5679 - *R. wardii* var. *wardii* ‘Ellestee’ AM 1959

LS&T 6411 - *R. arboreum* ssp. *cinnamomeum* var. *campbelliae*

LS&T 6411 - *R. arboreum* ssp. *cinnamomeum* var. *campbelliae*


LS&T 6424 - *R. wallichii*


LS&T 6424 - *R. wallichii*


LS&T 6424 - *R. wallichii*

LS&T 6548 - *R. wardii* var. *wardii*

LS&T 6548 - *R. wardii* var. *wardii*

LS&T 6548 - *R. wardii* var. *wardii*

LS&T 6560 - *R. cinnabarinum* ssp. *xanthocodon*

LS&T 6560 - *R. cinnabarinum* ssp. *xanthocodon*

LS&T 6560 - *R. cinnabarinum* ssp. *xanthocodon*

LS&T 6560 - *R. cinnabarinum* ssp. *xanthocodon*

LS&T 6561 - *R. lopsangianum*

LS&T 6561 - *R. lopsangianum*

LS&T 6567 - *R. viscidifolium*

LS&T 6567 - *R. viscidifolium*

LS&T 6567 - *R. viscidifolium*

LS&T 6567 - *R. viscidifolium*

LS&T 6567 - *R. viscidifolium*

LS&T 6567 - *R. viscidifolium*

LS&T 6586 - *R. wardii* var. *wardii*

LS&T 6586 - *R. wardii* var. *wardii*

LS&T 6586 - *R. wardii* var. *wardii*

LS&T 6586 - *R. wardii* var. *wardii*

LS&T 6612 - *R. taliense*

LS&T 6612 - *R x doshongense*

LS&T 6612 - *R x doshongense*

LS&T 6612 - *R x doshongense*

LS&T 6612 - *R x doshongense*

LS&T 6645 - *R. vellereum*

LS&T 6645 - *R. vellereum*

LS&T 6648 - *R. argipeplum*

LS&T 6648 - *R. argipeplum*

LS&T 6676 - *R. maddenii* ssp. *crassum*

LS&T 6676 - *R. maddenii ssp. crassum*

LS&T 6676 - *R. maddenii ssp. crassum*

The 1946-1947 SE Tibet Collections with Henry Elliot:

LS&E 12002	vellereum	LS&E 12470	wallichii
LS&E 12010	mahogani	LS&E 12484	campylocarpum
LS&E 12014	mahogani	LS&E 12485	mahogani
LS&E 12019	faucium	LS&E 12490	baileyi
LS&E 12024	virgatum	LS&E 12491	arboreum
LS&E 12045	faucium	LS&E 12498	tsariense
LS&E 12117	nuttallii	LS&E 12505	mekongense
LS&E 12137	tanastylum	LS&E 12510	tanastylum
LS&E 12208	faucium	LS&E 12514	faucium
LS&E 12231	scopulorum	LS&E 12515	virgatum
LS&E 12239	unidentified species	LS&E 12525	pendulum
LS&E 12246	tanastylum	LS&E 12526	campylocarpum
LS&E 12248	maddenii	LS&E 12535	glaucophyllum
LS&E 12253	virgatum	LS&E 12536	keysii
LS&E 12264	scopulorum	LS&E 12537	ciliatum
LS&E 12280	tanastylum	LS&E 12548	maddenii
LS&E 12289	faucium	LS&E 12550	maddenii
LS&E 12290	faucium	LS&E 12564	maddenii
LS&E 12313	faucium	LS&E 12592	maddenii
LS&E 12326	virgatum	LS&E 13035	nuttallii
LS&E 12329	griseum	LS&E 13043	lanigerum
LS&E 12342	uvarifolium	LS&E 13044	glischrum
LS&E 12348	auritum	LS&E 13045	pruniflorum
LS&E 12354	scopulorum	LS&E 13077	nuttallii
LS&E 12370	scopulorum	LS&E 13108	cerasinum
LS&E 12372	uvarifolium	LS&E 13109	wardii
LS&E 12374	mahogani	LS&E 13110	oreotrephes
LS&E 12375	uvarifolium	LS&E 13113	pruniflorum
LS&E 12380	vellereum	LS&E 13118	trichocladum
LS&E 12388	griseum	LS&E 13120	uniflorum
LS&E 12393	vellereum	LS&E 13123	calostrotum
LS&E 12395	mahogani	LS&E 13124	cephalanthum
LS&E 12397	russatum	LS&E 13125	nivale
LS&E 12400	mahogani	LS&E 13126	x haemaleum (NH)
LS&E 12428	primuliflorum	LS&E 13127	forrestii Repens
LS&E 12469	cinnabarinum Roylei	LS&E 13128	hirtipes
LS&E 13129	didymum	LS&E 13561	ramsdenianum
LS&E 13133	laudandum	LS&E 13567	uvarifolium
LS&E 13147	concatenans	LS&E 13568	montroseanum
LS&E 13151	x haemaleum (NH)	LS&E 13570	auritum
LS&E 13152	hirtipes	LS&E 13584	venator
LS&E 13155	stewartianum	LS&E 13589	thomsonii
LS&E 13163	oreotrephes	LS&E 13590	glischrum
LS&E 13166	temoense	LS&E 13591	lanigerum
LS&E 13177	pomense	LS&E 13592	uniflorum
LS&E 13180	beesianum	LS&E 13593	faucium
LS&E 13181	campylogynum	LS&E 13594	faucium aff.
LS&E 13183	pumilum	LS&E 13595	exasperatum
LS&E 13205	cerasinum	LS&E 13596	ramsdenianum
LS&E 13217	wardii	LS&E 13598	populare
LS&E 13251	vellereum	LS&E 13603	megacalyx
LS&E 13269	kongboense	LS&E 13606	adenosum
LS&E 13276	campylogynum	LS&E 13609	fictolacteum
LS&E 13278a	forrestii	LS&E 13610	faucium
LS&E 13278b	chamaethomsonii	LS&E 13611	faucium
LS&E 13283	unidentified species	LS&E 13612	parmulatum
LS&E 13316	bulu	LS&E 13613	oreotrephes
LS&E 13509	vellereum	LS&E 13614	oreotrephes
LS&E 13516	vellereum	LS&E 13618	boothii
LS&E 13520	bulu	LS&E 13619	wardii
LS&E 13521	griseum	LS&E 13620	faucium aff.
LS&E 13524	vellereum	LS&E 13622	oreotrephes
LS&E 13526	hirtipes	LS&E 13625	tephropeplum
LS&E 13527	kongboense	LS&E 13629	hirtipes
LS&E 13534	kongboense	LS&E 13633	kongboense
LS&E 13535	kongboense	LS&E 13634	hirtipes
LS&E 13546	mahogani	LS&E 13643	faucium
LS&E 13549	leucaspis	LS&E 13645	virgatum
LS&E 13550	virgatum	LS&E 13661	wardii
LS&E 13551	hirtipes	LS&E 13663	forrstii Repens
LS&E 13554	uvarifolium	LS&E 13664	wardii
LS&E 13559	faucium	LS&E 13665	uvarifolium

LS&E 13667	x pallidum (NH)	LS&E 13974	calostrotum
LS&E 13668	wardii	LS&E 13981	puralbum
LS&E 13671	vellereum	LS&E 13982	hirtipes
LS&E 13672	kongboense	LS&E 13985	lepidotum
LS&E 13675	hirtipes	LS&E 14006	x agglutinatum (NH)
LS&E 13698	primuliflorum	LS&E 14023	temoense
LS&E 13699	primuliflorum	LS&E 14024	x agglutinatum
LS&E 13701	nivale	LS&E 14026	x agglutinatum
LS&E 13703	dignabile	LS&E 14028	hirtipes
LS&E 13705	oreotrephes	LS&E 14029	campylogynum
LS&E 13732	oreotrephes	LS&E 14030	calostrotum
LS&E 13733	wardii	LS&E 14101	lepidotum
LS&E 13746	lanatoides	LS&E 14244	trichocladum
LS&E 13747	vellereum	LS&E 14295	campylogynum
LS&E 13753	x agglutinatum (NH)	LS&E 14297	campylogynum Cremastum
LS&E 13754	wardii	LS&E 14395	aganniphum
LS&E 13755	faucium	LS&E 15001	vellereum
LS&E 13756	stewartianum	LS&E 15002	vellereum
LS&E 13760	dignabile	LS&E 15003	vellereum
LS&E 13761	oreotephes	LS&E 15004	mahogani
LS&E 13780	calostrotum	LS&E 15005	hirtipes
LS&E 13781	puralbum	LS&E 15006	lanatoides
LS&E 13782	hirtipes	LS&E 15008	kongboense
LS&E 13783	forrestii Repens	LS&E 15009	wardii
LS&E 13792	dignabile	LS&E 15010	wardii
LS&E 13793	dignabile	LS&E 15013	oreotrephes
LS&E 13794	dignabile	LS&E 15014	wardii
LS&E 13795	x agglutinatum (NH)	LS&E 15016	principis
LS&E 13842	puralbum	LS&E 15021	mahogani
LS&E 13843	dignabile	LS&E 15022	principis
LS&E 13855	x agglutinatum (NH)	LS&E 15029	hirtipes
LS&E 13857	dignabile	LS&E 15030	primuliflorum
LS&E 13858	x agglutinatum (NH)	LS&E 15033	hirtipes
LS&E 13872	nigropunctatum	LS&E 15034	uvarifolium
LS&E 13909	vellereum	LS&E 15036	principis
LS&E 13969	forrestii Repens	LS&E 15039	oreotrephes
LS&E 15040	wardii	LS&E 15109	cephalanthum
LS&E 15041	hirtipes	LS&E 15113	cephalanthum
LS&E 15044	dignabile	LS&E 15121	x agglutinatum
LS&E 15048	dignabile	LS&E 15157	vellereum
LS&E 15049	dignabile	LS&E 15161	pumilum
LS&E 15050	dignabile	LS&E 15165	x chamaethauma (NH)
LS&E 15054	griseum	LS&E 15169	x chamaethauma (NH)
LS&E 15055	wardii	LS&E 15170	forrestii Repens
LS&E 15055a	hirtipes	LS&E 15171	campylogynum
LS&E 15056	hirtipes	LS&E 15175	dignabile
LS&E 15057	selense	LS&E 15178	x agglutinatum
LS&E 15058	nivale	LS&E 15179	x agglutinatum
LS&E 15059	oreotrephes	LS&E 15193	mekongense
LS&E 15070	forrestii Repens	LS&E 15207	forrestii Repens
LS&E 15071	cephalanthum	LS&E 15208	nivale
LS&E 15072	hirtipes	LS&E 15209	x chamaethauma (NH)
LS&E 15073	calostrotum	LS&E 15241	cephalanthum Nmaiense
LS&E 15074	fragariiflorum	LS&E 15243	aganniphum
LS&E 15078	cephalanthum	LS&E 15245	x agglutinatum (NH)
LS&E 15080	uvariifolium	LS&E 15246	x agglutinatum (NH)
LS&E 15081	wardii	LS&E 15247	aganniphum
LS&E 15087	wardii	LS&E 15250	x chamaethauma (natural hybrid)
LS&E 15088	hirtipes	LS&E 15256	x agglutinatum
LS&E 15089	wardii	LS&E 15257	x agglutinatum
LS&E 15090	hirtipes	LS&E 15258	kongboense
LS&E 15091	puralbum	LS&E 15259	x agglutinatum (NH)
LS&E 15092	hirtipes	LS&E 15263	hirtipes
LS&E 15093	x erythrocalyx (NH)	LS&E 15272	hirtipes
LS&E 15094	puralbum	LS&E 15273	hirtipes
LS&E 15096	charitopes	LS&E 15277	mekongense
LS&E 15098	forrestii Repens	LS&E 15279	cerasinum
LS&E 15099	x erythrocalyx (NH)	LS&E 15280	cerasinum
LS&E 15102	chamaethomsonii	LS&E 15281	cerasinum
LS&E 15103	x chamaethauma (NH)	LS&E 15284	pumilum
LS&E 15106	forrestii Repens	LS&E 15285	forrestii Repens
LS&E 15107	tsangpoense	LS&E 15286	cephalanthum Nmaiense

LS&E 15287	x chamaethauma (NH)	LS&E 15443	x agglutinatum (NH)
LS&E 15288	x agglutinatum	LS&E 15462	x agglutinatum (NH)
LS&E 15289	x agglutinatum	LS&E 15466	x agglutinatum (NH)
LS&E 15290	x agglutinatum	LS&E 15469	wardii
LS&E 15291	parmulatum	LS&E 15499	lepidotum
LS&E 15292	forrestii Repens	LS&E 15535	x agglutinatum
LS&E 15295	x chamaethauma (NH)	LS&E 15650	nivale
LS&E 15296	x chamaethauma (NH)	LS&E 15668	nivale
LS&E 15297	x chamaethauma (NH)	LS&E 15669	rufescens
LS&E 15306	caloxanthum	LS&E 15729	russatum
LS&E 15307	dignabile	LS&E 15751	kongboense
LS&E 15308	dignabile	LS&E 15752	kongboense
LS&E 15309	x agglutinatum (NH)	LS&E 15763	x agglutinatum (NH)
LS&E 15321	oreotrephes	LS&E 15764	wardii
LS&E 15324	x agglutinatum (NH)	LS&E 15765	hirtipes
LS&E 15325	unidentified species	LS&E 15774	vellereum
LS&E 15326	x agglutinatum (NH)	LS&E 15796	calostrotum
LS&E 15327	x agglutinatum (NH)	LS&E 15817	griseum
LS&E 15328	x agglutinatum (NH)	LS&E 15819	oreotrephes
LS&E 15356	lepidotum	LS&E 15828	fragariiflorum x ? (NH)
LS&E 15399	x agglutinatum (NH)	LS&E 15831	vellereum
LS&E 15400	forrestii Repens		

Two photos from the LS&E expedition, taken in Tibet during 1946 by Arthur J. Hopkinson, then the UK's Political Officer for Sikkim, Bhutan and Tibet.

- *opposite above* -
George Sherriff, an un-named Tibetan assistant, Frank Ludlow, Henry Elliott and Betty Sherriff.

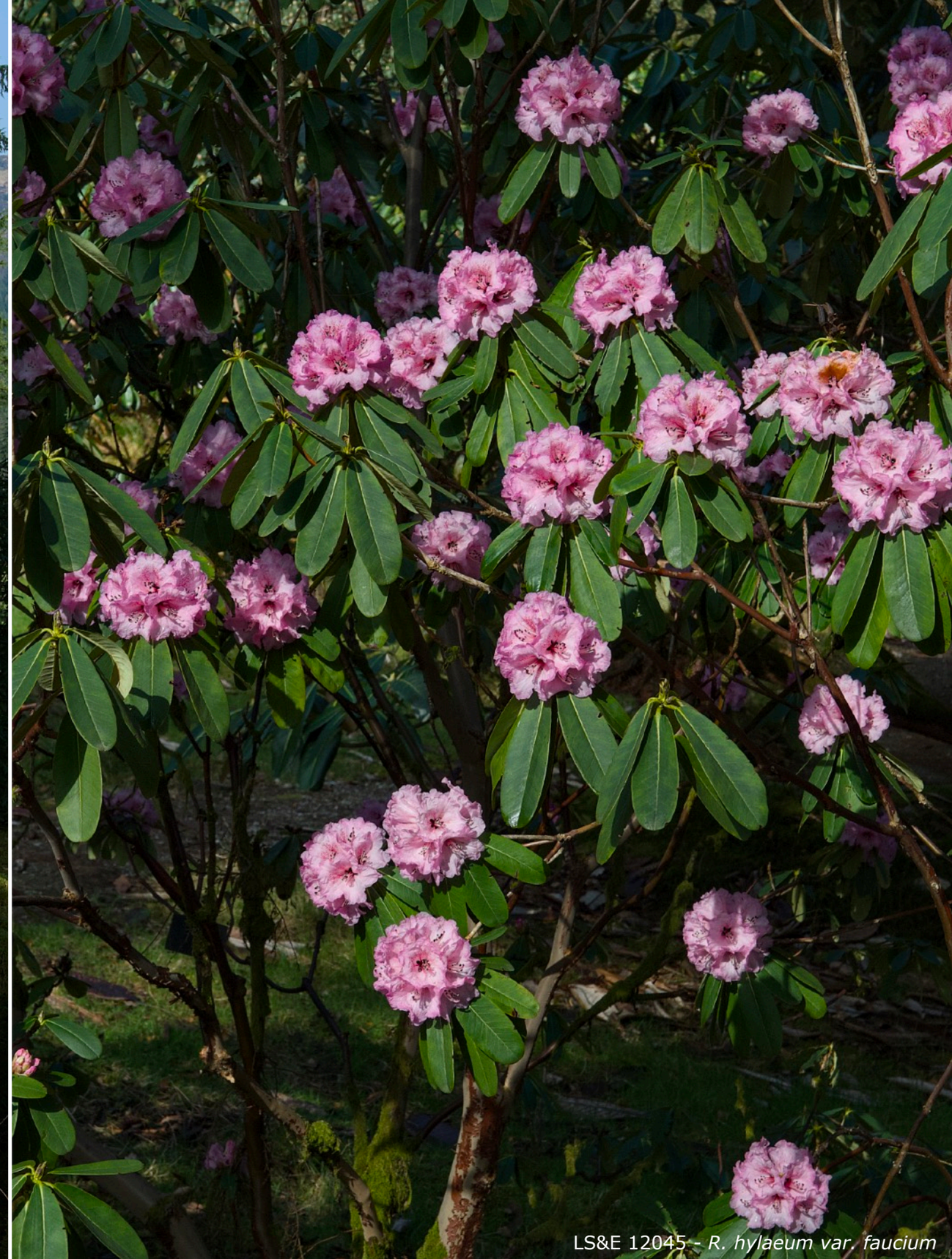
- *opposite below* -
Frank Ludlow, George Sherriff, an un-named Tibetan assistant, Henry Elliott and Betty Sherriff.

LS&E 12019 - *R. hylaeum* var. *faucium*

LS&E 12045 - *R. hylaeum* var. *faucium*

LS&E 12045 - *R. hylaeum* var. *faucium*


LS&E 12045 - *R. hylaeum var. faucium*


LS&E 12045 - *R. hylaeum var. faucium*

LS&E 12045 - *R. hylaeum* var. *faucium*

LS&E 12208 - *R. hylaeum var. faucium*

LS&E 12208 - *R. hylaeum var. faucium*

LS&E 12208 - *R. hylaeum* var. *faucium*

LS&E 12248 - *R. maddenii* ssp. *maddenii*

LS&E 12248 - *R. maddenii* ssp. *maddenii*

LS&E 12505 - *R. trichocladum* var. *mekongense*

LS&E 13278 - *R. forrestii* var. *forrestii* Repens Group

LS&E 13278 - *R. forrestii* var. *forrestii* Repens Group

LS&E 13278 - *R. forrestii* var. *forrestii* Repens Group

LS&E 13521 - *R. uvariifolium* var. *griseum*

LS&E 13521 - *R. uvariifolium* var. *griseum*

LS&E 15080 - *R. uvariifolium* var. *uvariifolium*

LS&E 15080 - *R. uvariifolium* var. *uvariifolium*

LS&E 15764 - *R. wardii* var. *wardii*

LS&E 15764 - *R. wardii* var. *wardii*

LS&E 15774 - *R. vellereum*

LS&E 15774 - *R. vellereum*

LS&E 15817 - *R. uvariifolium* var. *griseum*

LS&E 15817 - *R. uvariifolium* var. *griseum*

LS&E 15817 - *R. uvariifolium* var. *griseum*

LS&E 15817 - *R. uvariifolium* var. *griseum*

LS&E 15828 - *R. fragariiflorum*

LS&E 15828 - *R. fragariiflorum*

LS&E 15828 - *R. fragariiflorum*

LS&E 15828 - *R. fragariiflorum*

The 1949 Bhutan Collections with John Hicks:

LS&H 16007	arboreum	LS&H 16324	lanatum
LS&H 16009	ramsdenianum	LS&H 16339	campanulatum
LS&H 16019	ciliatum	LS&H 16346	hodgsonii
LS&H 16026	cinnamomeum	LS&H 16349	campanulatum
LS&H 16027	cinnabarinum	LS&H 16351	succothii
LS&H 16054	virgatum	LS&H 16366	campylocarpum
LS&H 16062	triflorum	LS&H 16371	falconeri
LS&H 16068	griffithianum	LS&H 16372	keysii
LS&H 16090	wallichii	LS&H 16378	edgeworthii
LS&H 16095	arboreum x ? (NH)	LS&H 16392	keysii
LS&H 16096	papillatum	LS&H 16419	anthopogon
LS&H 16099	hypenanthum	LS&H 16442	baileyi
LS&H 16100	wightii	LS&H 16443	campanulatum
LS&H 16101	succothii	LS&H 16448	thomsonii
LS&H 16103	papillatum	LS&H 16492	xanthocodon
LS&H 16116	thomsonii	LS&H 16493	xanthocodon
LS&H 16117	pendulum	LS&H 16494	hodgsonii
LS&H 16120	hodgsonii	LS&H 16495	campylocarpum
LS&H 16121	wallichii	LS&H 16510	lepidotum & rhabdotum
LS&H 16123	kendrickii	LS&H 16523	rhabdotum
LS&H 16126	xanthocodon	LS&H 16524	maddenii
LS&H 16128	wallichii	LS&H 16532	vaccinioides
LS&H 16136	wallichii	LS&H 16578	lepidotum
LS&H 16137	hodgsonii	LS&H 16604	lepidotum
LS&H 16140	wallichii	LS&H 16681	lepidotum
LS&H 16155	lanatum	LS&H 16752	lepidotum
LS&H 16157	setosum	LS&H 16851	bhutanense
LS&H 16160	campylocarpum	LS&H 16865	lepidotum
LS&H 16168	campylocarpum	LS&H 16927	camelliiflorum
LS&H 16184	lindleyi	LS&H 17359	baileyi
LS&H 16206	virgatum	LS&H 17447	baileyi
LS&H 16246	campylocarpum	LS&H 17448	wallichii
LS&H 16248	wallichii	LS&H 17449	campanulatum
LS&H 16249	wightii	LS&H 17478	wallichii
LS&H 16250	campanulatum	LS&H 17498	ciliatum
LS&H 16294	nivale	LS&H 17501	trichocladum
LS&H 17509	lepidotum	LS&H 18887	glaucophyllum
LS&H 17512	wallichii	LS&H 18888	pendulum
LS&H 17521	xanthocodon	LS&H 18889	cinnabarinum
LS&H 17525	barbatum	LS&H 18890	lanatum
LS&H 17526	aeruginosum	LS&H 18893	fulgens aff.
LS&H 17527	wallichii	LS&H 18898	wallichii
LS&H 17531	camelliiflorum	LS&H 18899	wightii
LS&H 17531a	maddenii	LS&H 18921	xanthocodon
LS&H 17543	setosum	LS&H 18922	campylocarpum
LS&H 17546	hirtipes	LS&H 18927	keysii
LS&H 17550	anthopogon	LS&H 18930	hodgsonii
LS&H 17552	lepidotum	LS&H 18945	campanulatum
LS&H 18620	arboreum	LS&H 18949	anthopogon
LS&H 18660	grande	LS&H 18956	setosum
LS&H 18677	argipeplum	LS&H 18959	wightii
LS&H 18682	argipeplum	LS&H 18960	nivale
LS&H 18683	ciliatum	LS&H 18961	wallichii
LS&H 18687	virgatum	LS&H 18966	bhutanense
LS&H 18697	thomsonii	LS&H 18998	lanatum
LS&H 18703	arboreum	LS&H 19023	hodgsonii
LS&H 18710	kendrickii	LS&H 19039	bhutanense
LS&H 18719	falconeri	LS&H 19046	thomsonii
LS&H 18720	griffithianum	LS&H 19049	baileyi
LS&H 18732	keysii	LS&H 19071	bhutanense
LS&H 18736	grande	LS&H 19102	campanulatum
LS&H 18739	lindleyi	LS&H 19124	baileyi
LS&H 18743	argipeplum	LS&H 19140	lepidotum
LS&H 18771	pendulum	LS&H 19234	lepidotum
LS&H 18776	griffithianum	LS&H 19277	camelliiflorum
LS&H 18777	edgeworthii	LS&H 19361	anthopogon
LS&H 18801	hodgsonii	LS&H 19481	keysii
LS&H 18850	thomsonii	LS&H 19847	tsariense aff.
LS&H 18877	rhabdotum	LS&H 19848	basfordii
LS&H 18881	triflorum	LS&H 19849	triflorum
LS&H 18882	arboreum	LS&H 19850	succothii
LS&H 18884	hodgsonii	LS&H 19869	unidentified species

LS&H 20107	fulgens aff.	LS&H 20643	fulgens aff.
LS&H 20182	hodgsonii	LS&H 20648	lanatum
LS&H 20184	fulgens	LS&H 20649	hodgsonii
LS&H 20186	fulgens aff.	LS&H 20655	anthopogon
LS&H 20205	maddenii	LS&H 20659	baileyi
LS&H 20220	griffithianum	LS&H 20665	fulgens
LS&H 20232	arboreum	LS&H 20672	wallichii
LS&H 20239	phaedropum	LS&H 20686	pumilum
LS&H 20267	hodgsonii	LS&H 20720	fragariiflorum
LS&H 20277	wightii	LS&H 20825	leptocarpum
LS&H 20286	bhutanense	LS&H 20900	lepidotum
LS&H 20366	lepidotum	LS&H 21170	hypenanthum
LS&H 20488	camelliiflorum	LS&H 21184	pumilum
LS&H 20489	rhabdotum	LS&H 21257	rhabdotum
LS&H 20519	arboreum	LS&H 21274	unidentified species
LS&H 20523	arboreum	LS&H 21282	tubiforme
LS&H 20527	argipeplum	LS&H 21283	cinnabarinum
LS&H 20535	lindleyi	LS&H 21284	keysii
LS&H 20581	keysii	LS&H 21285	thomsonii
LS&H 20582	phaedropum	LS&H 21286	x candelabrum (NH)
LS&H 20583	arboreum	LS&H 21287	papillatum
LS&H 20586	arboreum	LS&H 21289	leptocarpum
LS&H 20613	tubiforme	LS&H 21290	phaedropum
LS&H 20614	thomsonii	LS&H 21292	lepidotum
LS&H 20615	triflorum	LS&H 21293	cinnabarinum
LS&H 20620	niveum	LS&H 21294	arboreum
LS&H 20622	cinnabarinum	LS&H 21295	succothii
LS&H 20623	tubiforme	LS&H 21296	hodgsonii
LS&H 20626	campylocarpum	LS&H 21297	baileyi
LS&H 20627	pendulum	LS&H 21298	campanulatum
LS&H 20628	lanatum	LS&H 21299	keysii
LS&H 20640	fulgens	LS&H 21475	baileyi
LS&H 20641	wightii	LS&H 21483	griffithianum
LS&H 20642	wightii		

The camp at Gyala looking towards Gayla Peri.

LS&H 16495 - *R. campylocarpum* ssp. *campylocarpum*

LS&H 16495 - *R. campylocarpum* ssp. *campylocarpum*

LS&H 16495 - *R. campylocarpum* ssp. *campylocarpum*

LS&H 16495 - *R. campylocarpum* ssp. *campylocarpum*

LS&H 17512 - *R. wallichii*

LS&H 17521 - *R. cinnabarinum* ssp. *xanthocodon*

LS&H 17521 - *R. cinnabarinum* ssp. *xanthocodon*

LS&H 17521 - *R. cinnabarinum* ssp. *xanthocodon*

LS&H 17521 - *R. cinnabarinum* ssp. *xanthocodon*

LS&H 17525 - *R. barbatum*

LS&H 17525 - *R. barbatum*

LS&H 17525 - *R. barbatum*

LS&H 17525 - *R. barbatum*

LS&H 17525 - *R. barbatum*

LS&H 17527 - *R. wallichii*

LS&H 19850 - *R. succothii*

LS&H 19850 - *R. succothii*

LS&H 19850 - *R. succothii*

LS&H 21284 - *R. keysii*

LS&H 21284 - *R. keysii*

LS&H 21284 - *R. keysii*

LS&H 21285 - *R. thomsonii*

LS&H 21285 - *R. thomsonii*

LS&H 21292 - *R. lepidotum*

LS&H 21292 - *R. lepidotum*

LS&H 21295 - *R. succothii*

LS&H 21295 - *R. succothii*

Additional Rhododendron Collections 1933-1948:

The Ludlow & Sherriff collections detailed above and on these two pages were published in *The Rhododendron Handbook 1967 (Part One)* and contain a far more extensive set of field numbers than were printed in subsequent editions. All are designated as 'Rhododendrons in Cultivation in Great Britain and Ireland', which would suggest that viable seed for each and every entry was presumably gathered, returned and successfully germinated. Regrettably, photographic confirmation of such is lacking for those entries contained within the 1933, 1937, 1939, 1940, 1942, 1943, 1944 and 1948 datasets, hence their association here.

The 1933 Bhutan Collections:

L&S 7	cinnabarinum	L&S 49	wightii
L&S 8	cinnabarinum	L&S 88	setosum
L&S 9	campylocarpum	L&S 123	lepidotum
L&S 15	triflorum	L&S 173	triflorum
L&S 18	thomsonii	L&S 175	lepidotum
L&S 19	wallichii	L&S 176	lepidotum
L&S 21	hodgsonii	L&S 184	keysii
L&S 22	wallichii	L&S 190	camelliiflorum
L&S 25	arboreum	L&S 218	maddenii
L&S 31	thomsonii	L&S 253	camelliiflorum

The 1937 Bhutan Collections:

L&S 2940	rhabdotum	L&S 3039	keysii
L&S 2944	rhabdotum	L&S 3041	falconeri
L&S 2952	edgeworthii	L&S 3042	thomsonii
L&S 2960	arboreum	L&S 3047	hodgsonii
L&S 2977	grande	L&S 3048	campylocarpum
L&S 2980	lindleyi	L&S 3049	argipeplum
L&S 2983	falconeri	L&S 3050	cinnabarinum
L&S 2987	hodgsonii	L&S 3058	campylocarpum
L&S 2988	argipeplum	L&S 3061	triflorum
L&S 2989	eximium	L&S 3063	lanatum
L&S 2990	hodgsonii	L&S 3066	x candelabrum (NH)
L&S 2992	keysii	L&S 3074	lanatum
L&S 3017	arboreum	L&S 3075	fulgens
L&S 3021	virgatum	L&S 3081	bhutanense
L&S 3025	phaedropum	L&S 3082	anthopogon
L&S 3026	griffithianum	L&S 3087	campanulatum
L&S 3088	wightii	L&S 3217	anthopogon
L&S 3089	flinckii	L&S 3218	bhutanense
L&S 3090	fulgens	L&S 3221	setosum
L&S 3091	wightii	L&S 3239	fulgens
L&S 3095	glaucophyllum	L&S 3243	bhutanense
L&S 3096	argipeplum	L&S 3244	aeruginosum
L&S 3111	lepidotum	L&S 3254	lepidotum
L&S 3132	edgeworthii	L&S 3267	camelliiflorum
L&S 3136	rhabdotum	L&S 3289	lepidotum
L&S 3147	maddenii	L&S 3324	camelliiflorum
L&S 3164	polyandrum	L&S 3400	anthopogon
L&S 3184	glaucophyllum	L&S 3428	pogonophyllum
L&S 3202	baileyi	L&S 3578	wallichii
L&S 3216	pogonophyllum	L&S 3082	anthopogon

The 1939 Kashmir Collections:

L&S 7369	lepidotum	L&S 7385	campanulatum
L&S 7384	hypenanthum		

The 1940 Kashmir Collections:

L&S 7660	hypenanthum	L&S 8134	campanulatum
L&S 7736	lepidotum		

The 1942 Tibet Collections:

L&S 8653	nivale	L&S 8824	nivale
L&S 8654	primuliflorum	L&S 8825	primuliflorum

The 1943 Tibet Collections:

L&S 9145	hypenanthum	L&S 9538	primuliflorum
L&S 9146	lepidotum	L&S 9574	primuliflorum
L&S 9537	nivale	L&S 9575	nivale

The 1944 Tibet Collections:

L&S 9979	nivale	L&S 10039	cinnabarinum
L&S 9980	primuliflorum		

The 1948 Sikkim Collections:

L&S 15835	ciliatum	L&S 15841	virgatum
L&S 15840	dalhousiae		

Frank Ludlow, Major George Sherriff and Frederick Williamson, with onlookers at the Residency in Gangtok, Sikkim, 1933.

Photographic Acknowledgements:

The photographic images taken by George Sherriff on his expeditions with Frank Ludlow are held and preserved at what was then known as the British Museum (Natural History), Department of Botany, now - since 1992 - the Natural History Museum, London, along with manuscripts, books, diaries, maps and expedition notes, all available for study in the museum's archive, with a complete listing of what is available to be found online at:

https://www.nhm.ac.uk/our-science/services/library.html

A selection of those photographs are displayed within this volume and much gratitude is due that institution for allowing their use in this book.

They are:

p. 16 - cantilever bridge over the Kulong Chu, Eastern Bhutan;
p. 18 L - the Chayul Valley above Chayul Dzong;
p. 18 R - view up the Chayul Chu from below its junction with the Char Chu, altitude 9,500 feet;
p. 21 - map: Sources of the Subansiri and the Siyom;
p. 23 L - the gorge of the Chayul Chu, four miles below Lung, altitude 8,500 feet;
p. 23 R - Kills above Migyitun;
p. 25 - campsite in Tibet, 1936;
p. 27 L - junipers growing alongside the Tsangpo, above Nye, 5th April 1938;
p. 27 R - a side valley near Lhalung, with the Great Himalaya in the background, 5th May 1938;
p. 28 - sketch map of the Eastern Himalaya;
p. 30 AR - view north from below the Turn La, showing the typical slow-flowing river and swampy riverbed, 8th July 1938;
p. 31 AL - about to cross the Tsangpo in a 'tru' at Tamnyen, 25th June 1938;
p. 31 AR - the sand dune above Sang with two Kowas in the foreground, 25th June 1938;
p. 32 AR - the northern spur of Namcha Barwa running down to the Tsangpo Gorge, seen from Gyala, 21st July (Photograph, G. Taylor);
p. 33 AL - Gyala Peri, 23,460 feet, from the camp at Gyala, 21st July 1938 (Photograph, G. Taylor);
p. 34 AR - the Gyamda Chu, with Chomo Dzong in the upper middle of the illustration, 26th August 1938;
p. 35 L - *Carduus sp.,* on the Mira La, 14th August 1938;
p. 35 R - *Lilium gigantium* Wall, in the Nayii Phu Chu, north of the Great Himalaya, 9th July 1938;
p. 36 - the source of the Living Chu, west of Langong, with the Lingtsang La in the background 21st October 1938;
p. 37 - George Sherriff, Frank Ludlow and their team of assistants.
p. 39 AR - the Chong Kumdan Dam from the south;
p. 39 BR - Kashgar, 1930: Frank Ludlow and George Sheriff (seated). From the left standing - Pantsiloo, Williamson, unknown, Schomberg, Swedish missionary, Ridley;
p. 46 - Frederick Williamson; Frank Ludlow; George Sherriff; Dorji; Aji Wangmo; Margaret Williamson (Peggy); Maharani of Bhutan; Aji Pedon. Photographed in Bumthang, Bhutan, on July 16th, 1933;
p. 50 L - Trashigong;
p. 50 R - near the tree limit (12,500-13,000 feet), a mile south-west of the Me La;
p. 61 R - the bridge at Singo Samba;
p. 113 R - yak-skin coracles on the Tsangpo;
p. 181 R - the camp at Gyala looking towards Gayla Peri.

Mirroring the four previous volumes, details of where each of the plant portraits was photographed is set out below, along with the website details of those collections visited. Thanks is again extended to each establishment for allowing images taken in a private-use capacity, to be reproduced here. Gratitude is also due the institutions, organisations and individuals who allowed the portrait photographs of historical and noted figures associated with the genus to appear alongside the text.

Key: AL - above left; AC - above centre; AR - above right; BL - below left; BC - below centre; BR - below right; L - left; R - right.

Benmore Botanic Garden, Argyll:
https://www.rbge.org.uk/visit/benmore-botanic-garden/
p. 62; p. 65; p. 88; p. 89; p. 90; p. 98; p. 108; p. 109; p. 110; p. 111; p. 126; p. 130 - L, R; p. 131 - L, R; p. 132; p. 133; p. 136; p. 137; p. 152; p. 154 - L; p. 156 - L, R; p. 157; p. 190; p. 191 - L, R; p. 192; p. 193; p. 200; p. 201.

Cambridge University Museum of Archaeology and Anthropology:
https://maa.cam.ac.uk/
p. 207 - Frank Ludlow, Major George Sherriff and Frederick Williamson, with onlookers at the Residency in Gangtok, Sikkim, 1933. Photograph courtesy of the Williamson Collection.

Dawyck Botanic Garden, Stobo, Peebles:
https://www.rbge.org.uk/visit/dawyck-botanic-garden/
p. 139; p. 140 - L, R; p. 141.

Glendoick Gardens Ltd, Perth:
https://glendoick.com/
p. 54; p. 55 - AL, R.

Inverewe Gardens, Poolewe, Wester Ross:
https://www.nts.org.uk/visit/places/inverewe
p. 5; p. 73; p. 74 - AL, BL, R; p. 75.

Logan Botanic Garden, Stranraer:
https://www.rbge.org.uk/visit/logan-botanic-garden/
p. 146; p. 147 - L, R; p. 158; p. 159.

Public Domain:
https://www.pushed-up-the-mountain-film.com/
p. 7 R - George Sherriff and Frank Ludlow in the mid 1930s; p. 12 R - Frank Ludlow and George Sherriff, at Kalimpong, West Bengal, November, 1934. [The image has been edited to remove Raja Sonam Tobgye Dorji, who was seated between the two plant hunters]; p. 25 - Ludlow & Sherriff's campsite in Tibet, 1936; p. 42 ALL - William Griffith, a portrait painted in 1843 and published by the Makers of British Botany in 1913; p. 42 ALR - Thomas Booth and his family, photographed in Tauranga by Charles Spencer (1854-1933), sometime between April 1879 and the 1880s; p. 42 ARL - Colonel Frederick Marshman Bailey, *c.* 1934; p. 42 ARR - Captain Henry Treise Morshead; p. 44 ARL - Lord 'Jack' Cawdor, or more formerly John Duncan Vaughan Campbell, 5th Earl Cawdor. The photo is believed to have been taken in Tibet and was recently discovered in the archives at Cawdor Castle.

Ray Wood, Castle Howard, North Yorkshire:
https://www.castlehoward.co.uk/visit-us/the-gardens/the-woodland-garden
p. 72 - L, AR, BR; p. 128; p. 129; p. 144; p. 145; p. 166; p. 167.

Royal Botanic Garden, Edinburgh:
https://www.rbge.org.uk/visit/royal-botanic-garden-edinburgh/
p. 1; p. 9; p. 10 L - Frank Ludlow; p. 43; p. 44 ALL - Roland Edgar Cooper; p. 52; p. 56; p. 57; p. 58; p. 59; p. 63; p. 64; p. 65; p. 66; p. 69; p. 70; p. 71; p. 76; p. 77; p. 80; p. 81; p. 82; p. 83; p. 84; p. 85; p. 91; p. 92; p. 93; p. 94; p. 95; p. 99 - L, R; p. 100; p. 101; p. 102; p. 103; p. 114; p. 115; p. 116; p. 127; p. 134; p. 135; p. 151; p. 153; p. 154 - R; p. 155; p. 160; p. 164; p. 165; p. 168; 187 - L, R; p. 188; p. 189; p. 196; p. 197; p. 202; p. 203; p. 214 - AL, BL.

Royal Botanic Garden, Kew:
https://www.kew.org/
p. 44 ALR - George H. Cave, photo printed in Volume 8 (p708) of the *Journal of the Kew Guild;* p. 44 ARR - Frank Kingdon-Ward.

Royal Botanic Garden, Wakehurst Place:
https://www.kew.org/wakehurst
p. 176; p. 177; p. 178; p. 179; p. 182; p. 183; p. 184; p. 185; p. 204; p. 205; p. 214 - BR.

Royal Horticultural Society, Wisley:
https://www.rhs.org.uk/gardens/wisley
p. 11 - George Sherriff, VMH.

Sir Harold Hillier Gardens, Ampfield, Romsey:
https://www.hants.gov.uk/thingstodo/hilliergardens
p. 55 - BL.

Smithsonian Institution Archives:
https://siarchives.si.edu/
p. 45 AR - Arthur Stannard Vernay (1877-1960), an unidentified Tibetan official, and Charles Suydam Cutting (1889-1972), photographed in Tibet. Accession 90-105, Science Service Records, Image No. SIA2008-0776.

The Times of India:
https://timesofindia.indiatimes.com/
p. 39 AR - the Chong Kumdan Dam from the south. Photo by F Ludlow, engraved and printed at the Offices of the Survey of India, Calcutta,1929.

Valley Gardens, Windsor Great Park:
https://www.windsorgreatpark.co.uk/en/experiences/the-valley-gardens
p. 49; p. 51; p. 53; p. 66; p. 78; p. 79; p. 86; p. 87; p. 96; p. 97; p. 104; p. 105; p. 106; p. 107; p. 117; p. 118; p. 119; p. 120 - AL, BL, R; p. 121; p. 122; p. 123; p. 124; p. 125; p. 138; p. 142; p. 143; p. 161; p. 162; p. 163; p. 169; p. 170; p. 171; p. 172; p. 173; p. 174; p. 175; p. 186; p. 194; p. 195; p. 198 - L, R; p. 199; p. 214 - AR.

Kate Wentworth:
http://tibet.prm.ox.ac.uk/tibet_Arthur_Hopkinson.html
p. 150 AR, BR - Ludlow, Sherriff and Elliot, photographed in Tibet, during 1946, by the UK's Political Officer for Sikkim, Bhutan and Tibet, Arthur J. Hopkinson. The images are reproduced by kind permission of his daughter, Kate Wentworth.

Plant Portraits Index:

About the Author.

Julian Taylor-Whall was born in Lowestoft at the end of November, 1957. He received a grammar school education before embarking on a three-decades-long career with the BBC at Television Centre. During that time he worked on many of the now classic shows made in the production facilities there, the studios at Lime Grove and Elstree, and at the Television Theatre.

He retired early in 2008, moving to a small village in West Cumbria, just outside the Lake District National Park.

His interests include landscape and plant photography, music, film, writing, and of course, the cultivation of rhododendrons. His previous multivolume treatise on that genus can be freely downloaded at:

https://www.rhodogroup-rhs.org/publications/books/temperate-rhododendrons.

- above -
Atop Great Gable, a self portrait against cloud.

- *back cover* images -

L&S 2764 - *R. glaucophyllum* var. *glaucophyllum*	L&S 2751 - *R. sherriffii*
LS&T 6586 - *R. wardii* var. *wardii*	LS&E 15828 - *R. fragariiflorum*