

## The Triumphs, Trials and Tribulations of Sir Joseph Hooker

[ I have used modern spellings for geographic features that Hooker mentions in his narrative. Even today there can be multiple ways to spell a given feature or have more than one name]

### Introduction

“...of all the mountain gorges I have ever visited, this is by far the wildest, grandest, and most gloomy...”  
*Hooker’s comment on the Kanbacken Valley near Jannu in eastern Nepal. 1848*

Joseph Dalton Hooker was a botanist who prior to his work in the Himalaya had made an extended scientific voyage to Antarctica as a member of the James Ross Expedition (1839-1843). Interestingly enough, on the Ross Expedition Hooker’s title was not a botanist, but rather as a Royal Navy surgeon. Although he had a deep interest in plants since his youth, he had trained as a medical man. However, his lifelong dream of becoming a professional botanist were about to come to fruition.

In the years following the Ross Expedition, Hooker decided that he needed to expand his knowledge of tropical botany; the solution was of course an expedition into the tropics. He entertained thoughts regarding an expedition to Papua New Guinea, but eventually settled on the

central Himalaya. Although most people do not make the connection between tropical flora and the Himalaya, as it turns out, much of the southern foothills, as well as eastern Nepal-Sikkim-Bhutan and mountains eastward, are very much tropical in nature at lower elevations.

Through his father, the Earl of Carlisle, who happened to be the Chief Commissioner of and Woods and Forests in England, as well as the patronage of the Earl of Auckland; he secured £400 per year from the government to help fund his expedition. His collection of plants would be turned over to the Royal Gardens at Kew and various academic institutions in Europe, India and America.

Hooker was much more than a botanist; he was essentially a naturalist. He had wide interest which is evident when reading his two-volume narrative of his expedition entitled: *Himalayan Journals: or, Notes of a Naturalist in Bengal, the Sikkim and Nepal Himalayas, the Khasia Mountains*. For example, he made thousands of meteorological observations; he was constantly measuring the temperature of water in rivers, lakes and geothermal vents. He was knowledgeable in geology and the newly emerging field of glaciology. He knew his birds and butterflies as well as anyone.

Due to the suggestions of Dr. Falconer, the superintendent of the Botanic Garden at Calcutta, as well as Lord Auckland, Hooker settled on Sikkim as the

thrust of his explorations. Sikkim at that time was an independent principality sandwiched between the powerhouses of Tibet and British India. To the west was its nemesis Nepal, which during the early decades of the 19<sup>th</sup> century had invaded Sikkim on several occasions. The military forces of the British East India Company had come to the aid of the ruler of Sikkim, the Rajah, during these incursions; and hence there appeared to be friendly relations between the two political entities although it was wafer thin as Hooker was about to discover.

Hooker, then age 30, left England in November 1847 on the steamship Sidon; which took him to Egypt. He changed ships and after stops in Yemen and Sri Lanka he made landfall in Madras. Like most well-off Brits at that time, he was not without important connections within India which facilitated his work. Besides the afore noted Dr. Falconer, he stayed for extended periods with Brian Hodgson in Darjeeling. Hodgson was himself a self-taught naturalist who had spent a number of years in Nepal. He also became acquainted with Dr. Campbell, who was the superintendent of Darjeeling as well as the Governor-General’s agent for the region (West Bengal). Campbell accompanied Hooker on a number of his excursions and will become a key figure in the later part of this account. Hooker was also to meet a Dr. Thomson,

who helped Hooker near the end of his time in India, sort out the thousands of species of plants that he had collected.

During the three years that Hooker spent in the Subcontinent, he undertook two major Himalaya expeditions and a number of shorter excursions throughout northeast India. The time he spent in the Himalaya will be the thrust of this summary. His first expedition took him into eastern Nepal; to the west and south of Kangchenjunga. The second and longer trek was in northern Sikkim where he ventured far and wide. He also had considerable interest in reaching southern Tibet, one of the most exotic lands that a person could travel into at that time.

### Eastern Nepal

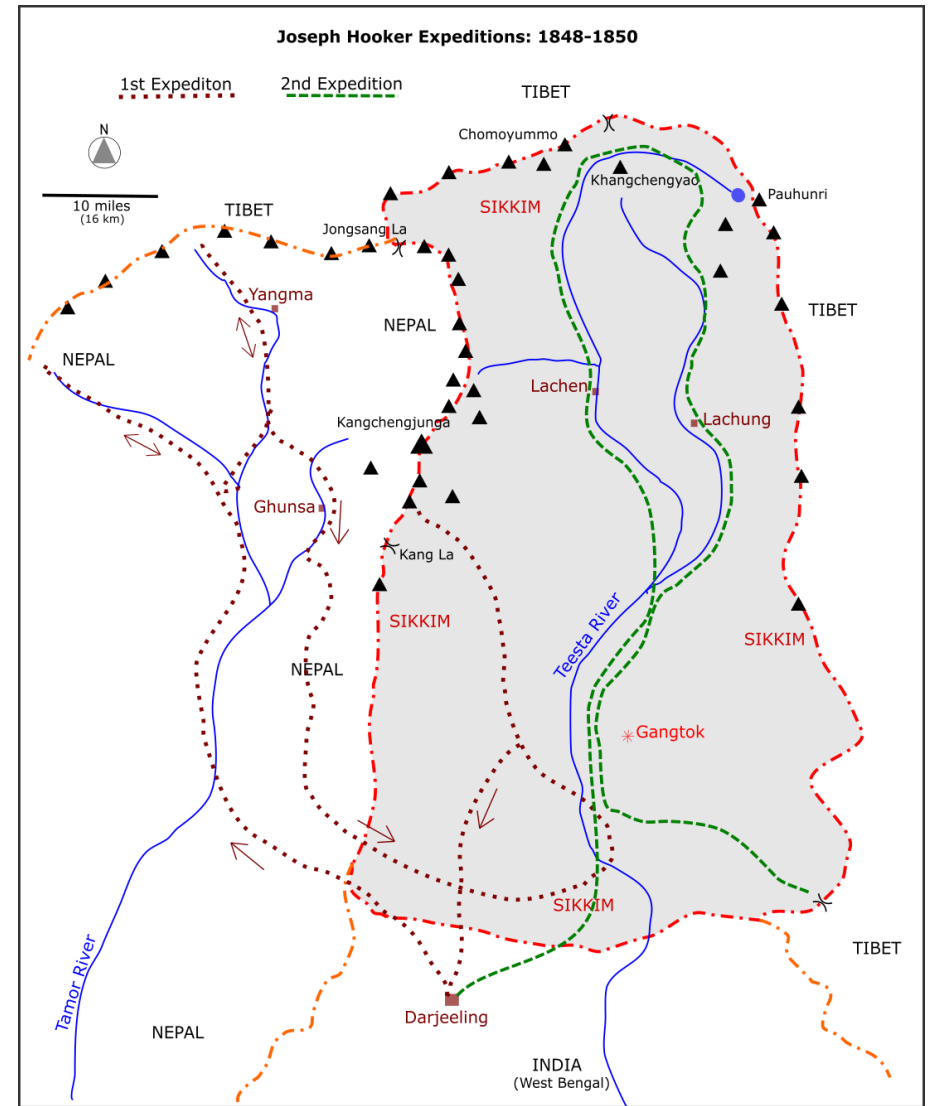
During the early winter of 1848 Hooker made his way up to Darjeeling which at that time was a fledgling British hill-station located in northern Bengal. He subsequently used Darjeeling as his base of operations for the next two years. Prior to embarking on his first expedition, he ventured from Darjeeling on a number of short excursions lasting from one to two weeks. He spent his time on these forays collecting flora and making meteorological observations.

In October of that year, he embarked on the first of his Himalaya expeditions. The initial plan was to spend

approximately three months traveling throughout eastern Nepal, after which he hoped to traverse one of the northern passes into southern Tibet. From here he would trek east for some distance before turning south and returning to Darjeeling via Sikkim. He had no trouble securing permission to travel in Nepal, in fact, the Nepalese authorities provided him with an escort of six soldiers. However, when he departed Darjeeling headed towards Nepal, he still did not have permission to visit Sikkim; being an optimist, he hoped that it would be forthcoming over the next month or two.

The expedition consisted of 56 souls in total when they walked out of Darjeeling that October morning. Their course led them west-northwest along the Myong Valley, then traversing the flanks of Tonglu Mountain (~10,000 ft, 3048 m). It

was here that Hooker began to have trouble with his porters. The situation was so bad that he entertained thoughts of returning to Darjeeling and recruiting a new batch of porters, however, before he could act the bulk of his load carriers bolted for their



homes in India. Instead of trekking back to Darjeeling, Hooker consolidated his team and hired some local men to act as porters. One of Hooker's strong suits, as will become evident throughout this expedition, was his resourcefulness. He typically traveled as the only European in the entourage, hence he had to use his own wits and practical

knowledge to overcome the myriad of difficulties that seemed to constantly arise.

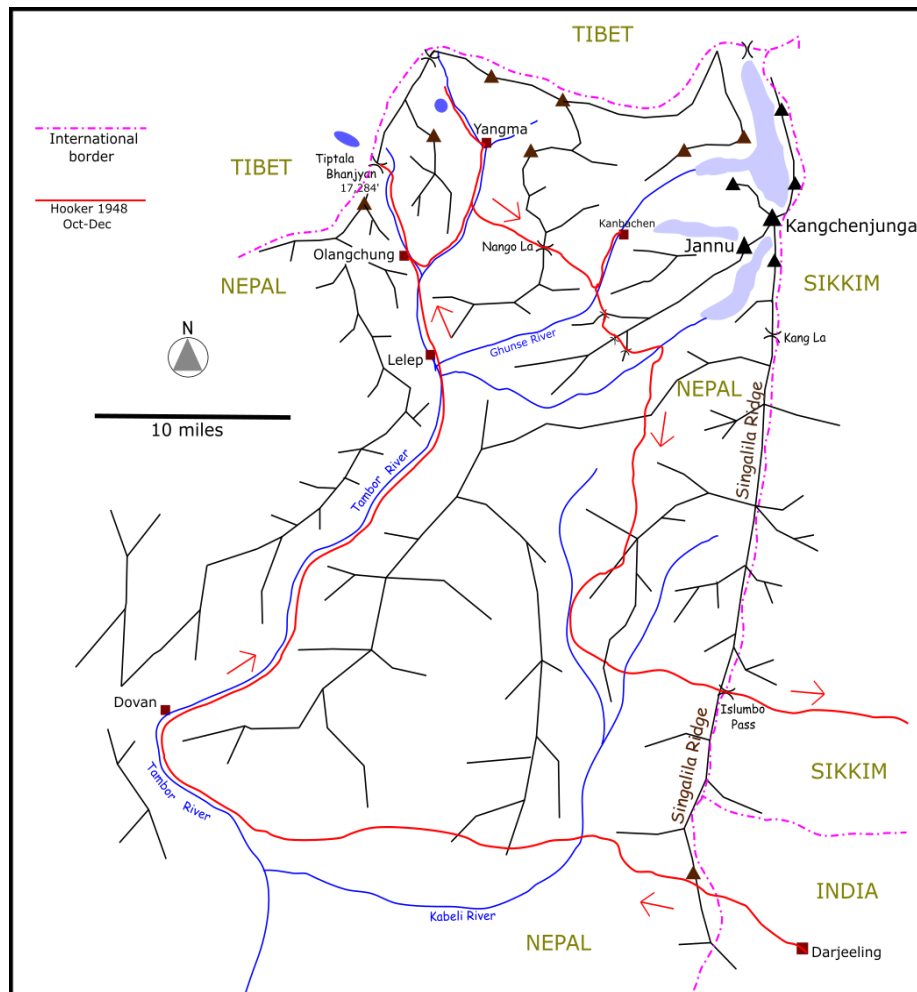
Eventually the expedition made its way over to the Tamur River (Tamor Nadi) from whence they were able to follow the 'road' northward, which snaked its way along the river. The vegetation so far had been all tropical; during and after the monsoon rains these areas were hotspots

for malaria; hence it was important to reach higher elevations quickly as malaria carrying mosquitos do not live at mid-elevations or above. It was during this period that a runner from Darjeeling arrived in his camp carrying a letter which granted Hooker permission to enter Sikkim and travel at will.

It was in a village astride the Tamur River that Hooker encountered his first 'praying machine'; wooden cylinders inscribed with Buddhist prayers that were spun by a water wheel. Throughout his

journeys Hooker not only comments on the flora, fauna, and geology he observes, but on the various ethnic groups he encounters as well. For many of the local inhabitants he meets, he was the first western person they had ever laid eyes on. In one village he notes that the men, by western standards appeared to be idly much of the time; "Spinning, smoking and tea-drinking are their chief pursuits." Spinning refers to the fact that the locals' carded (combed) and then spun their own wool.

By late November Hooker had reached the upper Tamur River basin. Despite heavy snowfall in October, he hoped to make an attempt on the Tiptala Bhanjyan Pass (17,284 ft, 5268 m; he calls it the Walung Pass). In order to travel rapidly, he only takes a small group of men from the expedition personnel. They follow a trail to the northwest whereupon they reach continuous snowcover at around 15,000 ft (4570 m), but fortunately there was a well-worn trail across the snow due to the traffic of humans and yaks. As it turns out this was a popular route for traders to use even in winter. Hooker reports that at the pass the snow was chest deep and the view looking north, although he does not say why, was limited. He did manage to spot a series of snow-covered hills stretching towards the Arun River. Most of the party, including Hooker, complained of shortness of breath and headaches while making the ascent.



After trekking to the pass, Hooker and team return to the village of Olanchungola which he used as his advance basecamp. It was at this time that a serious and reoccurring problem manifest itself; there was an acute food shortage. Hooker does find a solution, or workaround; he will divide his expedition; 18 men will accompany Hooker to the northeast in search of Ghang La via the Yangma River. His plan is to traverse the pass into Tibet and then southward into Sikkim. The remainder of the expedition will return to Darjeeling via their inbound route. The food shortage is due to the fact that the locals do not have food to sell to the outsiders; they barely have enough for their own needs over the long winter. The smaller the expedition, the less food they will need to procure along their route. [Large expeditions traveling through remote regions were often more of a curse than blessing. These expeditions used up precious local resources-food and manpower being the two chief ones. One might think that locals would want to hire out as porter and earn some cash, but in the 19<sup>th</sup> century, the local economy was based on barter, money was pretty much worthless- where could they spend it?]

It took several days for Hooker and his smaller party to trek north to the village of Yangma (~13,000 ft, 3962 m) which is up the Yangka Khola River Valley. He notes that

the village consisted of several hundred “wretched” stone huts most of which were painted red. The inhabitants had gone into hibernation in for the winter as it was now the first week of December. The village is located in the fork of the valley, one arm extending to the northwest and the other to the northeast. Here is what Hooker has to say about the area: “The scenery, though dismal, (no juniper even attaining this elevation,) was full of interest and grandeur, from the number and variety of snowy peaks and glaciers all around the elevated horizon...” Although he does not explain how or when he had come to the decision; it is now clear that Hooker had by this point in time abandoned any hope of crossing over into Tibet. He had already made a small cache of food lower down the Yangka Khola to be retrieved on the return trek in a few days’ time.

From Yangma he proposes to make an attempt to reach the pass at the head of the valley lying to the northwest, as a long dayhike. He refers to this pass as Kanglachem, which might be known today as the Ghang La. Alternatively, he might have been aiming for another low spot on the ridge opposite a large unnamed lake on the Tibetan side (refer to Google Earth: 27°.9241N, 87°.7755E), some distance south of Ghang La. The first several miles up the valley from Yangma was along the flat river bottom, further north they

encountered a series of large moraines and dried lake beds. The area had at one time been heavily glaciated. During the trek they came across several large herds of wild sheep with massive horns (*Ovis Ammon*), but Hooker did not have his rifle, so there was no possibility of increasing their food supply.

The upper valley narrowed and was strewn with large boulders and deep accumulations of gravel. The snow increased in depth and it was readily apparent that the party would have no possibility of reaching the pass. Hooker made sketches of the surrounding terrain and referred to it as “sublime”; obviously he did not think it a waste of time even though they did not reach the pass. The party turned around sometime after 4 PM, arriving back in Yangma by moonlight.

The revised exit strategy was for the expedition to retrace the route back down the Yangka Khola and then turn up a side valley that leads to the Nango La (15,670 ft, 4776 m); this pass lies on the western flank of Nango Peak (17,043 ft, m). To the east is the Ghunse Valley and the western flanks of the Kangchenjunga Massif. As it turns out the expedition had difficulties on both the ascent as well as the descent from the pass. Unfortunately, the weather was foggy with drizzle, compounded by deep snow in places and a cold wind. Most everyone in the party complained of headaches,

shortness of breath and lassitude once they reached the pass. On the east side during the descent the fog lifted and they were granted with a partial view of the great peaks to the east: Jannu (also called Kumbhakarna) and Yalung. They camped that night above the Ghunse Valley. The next morning Hooker breakfasted on pheasant that his chief guide had snared.

From their campsite the intended route was to continue the descent into the Ghunse Valley, trek south to where the Simbuwa Valley connects with the Ghunse Valley and then eastward following the trail to the Kang La, the pass that connects Nepal with Sikkim. However, before proceeding east the expedition spent the day trekking north to the village of Kambachen, lying west of Jannu, near the terminus of its westward flowing glacier. The expedition was well received by the villagers; the hardy inhabitants were able to eek out an existence in this hostile environment by growing barely, radishes and potatoes. Regarding the surroundings Hooker notes: "...of all the mountain gorges I have ever visited, this is by far the wildest, grandest, and most gloomy..." He spent the rest of the day botanizing as the party made its way back down the valley.

The next day they turned eastward hoping to reach Sikkim in a couple of days' time. Between the Ghunsa Valley and the Simbuwa Valley they had to cross three

passes in quick succession; the Sele La (13,649 ft, 4160 m), the Mirgin La (15,190 ft, 4630 m), and finally the Sinelapche La (15,299 ft, 4663 m, Hooker calls it the Choonjerma Pass). It was not long before they encountered deep snow and were forced to find a route over exposed outcrops of rock. The sky was free from clouds except those that were nestled in the deep valleys; Hooker notes that the views were "magnificent". Jannu was the star of the show, towering over 9,000 ft (2750 m) above its nearest neighbors to the south.

They traversed the last pass late in the day. Sunset from this elevation under those atmospheric conditions was memorable: "...the whole horizon glowed like copper run from a smelting furnace..." "I have never before or since seen anything, which for sublimity, beauty, and marvelous effects, could compare with what I gazed on that evening from Choonjerma Pass." They continued to descend by moon light, but it was difficult to navigate through the terrain, so they ended up camping several thousand feet above the Simbuwa Valley. The porters had performed well but had a rough time trekking in the semi-darkness.

The next morning while continuing their descent they came across two musk deer; several of the porters dropped their loads and pursued with bows and arrows; sometime later they rejoined the expedition

with nothing to show for their efforts. In the bottom of the valley, not far below the terminus of the Yarlung Glacier, they encountered a small group of Tibetan salt traders who were wrangling a herd of about 100 sheep. Each of the animals bore a leather saddle bag in which up to 40 lbs (18 kg) of salt could be carried. It was from the Tibetans that Hooker learned that the Kang La was closed for the season. Abundant October snowfall had shut it down. The inhabitants of the closest village to the pass, Yalloong, had moved down valley for the duration of the winter. This was a major setback for Hooker as the alternative route was many miles to the south.

Henceforth the expedition followed the Simbuwa Valley and then struck south on secondary trails. It took nine days for the expedition to reach the Islumbo Pass (~11,000 ft, 3350 m) where it could cross over into Sikkim. Three of the nine days in particular had been difficult, they had followed the trail along the Iwa River which was overgrown with bamboo and an assortment of tropical shrubs. To add to the misery, the ticks were horrendous; Hooker had to frequently undress and pick the ticks off of his body. On top of this they were running very low on food. After crossing the pass into Sikkim, they traveled eastward along the Kulhait River; needless to say, when they arrived in the first village, they

were a very hungry and thirsty group of men.

In one of those mind-boggling circumstances, a note from Dr. Campbell amazingly found its way into Hooker's camp. The note stated that Campbell was enroute to the village of Samdong located on the Teesta River (also spelled; Tista, means 'quiet' because it is fairly tranquilly in its lower reaches). The purpose of Campbell's visit was so that he could meet with the Rajah. Despite the supposedly 'friendly' relations between the Rajah of Sikkim and the British, the Rajah had ignored request for such a meeting until now. Campbell requested that Hooker meet him in Samdong at his earliest convenience.

Over the course of the next week Hooker made his way over to Samdong, located in southcentral Sikkim. We are not told why Dr. Campbell wanted Hooker present, but it could be simply to provide moral support. The latter held a number of talks with the Rajahs' second in command, the Dewan. A large part of Campbell's agenda was to attempt to open up trade between the two entities. The Dewan was throwing up road blocks between the Rajah and the British because he knew that trade with the British would wipeout his own lucrative trading network. After days of stalling by the Dewan, the two Brits were finally invited to meet with the 70-year-old Rajah. Both the Rajah and Dewan were

ethnic Tibetans. The meeting with the Rajah was unproductive, it appeared that the Rajah was ignorant on must subjects and certainly appeared to be a captive of the Dewan.

After the useless talks with the Dewan, Hooker and Campbell went on a five-day excursion to small peak called Mainom, located to the southwest of Samdong. Both men then trekked west visiting a number of famous monasteries along the way. On January 2, 1850 Campbell and Hooker separated: Campbell headed back to Darjeeling while Hooker looked towards the mountains to the northwest for a bit more adventure before returning to Darjeeling himself. As it was early January, Hooker realized that it would be difficult to penetrate very far into the mountains due to snow cover; however, as an explorer he would go as far as possible before turning back.

His destination was the southern portion of the Kabru Ridge; this north-south high ridge extends some seven miles (11 km) south from Kangchenjunga, and highly visible from Darjeeling. [Kangchenjunga was thought to be the highest mountain on earth at that time. Mt. Everest was first surveyed in 1849 but its height was not calculated until 1852. Kangchenjunga was first surveyed in 1847 with additional surveys occurring over the next three years]

The route led through village of Yoksum, the once important religious center of Sikkim, reduced to a sleepy but quaint village when Hooker passed through it. From here the small expedition followed the Ratong River, which included bushwhacking through bamboo forests and then crossing the raging river itself. They first encountered snow at ~8,000 ft (2440 m), from 11,000 ft (3353 m) and above the snow was deep. They did manage to ascend and camp on a 13,000 ft (3962 m) peak he calls Mon Lepcha, which commanded an impressive view not only of the mountains but western Sikkim as well.

Even though Hooker was an experienced botanist, he was once again impressed with the vertical ecotones; species of flora changed from tropical in the river bottoms to alpine over the span of a few horizontal miles. The expedition ultimately made its way to the Jongri Spur, where two stone huts provided the men with a bit of shelter as Hooker spent several days collecting what flora was not snow-covered. Hooker was impressed with the south side of Mt. Padim (21,951 ft, 6691m), especially the high cliff of black rock containing zigzagging veins of white granite running through it. Up to now the weather had been cold but the sky had been free of clouds. Shortly after arriving at Jongri, it snowed heavily so Hooker ordered the expedition back down to Yoksum.

Hooker returned to Darjeeling on January 19 after an absence of three and half-months, he found that most of the European inhabitants had departed for the winter. He spent his days drying, organizing and cataloging his large collection of flora and fauna. He ended up with 80 loads which were transported to Calcutta and then shipped to England. In late February Hooker joins Hodgson and Campbell for a tour of the north Indian plains (Terai) which keeps him occupied for most of the spring.

#### **The Second Expedition:**

The second and most ambitious of Hooker's Himalayan expedition begins to take shape in the late spring of 1849. His plan is to trek up the Teesta River into northern Sikkim, at least to the border with Tibet, and if at all possible, spend some time wandering in southern Tibet. In his narrative he does not disclose what route he will take on the return trek; it appears that he would go north and then see what developed. He does receive permission from the Rajah for his expedition, however, opposition is not far off in the form of the Dewan.

The expedition departed Darjeeling on May 2 with 42 souls, five of which were Sepoy guards. After traveling over Mt. Tendong (8,671 ft, 2643 m) the party dropped down into the Teesta River Valley where it was hot and home to myriads of

mosquitoes and peepsas (black flies). This was offset, at least for Hooker, by the fact that there were a number of species of climbing vines in the local jungle that he was not familiar with. The expedition passed through Samdong, and shortly thereafter, Hooker was confronted by a lama (a friend of the Dewan,) who attempted to thwart Hooker's movements by ordering locals to dismantled or damage a number of key bridges along his route. Hooker took this in stride and calmly proceeded on his trek, having his men repair damaged bridges or by taking alternative routes. It was at this time that a guide by the name of Meepo joins the expedition; he has been commissioned by the Rajah to steer Hooker in the right direction. The good news was that the lama removed himself from the expedition, the bad news was that over the subsequent days Meepo attempted to dissuade Hooker from proceeding all the way to the Tibetan frontier.

Despite the ongoing interference, the expedition continued its trek up the Teesta River. At this stage of the journey Hooker notes that they were about 45 miles (72 km) north of the Indian plains and surrounded by mountains that ranged from 12,000-16,000 ft (3658-4877 m) in height. However, the elevation of the river was only about 2,000 ft (610 m); and all the surrounding vegetation was tropical in

nature. In the valley the air was stifling hot and leeches began to appear in greater numbers as the summer monsoon rains approached. In addition, they had to endure a number of different species of biting flies. The porters, who wore minimal clothing at this time of year, were constantly jumping into the river to cool off and escape the biting insects.

Several days trek further north and they came to a fork in the river; the right branch (NE) being the Teesta and the left (NW) the Talung Chu. The expedition continued to trek up the Teesta to the important village of Sentam, here they encountered the regional magistrate. This personage was an agent for the Rajah's wife, who as it happened to be, unfortunately for Hooker, was a relative of the Dewan. Not surprisingly the magistrate does what is within his power to block the expedition from continuing north. His primary weapon was to discourage the locals from selling food to the expedition.

Hooker had made arrangements before leaving Darjeeling for several large shipments of food to be carried northward, however, these shipments were not reaching him in large part due to the poor condition of the trails. With the onset of the summer monsoon, heavy rain was producing mudslides which washed out large sections of the trail. In order to circumvent the lack of food, using a

technique that worked on his first expedition, Hooker decided to reduce the size of the expedition; he sent the five sepoy back to Darjeeling.

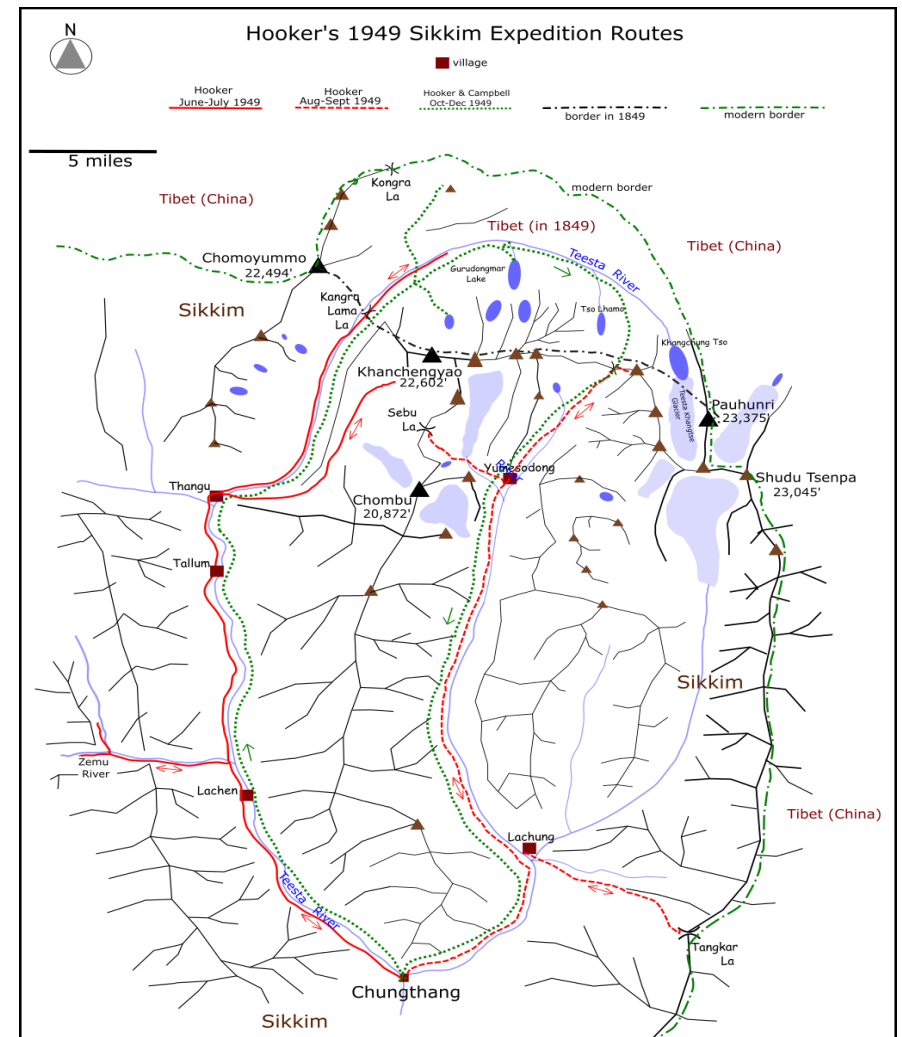
Hooker was determined as ever to reach the Sikkim-Tibet border. He does not reveal his thoughts in his narrative regarding all of these obstacles put in his path; whether he thought of it as a chess-game, move and then counter-move, or if he took it more personal. In any case, he was not about to turn around.

As the expedition pressed northward, the Teesta River Valley, which up to his point had been fairly wide and the river tranquil, became narrow and the river a torrent. Hooker writes; "The path was very difficult and dangerous, being carried along the steep slope, at an angle, in some place of 35°..." Despite the rain and slight gain in elevation as they trekked north, Hooker reports that it continued to be very hot; regarding the leeches which had been problematic in the south he writes: "Leeches swarmed in incredible profusion in the streams and damp grass..." "...they got into my hair, hung on my eyelids, and crawled up my legs and down my back. I repeatedly took upward of a hundred from my legs..." Worse yet were the sandflies, "...which causes intolerable itching, and subsequent irritation, and in this respect the most insufferable torment in Sikkim." He goes on to say that as the rains of the

summer monsoon began in earnest, the number of insects increased significantly. "...large and small moths, cock-chafers, glow-worms, cockroaches, made my tent a Noah's ark by night, when the candle was burning..."

When the expedition arrived in the village of Chungthang the inhabitants came out in numbers to witness the spectacle of a westerner in their midst. Since the villagers were of Tibetan stock, they practiced the rolling of the tongue and scratching of the ears as a form of salutation. It did not take long for the head lama and local administrator attempted to dissuade Hooker from continuing his trek northward. Hooker's main problem continued to be food, specifically the lack thereof. It became known that the Rajah had departed Sikkim for this summer residence in Tibet, the Dewan in his absence had issued orders that no food should be given or sold to the expedition. The plan was

evident; the Dewan hoped to starve Hooker into submission. Hooker, as already noted, was no pushover, so he decided to remain in the vicinity of Chungthang and await further developments. He was hopeful that one of his food shipments would arrive.





He occupied his time by roaming the hillsides in search of interesting plants and animals. It was on one of these forays that he came across small black viper. Snakes are fairly rare in Sikkim and the Himalaya in general; this particular one turned out to be a variety of cobra. At the conclusion of his time in the Himalaya Hooker reports that he collected 12 species of snakes, of which seven were venomous. He also noted the presence of large hornets, about 2 inches (5 cm) in length, which produce fever in men and cattle when they are stung. In contradistinction to the biting insects, there was an abundance of various colorful butterflies and moths.

The expedition remained in Chungthang for a week during which time a contingent of porters arrived with Hooker's much needed supplies. However, the porters had consumed a considerable portion of what they had departed Darjeeling with; this was due to the poor state of the trails and the slow pace at which they were to forced trek. Any additional food was a godsend, nevertheless Hooker reduced the size of his party to 15 and then proceeded to trek northward toward the Kongra Lama Pass which forms the border with Tibet. The remainder of the expedition personnel stayed in Chungthang until he returned.

The expedition's first objective was the village of Lachen, about three days

north of Chungthang. The route followed the upper Lachen River Valley which turned out to be challenging. The valley was narrow and heavily forested and the path went up and down as it crossed numerous side canyons; they had to wade in chest deep water at times. Many of the bridges that had existed a month previous, were now washed away due to the heavy rain and mudslides. At 8,900 ft (2713 m) elevation, Lachen village consisted of about 40 houses, located a 1,000 ft (305 m) above the river. The inhabitants maintained small plots on which they grew buckwheat, turnips and radishes, but their main livelihood was derived from their flocks of sheep, yaks and ponies. During the summer they also acted as transport agents or middlemen for the trade between Tibet and India. Hooker noted that the area was a confluence for temperate and boreal species of both flora and fauna.

Hooker was able to procure a small amount of food in the village but it was barely enough to feed his men even a meager diet. He suspected that even in this remote village they had received word not to supply his expedition with food. The locals requested that no one in the expedition shoot game, their reason for this was that it would produce excessive rain. This was no doubt another ploy to starve his party out of the region. Hooker resorted to his proven tactic of waiting to see what

might develop. He spent his time collecting plants. On June 2 he received word that a large contingent of porters had departed Darjeeling with his supplies, but they were forced to return due to the poor condition of the trails.

Every attempt by Hooker to discover information regarding the area to the north of Lachen was met with ignorance or resistance by the headman of the village. It was unclear what distance it was to the border; in some part this may have because the border had been moved a number of times over the past decades, so it was unclear to some where it was actually located. On June 3, despite the opposition, Hooker took a small party up river. The local headman volunteered to lead the party; the botanist accepted the offer knowing that this man would deceive him regarding the border. Nevertheless at least he would be heading in the right direction.

During the trek he collected plants with the help of some of the villagers who decided to tag along. Of note were the great red roses which were in bloom, as were cinquefoils and primrose. He writes that the "...scenery was pretty." When the expedition arrives at the confluence of the Zemu River with the Teesta River, he is told that this is the border with Tibet. To prove his point the headman of Lachen points to several stone huts and says that they use to serve as guard stations. Hooker is not taken

in by the headman's ploy; nevertheless, he decides to establish camp here as there are a lot of new plants the he wants to collect. For the time being he feigns that he accepts that this is the Sikkim-Tibet boundary. Seeing that the expeditions is going to camp, the Lachen villages, return home.

Meepo, the guide, is still with the expedition, he knows as well that this is not the border, but Hooker hints in his narrative that he believes Meepo is ignorant of where it is actually located. Hooker remains here for three days as the area abounded in pines, yews, junipers, firs and various flowering shrubs, which piqued his interest. He also notes that the men that were with him "behaved admirably" although their diet consisted of a little tsampa with what they could collect locally: leeks, nettles and other herbs. A major concern however was the wet weather; it was making it nearly impossible to dry various specimens- most of what he collected from here was ultimately ruined.

Despite the lack of food Hooker decides to push even further to the northwest. He probably realized that this was his one chance to explore this part Sikkim and he had better make the best of the situation. Two more days of trekking brought the expedition to the confluence of the Goma and Zemu Rivers; the latter flows from the Zemu Glacier located to the northeast of Kangchenjunga. At this

juncture his men had to build a foot bridge in order to cross the river. As a result, they were able to go another eight miles further north-northwest up the Goma Chu River Valley. They were in the vicinity of 12,000 ft (3600 m) when they turned around; the stands of rhododendron growing in the river valley were just too thick to allow passage. No route could be found along the side walls of the valley as they were too steep. It had been a valiant effort but Hooker realized this route was not going to come to fruition.

He returns to camp on the north bank of the Zemu River and over the next several days vainly hopes of finding a route up to the glaciers that reside on the east of Kangchenjunga. They do manage to reach a little over 13,000 ft (3960 m) before giving up the venture; it was the same old problem: dense stands of rhododendron in the valley bottom and steep cliffs above. (The eventual route to the Zemu Glacier does follow this same track). Of the eight days that the expedition spent on the Zemu River it rained each day, much of it, heavy rain.

After the two futile attempts to trek to the northwest and west, Hooker and his party returned to Lachen in order to regroup. While in Lachen a letter from Dr. Campbell reaches the botanist. Campbell had communicated via letter to the Rajah regarding the poor treatment that Hooker

had been receiving by various local authorities during his expedition. The letter indicated that the Rajah would rectify the matter. True to his word, a few days later an official (Soubah) from the court arrived in Lachen with instructions to escort the expedition to the Tibetan border. In addition, the expedition was now able to purchase a small quantity of food, including a slab of yak meat. The latter Hooker comments was the toughest meat he had ever eaten. It became obvious that the Soubah, despite his orders from the Rajah, wanted to get this odious task over as soon as possible. Hooker on the other hand was in no hurry as he wanted to explore and collect flora at his own pace.

It was on July 12 that the expedition, including the Soubah, departed Lachen headed for the Tibetan border. North of Lachen, the valley continues to be narrow and the river wild, further north however, the valley widens and the river meanders. The expedition spent several days in the village of Tallum, where Hooker goes on an orgy of plant collecting. He collected some 200 species of flowers, herbs, and shrubs, many of which were related to species found in northern Europe. Although it drizzled nearly continuously, it was readily apparent by observing the flora, that as they trekked northward the annual precipitation decreased significantly.

It was while the expedition was camped in Tallum that the Soubah attempted to convince Hooker that they were on the Sikkim-Tibet border and that it was time to turn around. Hooker had of course seen this ploy at work previously and would have no part of it. Finally, on the 23<sup>rd</sup> of July the expedition was able to resume its northbound trek, passing through the village of Thangu enroute to the border. Around Thangu Hooker collected 40 species of plants that were new to him. It was also in this area that he noted the dramatic decrease in the size of vegetation as well as in their distribution when compared to regions to the south. The terrain became alpine in nature above 14,500 ft (4420 m).

The expedition reached the Kongra Lama Pass early one afternoon; this was the actual border between Sikkim and Tibet at that time. There were isolated patches of flowers from which Hooker was able to add to his already impressive collection. The party spent several hours at the pass (~15,800 ft, 4815 m) and then returned to Tallum that same night. Hooker reports that the Kongra Lama Pass "...is a low flat spur running east from Kinchinjhow (*Khangchengyao*) towards Mt. Chomiomo (*Chomoyummo*), at a point where these mountains are a few miles apart,..." (italics are the modern spellings). Today the international border is located some 4-5 miles (6-8 km) north-northeast where there

is an obvious pass, the Kongra La (~16,800 ft, 5120 m) through a small mountain range. It should be noted that the Kongra Lama Pass is not an actual pass but a wide gap between Khangchengyao and Chomoyummo where the upper Teesta River flows from northeast to southwest. The terrain continues to rise through the 'pass' to the northeast. Today the Gurudongmar Road follows this old route along which the Indian military has established several small bases, in addition, the public can use the road to gain access to several spectacular lakes.

The day after the venture to the pass, the headman of Tallum invited Hooker on an excursion, the objective was to visit several Tibetan families that were camped on the southern slopes of Khangchengyao. The small party rode ponies to the northwest of Tallum where the encampment was located. It was situated on what is referred to as the Palung Plains, a flat area several miles broad through which a small river meandered. The Tibetan families regularly settle here for the summer months to allow their flocks of sheep and goats to graze. Hooker notes: "Both men and women were indescribably filthy: as they never wash, their faces perfectly black with smoke and exposure..." During the short summer they attempted to grow turnips, with mixed success; some years the crop ripened by September

before the Tibetans left the area, and other years they departed with the turnips still in the ground.

Although the area looked bleak at first glance some plants did grow here. Besides the grasses that the herds grazed on, Hooker came across a *Rhododendron Nivale* (dwarf snow rhododendron), which he says is the most alpine of woody plants. He also spotted some very small primroses, drabas, saxifrages and gentians amongst others. He reports that there were few wild animals to be found in this part of Sikkim; he speculates that it is just too cold and wet. There are regions to the north in Tibet that are colder but they happen to be dry; in those areas' sizeable herds of wild horses, antelopes, foxes, hares, marmots etc could be found. Two animals that were able to eke out a living in northern Sikkim were wild sheep and marmots.

Hooker spent a week at Thangu not only because it was rich in flora, many of which were new to him, but because he got along fabulously with the locals; they frequently invited him into their houses for tea and a smoke. On one of his excursions around the village he found a flower new to western botanist: *Delphinium glaciale*, which has a strong smell of musk, the petals sport a turquoises-silver coloration. Hooker departed Thangu on July 30 returning to the south via Tallum and Lachen, always botanizing as he went.

The expedition reached Chungthang during the first week of August, which corresponded with the height of the monsoon rains. Hooker's luck finally swung in his favor; he received a consignment of supplies from Darjeeling. With a windfall of food Hooker decided to venture northward again, but this time he is going to take the trail up the Lachung River to the northeast. This phase of the expedition started ominously for Hooker; shortly beyond Chungthang the expedition was forced to cross a rickety bamboo bridge; Kinchin, Hooker's dog, fell off the bridge and into the torrent below never to be seen again. Hooker laments: "For many days I missed him by my side on the mountain, and by my feet in camp."

The next stop on the expeditions' itinerary was at the sizeable village of Lachung. The village consisted of about 100 wooden houses, and as Hooker noted, it was one of the most scenic within Sikkim. At this point in time Hooker decides to take a short side trip to Tangkar La, a pass located to the east-southeast which gave access to the Phari District of southern Tibet

It took his party two days to make the ascent to the 16,100 ft (4910 m) pass. There was still a significant amount of snow on the west side of the pass in addition to a small glacier. Regarding the view down from the pass to the east Hooker writes; "...was a steep, rocky, broad, grassy valley,

where not a particle of snow was to be seen, and yaks were feeding near a small lake not 1,000 ft (305 m) down." The descent back to Lachung also occupied two days, after which the expedition resumed its northern trek.

Several days north of Lachung a large consignment of food caught up with the expedition, which of course was sorely needed. In addition, Hooker received word that he has been granted permission to proceed into Tibet, and that one of the local village elders had been commissioned to act as his guide.

The next point of interest along the trail was the village of Yumesamdong (15,300 ft, 4663 m), positioned where the Lachung River Valley widens and then forks to the northeast and northwest. The Lachung River flows down from the northeast. A mile up the valley to the northwest was the terminus of the Changmekhan Glacier. The accumulation zone of this body of ice occupies an amphitheater created by the summits of Yulhekang (20,502 ft, 6249 m) to the west and Gurudongmar (22,031 ft, 6715 m) on the east.

Some nine miles to the east-northeast from Yumesamdong are the summits of Pauhunri (23,376 ft, 7125 m) and Chijolabgye (22,674 ft, 6911 m). Hooker's next goal was the Dongkya La (18,017 ft, 5492 m), a gap through the ridge

which extends west from the summit of Dongkya Ri (20,308 ft, 6190 m), which itself is immediately west of Pauhunri.

Hooker located his camp just outside of Yumesamdong adjacent to a Tibetan encampment. He notes that the Tibetans were good neighbors at times, and not so good at other times. His main complaint was against their animals: Tibetan mastiffs were set loose at night. These aggressive animals roamed the area, howling and eating anything they could sink their teeth into. It was not only the mastiffs however which disturbed Hooker's sleep; "...yaks were also troublesome and bad sleepers; they used to try to effect and entrance into my tent, pushing their muzzles under the flaps at the bottom, and awakening me with a snort and a moist hot blast."

It was now early-September and Hooker had a bit of good news; the Soubah, who had become a hanger-on for the past few weeks had had his fill of expedition life; he departed once and for all, or it seemed. As he had grown more dissatisfied with the expedition, especially how it was organized, he desisted from attempting to disrupt Hooker's effort to reach Tibet.

On the morning of September 9 which was cloudy in Yumesamdong, a small party set-out for a day excursion to Dongkya La. By the time the men arrived at the pass, it was foggy; the much-anticipated

view was non-existent. However, over the subsequent days Hooker made this same excursion two additional times; and was fortunate to be there on a clear day. With regard to the view into Tibet, and especially the mountains in the foreground he writes; "...they were comparatively gently sloped, and of a yellow red color, rising and falling in long undulation like dunes..." Further north he views another range of rugged mountains which he estimates were at least 24,000 ft (7315 m) and higher. As it turns out there are no mountains of this height which he could see from this vantage point in southern Tibet. Closer to home, specifically, in and around the pass, he found a handful of hardy plants: fescue grass, several types of small ferns, as well as lichens and mosses, all growing at 18,000 ft (5490 m).

Hooker spent several weeks camping in the area during which time he also ventured to the Changmekhan Glacier and Sebu Lake, both located to the northwest of Yumesamdong. He notes the existence of what are called today: glacier tables, large sometimes gigantic rocks which are precariously balanced on thin pinnacles of ice. On another excursion he trekked past Sebu Lake and then traversed Sebu La (17,560 ft, 5352 m) dropping down into the Tunguchoo Valley where he had ventured back in July from the Teesta River Valley. From a distance he could see the

tents of the Tibetan shepherds who obviously had not yet departed for the winter.

Late in the month Hooker received word that Dr. Campbell had left Darjeeling in order to rendezvous with the expedition. Upon receiving this communique, Hooker decides to backtrack to Chungthang in order to meet Campbell. Once the two men are reunited, Campbell relates to Hooker his recent near-death experience. Enroute to Chungthang, the pony that Campbell was riding on slipped off the edge of the trail. Campbell had had the presence of mind to slip out of the saddle when he felt the pony began to stumble; Campbell fell onto the trail while the pony fell to its death in the deep ravine.

Campbell's excursion was a diplomatically sanctioned mission; the primary goal was for him to become better acquainted with Sikkim; and there was no better way to do that than by trekking across it. Recall that Sikkim was under British protection, however, the Rajah had always discouraged British-Sikkim interaction. Brits were rarely welcomed; hence, Hooker had been one of the first outsiders allowed to roam across the country. If opportunity presented itself, Campbell would attempt to smooth the political tension that existed.

In Chungthang the two Brits developed an itinerary that suited both

their ambitions. The expedition, which now not only included Campbell, but the sourpuss himself, the Soubah, who had unfortunately recently rejoined. The plan was to travel up the Lachen Valley (Teesta River), traversing the Kongra Lama La and continuing east into southern Tibet. They would trek to the southeast passing near Gurudongmar Lake enroute to the Dongkya La; from where they will re-enter Sikkim. They will then continue on a southerly course along the Lachung River which will eventually lead back to Chungthang, closing the circuit. Hooker had covered a large part of this route already, but he was game to do it again. The big prize was the opportunity to enter Tibet, at least a very small corner of it.

The expedition departed Chungthang on October 6; on its northward trek Hooker notes the change in foliage since his visit back in July. Many of the high elevation shrubs were turning shades of red, the leaves on the deciduous trees such as mountain-ash, birch and maple were in various stages of turning yellow; while the grasses were turning a yellow-brown. As autumn approached, night time air temperatures began to dip, and snow flurries occurred on several occasions.

The expedition made steady progress up the Lachen Valley over the subsequent week and half. On the morning of the 16<sup>th</sup>; which was cool but sunny,

Hooker, Campbell and a lama who was acting as a guide, rode toward the Kongra Lama La on ponies. A number of expedition personal followed on foot. As the trio reached the Kongra Lama La, they can see a small group of armed Tibetan guards off in the distance who were moving towards the pass on an intercept course. Hooker spurs his pony onward in order to keep the momentum of the expedition moving toward its objective; he is fearful that the presence of the guards means that the expedition will have to turn around. Campbell and the lama stop at the pass and wait to converse with the Tibetans.

Hooker rides onto Gurudongmar Lake, some eight miles from the pass. He describes the landscape around the lake as: "...simple in its elements, stern and solemn... I doubt whether the world contains any scene with more sublime associations than this calm sheet of water 17,000 ft (5180m) above the sea, with the shadows of mountains 22,000 to 24,000 feet (6705-7315 m) high, sleeping on its bosom." The mountains he refers to are Gurudongmar and Khanchengyao which lie to the south and southwest of the lake. He observed antelope and deer which were grazing on patches of grass. The area abounded with hares, marmots and tail-less rats. He attributes the abundant fauna to the presence of carbonate of soda which ruminants have a fondness for; in addition,

the dry climate is preferred by borrowing animals. Hooker stayed at the lake for about 30 minutes before turning to ride back toward the pass. He notes that although the sun was shining brightly, a strong wind made it bitterly cold.

That evening Hooker was reunited with Campbell and the remainder of the expedition; they had set up camp a little to the northeast of the Kongra Lama La. Hooker learned what had transpired at the pass after he had ridden off. The Tibetan guards had a first refused entry to the party, however, the senior guard softened his stance after he learned that the expedition would save 10 days of travel if they were allowed to continue on this route. He not only granted them permission to proceed, but acted as their guide as well. Finally, someone who valued practicality over bureaucracy.

The next day they visited an unnamed lake nestled at the base of Khanchengyao, a host of ducks and geese were swimming in its frigid waters, but there was little other observable life. That same afternoon a small party ventured up the slopes of Bhomtso, a small mountain on the north side of the valley which Hooker estimates to be in the vicinity of 18,400 ft (5610 m). Under clear skies the view was panoramic: to the west were the high peaks of eastern Nepal, to the north the barren but geologically interesting hills and valleys

of southern Tibet. In the far north they could see a series of mountain ranges. To the south the tall mountains of northern Sikkim were close at hand.

That night they set up camp near Gurudongmar Lake and next morning continued the trek toward Dongkya La with the Tibetan escort. Just prior to reaching Dongkya La, Hooker ventures by himself onto the ridge east of the pass. In the vicinity of 19,000 ft (5790 m) he is able to look down on Khangchung Tso, the large lake situated at the foot of the Teesta Khangste Glacier; the source of the Teesta River. The glacier flows down from the northwest flank of Pauhunri (23,375 ft, 7125 m), the tallest peak in northeast Sikkim. Hooker then makes his way back to Dongkya La, reaching it in the mid-afternoon, hours after the main body of the expedition had passed. He continued to follow the trail south, rejoining the expedition that evening in the village of Yumesamdong. Recall that he had spent quite a bit of time here in September; however, four weeks had elapsed since he had departed in order to join forces with Campbell.

The next day a contingent of the expedition personnel attempted to work their way onto and then up the Donkia Glacier, however, the weather gods had other ideas; the trekkers were thwarted by a snowstorm. Over the course of the next

week the expedition made its way south, spending several days in Lachung due to the illness of several of its members. Hooker notes that even in late October the area "...was still beautiful, and the weather mild..."

It was at this time that Meepo, the guide who had been commissioned by the Rajah to escort Hooker during the previous summer, rejoined the expedition. He had new instructions from the Rajah; he was to guide the men to the Cho and Yakla Passes, located in southeastern Sikkim on the border with Tibet. Enroute they will pass through the village of Tumlong, which was not far from where the Rajah was in his winter residence. This would give Dr. Campbell the opportunity to meet with the ruler and attempt to smooth British-Sikkimese relations.

The expedition made an uneventful trek south to Tumlong, arriving during the first week of November. They were warmly received by the local population but for unknown reasons, Dr. Campbell, who spent several days seeking an audience with the Rajah, was shunned. Rather than continue to wait for the Rajah to act, Campbell and Hooker decided to up anchor and resume their quest to reach the Cho La which was some 14 miles (22 km) to the east. The day after leaving Tumlong, representatives of the Rajah, who bore various gifts, caught up with the expedition and attempted to

explain to Campbell and Hooker why the two Brits had been brushed aside by the Rajah and his court. They did not believe the excuses offered, but remained cordial with the officials. After the preliminaries, it became apparent that the officials wanted Campbell to remain and open discussions on various trade issues; Campbell said it was not possible as he was on his way to Cho La with Hooker. The officials made no visible objection, and hence departed back to Tumlong.

The expedition continued its eastward trek following a track up a long-forested ridge, the trees eventually gave way to bare rock near 13,000 ft (3960 m). They passed along side several small lakes before starting the gradual ascent to Cho La (15,069 ft, 4593 m). At the pass Hooker and Campbell meet a small group of Tibetans and ask them if there is trail to the Yakla Pass from here. The reply was in the affirmative but they would have to enter Tibet to access it. Campbell ventured a bit further east, down from the pass, in order to converse with the border guard, as this was the demarcation between Sikkim and Tibet. Campbell was hoping to persuade the guard to allow the expedition to proceed a short distance into Tibet so they could pick up a trail that would lead to the Yakla Pass. His request was denied. While Campbell had been conversing with the border guard, Hooker, who was still up in the pass, was

approached by a number of Sikkim Sepoys (military) who wanted him to turn back with them. He refused, and walked down to where Campbell was talking with the guard. Hooker notes that the only reason the Sepoys did not force him to turn around, was due to the presence of the armed Tibetans. [Interestingly, there was no further mention of Meepo, the Rajah's guide. He must have separated himself from the expedition at some earlier time]

Some minutes later, when Hooker, Campbell and a few Tibetans returned to the pass, they were met by a larger contingent of Sepoys. The latter told Campbell that they were sent by the Durbar, to bring him back so that the two men could transact business. Campbell did not take kindly to this type of 'diplomacy', and refused. The Sepoys were annoyed and acted like they were going to draw their knives; one did actually point a sharp weapon at Campbell's chest. The Tibetans who had been a short distance away, now came to the rescue; they forced the Sepoys back, as this was actually Tibetan soil.

There was a problem however, Hooker and Campbell had to return via Sikkim, which meant that it was highly probable they would run into the Sepoys at some juncture. There was nothing else they could do, so they started to make the descent from the pass. A day or so later they were met not by the Sepoys but rather

by the local Soubah; he wanted to confer with Campbell. The latter told the Soubah that he would not meet until the expedition had arrived in the village of Chumanako. When the expedition did arrive in this village, Hooker observed that there was a large congregation of men who were obviously not from the local area.

The expedition set up its camp on the edge of the village. That evening as Campbell stepped outside of the hut in which he and Hooker were staying, he was jumped by a large number of men and wrestled to the ground. Campbell called out to Hooker who subsequently rushed out of the hut but was immediately seized by eight men, he was forced him back into the hut and then pinned to the ground. Meanwhile, Campbell had been dragged off and detained in a different location. Hooker was then questioned by three officials, one of which was the Soubah. Hooker refused to answer any questions until he was told why he was being held as a prisoner. No answer was forthcoming; however, Hooker learned that Campbell had been detained by the order of the Rajah.

It turns out that the Rajah had been dissatisfied with the conduct of Campbell as a government officer over the past 12 years. He was to be taken to the court of the Rajah and held as a prisoner until the government officials "...at Calcutta should confirm such articles as he should be

compelled to subscribe to;..." The meaning of this is not very clear, nor was it obvious to Campbell or Hooker at the time; did the Rajah want Campbell to repent of his past 'crimes', or had the Rajah kidnapped Campbell and Hooker and was holding them until the British government paid a ransom.

It is best to summarize what occurred to Dr. Campbell and Hooker over the following weeks. Campbell was beaten and tied up, Hooker on the other hand was released and told to continue his venture to the Yakla La; which he refused to obey, as he did not want to be separated from Campbell. Later the two men were marched to Tumlong (where the Rajah resides); Hooker was treated fairly well but Campbell was still being treated poorly. After a week Hooker was questioned yet again; as it turns out the authorities who were doing the questioning eventually steered their questions toward political issues; it seemed to Hooker that they wanted to amend the British-Sikkim Treaty and that seizing Campbell was their means of putting pressure on the British Government in Calcutta to take them seriously. In addition, the court had several scores to settle with Campbell as he had been the agent of the Governor-General for a number of years. It also appeared to Hooker that the Dewan was the source of all of the trouble; the Rajah most likely not even knowing what was going on.

In time Hooker and Campbell were finally reunited; they shared a small hut that was under heavy guard. Several days later the Dewan, who had conveniently been away in Tibet, arrived in Tumlong, carried in a sedan chair. He however, refused to meet with the prisoners for a number of days, saying that he did not want to meddle in this affair. Finally on November 22, the Dewan decided to converse with the two Brits. He acted ignorant of the affair and wanted Campbell to explain why he had been taken prisoner. Campbell only responded by pointing out the potential consequences of the seizure of a political agent working on behalf of the British Government. There were many rumors regarding the release of the prisoners, or some word being received from Calcutta, but the days dragged on.

On December 9 the prisoners, a large escort of guards and officials, departed Tumlong headed for Darjeeling. Interestingly this entourage also included 40 unloaded mules. It appears that the Dewan in his great ignorance (more likely his hubris) was going to march into Darjeeling with his two prisoners and conduct trade and political negotiations as if nothing unusual had occurred. Several days into the trek, a letter from the Governor-General arrived, addressed to the Rajah: "...it demanded our instant release, or his Raj would be forfeited; and declared



that if a hair on our heads were touched, his life should be the penalty.” The Dewan did not comply but continued the trek towards Darjeeling seemingly unaffected by the letter.

The slow march toward Darjeeling by the Dewan and hostages continued for the next two weeks. During that time a number of followers and guards began to vanish, the Dewan attempted to put on a bold face when he occasionally met with Hooker and Campbell, but it was apparent he knew that his time was running out. In the end a small escort took the two hostages to the outskirts of Darjeeling where they met 30 Indian Sepoy; the Sikkimese fled back across the river. Hooker and Campbell were back in Darjeeling on December 23.

The Governor-General demand that the Rajah punish the culprits. In the end, British troops did cross the border from West Bengal into Sikkim where they camped for several weeks as a show of force. In addition, the lands of southern Sikkim, that is the Terai, were confiscated by the British, and the Rajah’s annual stipend was withdrawn.

In the aftermath of their most recent adventure, Dr. Campbell resumed his political duties while Hooker attempted to salvage the thousands of items that he had collected on his most recent expedition. A large part of what he had collected had been lost or destroyed due to frequent

mudslides which obliterated the trail network in Sikkim, and in part due to the hostility of the Dewan. Nevertheless, thousands of species of flora and some faunae were shipped back to England.

In the spring of 1950 Hooker, after spending some time in Calcutta, took a boat excursion on the Mahanuddy River in the Terai. He continued his travels around northern Bengal before heading Chittagong in the southeast region of the Bay of Bengal. He sailed for England in March 1851. Four years later Hooker was made the Assistant Director of the Royal Botanical Gardens at Kew, but by 1865 he had become its director.

Joseph Hooker was an intrepid traveler who was not easily scared away from the task at hand. His ability to suffer and endure physical hardship, whether it be biting insects, endless miles of trekking through mud, crossing ragging rivers, or a lack of food; served him well. He was able to cover more ground which meant that he could collect and observe a larger number of new species. Besides his work in botany, his meteorological work was prolific as witnessed by the numerous appendices in volume II of this narrative. He also wrote about the physical geography of Sikkim, laying the ground work for the idea of the vertical distribution of ecotones. He also conducted his own basic topographical survey as he trekked. Equally important he

had a good understanding of the mindset of the various peoples amongst who he traveled, and respected their own unique culture. He was the mold from which a host of later explorers, scientists and mountaineers would be cast.

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