

First Ascent of Phokto Scheyok, 6235m, Rongdo Valley, Nubra, Ladakh, India 2018

Keith Goffin



Cover photograph: *Phokto Scheyok* 6235m seen from basecamp [Photo: Keith Goffin].

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INTRODUCTION

The story of our 2018 expedition actually started back in 2013. Only by going back to the beginning is it possible to grasp just how complicated it can be to make a first ascent in the Indian Himalaya.

In 2013, two of us organized an expedition to northern India for the summer of 2014. It took nine months to research possible unclimbed peaks, apply to the *Indian Mountaineering Foundation* (IMF) for permission, and to wait to hear from the Indian *Ministry of Defence* (MOD). The MOD confirmed two weeks before our departure date that they had “*no objection... to the Expedition*”. We were ecstatic. Then, one week before our flight, the IMF acting on orders from the *Ministry of Home Affairs* (MHA) refused permission, citing “*security concerns*” as the reason. We were devastated.

In Delhi, we visited the IMF to discuss alternatives and stressed that we wanted to climb an interesting peak. However, the IMF Director had made the decision that all peaks were to be closed. We were told to wait in Delhi and then we would be offered permission to climb Stok Kangri (the well-known trekking peak near Leh). Neither the offer of Stok Kangri nor the prospect of remaining in Delhi in a 40°C heatwave was attractive and so we flew to Leh. Later, after much discussion with the local IMF office in Leh, we finally got permission to climb *Peak 100*. This was a much less interesting mountain than our original objective but at least we got the opportunity to climb a 6355m summit (Goffin, 2016), in what was the official second ascent. Shortly after returning from India in 2014, I developed chronic bronchitis and was so ill for 18 months that I seriously doubted I would ever climb at altitude again. Such experiences were frustrating, to say the least. However, what happened in 2014 did not make us give up on our aim of making a first ascent of an unnamed peak in the Indian Himalaya. Many people are amazed to hear that there are still unclimbed, unnamed mountains in the Himalaya. However, even in an era when satellite images cover every corner of the globe, an expedition to an unclimbed, unnamed peak is still possible and not just a mountaineer’s dream.

It was not until the beginning of 2018 that the circumstances needed to organize such an expedition coalesced—renewed health; enough time free; fitness, savings, a motivated climbing partner, and a suitable objective. That meant that *all* we now needed was the official authorization. So, it was all the more satisfying when our expedition was approved by the MOD, the MHA and IMF. After so much effort, we had finally received authorization to collect our *Mountaineering X-visas* from the Indian Consulate in Munich. Indian mountaineering visas have acquired an almost legendary status and the consular officials in Munich had never even seen an X-visa before they issued ours. After over four years of waiting, we now had permission to attempt an unclimbed, unnamed mountain in Ladakh—a remote part of the Himalaya.

In the summer of 2018, everything needed for a successful expedition in India came together—supportive officialdom; no border tensions; fitness; good acclimatization; stable weather; and a route with good snow and ice conditions. Thus, on 22nd July 2018 three of us made the first ascent of a 6235m peak, which is now officially known as *Phokto Scheyok*—Black Pyramid. The mountain is located in the far north of India, in the beautiful, rarely visited Rongdo Valley, part of the East Karakoram, in the Nubra region of Ladakh.

This report gives full details of our expedition; it is intended to give comprehensive information on mountaineering possibilities, acclimatization, and planning (including costs). I first visited Ladakh in 1982 and have always been fascinated by the country and enjoyed every visit. After our 2018 expedition, I became particularly interested in reading about the history

and cartography of Ladakh and the Nubra Valley. One article led to another, and to the discovery of relevant books and websites, and even related museum collections. Through this research, I became aware of long-forgotten, impressive ascents by surveyors, carrying heavy theodolites to nearly 6000m. Without it having been my intention, my research grew into an investigation of all of the ascents of mountains in the Rongdo Valley. This included checking which summits had been climbed and which had not; and discovering that some mountaineers had made repeat ascents while thinking they were making ground-breaking first ascents. Unnamed mountains were even found to have been named more than once. These discoveries led the *American Alpine Journal* to invite me to compile a summary of mountaineering in Rongdo. This turned into a comprehensive 50-page document (Goffin, 2020) and took a lot more time than expected, as the ambiguity in previous expeditions' reports needed to be clarified. So, this expedition report was only completed three years after the ascent—later than originally planned because a comprehensive report with much history and background has been prepared.

Due to the extensive research conducted on mountaineering expeditions and the mapping of the Nubra Valley area, this report should be useful for any expeditions planning to visit the East Karakoram. Finalizing the report has made me look forward more than ever to my next visit to Ladakh.¹ The report is presented in the following ten sections:

- Kashmir and Ladakh.
- Mountaineering in Ladakh.
- The application process.
- Team and Rimo support team.
- Acclimatization.
- The approach to basecamp.
- The climb.
- Summary.
- References
- Appendices (Chronology of the application process; Expedition costs; Equipment; etc.).

KASHMIR AND LADAKH

Overview

Ladakh and its capital Leh is situated in the extreme north of India (see Figure 1). Its name comes from the Ladakhi words *la* meaning pass, and *dakh* meaning many. Considering its mountainous geography, it is appropriate that it is known as the 'land of high passes'. It is also sometimes called 'Little Tibet', because of its largely Buddhist culture and the many refugees who crossed from Tibet and who have lived in Ladakh since the 1960s. Whatever name is used, it is a fascinating county with an impressive landscape.

The Greater Himalayan and other mountain ranges in Ladakh include many 6000m and some 7000m peaks, which cast a rain shadow to the north (Dravers, 1980). Consequently, most of Ladakh is a barren, sparsely populated stone desert that receives almost none of the summer monsoon. The total area of Ladakh is about 117,000 square kilometres (about three times the size of Switzerland) but the population of Ladakh is only around 280,000 (compared to the 8 million inhabitants of Switzerland).

At the time of independence from Britain, the ruler of Kashmir considered accession to Pakistan but then chose India. In the seven decades that have followed, Ladakh was part of the State of Jammu and Kashmir (J&K—shaded blue area at the top of Figure 1). According to the Indian Government's *Article 370*, J&K held a high degree of autonomy but it has suffered

¹ At the time of writing in 2021, the world is still struggling with the Covid-19 pandemic and my August 2020 visit to Ladakh had to be cancelled. Hopefully, the virus will not hit Ladakh severely.

much internal conflict. Some Muslims in Kashmir have wanted the state to be aligned to Pakistani-administered Kashmir and there have been many protests and violent terrorist attacks over recent decades. The special status defined by Article 370 was revoked by the Indian Government in August 2019 (*Times of India*, 2019), causing further protests. As part of these changes Ladakh was separated from J&K and it became a union territory, governed directly from Delhi. Consequently, Ladakh is entering a new period in its history. Hopefully, the Ladakhi people will be able to prosper, while preserving their unique culture.

Figure 1: Map of Indian States (source: <http://www.mapsofindia.com/maps/> with annotations).

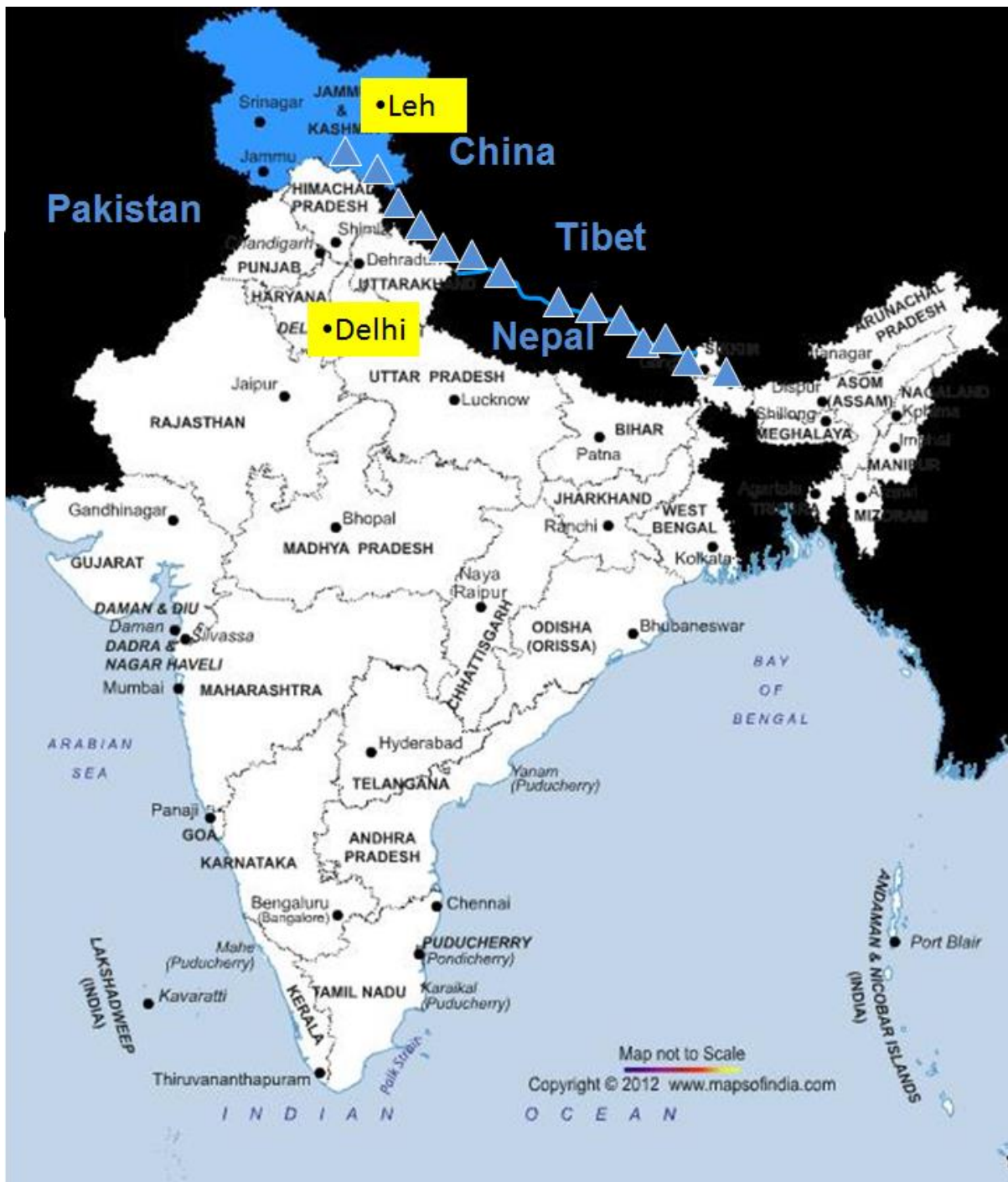


Figure 2 shows a map of Kashmir, with the Pakistan-administered northern half, and the Indian-administered southern half, divided by the *Line of Control* (LOC—effectively the cease-fire line from the last conflict between Pakistan and India). The territory of Ladakh is the eastern part of Indian-administered Kashmir. The borders with Pakistan and China have been the subject of dispute for decades, which has led to several wars. India and Pakistan first clashed over Kashmir in 1947 and since 1984, a number of military actions have been fought near the Siachen Glacier, with fighting between the Indian and Pakistani armies reported up to altitudes of 6000m (Kapadia, 1999b).

A war was fought between India and China in 1962 with a famous battle taking place at Chusul, near Pangong Lake. China occupied large areas that had previously been administered by India. Sixty years later, Ladakh’s eastern border with China is still in dispute and hard to monitor. The *Line of Actual Control* (LAC) is not clearly documented, and Chinese troops have often crossed the border in the last decade. With every new Chinese incursion, permission for mountaineers to enter the border areas becomes impossible for several months.²

Figure 2: Map of Kashmir (source: BBC News website <https://www.bbc.com/news/world-south-asia-11693674>; accessed January 2020).



Due to the geo-political situation, Ladakh was closed to visitors until 1974 (Dravers, 1980). Today, the many tourists require not only visas for India but also special permits to enter

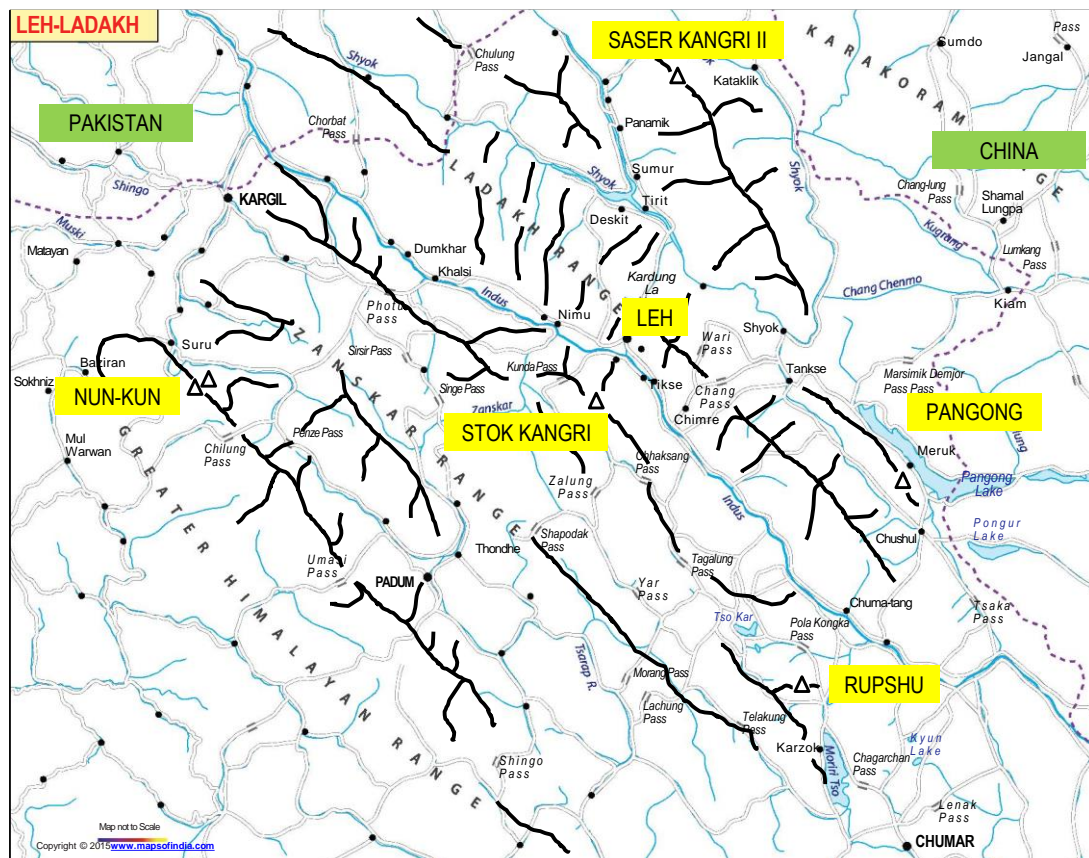
² In June 2020 there was a border incident in the Galwan Valley, Nubra in which 20 Indian troops were killed by the Chinese. This means that the tension is now extremely high, with Indian troops on full alert. The border tension is also high around the Pangong Lake, where Indian troops were camping at high altitude over the winter 2020–21, to prevent Chinese military movements near Chusul.

certain ‘restricted areas’, such as the Nubra Valley, Rupshu, Pangong, and Siachen.³ The overland routes to Ladakh take two days, from either Srinagar or Manali, and so most tourists choose to fly. It is a dramatic flight across two Himalayan mountain ranges, flying due north from Delhi and taking an hour and a half. There are several flights each morning and these are fully booked in the summer months. Flights are often cancelled due to poor weather.

Figure 3 shows the main mountain ranges, rivers and towns of Ladakh. It can be seen that four major ranges run in parallel, from north-west to south-east. These are the *Greater Himalayan*, *Zaskar* and *Ladakh Ranges* (including the small *Pangong Range*), and the *East Karakoram Range* (with major peaks such as *Saser Kangri II*). Many of the mountains are granite but a detailed description of Himalayan geology including that of Zaskar and Ladakh can be found in Searle (2014). The approximate and disputed borders are shown on Figure 3. Towards the top left is the effective border to Pakistan (LOC), whereas the effective border with China is the dotted line running north–south on the east of the map (LAC).

The capital of Ladakh, Leh, lies in the Indus Valley, between the Zaskar and Ladakh ranges. Directly north of Leh is one of the highest motorable passes in the world—the Khardung La (5385m). This pass leads to the Nubra Valley, which borders both Pakistan and China, and is where our 2018 objective is located.⁴ The Nubra Valley with its Shyok River has been an important caravan trading route for many centuries (Agrawal, 2012), as it leads north to the famous Karakoram Pass and onwards to Kashgar. South of Leh is the Zaskar Valley and to the south-east of Ladakh is the Rupshu district, with the large lake Tso Moriri. South-east of Leh is the Pangong Range and Lake, which straddles the border with China.

Figure 3: Map of Ladakh (source: <http://www.mapsofindia.com/maps/> with annotations).



³ In 2020 special permits were relaxed for Indian tourists visiting the Siachen Glacier. Whether foreign tourists will also be able to visit more easily is unclear.

⁴ Our expedition visited a side-valley of Nubra, called the Rongdo Valley (sometimes spelt ‘Rongdu’).

Trekking has become an extremely popular pursuit for adventure tourists, and many agencies in Leh serve this demand. The main routes are not close to the disputed international borders. For example, the Markha Trek is south-east of Leh and crosses mountain passes up to 5000m. The peak Stok Kangri (6153m) is one of the easiest 6000m peaks in the Himalaya and is clearly visible from Leh (see Figure 4). This has become a very popular guided ascent, as it can be reached from Leh within a few days. Nowadays, it is climbed by so many tourists each year that it usually has a fixed basecamp in summer and even a café. The amount of waste at the basecamp has become such an issue that the local authorities closed Stok Kangri indefinitely from 2020.

Figure 4: View of Stok Kangri (6153m) from Leh [Photo: Keith Goffin].



Support for treks can be arranged in Leh. The many agencies offer a range of adventure sports including trekking, mountain-biking, rafting and kayaking. In recent years motorcycling has been added to the offering. Royal Enfield vintage-design bikes can be rented in Leh and touring the major valleys and passes has become extremely popular, particularly among tourists from other parts of India. Western agencies and mountain guides also offer treks and mountaineering trips on the internet, including unauthorized ascents of peaks.

In preparing this report, I became aware of the fascinating history of Ladakh and, in particular, the inherent challenges in mapping the Himalaya. Surveyors made impressive mountain ascents and made great sacrifices in the course of their work (Keay, 2000). Hence, the key events and people responsible for the mapping of Ladakh and the Nubra Valley will be summarized. In compiling this summary, various excellent websites on the Himalaya were consulted (e.g., <http://pahar.in/> and <https://archive.org/search>).

History and Archaeology

An excellent summary of the history of Ladakh can be found in Bray (2005). The country was part of the Tibetan empire until the 7th or 8th century and then it was independent until 1834,

when it was invaded by the army of Raja Gulab Singh from Jammu. After four years of fighting it lost its independence and became part of Jammu & Kashmir (Bray, 2005).

Important ancient trade routes cross Ladakh with, for example, the Nubra Valley being a caravan route for trade in wool (Agrawal, 2012). The Nubra Valley leads north to the famous Karakoram Pass and onwards towards Kashgar. The upper Shyok River leads to Tibet, and this was also an important trade route. Even 20 years ago, smuggled Pashmina goat wool from Tibet was transported along this route, spoiling the price for local producers from Rupshu (Ahmed, 2002). However, the ancient trade routes have now been cut by the border disputes (Bray, 2005).

There are many archaeological sites in Ladakh, which are only now starting to be surveyed, and accurate dating has yet to be undertaken (Devers et al., 2015). For example, there are numerous ruined watchtowers and fortified settlements in Nubra, and at Sumar, near the confluence of the Nubra and Shyok rivers, there are major fortifications. Ladakh also has many *petroglyphs*—images on rocks, created by scratching. This form of rock art has been found at over 360 locations in Ladakh, of which around 35 are in Nubra (Devers et al., 2017). Most of the images are animals and hunting scenes but later ones are pictures of Buddhist *chortens*. As the survey of petroglyphs in the Nubra Valley only started in the last decade, the area around Rongdo has yet to be comprehensively surveyed, although rock art has been found in the alluvial fan below the village (Devers et al., 2015).

Early Explorers and Maps

The Himalaya has attracted explorers for centuries as “[d]uring the colonial period, for instance, visitors from the West favoured mountains as spaces of seclusion and mystique waiting to be uncovered” Aggarwal (2002, pvii). Consequently, many early Western visitors passed through Nubra. One of the first was William Moorcroft, who worked for the East India Company and travelled extensively in Ladakh in the 1820s (Mason, 1956). His cartographer, George Trebeck, is credited with producing the first maps of Kashmir (Phillimore, 1960).

G.T. Vigne travelled in Kashmir in 1835–38 (Phillimore, 1960) and wrote an important book covering Ladakh (Mason, 1956). His early sketch maps, combined with other sources, led to an East India Company map, shown in Figure 5. This 1:85,000 map covers Ladakh (note the spelling ‘Ladak’) with the Nubra Valley and Shyok River (note the spelling ‘Shai Yok’). The area within the ‘Great Bend’ of the Shyok River was not explored and the Rongdo Valley was neither visited nor surveyed—leaving a blank area on the map, with the cryptic annotation “*Lofty Snowy Mountains*”.

Other famous visitors to Nubra included the American mountaineering couple Fanny Bullock Workman and William Hunter Workman. They visited in 1898 (Bullock Workman and Hunter Workman, 1900), as did the Swedish explorer Sven Hedin en route to Tibet in 1906 (Hedin, 1909). However, these early explorers passed through Nubra without visiting the side-valley of Rongdo.

Starting from around 1800, Britain systematically began to produce detailed maps of India, to bolster its colonial power. Led by William Lampton, surveyors worked on an ambitious plan to measure and cross-check (triangulate) the position and height of mountains across the whole of India (Keay, 2000). This was demanding, time-consuming work and it became officially known as *The Great Trigonometrical Survey of India* (GTS) in 1884 (Mason, 1956). Heavy equipment needed to be carried and carefully positioned for triangulation and teams often travelled for months, searching for suitable routes through mountains and across rivers. Many surveyors died from malaria and cholera. It was the wide-ranging, ambitious work of the GTS which led to Mount Everest being identified as the highest mountain in the world. In 1952 its height was estimated at 8852m, whereas today the height is stated to be 8848m (Chadha, 1991).

Figure 5: Enlarged section from an 1846 East India Company Map (1:85,000).⁵



Based on a treaty with the British signed in 1846, the Maharaja of Jammu, Gulab Singh, allowed cartographers to map the borders of his territory. Initial sketch maps were produced of the border areas and then the Kashmir Valley around Srinagar was mapped in detail in 1852 (Phillimore, 1960). Next, surveys of other areas of Kashmir and Ladakh were made. These included a reconnoitre of Rupshu in 1859; triangulation around Leh and Zaskar in 1860; a full survey of Rupshu in 1861; and surveying the Shyok River in 1864 (Phillimore, 1960). Some of the dates are uncertain, as Montgomerie said that in 1860 “*the upper course of the Shayok river (in the Nubra district) the triangulation has been commenced and a good many peaks fixed*” (Montgomerie, 1861, p100). As Kashmir was surveyed, “*The highest points suited to the triangulation were always occupied and observations were taken from stations upwards of 16,000 feet... Numerous observations were required, it was necessary to reside on the peaks for at least two days and nights, generally more*” (Thuillier, 1861, p26).

Almost certainly the first Westerners to visit the Rongdo Valley were GTS surveyors, who mapped the whole of Kashmir around 1861–1863 (Walker, 1863; Mason, 1956). By the end of 1864, all of Jammu and Kashmir had been surveyed (Waller, 1988) and this work had entailed, “[n]o fewer than thirty-seven mountains over 20,000 feet [6096m] being climbed and observed from with the theodolite, five above 21,000 feet [6400m]” (Mason, 1956). Most of the demanding fieldwork in Kashmir was conducted by a team led by William Johnson, and a GTS map based on their work is shown in Figure 6, with Figure 7 showing an excerpt covering the Rongdo area. This map was published in 1875, with a scale of 1 inch to 4 miles (1:253,440). The version shown was reprinted without changes in 1925 and originally designated as Map 52F. It shows the Indus Valley with Leh (bottom left) and the Nubra Valley area (top right). It can be seen that the Rongdo Village is shown with the older spelling ‘Rongdu’ and, for the first

⁵ Available at: <https://www.davidrumsey.com> (accessed March 2020). Note, unfortunately, the poor scanning of this map, with wide folds.

time, the mountains of the Rongdo Valley have been partially surveyed and were no longer just “*Lofty Snowy Mountains*”.

On Figure 7, it can be seen that Johnson’s team set up two trigonometrical stations in the Rongdo Valley. These were north-east of Rongdo in the area called Fatha, with one at an impressive height of 19,177 feet (5845m). Johnson’s team did not record the names of the peaks in the Rongdo Valley. South-east of Fatha they surveyed an “*S.P.*” (snowy peak) without indicating a name on the map. This peak is known today as *Yonchap Kangri* and is still unclimbed. On the map north of Rongdo, another unnamed “*S.P.*” is shown as 21,780 feet high (6638m). This is the peak of *Satti Kangri*, now estimated at 6520m and also unclimbed.

Johnson was “*a bold mountain surveyor*” (Phillimore, 1960, p96), whose job was “*to find and secure the survey’s preliminary observation stations*” (Isserman and Weaver, 2008, p21). Different reports say that he climbed to 20,600 feet (6278m) during his Kashmir fieldwork (Walker, 1863); or 20,866 feet (6359m) (Godwin-Austen, 1883); or even 21,072 feet (6422m) (Walker, 1863). Johnson is even reputed to have climbed over a ridgeline of 22,300 feet (6797m) (Anonymous, 1883). Johnson’s ascents remained altitude records for 60 years (Mason, 1955) and “*in simple mountaineering terms his were arguably the most notable achievements [of his time]*” (Isserman and Weaver, 2008, p21). However, due to his humble upbringing in India, “*his remarkable climbing achievements went all but unnoticed*” (*ibid*, p21). Similarly, unknown numbers of local assistants (often referred to as ‘natives’ or ‘signalmen’) carried “*signal poles and theodolites and plane tables to rarefied heights unimaginable in Europe*” (*ibid*, p21). Exactly which peaks Johnson climbed in Rongdo is currently unclear, but it is appropriate that the achievement of Johnson’s team in reaching at least 19,177 feet (5845m) be acknowledged here—it marked an impressive start to mountaineering in the Rongdo Valley.

Retired British army officer and explorer R.C. Schomberg visited the Rongdo Valley in 1947 (Schomberg, 1949). He planned to explore the Siachen Glacier but, when he found it impossible to ford the upper Nubra River, he turned his attention southwards. Schomberg’s account is written in the style of colonial times with comments such as, “*The Ladakhi is a good cheerful fellow, but he is timid and spineless and will not go beyond the recognised routes*” (Schomberg, 1949, p101). In the Rongdo Valley, Schomberg describes reaching “*Thripti, where there were huts and barley fields and an enormous rock in the middle of the cultivation where a hermit lived in an eyrie above his devotees. On the hill-side above a Lama guarded the Patha Shrine. We pushed on... and went further up the valley and camped rather bleakly in the lee of a steep ridge of a lateral nala, at a place called Gulnis Spang. After a wild night of wind and rain we started up the valley... Constant, stone-filled gullies had to be crossed and one stream in particular flowing from Peak 22660 was full of rock and rubble and proved very troublesome*” (p100).

Schomberg’s comments on ‘Peak 22660’ (6906m) indicate that he was using a more detailed map than the 1875 (reprinted 1925) version shown in Figures 6 and 7. The 1875 version shows no heights for mountains on the upper (true) left side of the Rongdo Valley. However, Map 52F was updated in 1927, 1938 and 1946, as shown in Figures 9, 10 and 11. The 1927 version added colour and contour lines but no peak heights in Rongdo; the 1938 version shows for the first time a peak of 22,660 feet (6906m) high. This height is a mistake that was repeated in several later maps, as we will see. It is known that Schomberg took many photographs in Ladakh, and these are housed in collections in three museums in the UK.⁶ As many of his photographs have neither been digitized nor catalogued online, it has not yet been possible to determine whether Schomberg took photographs on his visit to Rongdo.

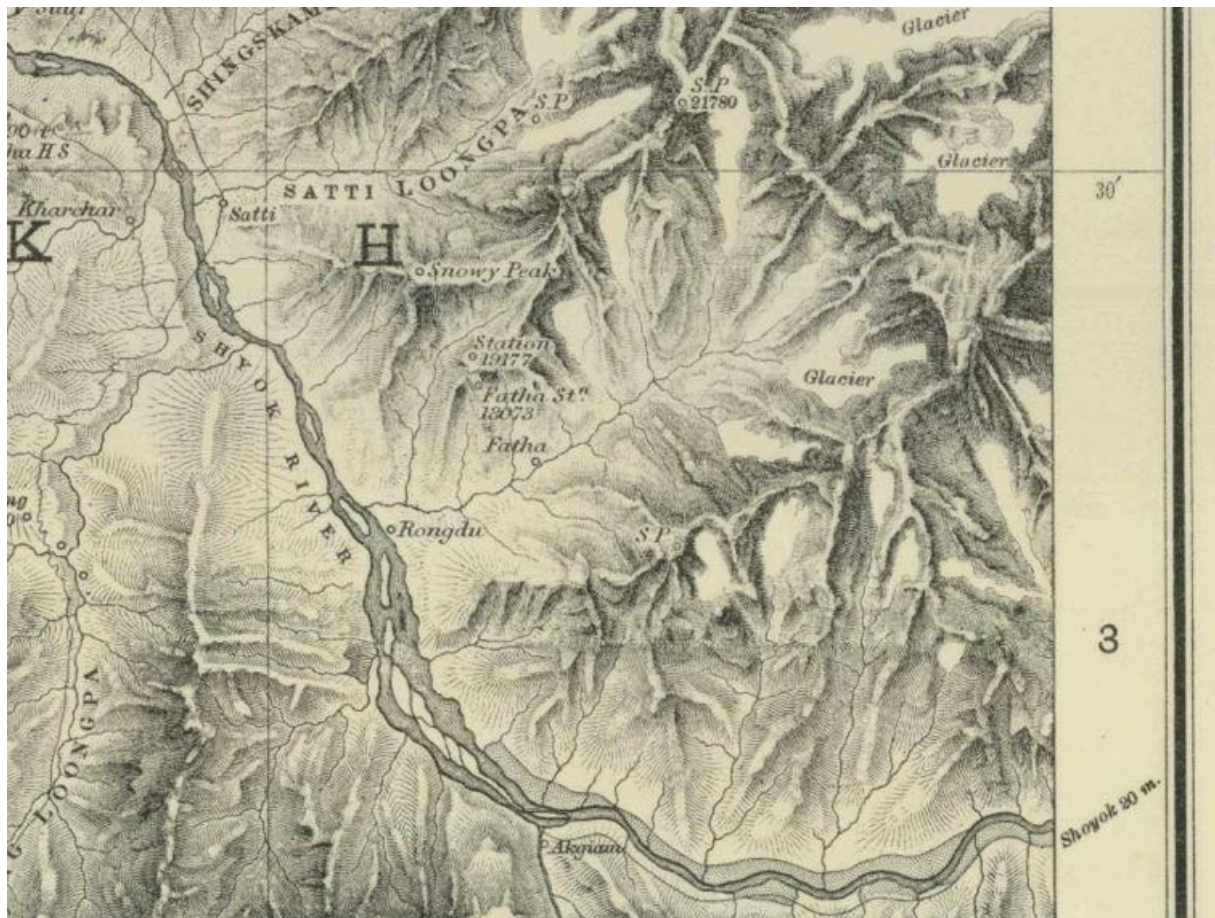
⁶ These are: the British Museum; the Pitt-Rivers Museum in Oxford; and the Royal Society of Asian Affairs in London.

Figure 6: The SOI 4 miles per inch (1:253,440) Map “Kashmir and Jammu” from 1875.⁷



⁷ Many old maps are available at: <https://zenodo.org/record/3579293#.XnODk0BFw2w> (accessed April 2020).

Figure 7: Enlarged section from the 1875 GTS 52F Map, showing the Rongdo Valley area.



The survey of Kashmir and the rest of the Himalaya was completed in the 1870s. Even before the detailed maps of Kashmir were completed, there was a practice of restricting access to maps. This practice dates back to “at least as early as 1810” (Waller, 1988, p299) and “There was a strict rule that surveyors should treat their work as secret and not pass on copies... without proper authority” (Chadha, 1991, p5).

Later Surveys of Kashmir

About 1906 the Surveyor General of India decided to re-survey the whole of the Himalaya (Mason, 1955), at a scale of 1 inch to 1 mile (1:63,000) and contours of 100 feet. This massive undertaking was expected to take 25 years and was based on complaints from the military that the maps available to them lacked topographical detail. This led to a second wave of surveying starting in Kashmir and Ladakh in 1910 (*ibid*). Again, surveyors would have visited the Nubra and Rongdo Valleys and would have enhanced the 1 inch to 4 miles (1:253,440) work of Johnson, probably using some of his stations.

After Indian independence in 1947, the GTS was renamed as the *Survey of India* (SOI), with full responsibility for the mapping of India, an area bigger than the whole of Europe (Chadha, 1991). The SOI produced accurate, detailed maps of the whole of the Himalaya but these maps are restricted and many of the SOI’s archives are very hard to access. This means that the detailed reports from the early surveyors of the Indian Himalaya, including Johnson’s and those of others who visited Rongdo around 1910, cannot yet be traced. Thus, “many of their doings are hidden in department files and official reports” (Mason, 1956, p167).

Figure 8: GTS 4 miles per Inch Map
 “Kashmir and Jammu (52F)” from 1875.



Figure 9: GTS 4 miles per Inch Map
 “Kashmir and Jammu (52F)” from 1927.

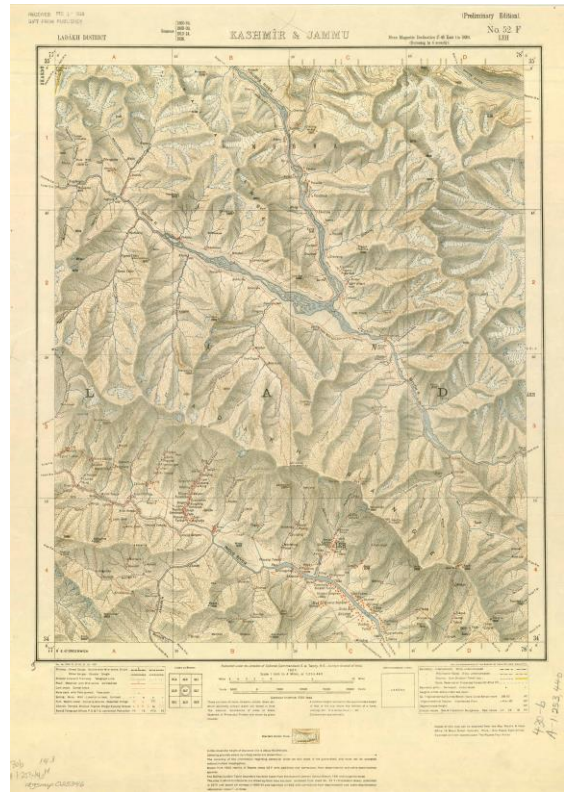


Figure 10: GTS 4 miles per Inch Map
 “Kashmir and Jammu (52F)” from 1938.

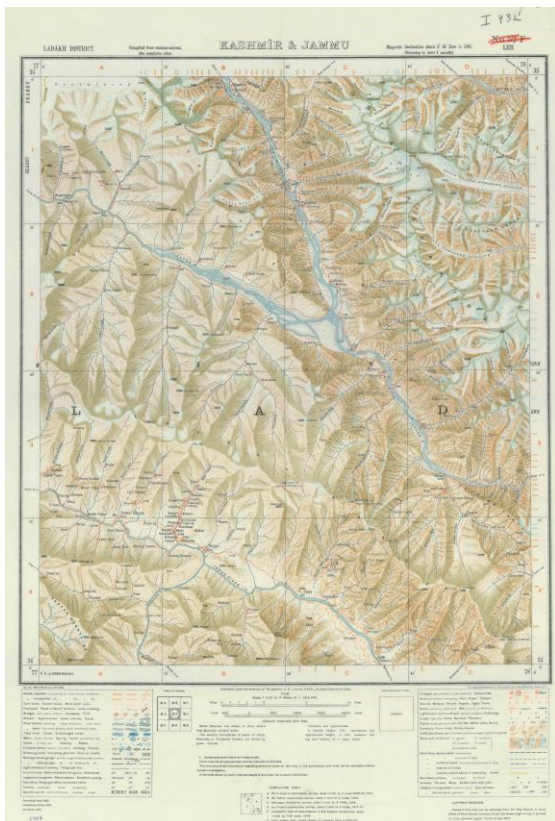
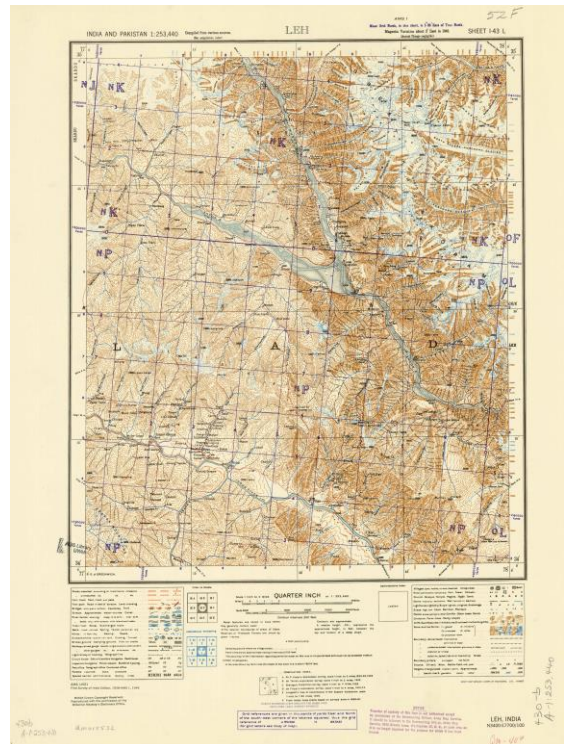


Figure 11: GTS 4 miles per Inch Map
 “Kashmir and Jammu (52F)” from 1946.



Cold War Maps

During the Cold War period, detailed maps were produced by both the American and Russian military. Strategically sensitive areas like the Himalaya were surveyed using satellite data, supplemented by copying details from SOI maps.

The *US Army Map Service* (AMS) U502 Series of 1:250,000 maps date from the 1960s and cover the whole of the Himalaya. They are useful overview maps with clear contour lines (with a contour interval of 500 feet) and topographic shading (with some versions available in colour). The US Army restricted the availability of its maps during the Cold War era but these restrictions have long since been removed. Hard copies can be difficult to obtain but electronic copies can be downloaded from the University of Texas online collection.⁸

Figure 12 shows an excerpt from the map that covers the Rongdo Valley. This section shows high mountains to both the north (e.g. a peak near Fatha is shown to be 19,163 feet high [5840m]) and east of Rongdo Village (e.g. a peak of 22,660 feet [6906m] is shown). The height of the latter peak is, however, inaccurate and this indicates that the US Army copied spot heights from early Indian maps. As stated on the American map it was “*Compiled in 1954 from Quarter-inch Series, 1:253,440 Survey of India, Calcutta, I 43-K, 1936, I 43-L 1938.*” In addition to the US Army maps, the US Air Force produced the *Joint Operations Graphic* (JOG) 1501 Series maps of the Himalaya in the 1960s. These have a different colouring and show elevations in metres, features which were presumably useful for aviators.

Figure 12: Section from the AMS Series U502 1:250,000 Map, NI 44-9, showing Rongdo. Reproduced approximately to scale.



Just as the American military conducted extensive satellite mapping in the 1950s and 1960s, Russia had a secret, mammoth project to map the world. Figure 9 shows an excerpt from one of these Soviet maps, covering the Rongdo Valley (the same area as shown in Figure 8). Comparing the Russian and American maps (i.e. Figures 12 and 13), it is interesting to see how both countries produced very similar Himalayan maps during the Cold War. The Russian map

⁸ All of the AMS U502 maps are available online from the collection at the University of Texas: <http://legacy.lib.utexas.edu/maps/ams/india/> (accessed March 2020).

has contours and spot heights in metres, which is useful, but many of the place names are in Russian. For example, Rongdo is shown as *Рингдау* (a simple, direct phonetic translation of Rongdo into Russian)⁹ and the Shyok River is shown as *Шаюк*. Although once highly restricted, the Russian maps are now also available online.¹⁰ As they were drawn in the 1970s and early 1980s, they have more up-to-date information on population centres than the AMS equivalents. It can be seen that the Russian map (Figure 13) correctly shows a major peak south of the Valley to be 6321m (compared to the wrong spot height on the US map of 22,660 feet [6906m]).

Following the war with China in 1962, the Indian Government decreed that the Himalaya should be re-surveyed again. This “*task was immense, the terrain formidable and intricate... Every detachment was an expedition and many lives were lost*” (Chadha, 1991). The 1960s project led to detailed 1:50,000 maps and involved numerous ascents to set up trig points. It is presumed that the surveyors conducting this project would have spent significant time in Rongdo, travelled to the upper valley, and filed detailed reports. Almost certainly they also took photographs. However, whatever material they produced is in the SOI archives and, unfortunately, several requests to gain access to this information have been ignored.

⁹ Thanks to Aleksei Beznosov for helping translate the Russian Cyrillic. He said that the closest translation of Рингдау into English is something like 'Ringdu', as the last sound is pronounced as 'u'. This would correspond to the alternative, earlier spelling of Rongdo as Rongdu.

¹⁰ See either <http://loadmap.net/en> or http://akosarev.info/engine/?interface=geo_maps&form=main (both of which were accessed in March 2020).

Figure 13: Soviet 100k--i43-060 Map (1:100,000), showing the Rongdo Valley. Reproduced approximately to scale.



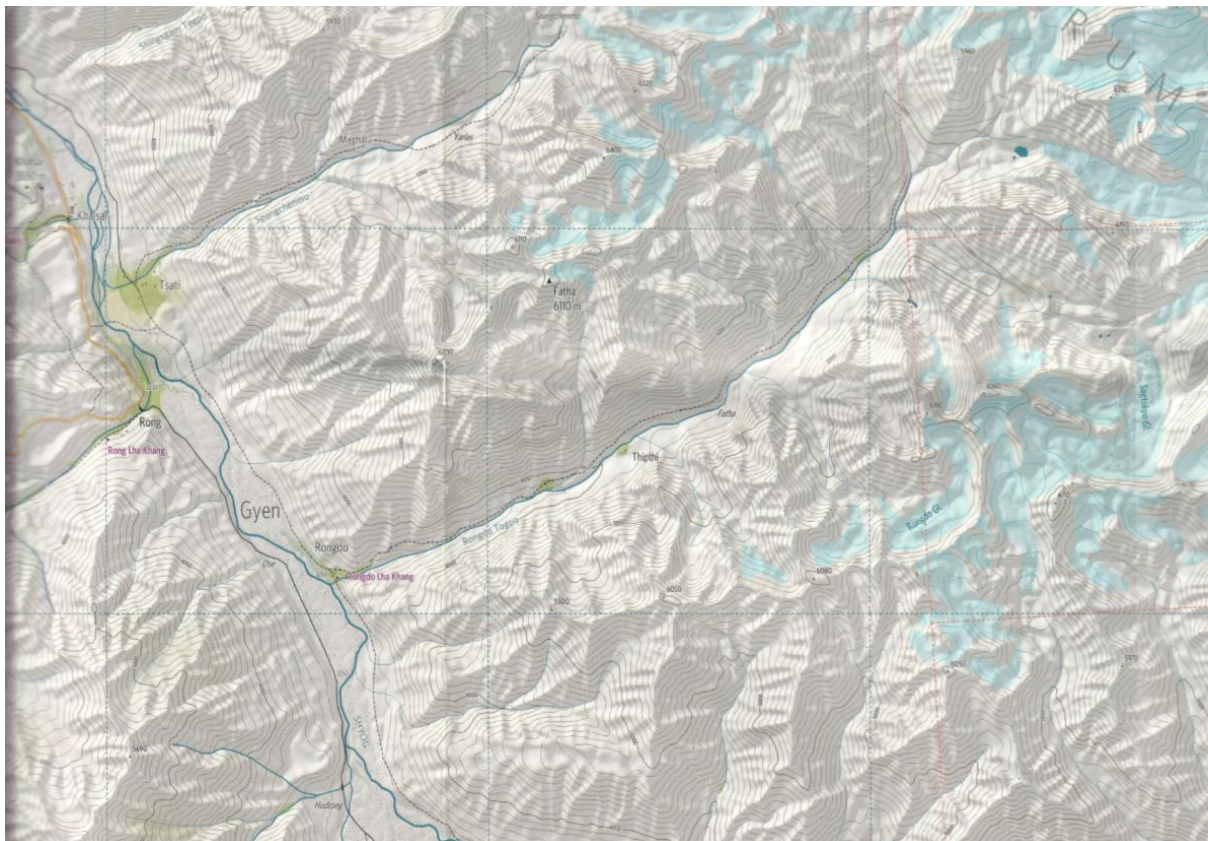
Maps Available Today

It seems “*incongruous in the age of stereo mapping and satellite photography*” (Dravers, 1980, p133) that detailed maps are still restricted. That comment was written in 1980, long before Google Earth, but the practice of restricting the availability of maps remains. The 1:50,000 SOI maps of the Indian Himalaya are restricted to military use, although Indian nationals are sometimes allowed to inspect the maps at the SOI headquarters in Dehradun. Over 30 years ago this situation had already led the Editor of *The Himalayan Journal* to state: “*Alas, the same policy still continues today, depriving mountaineers of all the maps of the Himalayan regions and other mountain areas*” (Chadha, 1991). With the severe border incidents of late, the SOI maps are likely to continue to be restricted for further decades.

Ladakh was first opened for tourism in 1974 (Dravers, 1980) and, with this influx and trekkers in particular, new maps became available. There are now various small-scale maps which give a useful overview of Ladakh. The 1:350,000 *Nelles* Ladakh-Zaskar map (Anonymous, 2020) and *Austrian Academy of Sciences* 1:500,000 Topographic Overview map (Kriz and Nell, 2015) are useful. The 1:175,000 map (Banerjee, 2013) is inexpensive and readily available in Leh; it has no contour lines but provides a good overview of Ladakh. The *Leomann Series* from West Col is claimed to be for mountaineering (Collomb, 2004). It consists of nine maps covering the Indian Himalaya, with a scale of 1:200,000, useful place names, and clear ridgelines (but no contours) but not enough detail for mountaineers.

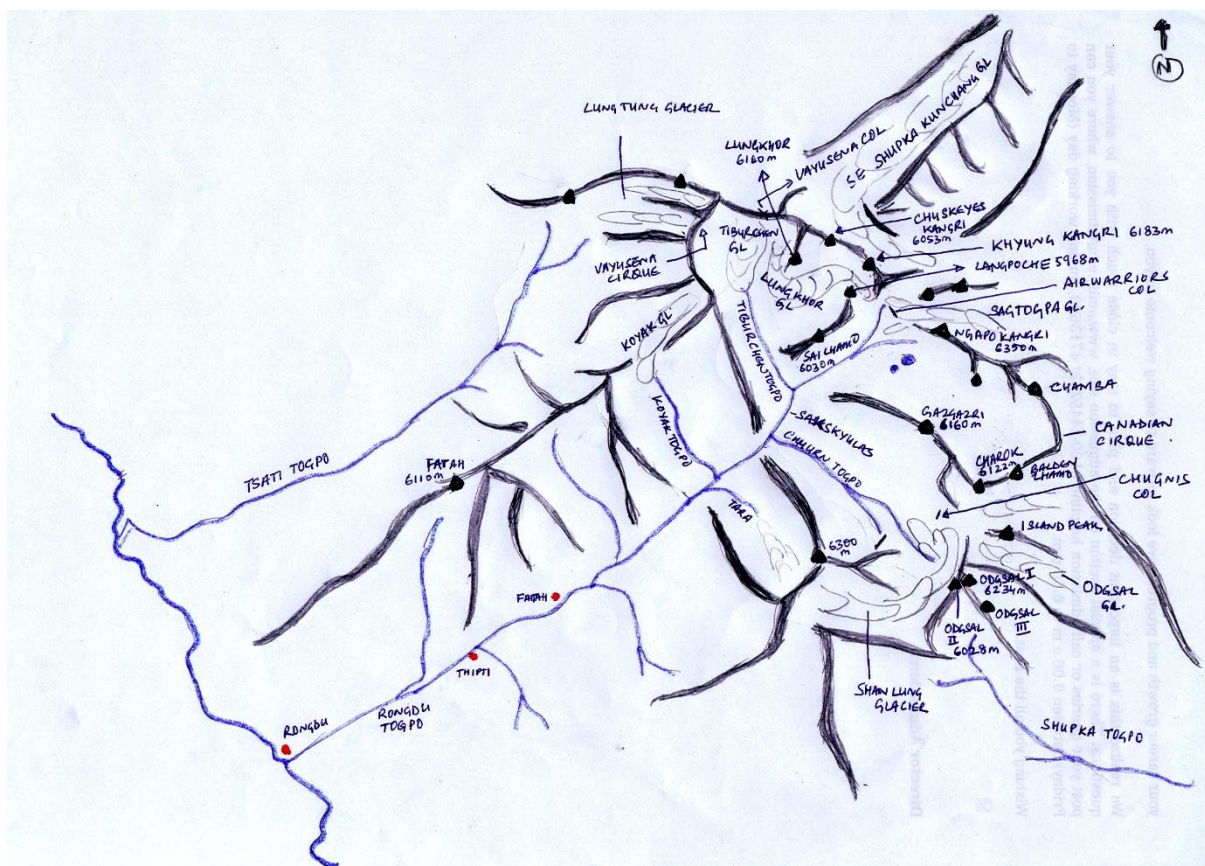
Currently, the best maps of Ladakh for mountaineers are the Swiss 1:150,000 *Olizane Series* (Pointet, 2013a/b/c). Although not as large a scale as the Russian maps, the Swiss ones are easier to read and Figure 14 shows an excerpt covering the Rongdo Valley. North-east of Rongdo a peak is shown as Fatha 6110m, but locals say that Fatha is the name of the area rather than the peak itself. Unfortunately, the Olizane maps have a number of mistakes in the heights of peaks and the names of streams and glaciers.

Figure 14: Swiss Olizane Series Map (1:150,000), showing the Rongdo Valley.



Of course, the latest SOI 1:50,000 maps are three times the scale of the Swiss Olizane maps and are reputed to have excellent contour lines with 100m intervals, to include many local names, and to show the extent of glaciation in the 1960s (when the last updates were made). In particular, these maps would be very useful in determining which mountains are named and determining the local names for glaciers and streams. Expeditions from the Indian military are able to use the SOI maps and have sometimes included excerpts in their reports. Figure 15 shows a hand-drawn sketch from one of two Indian Air Force expeditions to Rongdo (Sashindran, 2014c) and it gives useful names of streams, peaks and other physical features. However, there are some mistakes on this sketch map and in the Sashindran (2014c) report. For example, Gazgazri (6160m) is wrongly located in the sketch (its correct position is near Sai Lhamo); and Charok Kangri's position is also incorrect. These have been corrected in an overview map of Rongdo (Figure 34).

Figure 15: Sketch map of the Rongdo Valley from an Indian Air Force expedition report



MOUNTAINEERING IN LADAKH

Introduction

Ladakh is an extremely interesting destination for mountaineers and it *“is well suited to small expeditions who can share in the excitement and satisfaction of exploration and Alpine-style climbing in a truly remote area”* (Dravers, 1980, p133). Ladakh’s highest peaks, Nun (7135m) and Kun (7087m) were first climbed in 1953 and 1913 respectively (Neate, 1989). These two peaks are now climbed on a regular basis and might be the most climbed 7000m peaks in the Himalaya (Mehta and Kapadia, 1990). Due to the border tensions with Pakistan and China, many other interesting mountain areas in Ladakh have remained closed, or approval has proved so difficult that few mountaineering expeditions have gained access. Consequently, there are

many unclimbed peaks between 6000 and 7000m high and at least one complete mountain range that has never been visited! Challenging objectives abound and, for example, *Saser Kangri II* (7513m) was first climbed in 2011. At the time it was the second-highest unclimbed mountain in the world (Wilkinson, 2012).

With access to Google Earth satellite images, Ladakh's mountains are no longer 'blanks on the map' of the sort that excited the famous British mountaineer and explorer Eric Shipton, when he visited the East Karakoram (Shipton, 1938). However, for many years, the full mountaineering potential of Ladakh was overlooked and it was even said that there is "*no great merit in assembling a great catalogue of peaks with details of all first ascents and new routes, even if this was possible in so large an area*" (Dravers, 1980, p133). Dravers similarly wrote off the potential for rock climbing in Ladakh, saying "*the rock is of poor quality*" (*ibid*, p132). Forty years after his comments were made, the records of different climbing expeditions are being catalogued and the significant potential of rock climbing in Ladakh *has* been established.

Mountaineering Guidebooks and Reports

The first book found to name a substantial number of peaks in Ladakh is Sircar's *Himalayan Handbook* (1979), which lists peaks over 6000m, giving their altitude, coordinates if known, and attempts and ascents. Although many trekking guides for Ladakh have been published, there was almost no specific information on mountaineering until Mehta and Kapadia (1990) described 49 peaks in Ladakh, Zaskar and the East Karakoram. Later, Kapadia (1999) documented ascents in Nubra, Rupshu, and Siachen but his appendix listed only 11 peaks in Ladakh; 12 in Zaskar; and 24 in the East Karakoram. Similarly, his excellent trekking and mountaineering guide to India (Kapadia, 2001) described routes on only three 6000m Ladakh peaks, in the Rupshu area, south-east of Leh.

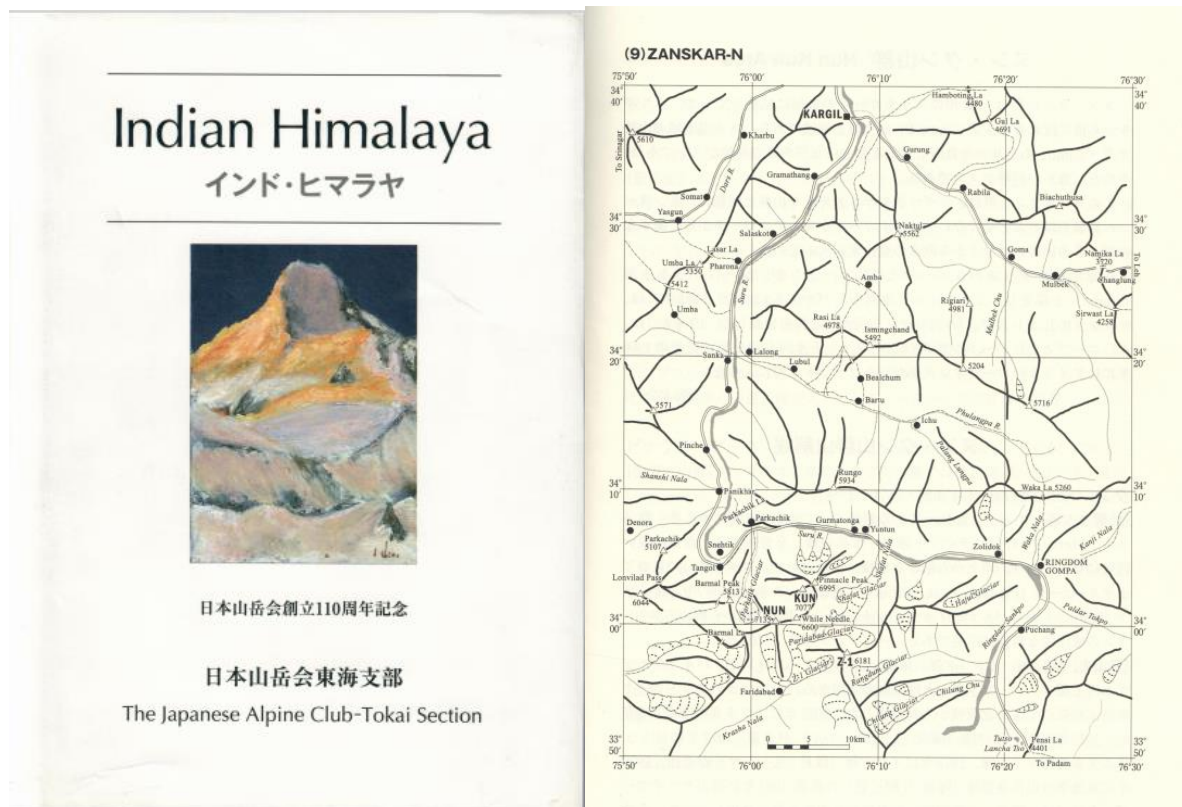
The first comprehensive mountaineering guide to include Ladakh was Ray (2009), which collated details of mountaineering expeditions in much of the Indian Himalaya. It recorded every Indian expedition from 1951 to 2006 but, unfortunately, it did not include any detailed maps of the mountain ranges covered. Furthermore, as the scope was set to cover only Indian expeditions, very many first ascents were overlooked. Consequently, only nine 6000m peaks in Ladakh were documented; three more in Zaskar; and 22 in the East Karakoram.

The true potential of mountaineering and rock climbing in Ladakh can best be appreciated by reviewing the individual reports published in the leading mountaineering journals. Various leading mountaineering journals have made their previous issues available online, with varying levels of search capability available. The best-known journals are: *The Himalayan Journal* (HJ) [<https://www.himalayanclub.org/search/>]; the *American Alpine Journal* (AAJ), which publishes details of "The World's most significant long climbs" in all parts of the world [<http://publications.americanalpineclub.org/>]; the long-established *British Alpine Journal* (AJ) [https://www.alpinejournal.org.uk/Browse_search.html/]; and the *Japanese Alpine News* (JAN) [<http://jac.or.jp/authorba0a6/japanese-alpine-news.html>].

All of the above-mentioned journals have interesting reports on Ladakh. The AAJ has documented 125 expeditions to Ladakh covering the years 1971–2019, with descriptions of many first ascents. Similarly, the AJ lists 164 articles mentioning Ladakh—but not all of these were mountaineering expeditions. A key source of funding for many British expeditions is the London-based *Mount Everest Foundation* (MEF). Its website has an interactive map of the Himalaya [<https://www.mef.org.uk/expeditions?region=himalaya-india&purpose/>]. This website shows that approximately 20 mountaineering expeditions funded by the MEF went to Ladakh, Zaskar and the East Karakoram. Finally, the *Royal Geographical Society* (RGS) in London has reports from about a dozen expeditions to Ladakh and Zaskar in its database [<https://expeditions.rgs.org/search.aspx>], although not all of these were mountaineering expeditions.

The nation that is the most active in Himalayan climbing is Japan and so it is no surprise that the Japanese were the first to produce a comprehensive guidebook for the Indian Himalaya. The Japanese Alpine Club (Tokai Section) guide *Indian Himalaya* (JAC, 2015) is 657 pages of extremely well-researched material (see Figure 16). Until recently it was only available in Japanese, but an updated version JAC (2021) is now available, and an English version will be published in 2022. The Japanese editions provide peak details, heights, coordinates, some peak photographs, and outline maps (annotated in English). It is particularly useful that the outline maps of glaciers and peaks have all been re-drawn to the same format (see right half of Figure 16). The guidebook gives the first real appreciation of mountaineering in Ladakh, describing the ascents of 55 peaks in Ladakh (45 over 6000m); 96 in Zanskar (55 over 6000m); and 43 in the East Karakoram (of which 42 are over 6000m). In total, this means that the Japanese have documented ascents of 142 6000m peaks, based on articles in the journals mentioned above and expeditions' own reports. However, the 142 ascents documented only represent a fraction of the total number of peaks in Ladakh. The big remaining question is: *How many Ladakh peaks over 6000m are still unclimbed?*

Figure 16: The Japanese *Indian Himalaya* is excellent (cover and one example outline map from the 1st Edition, 2015).



Counts of Peaks and Ascents

Books on Mountaineering in Ladakh

To estimate the total number of peaks over 6000m in Ladakh, nine selected books on mountaineering or trekking, published from 1979 onwards were reviewed (Table 1). It was found that Sircar (1979), probably the earliest book to discuss mountaineering in Ladakh, already listed 39 peaks over 6000m. However, as Sircar (1979) was published privately, it is probably not well known. Other early mountaineering publications identified very few 6000m peaks in Ladakh and this is one reason why the potential for mountaineering in Ladakh has been overlooked. Books concentrated not on the potential but on peaks that had been climbed,

or peaks that have been identified as particularly interesting objectives. A worldwide guide to mountaineering (Cleare, 1979), listed only 4 peaks, whereas Kohli (1983) identified 15. The books from Mehta and Kapadia (1990), Kapadia (1999) and Ray (2009) documented up to 49 peaks.

The *Indian Himalaya JAC* (2015; 2021) guidebook gives short descriptions of previous climbs on mountains Ladakh, Zaskar, Rupshu, Pangong and the East Karakoram. The guidebook includes excellent outline maps with ridgelines, glaciers and numerous 6000–7000m peaks marked (see Figure 16). The peaks were counted in the 1st Edition, with corrections made for the overlaps between different outline maps. Table 1 shows that this identified a total of 291 peaks over 6000m in Ladakh (including the East Karakoram and Zaskar).

Maps of Ladakh

After the review of books related to mountaineering in Ladakh, a check was made on the easily available maps to see how many peaks they identified. Table 2 lists four map series, starting with the US Army Map Service (AMS). Obviously, as more detailed maps have been produced, more peaks have been identified.

The American Army map U502 series has nine maps which cover parts of Ladakh and Zaskar. These give contours in feet and so 6000m peaks are 19,685 feet or more, and a 7000m peak is 22,965 feet or above. Using these conversions, peak counts for Ladakh (including the Ladakh and Pangong Ranges); the East Karakoram (including the Saser Muztagh, Shyok and Saltoro Ranges); and Zaskar were made. As shown in Table 2, this count showed that the American maps identify a total of 291 peaks, with 82 in Ladakh, 29 peaks in Zaskar and 180 peaks over 6000m in the East Karakoram.

More recent maps do not necessarily identify many more peaks. The Leomann Series (2004) of 1:200,000 maps indicate 232 peaks over 6000m. Banerjee (2013) is a locally made map which indicates 82 peaks in total in Ladakh, Zaskar and the East Karakoram.

The three widely used *Editions Olizane Ladakh and Zaskar Trekking Maps* (Pointet, 2013a/b/c) are the most detailed maps that are easily available. The *North* map (Pointet, 2013a) covers just about the whole of the area within the Great Bend of the Shyok River (spelt Sheyok on this map). All of these mountains belong to the East Karakoram and its sub-ranges. Inspecting this part of the map shows a total of 132 peaks with 8 over 7000m (including the sub-ranges: Chushku; Shukpak Kunchnag; Kunzang; and Shyog). The map shows 38 peaks over 6000m in the Ladakh Range, for example. Note, these numbers are based on the peak spot heights shown on the map and some peaks over 6000m are not annotated with a spot height (these were excluded from the count). The same map also shows the vast mountainous area east of the Shyok, situated in Chinese-controlled areas with numerous peaks over 6000m stretching to the Dipsang Plain (these were also excluded from the count). The *Center* map (Pointet, 2013b) shows 139 peaks over 6000m and the *South* map (Pointet, 2013c) shows 91 peaks. This means that the three maps of the *Olizane Series* identify 362 peaks over 6000m in Ladakh and Zaskar and the East Karakoram.

Comparing Books and Maps

The most comprehensive book found on mountaineering in Ladakh was JAC (2015). However, this book's count of peaks over 6000m is lower than that from the three Swiss *Editions Olizane* maps. This is because Japanese outline maps are focused mainly on existing ascents, basecamps and nearby peaks and do not cover the whole region. Therefore, the peak count from the Swiss maps is more useful, but a correction needs to be made as the *Olizane* maps do not cover the northern part of the East Karakoram, including the many peaks around the Siachen Glacier. Consequently, the best estimate of the total peaks in Ladakh can be made by first taking the

peak count for Ladakh (165 peaks) and Zaskar (55 peaks) from the *Olizane* maps (230 peaks running total). Then add the peak count of 180 for the East Karakoram and Saser areas from the AMS maps. This gives a grand total of 410 peaks. However, comparing the East Karakoram and Saser counts from the AMS maps 180 peaks (inc. 20 over 7000m) and that from JAC (2015), 162 (inc. 33 over 7000m) shows that at least 18 peaks over 6000m and 13 peaks over 7000m are not shown on the AMS maps. Adding these 18+13 peaks to the running total gives us the current best estimate for the peaks in Ladakh as 441 over 6000m (including 35 over 7000m). Comparing this to the 142 previous ascents documented (JAC, 2015), means that there are still approximately *300 unclimbed peaks* over 6000m in Ladakh.

A further illustration of the mountaineering potential of Ladakh is that there is at least one complete mountain range in the East Karakoram that has not yet been visited by any mountaineers. What is more, the range has probably never been visited by anyone except, possibly, former generations of shepherds from a nearby, long-abandoned village. The range includes at least 20 unclimbed, unnamed 6000m mountains—a mountaineer's paradise which will not be identified here (as the author feels that some things are worth keeping quiet about!).

Table 1: The number of 6000–7000m peaks in Ladakh identified by selected books.

#	Books	Ladakh (inc. Pangong)	Zaskar	East Karakoram and Saser	Totals	Notes including explanations of the peaks counted	
1	Sircar (1979)	5 peaks	8 peaks (inc. 1 over 7000m)	26 peaks (inc. 17 over 7000m)	39 peaks	This useful <i>Himalayan Handbook</i> lists over 900 peaks alphabetically, with details of ascents and attempts.	
2	Cleare (1979)	---	3 peaks (inc. 2 over 7000m)	1 peak (over 7000m)	4 peaks (inc. 3 over 7000m)	Guide to worldwide mountaineering. Map of the Karakoram (p162–163) shows Salto Kangri, Saser Kangri, Chong Kumdang and Shukpa. The Punjab map section (p176–179) lists only Nun, Kun and Leo Pargial.	
3	Kohli, M.S. (1983)	4 peaks	10 peaks (inc. 2 over 7000m)	1 peak (over 7000m)	15 peaks (inc. 2 over 7000m)	Early guide to trekking and mountaineering. List of ‘Principal Peaks in the Himalayas’ (p3) includes Saser Kangri and Nun. Map of Zaskar and Ladakh (p54–55) shows peaks but no heights. List of “Open Peaks” (p113) shows 10 in Zaskar and 4 in Ladakh.	
4	Mehta and Kapadia (1990)	9 peaks	11 peaks (inc. 2 over 7000m)	29 peaks (inc. 25 over 7000m)	49 peaks (inc. 27 over 7000m)	Interesting book on unexplored areas in the Indian Himalaya, including Ladakh, Zaskar and the East Karakoram. Shame that there is no updated edition.	
5	Kapadia (1999)	11 peaks	12 peaks	26 peaks (inc. 18 over 7000m)	49 peaks (inc. 18 over 7000m)	Useful first mountaineering guide focused on Ladakh and Zaskar. Includes details of climbing around the Siachen Glacier, a list of unclimbed 7000m peaks (as of 1988) and several other informative appendices.	
6	Kohli, M.S. (2000)	4 peaks	10 peaks (inc. 2 over 7000m)	---	14 peaks (inc. 2 over 7000m)	Early tourist guidebook, covering the whole Himalaya. The section on India explains the process for authorized mountaineering and gives a list of “Open” Peaks (p113).	
7	Kapadia (2001)	3 peaks	---	---	3 peaks	Well-illustrated, very useful trekking guide to the whole of the Indian Himalaya. Only a few mountaineering peaks are also included.	
8	Ray (2009)	9 peaks	3 peaks (inc. 2 over 7000m)	22 peaks (inc. 21 over 7000m)	34 peaks (inc. 23 over 7000m)	Chapter 1 (pp21–30) gives a very useful history of Indian climbs in the Himalaya and Eastern Karakoram. Then gives comprehensive listings of all Indian expeditions with dates and ascensionists. Real shame that foreign expeditions were not considered.	
9	JAC (2015)	Descriptions	45 peaks	55 peaks	42 peaks	142 peaks	Descriptions of ascents are given for 142 peaks up until 2015.
		Outline Maps	68 peaks	61 peaks (inc. 2 over 7000m)	162 peaks (inc. 33 over 7000m)	291 peaks (inc. 35 over 7000m)	E. Karakoram Siachen map (p24) shows 17 x 7000m and 4 x 6000m (excluding peaks in Pakistan); E. Karakoram Rimo & Kumdan & Mamostong map (p31) shows 9 x 7000m and 15 x

						<p>6000m; Pimo Mountains map (p32) additionally shows 2 x 6000m peaks; E. Karakoram Saser map (p46) shows 7 x 7000m and 50 x 6000m peaks; Tusulm Kangri & Rassa Kangri in Rassa Gl. (p50) shows 20 peaks that are not shown on p46; E. Karakoram Chang Chenmo map (p52) shows and 25 x 6000m peaks [excluding the Chinese-controlled area]; The Mamostong Kangri Mountains map (p56) shows 13 x 6000m peaks not shown on the p52 map;</p> <p>Zanskar-N map (p130) shows 3 x 600m and 2 x 7000m; Zanskar-Haptal Tokpo map (p148) shows 13 x 6000m peaks; Zanskar Temasa map (p149) shows 12 x 6000m peaks; Zanskar-Reru Valley map (p150) shows 23 x 6000m peaks; Zanskar-Lenak Nala map (p151) shows 13 x 6000m peaks;</p> <p>Ladakh-NW map (p202) shows 5 x 6000m peaks; Ladakh-NE map (p152) shows 5 x 6000m peaks (duplicates ignored); Kang Yissay Mountains map (p210) shows 10 x 6000m peaks; Ladakh-SW map (p215) shows 22 x 6000m peaks; South-east Ladakh Range map (p217) shows 12 x 6000m peaks; Ladakh-S map (p220) shows 15 x 6000m peaks</p>
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Table 2: The number of 6000–7000m peaks in Ladakh identified by selected maps.

#	Maps	Ladakh (inc. Pangong)	Zaskar	East Karakoram and Saser	Totals	Notes including explanations of the peaks counted
1a	AMS (1955a)—Chulung Map 1:250,000 NI 43-4			97 peaks (inc. 17 over 7000m)	97 peaks (inc. 17 over 7000m)	This map covers the Siachen Glacier and nearby areas. It is a disputed area, where the border with Pakistan is unclear. Peaks were counted in the area controlled by India but, due to difficulties in knowing exactly where the border runs, the peak count may be inaccurate.
1b	AMS (1963e)—Shyok Map 1:250,000 NI 44-5	4 peaks	---	50 peaks	54 peaks	This map shows the East Karakoram, with the Saser Muztagh, the Chang Chemno Range, and the northern part of the Pangong Range. It shows large sections of Chinese-controlled territory, where the peaks were not counted.
1c	AMS (1963a)—Kargil Map 1:250,000 NI 43-7	---	2 peaks (inc. 1 over 7000m)		2 peaks (inc. 1 over 7000m)	This map includes the town of Kargil, the 7000m peak Kun, and lower sections of the Greater Himalayan and Zaskar Ranges.
1d	AMS (1955b)—Leh Map 1:250,000 NI 43-8	11 peaks	---	33 peaks (inc. 3 over 7000m)	44 peaks (inc. 3 over 7000m)	This map is roughly centred on Leh and includes sections of the Ladakh and Pangong Ranges; the East Karakoram; and the Zaskar Range.
1e	AMS (1963d)—Pangong Tso Map 1:250,000 NI 44-9	21 peaks	16 peaks	---	37 peaks	This map shows 8 6000m peaks in the Pangong Range (including Harong and Kakstet Kangri); the Ladakh Range has 13 6000m peaks; and in Zaskar there are 16 6000m peaks.
1f	AMS (1960a)—Anantnāg Map 1:250,000 NI 44-11	7 peaks	2 peaks (inc. 1 over 7000m)	---	9 peaks (inc. 1 over 7000m)	This map shows sections of the Greater Himalayan and Zaskar Ranges, including the 7135m Nun (marked as 23,410 feet).
1g	AMS (1963b)—Martselang Map 1:250,000 NI 43-12	---	9 peaks	---	9 peaks	Main map of the Zaskar region. The area has numerous interesting peaks under the 6000m level, many of which offer excellent rock climbing on granite.
1h	AMS (1960b)—Tso Morari Map 1:250,000 NI 44-13	16 peaks	---	---	16 peaks	This map includes sections of the Greater Himalayan and Zaskar Ranges.
1i	AMS (1963c)—Pālumpur Map 1:250,000 NI 44-16	23 peaks	---	---	23 peaks	This map includes sections of the Greater Himalayan and Zaskar Ranges.
1a-i	Totals for nine Army Map Service (AMS) maps	82 peaks	29 peaks (inc. 2 over 7000m)	180 peaks (inc. 20 over 7000m)	291 peaks (inc. 22 over 7000m)	This series of maps provides comprehensive coverage of the Ladakh, Pangong, Zaskar and East Karakoram Ranges. However, many peaks are not identified with spot heights and,

						where spot heights are given, these were copied from early GTS maps.
2a	Collomb (2004a)— <i>Leomann Maps</i> 1:200,000 Sheet 2 (Kargil, Zaskar and Nun-Kun area)	---	44 peaks (inc. 2 over 7000m)	---	44 peaks (inc. 2 over 7000m)	Useful map series, which gives an overview of Zaskar and Ladakh but not for more detailed mountaineering purposes. Ridgelines and some spot heights are given but no contour lines. Sheet 2 shows a concentration of 6000m peaks around the Darung Drung Glacier, the Kijai Nala (river) and the Kaban Nala (river).
2b	Collomb (2004b)— <i>Leomann Maps</i> 1:200,000 Sheet 3 (Leh, Zaskar, Markha and Nubra Valley)	19 peaks	13 peaks	47 peaks	79 peaks	Note that Sheet 3 has an overlap to Sheet 2 and Sheet 9 (but checks were made to avoid double-counting peaks). In the Kang Yissay area 11 6000m peaks are shown.
2c	Collomb (2004c)— <i>Leomann Maps</i> 1:200,000 Sheet 9 (Rupshu, Tso Moriri, Pangong Tso)	109 peaks	---	---	109 peaks	The sub-title of Sheet 9 of the <i>Leomann Maps</i> claims that it is a 'Trekking and Mountaineering Map' but it is really only for overview purposes. East of the Pangong Tso are 7 peaks over 6000m in Indian-controlled territory but right near Chinese-controlled Tibet. The Pangong Range itself has 19 peaks over 6000m. In the Rupshu area there are 45 peaks over 6000m (including the well-known Mentok I and II, Chhamser Kangri and Lungser Kangri all near the Tso Moriri). The Ladakh Range is shown to have 38 6000m peaks.
2a-c	Totals for three <i>Leomann Maps</i>	128 peaks	57 peaks	47 peaks	232 peaks	The <i>Leomann Series</i> does not cover much of the East Karakoram and part of the Pangong Range. Therefore, the total number of peaks is an underestimation.
3	Banerjee (2013)—1: 175,000 Map	66 peaks	2 peaks	14 peaks	82 peaks	Map only covers part of the East Karakoram (showing 14 x 6000m peaks and no 7000m peaks) but all of the Ladakh Range (showing 23 x 6000m peaks, as far south-east as Gangra Ri [6430m]); the Stok Range (showing 15 x 6000m peaks); Rupshu with the Korzok Range (showing 28 x 6000m peaks) and Zaskar (only 2 x 6000m peaks shown). This map is useful for obtaining an overview of Zaskar and Ladakh but not for more detailed mountaineering purposes.
4a	Pointet (2013a)—Map 1: 150,000 <i>Olizane Series</i> North	---	---	132 peaks (inc. 8 over 7000m)	132 peaks (inc. 8 over 7000m)	The <i>North</i> map of the <i>Editions Olizane</i> is centred on Deskyid (normally spelt Diskret) in Nubra and covers Hanu and Lamayuru in the west to sections of China in the east. Peaks were counted in the area enclosed by the Great Bend of the Shyok River. Note this map also shows many 6000m peaks in the area east of the Shyok, which is controlled by China (these peaks were excluded from the counts).

4b	Pointet (2013b)—Map <i>Olizane Series</i> 1: 150,000 Center	119 peaks	20 peaks	---	139 peaks	The <i>Center</i> map of the <i>Editions Olizane</i> is centred on Markha, covering from Rangdum in the west to Chushul in the east. Peaks in Chinese-controlled area (on the east of the map) were not counted. The 6000m peaks counted included: 21 in the Pangong Range; 14 north of Pangong Lake; 2 in the Stok Range; 12 in the Kang Yatze area; 8 in the Angmong area northwest of Pangong; 24 in Chang Thang; 7 in Zanskar; 38 in the Ladakh Range.
4c	Pointet (2013c)—Map <i>Olizane Series</i> 1: 150,000 South	56 peaks (Rupshu)	35 peaks	---	91 peaks	The <i>South</i> map of the <i>Editions Olizane</i> covers Rupshu, including the Tso Moriri lake at Korzog, and Zanskar. There are numerous glaciated areas in Zanskar and many attractive 5000m peaks (these were not counted).
4a-c	Totals for three <i>Olizane Series</i> maps: Pointet (2013a/b/c)	175 peaks	55 peaks	132 peaks (inc. 8 over 7000m)	362 peaks (inc. 8 over 7000m)	The three <i>Editions Olizane</i> are the most widely available and relatively well-detailed maps at the current time. However, they do not cover the northern part of the East Karakoram including the Siachen Glacier—thus many peaks over 6000m and 7000m are missed.

Key Mountaineering Areas

There are five main mountaineering areas in Ladakh, described below.

Ladakh Range

The Ladakh Range is easy to access as it lies directly to the north of the Indus River and Leh (see the outline map in JAC (2021, pp221–222 and 233). The road north from Leh drives through the middle of the Ladakh Range, over the Khardung La, to Nubra. The Ladakh Range has many 5000m peaks but a number of interesting higher peaks. In 1990 it was said that “*None of them has been climbed or attempted, because of the tight security, as well as their unattractively low heights*” (Mehta and Kapadia, p146) but since that time the whole area has been opened to tourists.

At the northernmost part of the range, peaks such as Spangpuk (6184m) and Ajangliung (6062m) are best reached from the Nubra Valley. They are still unclimbed and gaining authorization might be difficult as they are only 40km from the LOC with Pakistan. The area near Khalsar, in the middle of the range, has interesting possibilities. Here, a British expedition made the first ascent of Telthop in 2014 (Horobin, 2014; 2016) and there are still unclimbed 6000m peaks, both north of Telthop and also south, around the Lasirmou La. The climbing possibilities in part of this area have been documented in a short, illustrated guide (Bridgestock, 2008). There are challenging rock faces consisting of what appears to be good granite in the Hundar area.

Somewhat surprisingly, the south-east end of the Ladakh Range, to the east of Ligche, has a cluster of unclimbed 6000m peaks (JAC, 2021, p272). Chakula (6529m) was climbed in 2001 (Ratty and Willis, 2001) but not much is known about the other 12 or more 6000m peaks to the north of the Indus and the village of Mahe (JAC, 2021, p272).

Pangong Range

Pangong is a beautiful, turquoise-coloured lake at 4000m that has become famous since it appeared in the popular Bollywood film *Three Idiots*. It is visited by hundreds of tourists each summer and lodges have been built to offer overnight stays on the south side of the Lake. As many of these lodges were built without permission, the Indian Government has recently (2018–19) taken action to have some of them removed.

South of the lake runs the compact but interesting Pangong Range. An excellent sketch map of the Pangong Range with the major peaks named is found in JAC (2021, pp252–253) and there are 18 Pangong mountains over 6000m on the Olizane map (Pointet, 2013b). The *Indian Tibet Border Police* (ITBP) made their first Pangong ascents in 1972 and then on two later expeditions (Chamoli, 1989). Indian military (Das, 1995; Abbey, 2002) and Japanese expeditions have also been active. In total, 11 expeditions have visited the Pangong Range and made 12 first ascents over 6000m, including the highest peak in the range, Kangju Kangri (6725m). Although 12 Pangong peaks have been climbed (some more than once), there are untrodden snow and ice peaks, rock pinnacles that remain untouched (e.g. JAC, 2015, p185), plus interesting ice routes. The downside is that, although Japanese expeditions received approval in 2004, 2007 and 2010 (Oki, 2005; 2008; 2011), applications were refused in 2013, 2014 (Goffin, 2015 and 2016) and 2018, often at the last minute. Since 2011, only one Indian military expedition has been approved to climb in the area, making the first winter ascent of Kakstet Kangri (Griffin, 2016). With the near-constant military stand-offs at Pangong, gaining permission for climbing at Pangong is likely to remain difficult in coming years.

Zaskar Area

South of the Indus River lie the Zaskar and Stok Ranges. The best-known mountain in this area is the 6153m Stok Kangri, which is the most popular trekking peak in Ladakh. The main

part of Zanskar was very difficult to reach until about 10 years ago, when better roads were built. The winter 'Chadar' trek up the frozen Zanskar River has become famous. The mountains of Zanskar offer both interesting snow peaks and numerous rock towers. At the north-west end of the Zanskar Range are the famous peaks Nun (7135m) and Kun (7077m). These were first climbed in 1953 and 1913 respectively (Mehta and Kapadia, 1990) and both are now climbed regularly by commercial expeditions (JAC, 2021, p152).

The Japanese Alpine Club (2021) includes five sketch maps of different parts of Zanskar (pages 152 and 162–165), and these document approximately 66 peaks over 6000m. A big advantage is that Zanskar is not in a border area and so it is easier to gain access for mountaineering expeditions, particularly if the objectives are under 6000m. The immense potential of the area was recognized by Kapadia (2009), but it was exploratory treks by a senior Japanese alpinist and friends that provided details of potential objectives. Although because of his age he is no longer an active mountaineer, Kimikazu Sakamoto has made several exploratory trips to remote areas of Zanskar, including the Reru Valley (also spelt Raru in some reports) and Lenak Nala (JAC, 2021). On each reconnaissance trip, he has meticulously photographed, numbered and documented numerous unclimbed peaks. His reports (e.g. Sakamoto, 2010a; 2010b) have been influential in motivating different groups of mountaineers to make first ascents in Zanskar. A British team received personal advice from Sakamoto, which led to them ascending Lama Jimsa Kangri (6276m) and completing some rock routes in 2011 (Moodie et al., 2012). Similarly, a Scottish expedition climbed a 6150m peak in 2012 (Jensen, 2012). Japanese and Italian teams have also benefited from Sakamoto's reports and personal advice and made first ascents (e.g. Ogiwara, 2013; Ohori, 2013; Vallata, 2020). The climbing expeditions themselves have supplemented Sakamoto's work with further reports on mountaineering and rock climbing possibilities. This all means that Zanskar will be a popular area in coming years with challenging routes on the often very solid granite of this area.

The Markha Valley is one of the most popular treks and at its end is the Kang Yatse massif (sometimes referred to as Kang Yissay in older reports). This has four peaks, with the Kang Yatse II being the easiest and most frequently climbed peak, as it is on the programme of many of the trekking agencies in Leh. Kang Yatse I is far more demanding. Both peaks I and II were climbed in the 1990s whereas Kang Yatse III was only climbed in 2015 and, surprisingly, Kang Yatse IV was only climbed in 2021 (Mukerjee, 2021). The latter ascent by a small Indian team shows how detailed research can identify unclimbed peaks even in areas that are visited regularly. The sketch map of the Kang Yatse group (JAC, 2021, p228) shows several other peaks that have probably not yet been climbed. Furthermore, the range continues with many more peaks (see JAC, 2021, p233) that are on the IMF 'Open Peaks' list. However, many of these are probably non-technical mountains with loose rock, as one ascent in this area reported (Griffin, 2013).

Rupshu Area

South-east of Leh is the Rupshu area and the massive lake Tso Moriri. Visitors require a special permit and the lake takes a day to reach, via the excellent road along the Indus Valley. Rupshu is a huge, dry area above 4000m that can be clearly seen on the flight to Leh and has been called the 'Rupshu Ice-cap' by pilots (Mehta and Kapadia, 1990). Around Tso Moriri are many large mountains and the three sketch maps in JAC (2015, pp250–252) indicate about 80 peaks over 6000m, about 25 of which have been officially climbed (JAC, 2021). Rupshu was opened to foreigners in 1994 and before that the only climbers to visit were from the Survey of India and then Delhi mountaineers, in 1985 and 1993 (Kapadia et al, 1996). High peaks, such as Mentok I (6476m) are found to the west of the lake, and Chhamser Kangri (6623m) and Lungser Kangri (6666m) are on the east side. All of these peaks were climbed in the 1990s (Kapadia et al., 1996).

Most of the peaks in the Rupshu are relatively easy without technical climbing (Oki, 1998). For example, Mentok II is an “*easy snow plod*” (Kapadia, 2001, p154), and Chhamser Kangri is “*some steep snow but no crevasses*” (*ibid*, p156). Many of the mountains in Rupshu are on the IMF’s list of 100 ‘Open Peaks’. Rupshu is a beautiful trekking area, where unauthorized ascents have been observed (Goffin, 2016) and easy routes have been soloed (Jurgalski, 2015). The main areas where unclimbed peaks can still be found are probably to the south-west of Tso Moriri, although unofficial ascents may have taken place.

Due to its accessibility, the Rupshu area is likely to become even more popular with trekkers, and the agencies in Leh will probably offer more trips to suitable ‘trekking peaks’. The town of Korzok lies at 4527m on the shores of the lake and has stunning views of the Mentok group; it would be an ideal location for an alpine climbing school.

East Karakoram

North of Leh, over the Khardung La and beyond the Ladakh Range, lies the administrative area of Nubra. From a mountaineering perspective, there are two areas: the wild and partly unexplored area enclosed by the ‘Great Bend’ in the Shyok River; and to the north-west, the Siachen Glacier. Both these areas contain some of the most impressive mountains in Ladakh.

The Great Bend area is bounded by the broad Shyok Valley. Disconcertingly, Shyok translates to ‘river of death’ (Kapadia, 1999), named for the many travellers on the trade route that follows the river who drowned trying to cross it. The river is wide and often impossible to ford in the summer melt season. Several good bridges now cross the river and offer easier access to the impressive Saser mountain range and side valleys such as Rongdo and Tsati (sometimes spelt Tsatti).

The Rongdo Valley had seen seven expeditions prior to 2018, that climbed 13 peaks. Although each expedition published details of their climbs in the AAJ and HJ, the descriptions, photographs and coordinates were sometimes ambiguous, or incorrect. This led to a comprehensive guide to the valley being requested by the AAJ, and this is now available online (Goffin, 2020). Parallel to and north of the Rongdo Valley is the Tsati Valley. This includes the interesting Arganglas Range with peaks such as Arganglas Kangri and Yamandaka (Bonington, 2017).

Further north in the Great Bend area is the impressive Saser Range. In 2011 an American expedition climbed Saser Kangri II (7518m)—one of the highest unclimbed mountains in the world—and won the coveted Piolet d’Or award for this ascent (Wilkinson, 2012). During the same expedition, four 6000m first ascents were also made. The Saser mountains (sketch map in JAC, 2021, p45) still offer interesting peaks, although access to the remaining unclimbed peaks will be challenging and time-consuming.

To the north of Nubra, directly bordering Pakistan is the Siachen area. The mountains around the Siachen are some of the most impressive in the East Karakoram, with major peaks such as Salto Kangri I (7742m), Teram Kangri (7464m) and Sherpi Kangri (7380m) [see sketch map in JAC, 2021, p23] and Mamostong, Rimo, and Chong Kumdan (7071m) [see sketch map in JAC, 2021, p23]. The area has seen extensive conflict over the years, with combat between Indian and Pakistani troops at altitudes of up to 6000m (Kapadia, 1999b). Mountaineering expeditions became politicized when Pakistan allowed expeditions onto the Siachen Glacier in 1972–83, in order to strengthen its territorial claims (Kapadia, 1999a). A Japanese expedition was given permission by Pakistan in 1984 to attempt Rimo, but this led to military intervention and open conflict. Now, India saw the potential advantage of mountaineers’ climbs adding to its arguments and territorial claims. An Indo-British team in 1985 climbed Rimo III (7233m) but it was then 10 years before a civilian expedition could climb in the area. The important news in 2019 was that the Siachen Glacier has been opened to Indian tourists, travelling up the Nubra Valley (Bhalla, 2019)).

Choosing an Objective

With five main mountaineering areas and so many unclimbed peaks, mountaineers would be spoilt for choice in Ladakh, if it was not for the difficulties with gaining approval. There are five factors to consider when choosing an area for an expedition:

- 1) The number of challenging 6000+m unclimbed peaks.
- 2) Whether any peaks are on the list of ‘Open Peaks’, which should make gaining permission easier.
- 3) The amount of information published on an area.
- 4) The time required to reach basecamp.
- 5) The security situation.

Tables 1 and 2 give an idea of the number of unclimbed peaks in different areas, and then the respective maps can be referred to. It is best to start with the *Olizane* maps and then check the sketch maps in JAC (2015; 2021).

Information on specific areas must be collated by researching individual expedition reports in the journals mentioned earlier. This can take significant time, but fortunately most expeditions produce good reports. Where mountaineers need to be careful is in ensuring they identify all of the reports on the specific valley(ies) they want to visit. Otherwise, they may find that their chosen objective has already been climbed and named—this happened several times in the Rongdo Valley (Goffin, 2020). With the expected 2022 publication of the English version of *Indian Himalaya* this problem should be somewhat alleviated, but as the detailed SOI maps with local place names are restricted, the potential for confusion will remain.

It is now becoming much easier to reach different areas from Leh. Typically, 1–2 days’ drive and 2–3 days’ trekking are needed to reach the more interesting areas. For example, Nubra can be reached in about seven hours and the drive will now be faster as in 2020 the road was widened and a new bridge spans the Shyok River. Similarly, Zaskar access is becoming easier as the road has been improved. With the improved infrastructure, the limiting factor is more the time to acclimatize (as will be discussed later in this report).

The security situation is the single issue that can cause most problems with gaining expedition approval. In the next main section, we will discuss the approval process and explain how dependent it is on the security situation. The Nubra, Pangong, Rupshu, and the Siachen areas are all in border regions and susceptible to ‘security concerns’. Any border tensions with China or Pakistan will almost certainly lead to approvals being refused or even cancelled at the last minute. From a security perspective, Zaskar is easier, as it is removed from India’s borders.

Our Choice in 2018

We had previously been unsuccessful in applying to climb in the Pangong Range in 2013 and 2014. As we knew it contains attractive unclimbed mountains, we just did not want to give up and so we decided to apply again for Pangong in 2018. Due to the significant Chinese incursions in 2013–2015, we were aware that the application was risky. Therefore, we decided to select a different area as a reserve.

As Zaskar is not a border region that made it attractive, as did the considerable amount of information available on climbing possibilities. However, we decided against Zaskar because of the many expeditions in recent years, the 2–3 days’ longer approach, and the smaller number of unclimbed peaks over 6000m. Rimo Expeditions recommended the Rongdo Valley as a worthy alternative and research showed that there were interesting, unclimbed peaks in the area. Therefore, our plan was to submit parallel applications for Pangong and Rongdo in 2018.

We were already very familiar with mountaineering reports for the Pangong area (Oki: 2008; 2010; 2011a; 2011b; 2011c; 2011d). In addition, I was in direct contact with Masato Oki,

who has led several expeditions to Pangong. He gave us detailed advice and we were able to select two interesting unclimbed peaks.

When we read reports of previous expeditions to Rongdo, we found that an interesting 6215m peak at the head of the valley was unclimbed. This had been designated 'X3' by a British expedition that had made an attempt but had turned back at 6050m because of deteriorating weather (Poulter, 2016a and 2016b). The full expedition report from the British team included a video link with views of the Rongdo Valley and interesting photographs of unclimbed P6064m peak; the expedition leader, Ed Poulter, also gave us advice. Therefore, our IMF application specified two peaks that we wanted to attempt: 'X3' and P6064m.

APPLICATION PROCESS

The Process Itself

Gaining permission to climb an unclimbed peak in the border areas of northern India requires approximately 20 pages of forms to be submitted. These must document the personal details of all expedition members, and give detailed descriptions of the approach march and routes planned. Based on the application, the responsible Indian agencies make an assessment of the security situation of the area in question and respond. Letters of authorization are required from the Indian *Ministry of Defence* (MOD) and the *Ministry of Home Affairs* (MHA). Only when the first two letters have been issued, will the *Indian Mountaineering Foundation* (IMF) release a letter which can then be used to obtain *Mountaineering X-visas* at an Indian Consulate. The overall authorization process is managed by the IMF from its offices in Delhi and typically takes five months (e.g. from January-February to June).

For decades, reports of mountaineering expeditions to India have been rife with stories about how hard it is to deal with the bureaucracy and obtain X-visas. For example, a mountaineering guidebook commented in the 1970s that "*areas do seem to be 'opened' or 'closed' at whim by the authorities*" (Cleare, 1979, p179). In a summary of expeditions in the year 1995, it was said "*teams experienced a variety of bureaucratic nightmares...*" (Kapadia, et al., 1996, p25). One of India's most famous explorers and mountaineers has stated, "*Indian bureaucracy has been described as an elephant that moves slowly, which is strong and eats a lot of paper. This is a legacy of the British administration but it helps if you understand how this elephant operates... If foreigners wish to climb within the inner line areas.... All this takes time*" (Kapadia 2001, p35). The famous British mountaineer Mick Fowler, who has extensive Himalayan experience, has said "*In theory the application procedure to climb in the Indian Himalaya is straightforward... The uninitiated could easily be misled into thinking that the process might be simple and stress-free*" (Fowler, 2005, p138). A Japanese expedition that succeeded in obtaining permission to climb in Pangong had to cut short their expedition when, "*the ILP [Inner Line Permit] documents still did not arrive to the Base Camp, and the police in Chusul, advised that, if the party stays at Base Camp... they would be arrested...*" (Oki, 2011a, p63).

The above statements give some idea of the difficulties in gaining approval. In practice, the uncertainty in the process can prove extremely stressful. Permission, if granted, can arrive at the last moment, even the last day before flights. In 2013 our application to Pangong was rejected about the time we had intended to fly. Fortunately, we had not booked flights. In 2014 we booked flights well in advance to gain advantage of cheaper prices. Our expedition was approved by the MOD and their letter said, "*from a Military Security point of view, the Ministry has no objection*". Days later the MHA rejected our expedition saying, "*This is to inform you that Govt. of India has not approved the above subject expedition due to Security Point of View*" (Goffin, 2016). A British mountain guide who organized a 2014 commercial expedition to Nubra experienced so many problems getting X-visas for his clients that he has vowed never

to return to India for mountaineering purposes again (Horobin, 2014). It appears that 2014 was a difficult but not exceptionally difficult year.

Due to the time and effort required to gain permission, some mountaineers ignore the rules and ‘pirate’ ascents have been a problem in Ladakh for many years. For example, a report on a 1984 expedition referred to ‘pirate’ ascents (Lynam, 1985). Such unauthorized climbing continues: on our 2014 ascent of the 6355m Spangnak Ri in Rupshu, a group of unauthorized climbers were observed making an ascent from the south (Goffin, 2016). It is rumoured that a group of Dutch climbers were arrested in Rupshu in 2018, having planned to climb above 6000m without permission from the IMF. In 2016 a French group made an ascent of Sa’i Lhamo in the Rongdo Valley (Lafforgue, 2020), which the IMF in Delhi says was not authorized. However, that is not strictly true as the French group obtained permission in Leh for climbing a peak under 6000m. This allowed them to trek into Rongdo Valley with the attention of ascending a peak marked at 5960m on the Olizane map. As it turned out, the French team were lucky enough to not only avoid the lengthy approval process but also to make a second ascent by a new route! They climbed Sa’i Lhamo by a new route; a peak that is actually just over 6000m (satellite calculations indicate 6015m; Goffin, 2020).

Although we have personally been frustrated by the application process and the officialdom, we do not agree with pirate ascents in the Indian Himalaya. The reasons why India strictly controls its mountainous border regions are understandable—border security is paramount to the Indian Government. If caught without authorization, foreign mountaineers can be fined, risk the confiscation of their equipment, and can receive a climbing ban for several years. For Indian nationals involved in unauthorized expeditions, the consequences can be comparatively greater. In addition, unauthorized expeditions are not insured and so any porters injured will not be compensated. For this latter reason alone, it is far better to obtain the approvals required (despite the uncertainty involved).

Our Dual Application

In late 2017, as we started our planning, Rimo Expeditions believed that it would be ‘easier’ to gain approval for mountaineering in Rongdo rather than in Pangong. Due to the problems we encountered with our 2014 application, we had recommended to the IMF that it should accept applications for two areas at one time (Goffin, 2016, p26). The IMF agreed to this, and we were able to submit simultaneous applications for peaks in Pangong (first choice) and peaks in Rongdo (second and reserve choice). Knowing that we had an interesting area in reserve, we booked flights early and waited for news from Alka Dab, who runs the Delhi office for Rimo Expeditions, coordinating clients’ applications for mountaineering approvals.

Part of our preparation was to read everything we could find about previous expeditions to Rongdo, which turned out to be documented mainly in articles in the *American Alpine Journal* (AAJ) and the *Himalayan Journal* (HJ), plus a few more detailed expedition reports. From these various documents, some interesting unclimbed objectives in Rongdo were identified. In reading the various reports, it became clear there was some ambiguity about which peaks had been climbed, by different expeditions. However, a British expedition report (Poulter, 2016) detailed an unsuccessful attempt on a peak designated ‘X2 Pyramid Peak’ and this became one of our objectives.

Only post-expedition did we realize that various Rongdo expeditions had not seen all of the reports of expeditions that preceded them. This resulted in two expeditions making what they thought were first ascents, only to find out later that they were second ascents. In 2019, I was asked to write a summary of previous ascents in the Rongdo Valley for an update of the Japanese book *Indian Himalaya* (JAC, 2015), and another version for the AAJ. The research for these articles showed that two claimed first ascents were of previously climbed mountains, and this discrepancy was noted in the AAJ (Goffin, 2019).

TEAM AND RIMO SUPPORT TEAM

Originally our team for 2018 was planned to be four climbers but, in March 2018, two friends dropped out because of work commitments. When it became clear that there would be only two of us on the expedition, the application paperwork was changed accordingly, and the IMF were helpful with this.

Our IMF application and local organization were managed by Rimo Expeditions, a company that was originally recommended to us by a Japanese climber, Masato Oki. In 2014, Rimo did a superb job in supporting our trip to Rupshu and we found their staff to be highly motivated, competent and helpful. In addition, we got to know Tsewang Gyalson well. He is a member of the Ladakhi Mountain Guides Association and, when our two other friends dropped out, we asked for Tsewang to be available as a *sirdar* (leading the support team and participating as a climbing member) of our team. This meant that there would be three of us climbing the peak and, importantly, glacier travel is much safer with three climbers.

Climbing Team

Ralph Eberle (Figure 18)

A 54-year-old German from near Stuttgart. Has climbed for nearly 40 years with extensive experience of rock and alpine climbing. Has led many high-grade rock climbs in the Swabian Alps near Stuttgart and climbed many alpine routes (e.g. in Bergell, Gran Paradiso). Made a 6000m repeat ascent in Rupshu in Ladakh on his first visit to India in 2014. Has three grown-up children, works as an elevator maintenance technician and divides his holidays between climbing and his new passion, sailing.

Keith Goffin (Figure 19)

Expedition leader. A 62-year-old British national living near Stuttgart in Germany. A keen climber and mountaineer for over 40 years with experience of rock climbing, ice climbing and alpine climbing. Has climbed extensively with Ralph. Married with one son and works as a university professor. Has travelled extensively in Asia and many times to India, including a 2014 trip intended to make a first ascent in Pangong but which ended up with a repeat ascent in Rupshu.

Tsewang Gyalson (Figure 20)

A 30-year-old Ladakhi who trained as a mountain guide with Rimo Expeditions and has been on several mountaineering expeditions with Rimo's clients. Acted as our Liaison Officer (LO) in 2014 on our trip to Rupshu. Tsewang is from Hunder Dok village in the Nubra Valley and a keen mountain marathon runner. Single. He had visited Rongdo before, accompanying a Canadian (Seagram 2015a/b) and an Indian Air Force expedition (Sashindran, 2014 a/b/c), and so knows the valley and the locals well.

Support Team

Abhinav Pandey (Figure 21)

Liaison Officer (LO). A 26-year-old Indian working for the *Youth Hostels Association of India*. Has taken several climbing courses and is very interested in mountaineering. Had visited Ladakh twice before but this was his first time as an LO. Was keen to climb as high as possible but did not have experience at altitude and suffered with mild altitude sickness at basecamp. Often sang Bollywood songs on the approach march. Passionate about the environment and really helped cleaning up basecamp and collecting litter from other expeditions on the return march. A strict vegetarian.

Dhan Kumar Rai (Figure 22)

Expedition cook. A 40-year-old, married with three children from Solukumbu, Nepal. Always produced excellent three-course meals, with a mix of Western food (including pizzas and cakes) and Asian recipes (including Nepali and Indian food). Known for being Sir Chris Bonington's favourite expedition cook. Always made sure there was something appetizing for our vegetarian LO. Ralph had stomach problems for much of the time in the Rongdo Valley but Kumar Rai was tireless in trying to find something that Ralph would eat and enjoy.

Ambir Man Kulung (Figure 23)

Cook's helper. A 23-year-old Nepali and the younger brother of Kumar. Married with one child, he was always smiling and extremely helpful. His energy and balance were amazing and he always helped me on the river crossings, although he struggled to understand how a 62-year-old could be so inept at jumping from one wet rock to another. Ambir made a very fast descent from basecamp to where he could get mobile network access and so telephone for the horseman to come to collect us.

Tsering Dorjay (Figure 24)

Horseman from Rongdo Village, in his late forties, married with one teenage son. He helped on both the walk-in and walk-out, using seven of his own donkeys. Was always helpful and always in a good mood. On the descent at the Doksa campsite, he was able to provide us with a 2-litre plastic container of *chang*—Ladakhi beer—so that we could all celebrate the successful expedition and Keith's birthday. On the last evening in Rongdo, he invited us to his house for tea, where we met his 90-year-old parents. His father told us that locals have always taken their goats as far as our basecamp below the glacier tongue, as grazing them at high altitude produces the best wool. We showed Tsering's father a picture of the 6235m peak we had climbed and he told us locals have always called it *Phokto Scheyok*—black pyramid.

Tsering Morup (Figure 25)

Horseman from Leh, who regularly works with Rino Expeditions. 50 years old, married with three children. He helped only on the walk-in, using five of his own horses and then returned from Rongdo, walking the Khardung La pass. A smoker who was delighted to find that Ralph not only smoked but also had a good supply of cigarettes. Tsering managed to persuade Ralph to regularly share his cigarettes during the walk-in. It was not until we returned to Rongdo that Ralph, now short of cigarettes, discovered that the sale of tobacco is banned in all of Nubra.

Rimo Support Team

Chewang Motup and Yangdu Goba (Figure 26)

Husband and wife team that own and run Rimo Expeditions, which has an excellent, well-earned reputation for organizing trekking and mountaineering. Motup has taken part in many expeditions, including one to Everest, and has made significant first ascents in the East Karakoram. He is the President of the *Himalayan Club* and his company has received many awards. Rimo Expeditions also founded and sponsor the gruelling 72km *Khardung La Challenge* ultra-marathon.

Alka Deb (Figure 27)

Alka is Rimo's agent in Delhi, responsible for checking on the progress of applications and negotiating with officials at the IMF, MOD and MHA. This is by no means an easy task but her patience, positive attitude and determination were much appreciated. We met Alka several times in 2014 but, due to a family member's illness, we were sorry to have missed her in 2018.

Figure 18: Ralph Eberle



Figure 19: Keith Goffin



Figure 20: Tsewang Gyalson



Figure 21: Abhinav Pandey (LO)



Figure 22: Dhan Kumar Rai (Cook)



Figure 23: Ambir Man Kulung



Figure 24: Tsering Dorjay



Figure 25: Tsering Morup



Figure 26: Motup and Yangdu from Rimo



Figure 27: Alka Deb: Rimo's Delhi agent



ACCLIMATIZATION

Although we had experience of climbing to an altitude of 6355m in 2014, we did not take our ability to acclimatize for granted. Furthermore, two reports of previous expeditions to the Rongdo Valley stated that some of their members suffered from altitude sickness in Leh, on the approach, or above basecamp (Seagram 2013a/b; Poulter, 2016). So, it was clear that acclimatization was crucial, and we read widely about how to prepare. We consulted Broadhurst et al. (2008), Eng (2010), Hochholzer and Burtscher (2011) and Karnik et al. (2008) but found the book from Mees (2011, in German) particularly useful. This gave many tips and included particularly useful diagrams—including graphs of expected SaO₂ and heart rate values at different altitudes.

In preparation for the trip, both Ralph and I were physically fit from regular rock climbing. In addition, I trained by running three times a week (with sessions of up to 2.5 hours). Despite this, I still had serious concerns that the 18 months of chronic bronchitis that I had experienced after my last trip to India in 2014 would have reduced my capacity to acclimatize. I had also recently been diagnosed with asthma and prescribed a *Relvar* inhaler for daily, single use.

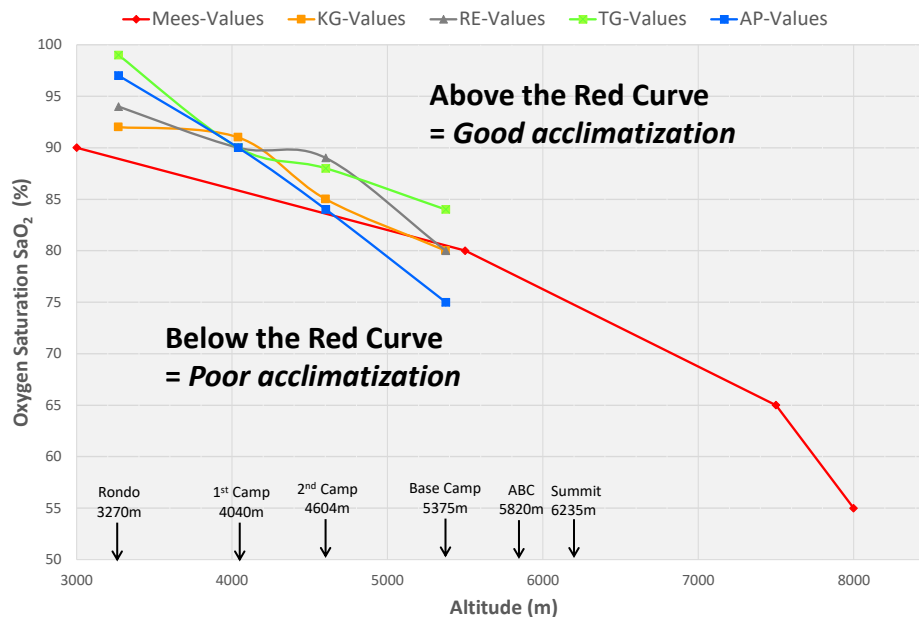
To allow time for acclimatization, 4½ weeks were planned for the trip. After the flight to Leh, several days were set aside for making arrangements with and selecting equipment from Rimo Expeditions, obtaining local permits, for short walks, and generally enjoying Leh. As in 2014, we had *Diamox* (acetazolamide) tablets for altitude sickness in our medical kit but we were pleased not to need them.

Following the recommendations of the Ladakhis, my acclimatization strategy was based on the combination of eating plenty of garlic soup, drinking copious amounts of ginger tea and walking about Leh to about 4400m. Ralph, who dislikes ginger tea intensely, followed his 'proven' acclimatization strategy of the combination of drinking Kingfisher beer and sleeping for over 12 hours a day. Both approaches seemed to work! Despite my concern that my asthma would cause problems, I acclimatized well and had no real issues. I had been advised to continue using my inhaler and so I used it even on our summit day.

We took a pulse oximeter with us (see Appendix, Figure C-6), as this is an extremely useful tool for checking that our acclimatization was adequate. We checked the SaO₂ and heart rate values twice daily of all four of us who would be climbing to basecamp. The SaO₂ values were compared to normal values, to monitor for the onset of altitude sickness. The values will be reported here with explanations, as they will be useful to other expeditions. Surprisingly, there are relatively few expedition reports that provide such data. We took the pulse oximeter to ABC, where we took SaO₂ values at 6824m, but we did not take the oximeter to the summit. Our 2014 expedition report gives SaO₂ values up to 6355m (Goffin, 2016).

Figure 28 is a diagram of expected SaO₂ values (shown on the vertical axis) versus altitude (on the horizontal axis), based on Mees (2011, p33). The red curve represents the normal values for a healthy, fit person. It can be seen that there is an expected drop in SaO₂ from 90% at 3000m; to 80% at 5500m; to 65% at 7500m; and 55% at 8000m. Oxygen saturation should not drop below 90% up to an altitude of 3000m and not below 75% up to 5500m. Values lower than this indicate either acclimatization problems or the development of altitude sickness (Mees, 2011).

Figure 28: Oxygen saturation values by altitude for three climbers and LO.



Superimposed on the Figure 28 are the four actual curves: KG-Values (Keith Goffin—orange line); RE-Values (Ralph Eberle—grey line); TG-Values (Tsewang Gyalson—green line); and (Abhinav Pandey—blue line). The values shown are the initial ones having arrived at that altitude. The heights of the different camps from Rongdo to the summit are annotated on the horizontal axis.

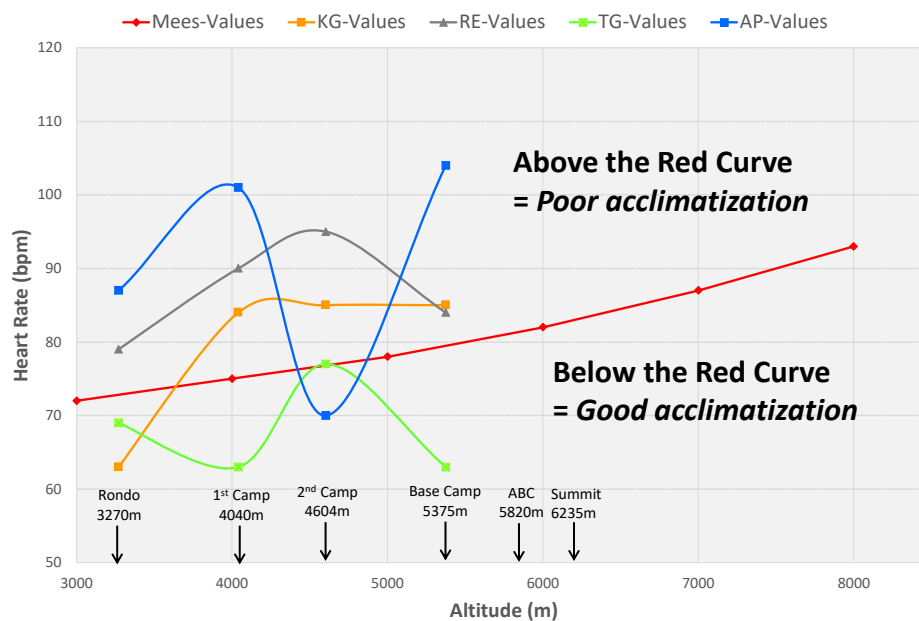
Where the actual values—blue, orange, grey and green lines—are above the red line, this indicates good acclimatization, whereas SaO₂ values below the red line indicate that more time is needed for acclimatization. It can be seen that Tsewang Gyalson’s values (green curve) show excellent acclimatization all the way to basecamp. This was to be expected, as he is a Ladakhi from Nubra; he had walked up the Rongdo Valley to our basecamp seven days before we started (with an Estonian expedition [Suurväli, 2019]); and his hobby is running mountain marathons. The curves for Ralph and myself also indicate good acclimatization until the first night at basecamp, where they were borderline. Our Liaison Officer Abhinav Pandey had some acclimatization problems when he arrived at basecamp, where his SaO₂ value dropped to 75% (as compared to an expected 80%). This caused us some concern, which will be discussed further below.

Resting heart rate is another indicator of acclimatization. In the first days at higher altitude, resting heart rate can be 20% higher than expected values; during exercise heart rate can quickly climb to double resting values; and, above 5300m, individuals’ heart rates can vary widely (Mees, 2011). We recorded our heart rates (in beats per minute, bpm) and these are shown in Figure 29.

Mees gives resting heart rate values for a healthy, fit adult as rising from 72bpm at

3000m to 93bpm at 8000m (shown as the red curve in Figure 29). Therefore, heart rates above the red curve show insufficient acclimatization. My values (KG-Values, orange curve) started at 63bpm in Rongdo but rose to about 85bpm in the different camps. Ralph (RE-Values, grey curve) had a resting heart rate of 79bpm in Rongdo, which rose to 95bpm in the 2nd Camp but then had slowed to 84bpm at BC. The orange and grey curves show that when Ralph and I arrived at BC (5375m) our heart rates were above the values quoted by Mees (2011). However, within a day our heart rates dropped (Ralph from 84bpm to 82bpm; Keith from 85bpm to 80bpm). It can be seen that Tsewang Gyalsen (green curve), with his excellent acclimatization and marathon experience, had a heart rate well below the Mees values, except when he arrived at the 2nd Camp (where it was 77bpm but dropped back to 63bpm within a day).

Figure 29: Heart rate values by altitude for three climbers and LO.



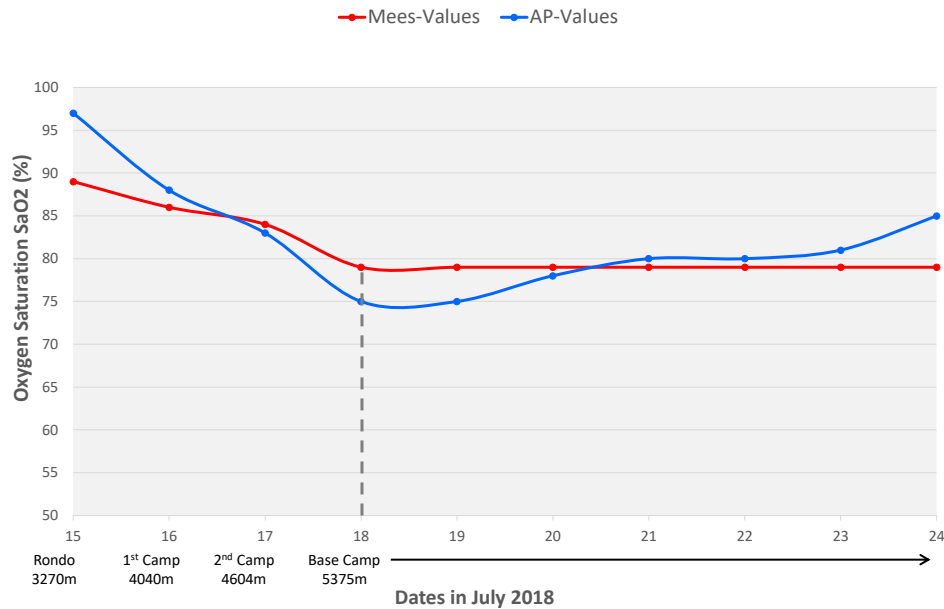
The resting heart rate of our LO, Abhinav Pandey, varied widely on the approach trek. In Rongdo, it was already high (87bpm), it increased further at the 1st Camp to 102 bpm and then dropped strongly in the 2nd Camp (70bpm). However, at BC it was very high again (105bpm) and, as his SaO₂ was low, this raised our concern that he might be developing altitude sickness due to the fast gain in altitude—from Rongdo (3270m) to BC (5375m) is an altitude gain of 2105m, made in 3 days. Therefore, we monitored his health carefully over the next two days and advised him to take plenty of liquids and rest. His appetite was good but he was very tired.

Figure 30 shows Abhinav Pandey’s SaO₂ values on the days in July 2018 corresponding to the approach trek and his time at BC. It can be seen that his SaO₂ values were good at Rongdo (97%) on the 15th July and the 1st Camp on 16th July (88%) but dropped to 83% at the 2nd Camp and to only 75% on arrival at BC on 18th July. His oxygen saturation remained at 75% for a day, then increased to 78% on 20th July and further increased to 80% on his third day at BC (21st July). By the 24th July, his sixth day at BC, it had increased to 85%.

Although we did not have serious problems with acclimatization, we did learn that the walk-in up the Rongdo Valley needs to be carefully planned. We were well acclimatized as we had spent five days in Leh beforehand. However, it was only in Rongdo that we realized that the horses were booked for only three days and so we would be climbing from Rongdo (3270m) to BC (5375m) in three days, a total of 2105m altitude gain and more than the recommended

height gain. Other expeditions may want to plan a rest day at Doksa (4040m) to ensure no problems with acclimatization. It would be easy to spend time at Doksa, as it is a beautiful campsite with spectacular views, interesting walks to the *Gompa* and side valleys, and friendly shepherds to talk to.

Figure 30: Oxygen saturation values for LO Abhinav Pandey’s time at basecamp.



THE APPROACH TO BASECAMP

The chronology of the expedition is shown in Table 3, with locations, altitudes, weather and main activities summarized.

Preparations in Delhi

All expeditions have to meet with the IMF for a briefing. Ours took place on Monday 9th July 2018 at 15:00. We were briefed by the Director of the IMF on the responsibilities of an expedition. This included completing the three-page IMF form ‘Undertaking given by the leader of expedition’. We were also introduced to our Liaison Officer Abhinav Pandey for the first time.

Preparations in Leh

We arrived in Leh early on Tuesday 10th July. That day and the next four were spent acclimatizing and making the last arrangements with Rimo. This included obtaining the protected area permits for Nubra and choosing equipment (tents, a stove, spare ropes, and mountain rations) at Rimo’s stores.

At the time we were in Leh, the World Cup was taking place in Russia. We both had fond memories of watching Germany’s victory when we were in Leh in 2014, and so we delayed our departure to watch both Germany’s and England’s games. Both teams exited the competition at early stages and so we could plan our departure. We had thought of making a few days’ trek to acclimatize, as we had in 2014. However, the football and the relaxing atmosphere of the Padma Hotel ‘persuaded’ us to remain in Leh until Sunday 15th July, when we drove to Nubra in an SUV organized by Rimo Expeditions.

Table 3: Chronology of the Expedition.

Dates (2018)	Location	Altitude	Weather	Main Activities
Sunday 8th July	Stuttgart to Delhi	252m to 212m		06:00 flight to Delhi via Amsterdam (arr. 23:25).
Monday 9th July	Delhi	212m		15:00 briefing meeting at IMF.
Tuesday 10th July	Delhi to Leh	212m to 3400m	Sunny, some clouds.	05:15 flight to Leh (arr. 06:35). Visited Rimo Expeditions.
Wednesday 11th July	Leh	3400m	Sunny, some clouds.	Selecting equipment at Rimo Expeditions stores outside Leh.
Thursday 12th July	Leh	3400m	Sunny, more clouds.	Meeting with Rimo Expeditions.
Friday 13th July	Leh	3400m	Very cloudy.	Visit to Leh Palace, and then Ralph rested and Keith went on a long walk towards the Khardung La.
Saturday 14th July	Leh	3400m	Very sunny with some clouds in the evening.	Visit to IMF Office in Leh to meet Sonam Wangyal.
Sunday 15th July	Leh to Rongdo	3400m to 3270m	Morning very clear and sunny with some clouds in the evening.	Travel in 4x4 to Rongdo via the Khardung La. Stopped at the pass for tea, where there were many Indian tourists and queues to take photographs next to the Khardung La sign. Excellent view of Saser Kangri II. Camped near Rongdo school, near the confluence of the Rongdo and Shyok Rivers.
Monday 16th July	Rongdo to 1st Camp	3270m to 4040m	Very sunny then showers in evening.	Short walk through fields on the true right of the Rongdo River and then climbed steeply up scree slopes on a relatively good path. Lunch at the <i>Stagsma</i> resting place and then our 1st Camp was at Doksa, near the shepherds' huts. Excellent view of Yonchap Kangri.
Tuesday 17th July	Camp 1 to 2nd Camp	4040m to 4602m	Cloudy, some rain.	Long, steady climb with seven river crossings. 2nd Camp was at the hot springs.
Wednesday 18th July	2nd Camp to Basecamp	4602m to 5375m	Grey, some showers.	Steep climb from the <i>Chhurn Nangma</i> stream. Passed the prayer flags marking the basecamp of the 2015 British expedition. Pitched our basecamp in an attractive meadow at the glacier tongue.
Thursday 19th July	Basecamp	5375m	Overnight 3cm of snow. Alternating rain, fog, sleet, sun, snow.	Rest day and concerns about the LO's acclimatization.

				Observed Point 6060m for hours in between photographing the peaks, floral and scree fields.
Friday 20th July	Basecamp	5375m	Alternating fog, rain, sleet, sun, snow.	Preparing equipment and resting. Tsewang Gyalsen and two porters dumped equipment at a possible location for our ABC. Tsewang also photographed potential lines for the ascent.
Saturday 21st July	Basecamp to ABC	5375m to 5820m	Alternating strong sunshine, rain, sleet and snow but improved in the evening.	Three of us crossed the glacier and pitched tent at ABC, below the south face of Pyramid Peak.
Sunday 22nd July	ABC to summit	5820m to 6235m	Initially stormy and cold but steadily improved throughout the day. Was cloudy on the summit but in the afternoon the sky cleared completely.	Checked weather at 02:30 but it was stormy and snowing and so we went back to bed. Started at 05:30 when the wind had dropped but it was still very cold (-15°C), summited at 10:42 (5 hours 12 minutes). Started descent at 11:00 and arrived ABC at 16:15 (5 hours 15 minutes)
Monday 23rd July	ABC to Basecamp	5820m to 5375m	Overcast but calm.	Lazy breakfast and then left ABC at 08:30, arriving at basecamp at 10:45.
Tuesday 24th July	Basecamp	5375m	Clouds and rain, clearing in late afternoon.	Rest day and photographing the clearing storm in the late afternoon and evening.
Wednesday 25th July	Basecamp to 1st Camp	5375m to 4040m	Drizzle, sun and heavy rain	Cleared basecamp and left at 08:30, making the very long walk back to 1st Camp at Doksa. Celebration of summit achievement and birthday (KG) with <i>chang</i> from our horseman.
Thursday 26th July	1st Camp to Rongdo	4040m to 3270m	Some rain	Visited the Rongdo <i>Gompa</i> . Left at 11:00 and reached Rongdo at 16:00, where we had a long wait for the horses. Visited the house of Tsering Dorjey, our Rongdo horseman, where we met his 90-year-old parents. We showed his father a photograph of the mountain we had climbed and he told us that local shepherds call it Phokto Scheyok (black pyramid) because of its shape and colour.
Friday 27th July	Rongdo to Leh	3270m to 3400m	Grey, some showers	Travelled in a 4x4 from Rongdo via the Chang La to Leh, arriving 17:00. Celebrated again with too much beer.
Saturday 28th July	Leh		Sunshine	Hangover with a strong headache that was worse than acclimatization. Postponed rock climbing.

Sunday 29th July	Leh		Sunshine	Rock climbing at Shey.
Monday 30th July	Leh		Strong sunshine	Attended the Dalai Lama's sermon in Leh.
Tuesday 31st July	Leh		Sunshine	Rest day and shopping.
Wednesday 1st August	Leh		Sunshine	Rest day, shopping and writing a short expedition report for the planned meeting with the IMF.
Thursday 2nd August	Leh to Delhi	3400m to 212m		07:40 flight to Delhi (arr. 0920).
Friday 3rd August	Delhi	212m		Visit to IMF for 15:00 expedition debrief
Saturday 4th August	Delhi to Stuttgart	212m to 252m		02:10 flight via Amsterdam to Stuttgart (arr. 10:30)

Drive from Leh

Rongdo Village is located at 3400m near to the Shyok River, on what is a historical trading route (Devers, 2018). Efficient as ever, Rimo packed and dispatched one SUV early on Sunday 15th July, with the main expedition equipment, such as tents and food. A second SUV and driver arrived at our hotel at 08:00 and we packed our equipment and drove with our LO, Abhinav. With three of us and a driver in an SUV, it was a relaxing drive with great views; it was outright luxurious compared to my many experiences of public transport in the Himalayan regions. The weather was good and the steep climb north of Leh took us over the Khardung La—claimed to be “ONE OF THE HIGHEST MOTORABLE PASS IN THE WORLD” (sic).

At the pass, we stopped for tea and photographed distant Saser Kangri II. Compared to my last visit to the pass in 2009, I was surprised about the large number of tourists, many in large groups and quite a few on motorcycles. There was even a long queue of people waiting to be photographed next to the “I WAS HERE!!” sign and so, not wanting to be excluded from the tourists’ fun, Abhinav volunteered to be photographed for posterity (see Figure 31).

Figure 31: Abhinav Pandey at the Famous Khardung La Sign.



After a short break we continued, driving north-west and descending into the Nubra Valley near Khalsar. This is a typical transit village with several teashops and a truck repair shop. Several wrecked houses from the 2015 cloudburst were evident next to the stream that passes through the village. We continued along the road which follows the right bank of the Shyok River until Tirit, where there is a major bridge crossing to the north (true left) bank of the river. Shortly after crossing the river, we took a side track turning south-east towards the village of Tsati. Although we only had another 20km to drive, the track on the north bank was rough from the beginning, on the 10km stretch leading to Tsatti (see Figure 32). Afterwards, on the last 10km to Rongdo it was even poorer, ill-marked and, on some sections, passed through sand dunes. Our SUV driver from Leh was amazed that we were driving to somewhere that he had never even heard of. As soon as the track became difficult, he became reluctant to

drive further but, fortunately, our LO used his charm to persuade him to continue. We arrived at Rongdo Village in mid-afternoon—literally at the end of the road. Our driver was more than happy to dispose of us and turn back towards Leh. The village of Rongdo is small, with a school but no shops. Our campsite was below the school, in a field on the bank of the Rongdo River with great views along the Shyok River.

Figure 32: Our sceptical driver steering towards Rongdo on the north bank of the Shyok.



When we arrived, we met Dhan Kumar Rai, our expedition cook, and his younger brother and cook's helper, Ambir Man Kulung, for the first time. From Nepal, both of them were to make a huge contribution to the expedition by preparing appetizing and wholesome food throughout our time in the mountains. Our friend and *sirdar* Tsewang Gyalsen had been at his home in Hundar, Nubra and was due to join us that evening. After pitching our tents, Ralph and Abhinav lay down on their camping mats and fell into a deep sleep—so deep that they did not see when a small irrigation canal next to them overflowed into the tents. They slept further, while I moved the tents to a dry area.

About 20 families live in Rongdo, several of which we later learnt have family members in their nineties—apparently, the local people are known for their longevity. During the late afternoon, I had ambitions to make the short walk into the village, to take photographs, and to meet some of the villagers. However, as so often happens at altitude, my lack of awareness of time and general lethargy led me to spend (waste?) several hours gazing at the mountains and the confluence of the Rongdo and Shyok Rivers.

Trekking up the Valley

We left our campsite at Rongdo Village on Monday 16th July at about 08:00. Trekking up the valley starts with a section of about 1–2km along the north (true right) side of the *Rongo Togpo* (river). We passed extensive debris from the 2010 torrential rains and walked next to cultivated fields until we passed a distinctive row of large trees (Figure 33). Then, we started a steep

ascent of about 300m, above the river. The path is generally good, but it crosses loose, exposed rocky slopes that would be very difficult after heavy rain. This was the section where a French 2016 expedition had to re-build sections of the path damaged by heavy rain (Lafforgue, 2020).

Figure 33: View from a point about 2 hours' walk above Rongdo Village, where the path climbs steeply from the trees [Photograph: Keith Goffin].



From the path, the course of the river can be seen in the valley below (see Figure 33). There are continuous Grade VI white-water rapids and it is not believed that kayakers have ever attempted the Rongdo River (although Ladakh's rivers have become popular in recent years). Further along, we saw the massive waterfall where the whole river flows from the flatter, wide upper valley into the gorge (Figure 35). We continued on the path high above the gorge. As can be seen from the map Figure 34,¹¹ we followed the path along the north (true right) side of the river at the same height. So, after another hour we regained the river at *Stagsma* (Figure 36), which means 'place of willows' (also referred to as *Changma* in some reports [e.g. Sashindran, 2013]). *Stagsma* is an attractive flat area with grass, trees and a stream, next to loud, impressive rapids on the river. It is generally used as a first campsite (for teams wanting to climb slowly for acclimatization purposes), but we used it as a lunch spot.

¹¹ Figure 34 is a map prepared for an invited article in the *American Alpine Journal* (Goffin, 2020), which I wrote to document all of the ascents that have been made in Rongdo. The article identifies exactly which peaks were climbed, when, by which routes, and where second ascents have been made. Although we had read the reports from several previous expeditions, at the time of our visit to Rongdo we knew far less about the valley and which peaks were unclimbed than today.

Figure 34: The path up the Rongdo Valley and significant peaks (Map drawn by Tobias Pfefferkorn).

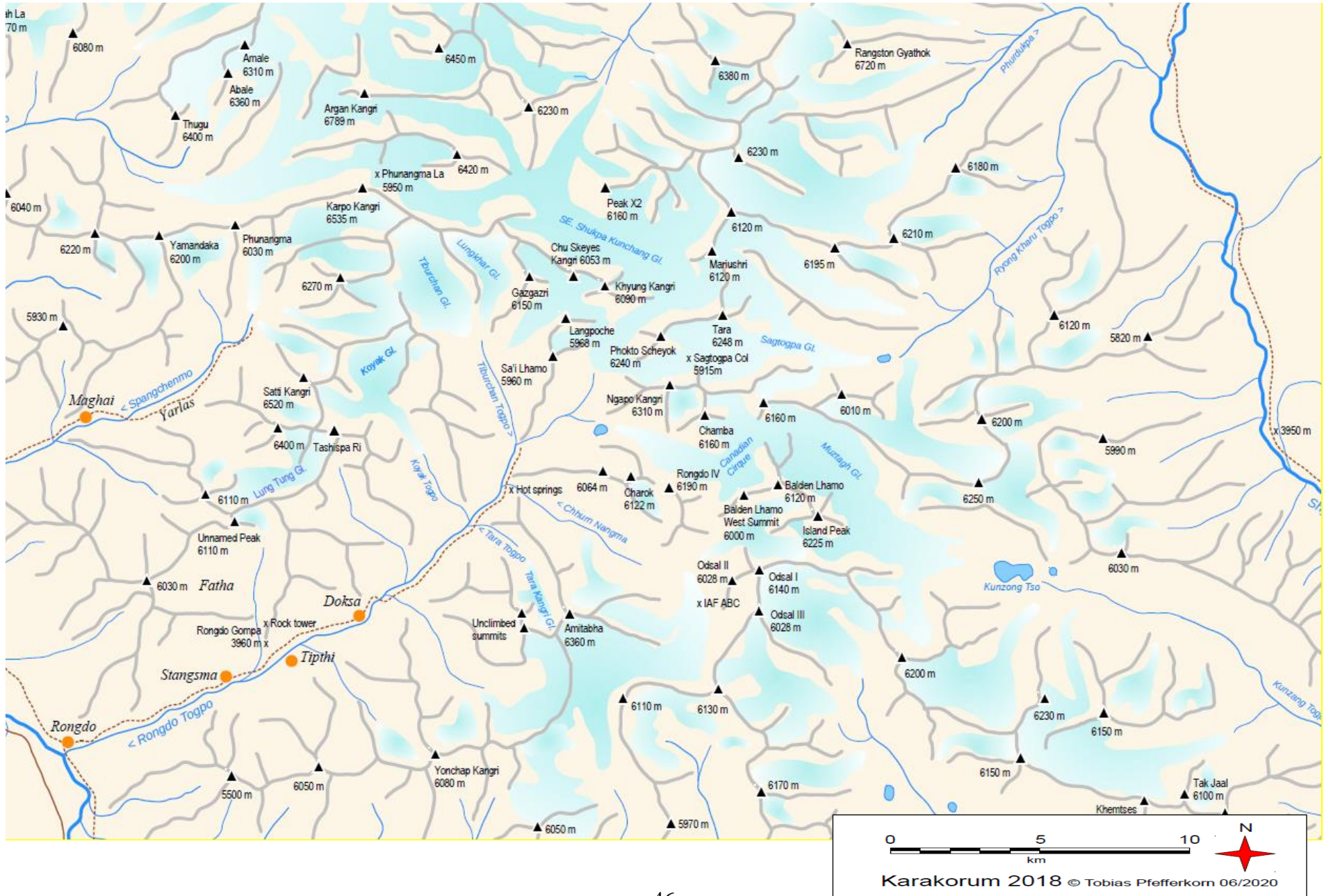


Figure 35: Looking down the loose, rocky slopes from the path above Rongdo, towards the gorge and the massive waterfall of the *Rongo Togpo* [Photograph: Keith Goffin].



We found the scenery impressive, with steep rock walls seen above extensive rocky slopes on the north side of the river (Figure 36). We did not know as we sat eating in Stagsma but the peak we could see to the north was probably the one used as a triangulation station by William Johnson, leader of the GTS team that mapped the Rongdo Valley. Johnson's 1875 map shows that his team climbed to 19,177 feet (5845m) in conducting their survey.

From Stagsma, the first high peaks can be seen. A few kilometres above Stagsma the valley widens and there are prominent golden granite walls of 500–600m on both sides of the river. The track largely follows the river up to *Tipthi*, where there is a hermitage, *Rongdo Gompa*, which is visited by a Buddhist monk on a monthly basis. The Gompa is normally locked and so permission to visit must be arranged in advance. Directly above the Gompa is an interesting rock tower.

We continued from Tipthi for a couple of hours and then spent the night of 16th July next to the shepherds' huts at *Doksa* (Figure 37) (note that in some reports the spelling *Daksa* has been used). During the summer, up to half a dozen locals from Rongdo will have brought their animals to graze here and further up the valley. The animals include herds of goats that are taken to high altitude to ensure the quality of their pashmina wool. Doksa is situated within well-irrigated grazing and wheat fields with spectacular views of the granite walls on both sides of the valley.

Early on Tuesday 17th July we left Doksa and continued towards basecamp. On the approach, a photographic record was made of all of the rock walls, numbered according to their position on either the true left or true right of the valley (Goffin, 2020). Figures 38–45 illustrate some of the views we had on the walk-in. The first rock climbs were completed in 2019 (Swain, 2020).

Figure 36: Trees at the Stagsma resting place with prayer flags. Above, the first significant granite walls and Johnson's probable trig. point [Photograph: Keith Goffin].



Figure 37: Campsite near the shepherds' huts at Doksa at 4040m [Photograph: Keith Goffin].



Figure 38: Walls at the start of the valley.



Figure 39: Typical terrain in upper valley.



Figure 40: Early view of Phokto Scheyok.



Figure 41: Granite walls.



Figure 42: Rock tower near Doksa.



Figure 43: The narrower upper valley.



Figure 44: Approaching basecamp



Figure 45: On right: Phokto Scheyok.



Figure 46: 17th July camp at the hot springs, looking south-east towards the distinctive, unclimbed ‘Rock Wedge’ peak [Photograph: Keith Goffin].



Figure 47: Our horseman and LO enjoying the hot springs.



Above Doksa we crossed a good bridge and, from then on, the main path continued up the true-left river bank (as indicated on the map, Figure 34). The path climbed steadily and the multiple crossings of side streams were challenging because of snow melt. Most awkward was crossing fast-moving, deep water balancing on three round, slippery wooden poles just before the hot springs. The hot springs (*Chutsan* in Ladakhi) are located at the entrance to the side-valley that leads to interesting peaks such as *Charok Kangri*, *Amitabha*, and *Odgsal I-III*. It is an ideal camping ground (Figure 46), and this is where we camped on the night of the 17th July (Figures 46 and 47).

It was a short day's walk on the 18th July from the hot springs past the glacier valley explored by the Canadians in 2012, to our basecamp (BC) at the bottom of the *South-East Shukpa Kunchang Glacier*. We also passed the British basecamp from 2015 at about 4800m. We arrived at our BC at 5375m in the early afternoon in good, clear weather. The location offered good views of and fast access to 'X3' (Pyramid Peak). It is a beautiful place (see Figure 48), with plenty of flat ground, good running water, and numerous types of wild flowers (coordinates 34°30'57.59"N; 77°59'12.07"E).

Previous expeditions have taken between three and six days to reach their basecamps, which are typically between 4800 and 5400m. Note that this is an altitude gain of nearly 2000m from Rongdo Village and so good acclimatization is required for this approach. Several expeditions have reported that team members experienced significant altitude sickness (e.g. Seagram, 2013b; Poulter, 2016b). Locals can complete the journey to basecamp with horses easily within two days and so expeditions will need to consider if they want to take longer for acclimatization than the time that horsemen will typically plan for the journey.

Figure 48: Basecamp 5375m at the bottom of the South-East Shukpa Kunchang Glacier with 'X3' Phokto Scheyok (left of centre) and the west, talus ridge of *Ngapo Kangri* (Rongdo I) in front [Photograph: Keith Goffin]



In the evening of 18th July, it became misty and cold and there was a quite heavy snowstorm in the night, so the tents needed to be cleared of snow around 02:00. The 19th July dawned very cold but clear with excellent views (Figure 49). I took advantage of this, getting up at 06:00 to take photographs of the mountains. When the others got up for breakfast at 08:00, we decided on a rest day to acclimatize. Our LO Abhinav showed signs of altitude sickness, with lack of appetite, heavy breathing and low SaO₂ values. We monitored his condition, checking both heart rate and blood oxygen levels. After much sleep, he recovered the next day without the need for Diamox tablets.

Figure 49: Basecamp at 5375m, early on the 19th July after snowfall [Photo: Keith Goffin].



During the 19th July we observed one of our two potential objectives: Point 6064m, which consists of unclimbed rock buttresses and a snow ridge directly south of BC (Figure 50). The route had been selected based on a photograph and video from the British expedition (Poulter, 2016b). When seen in reality, it was clear that the route was extremely dangerous, as it was subject to regular rock-fall and had overhanging cornices. So immediately, our interest switched to the peak that had been dubbed ‘X3’ by the British expedition and ‘Pyramid Peak’ by the Indian Air Force (IAF). This had been clearly visible during the second half of the trek up the valley, and we knew it had been attempted twice previously. The IAF encountered storms and a British team abandoned their attempt on the south-west ridge, due to large cornices and an approaching storm.

On the 20th July, we decided to have a second rest day before climbing higher. Abhinav, our LO, was still tired but recovering and his appetite was returning. Ralph had acclimatized well but was still suffering from the stomach bug he had picked up on the last night in Leh. So, he was also keen to rest. The weather on the 20th was a mix of snow, intense sun, hail, rain, and fog—very similar to the previous day. It appeared that ‘completely changeable’ was the weather pattern at the moment, meaning that every day would have at least some good spells.

Figure 50: Point 6064m, which was prone to intermittent rock-fall [Photo: Keith Goffin].



An Estonian expedition had walked up the Rongdo Valley a week before us, to make what was a successful attempt on a peak that is called Kuncheng Kangri on Google Earth (the Estonians named it Rangston Gyathok). To reach their peak, which is nearly 10km north of our BC, they had employed Rimo porters, some of whom were now staying near our BC. Tsewang Gyalsen was able to ‘loan’ two of them to help carry equipment up to Advanced Base Camp (ABC) below the south face of Pyramid Peak. Tsewang went with them and took our Nikon P7100 camera to take pictures of the south face. When he returned later that day, we inspected the photographs together and discussed possible routes. As we knew that the British attempt had been made from an ABC at about the position of our basecamp, we decided to locate our ABC higher to maximize our chances.

During the evening of 20th July, we observed yet another large rock-fall from P6064m. Although the rock buttresses were bold, attractive lines, it looked extremely dangerous.

THE CLIMB

On 21st July, we ascended the boulder field above BC to access the South-East Shukpa Kunchang Glacier, which was largely snow-free. We moved to the side arm of the glacier that leads to the Sagtogpa Col. We made faster progress than the British expedition that had encountered heavy snow and avalanche danger on their 2015 attempt (Poulter, 2015b). We walked up the side glacier for approximately two hours in sunshine and then sited our ABC at 5820m on an ice slope above the glacier (Figure 51). We found an ideal location, where there was a small stream that we could channel in the ice to pass nearby our tent. The position of our ABC was also protected by a boulder ridge. As soon as we started to put up the tent, the weather changed to cloudy and snow but we still had some good views of our chosen route on ‘Pyramid Peak’ (Figure 52). We also inspected Rongdo I’s unclimbed north face and could see its

numerous *seracs* and evidence of recent avalanches. That evening we ate well and went to bed in our three-man ABC tent at about 20:30, intending to get up at 02:00 the next morning.

22nd July was our intended ascent day but at 02:30 there was very strong wind, snowfall and poor visibility and so we went back to bed. We checked the weather again at 05:00; finding it to be somewhat better—a few centimetres of new snow, cloudy, less wind but about -15°C . We decided that the ‘completely changeable’ weather pattern was continuing and decided to have a warm breakfast and make our attempt. Before leaving it was still extremely cold and windy, with low visibility. Both Ralph and I had very cold hands and were concerned about frost nip (but at the time neither of us said anything). As it was unclear from below whether the route was only snow and ice or it would include some rock climbing, we took full climbing gear. This includes ice screws, rock protection and two 60m 9mm ropes.

Figure 51: Ralph (left) and Keith at ABC at 5820m [Photo: Tsewang Gyalson].



Leaving ABC at about 05:30, we started climbing the rock ridge directly behind ABC, finding the extremely loose rock covered by new snow heavy going for the first hour’s climbing. However, the exertion warmed us up and cold hands were no longer a problem. The south face is angled in places up to 50° and we roped-up for the traverse across the open snow and ice gully. The traverse led to the left-hand ridge of the gully and, again, extremely loose rock. Here, we decided to climb un-roped as it would be faster. We initially climbed the rock rib but increasingly moved slightly right of the ridge and ascended the snow and ice slopes again up to an angle of 50° . Typically, there was a few centimetres of soft snow over ice and the climb was tiring as we were now at about 5900m. The weather was still cold and visibility poor but, fortunately, the wind had now dropped. After several hours mainly on the snow and ice slopes, we reached easier-angled snow and saw what we thought was the summit.

Figure 52: The south face of ‘Pyramid Peak’ seen from ABC [Photo: Tsewang Gyalsen].



Figure 53: Climbing the snow and ice of the south face gully [Photo: Keith Goffin].



We reached a summit at about 9:50 but saw that a second, more westerly, summit was clearly higher. So, we traversed, un-roped, over easy snow fields to the true summit, which we reached at 10:45. Tsewang reached the peak first and then a minute later Ralph and I joined him. We took many photographs (both panorama shots and individual photographs in all directions). Next, we fixed prayer flags to some of the rocks at the summit and Tsewang built a small cairn and chanted the traditional Tibetan prayer ‘Kiki So So Lhargyalo...’ (Victory to the mountain gods) (Figure 54). Ralph then carefully recorded a panorama summit video, to submit to the IMF as proof of our ascent. The visibility at the summit was good as the clouds were now more distant and we were able to photograph BC; far below but very clear. At the same time in BC, Abhinav Pandey was able to see figures on the summit, as he explained later. The peak was found to be 6235m high (a GPS check was made, see Figure 55) and the coordinates were: N 34° 31.873’’; E 078° 00.492’’.

Figure 54: Prayer flags on the summit of Phokto Scheyok: Tsewang, Ralph and Keith (from left to right) [Photo: Tsewang Gyalson].



We decided not to stay on the summit for long, as the weather still looked uncertain. At this point, we decided to descend by the south-east ridge, which we knew from the photographs of the British expedition (Poulter, 2015b) and we believed would be an easier, faster and safer descent. At 11:10, we started our descent. We made relatively quick progress on the initial slopes. We then roped-up, as the angle became steeper. On some sections there were cornices, and after about an hour we encountered unstable snow slabs. Still in cloudy conditions, we decided to turn down a wide gully on the south face, hoping to be able to abseil quickly down to the glacier.

Figure 55: GPS reading at the summit of 6235m [Photo: Ralph Eberle].



On the ridge to the right of the gully (looking down), there were large boulders which we used as abseil anchors. Three old slings and karabiners were left, as we made three 60m abseils (Figure 56).

Figure 56: Ralph abseiling on the difficult descent [Photo: Keith Goffin].



Unfortunately, at this point the weather changed again. The sun came out and it quickly became extremely hot and the risk of rock-fall was significant. Therefore, we then traversed onto the left-hand side of the gully (looking down) and onto loose rock. There then followed several hours of exhausting down-climbing on extremely loose blocks, which demanded our full concentration. We climbed down un-roped but stayed very close together, so that loose stones would not fall onto a person lower down. The bright sunshine made the descent extremely tiring and we were thankful to reach the glacier at about 15:30. The easy walk down the glacier to ABC took until 16:30. We ate noodles and drank copious amounts of liquid to restore our fluid balance.

Delighted with our successful ascent, we decided to close the expedition without attempting further peaks. Tsewang (full of energy as ever) descended later that evening to BC, to arrange for donkeys to be sent from Rongdo to collect the expedition's equipment. Tsewang dispatched cook's helper Ambir to run down the valley to a point where there was mobile coverage and he could call our horseman Tsering Dorjey in Rongdo Village. Ralph and Keith remained at ABC and enjoyed the views of the Sagtogpa Col and Rongdo I for one more evening (Figure 57).

Figure 57: View towards the Sagtogpa Col with Rongdo I to the right [Photo: Keith Goffin].



On the 23rd July we packed the sleeping bags, mats, ABC tent and climbing equipment and descended to BC in about two hours. We spent the day relaxing, sorting equipment, and taking photographs. Surrounding BC were many alpine wild flowers and I spent hours photographing them and enjoying the excellent views, including 'X3' (Figure 58). Although we had digital music and a loudspeaker with us, we did not feel any urge to listen to music, instead just enjoying the location. The rock buttresses of our alternative peak P6064m looked as impressive as ever but we did not have the motivation to investigate its loose south face for a viable route, especially as we again heard regular rock-falls that night. Ralph was still suffering from his stomach problems and, by this time, our cook Dhan Kumar Rai was commenting "How does this German guy climb without eating anything?"

The Walk-out

On 24th July we waited for our Rondgo horseman Tsering Dorjey to arrive with his seven donkeys. During the day we observed yet another massive rock-fall from P6064m, which left a visible 20m scar on the lower slaps. Tsering, smiling as ever, arrived about 17:00 with his donkeys, having made the long walk from Rongdo Village in a day.

Figure 58: ‘X3’ or ‘Pyramid Peak’ 6235m seen from BC [Photo: Keith Goffin].



Figure 59: LO Abhinav Pandey (right) helping check BC is completely clean.



On 25th July—my 62nd birthday—we got up at 06:30 to pack and clean BC. Extreme care was taken to leave basecamp in perfect condition (Figure 59). Where possible, we replaced stones in the exact place from which they had been removed, the toilet pit was carefully filled, and we took all waste with us. Photographs were made to document that BC was left clean. At 08:30 we began a long and exhausting descent, with seven challenging river crossings and typical Rongdo changeable weather. We reached our campsite next to the shepherds' huts at Doksa at about 17:30 in a rainstorm.

By the time we had erected our tents at Doksa we were soaked. However, everyone was in good spirits. This was further helped when, in response to a request from Keith looking to celebrate his birthday, Tsering produced a 3-litre plastic bottle of *chang* (local beer). This proved very popular and it was quickly emptied by four of us. Cook Dan Kumar Rai also baked a birthday cake and so, despite further heavy rain, the team's spirits remained robustly high. Even Ralph, still suffering from stomach problems, enjoyed the cake—and particularly the beer.

Figure 60: The team at Doksa on the morning of 26th July. From left: Dhan Kumar Rai (Cook); Tsewang Gyalson (Sirdar); Tsering Dorjey (Horseman); Ambir Man Kulung (Cook's helper); Abhinav Pandey (Liaison Officer); Ralph Eberle (Climber); a local shepherd; Keith Goffin (Leader) [Photo: Keith Goffin].



On 26th July, we took a team photograph (Figure 60). Then we made a short visit to the Gompa, which Tsewang could open as he knew where the key is kept. Then we had yet another demanding day, starting 08:00 and arriving at Rongdo at 14:00. The donkeys arrived two hours later and we built our last campsite next to the Rongdo River again. That evening Tsewang, Ralph and Keith were invited for butter-tea by horseman Tsering Dorjay and his family, in their traditional Ladakhi house. Tsering's father is in his nineties and we showed him a photograph of 'Pyramid Peak' ('X3'). As Tsering's father had often walked up the valley in his younger years, he knew the peak and said shepherds called it Phokto Scheyok,

emphasizing its shape (*phokto* for pyramid, or dome) and shade (*scheyok* is Ladakhi for black). Therefore, that evening, Tsewang, Ralph and I decided that in keeping with local tradition, we would propose the peak to be officially known as Phokto Scheyok.

On the 27th July, the now somewhat tired team made the drive back to Leh. That evening Ralph and Keith celebrated at the hotel with too many rounds of beer and had a bad hangover the next day. However, due to the much faster ascent of our peak, we could recover and enjoy more days of rest and relaxation in Leh than expected, before our flight back to Delhi.

De-briefing at the IMF

After we returned to Delhi, we were required to visit the IMF again to file our initial report of the expedition. This is a five-sided form that we completed by hand in advance and presented to the IMF Director. On this form we documented the climb and descent (detailing the three slings left on the mountain), proposed the name of Phokto Scheyok for the peak, and confirmed that we had left basecamp in pristine condition.

SUMMARY

In July 2018 a small British-German two-man expedition climbing with a Ladakhi friend made the first ascent of Phokto Scheyok. This is a 6235m high mountain located in the Rongdo Valley, in the East Karakoram, Nubra, Ladakh (coordinates N 34° 31.873''; E 078° 00.492''). The name Phokto Scheyok has been used by shepherds and goatherds for at least 100 years and is now official. First ascent on 22nd July, 2018 by Ralph Eberle, Tsewang Gyalson und Keith Goffin. The ascent took 5:12 hours and the difficult descent 5:10 hours. The trip took a total of four weeks (from Stuttgart), with 14 days in the mountains. The team took 72kg of their own equipment and 225kg from Rimo Expeditions and this was transported to basecamp using five horses and seven donkeys. A summit fee of €500 was paid and the total costs for two people were €8814. A video of the panorama from the peak was made to verify that an ascent was made. A short report of the ascent has been published in the *American Alpine Journal* (Goffin, 2019) and a comprehensive mountaineering guide to the Rongdo Valley has also been published (Goffin, 2020).

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We were assisted by a larger number of people than took part in the expedition itself. In our planning we were helped by Masato Oki of Japan, an expert on the Indian Himalaya and the Pangong Range. In addition Ed Poulter, who led the 2015 British attempt on 'X3', Phokto Scheyok, shared his expedition report and gave useful tips by email.

The *Indian Mountaineering Foundation* was very helpful in allowing us to apply for peaks in two areas in parallel in 2018: Pangong and Rongdo. The staff at the Consulate General of India, Munich were supportive in promising to issue our X Mountaineering visas on the day that the IMF letter confirmation letter arrived from Delhi. This was crucial, as the IMF letter did not arrive until the Friday before our Sunday flight. Phillip Abels of the *Deutsche Alpen Verein* (German Alpine Club) organized our expedition insurance in his usual friendly, fast and unbureaucratic way. The CEO of Jet Airways, Mr Vinay Dube and his General Manager Ground Services, Mr Manish Dhawade, were very helpful in arranging extra baggage at no charge.

In Delhi, we were twice welcomed by manager Sachin Jain and the helpful and friendly staff at the excellent Bajaj Indian Home Stay. In Leh, we stayed at the Padma Hotel; an ideal choice for our 'basecamp'. The owner Tsewang Yangjor and manager Rikki 'Bickey'

Chhetriplus and all of the staff were extremely helpful. They kindly provided us with prayer flags for the summit.

Our team in the mountains was superb—Tsewang Gyalson, LO Abhinav Pandey, our cook Kumar Rai, cook’s assistant Ambir Man Kulung, and horsemen Tsering Morup (from Leh) and Tsering Dorjey (from Rongdo). Everyone else at Rimo Expeditions was also very helpful, especially Yangdu and Motup Chewang in Leh and Alka Deb in Delhi. This was the second time we had been mountaineering in Ladakh with Rimo and we were again very impressed with their professionalism.

Post-expedition, there was much about the Rongdo Valley that needed to be researched and several people helped here. Tobias Pfefferkorn of the Lenningen Valley *Bergwacht* (German mountain rescue) drew the useful overview map (Figure 34). Eberhard Jurgalski is an expert on Himalayan topology and he was very helpful in checking the heights of peaks in Rongdo, based on various GPS data. Dan Jantzen of the Mountains of Central Asia Digital Dataset (MCADD) helped us locate old maps of Rongdo and shared his expertise on the history of surveying in India. Lindsay Griffin of the *American Alpine Journal* published a short article on our ascent and proposed the “Mountaineering in The Rongdo Valley, East Karakoram—Past Ascents and Future Potential” report. Tsewang Gyalson also helped by conducting a reconnaissance of the access to unclimbed peaks, for future trips.

Overall, it was not just the stunning mountains and climbing but the warmth and enthusiasm of the Ladakhi people, particularly in Rongdo, that made our visit such a pleasure. We look forward to returning.

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¹² This guide was based largely on Broadhurst et al. (2008) and is not dated. It is presumed to be from about 2008.

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APPENDIX A: CHRONOLOGY OF PLANNING AND APPLICATION PROCESS

2014: Ascent of *Spangnak Ri* 6355m in Rupshu, (Goffin, 2016) and continuing interest in mountaineering in Ladakh.

Early 2017: Advice from Rimo Expeditions that it would probably be easier to get permission to climb in the Rongdo Valley than in the Pangong Range. Still more focused on Pangong, but collected and quickly reviewed most of the reports of expeditions to the Rongdo Valley (including Seagram, 2013a; Seagram, 2015a; Sashindran, 2014c; and Poulter, 2016).

24th December 2017: Email to Rimo Expeditions explaining that we would be organizing an expedition in 2018.

2nd January 2018: Email from Rimo advising: *“It is good to know that you plan to return to Ladakh. Pangong is still quite a sensitive area and it is unlikely that permission will be granted though we can still apply and give the 2nd peak in another part of Ladakh – Rongdo Valley is still remote and has peaks and easily accessible.”*

2nd January 2018: Email from Rimo including application forms and advising *“The IMF want all information to be “typed” and not hand written. Rongdo valley will be good. The X visa requirement still applies but they have been giving permission without any issues.”*

25th February 2017: Letter to Col. H.S. Chaudan, IMF Director, asking for advice on the possibility of applications for mountaineering in Pangong being approved. Informed that it would be ‘difficult’ and advised to consider alternatives and apply for two areas in early 2018.

23rd February 2018: Formal application paperwork completed. Detailed a climb in the Pangong Range (unnamed Peak A [6400m] and Peak B) with peaks in the Rongdo Valley as our second choice. Included details of four climbers, two joint leaders, and routes proposed in two areas—a total of 27 pages of forms, etc. Paperwork was submitted to Rimo Expeditions, to be forwarded to the IMF.

6th March 2018: Having reviewed the forms, Rimo informed us that joint leaders were not allowed.

7th March 2018: Updated forms sent to Rimo for submission to IMF.

14th March 2018: Full application forms submitted covering: one expedition leader (Keith G.) and three other members; two application forms covering, one for Pangong and one for Rongdo; a covering letter explaining that Pangong was our first choice and Rongdo our second choice.

22nd March 2018: Alka Deb from Rimo submitted an email to Vinod Chauhan of the IMF. This gave clarifications on the application—with the two areas included on one application form (and not two).

22nd March 2018: Vinod Chauhan of the IMF requested that the application should be changed to include the two areas on one form. This change was made and submitted immediately.

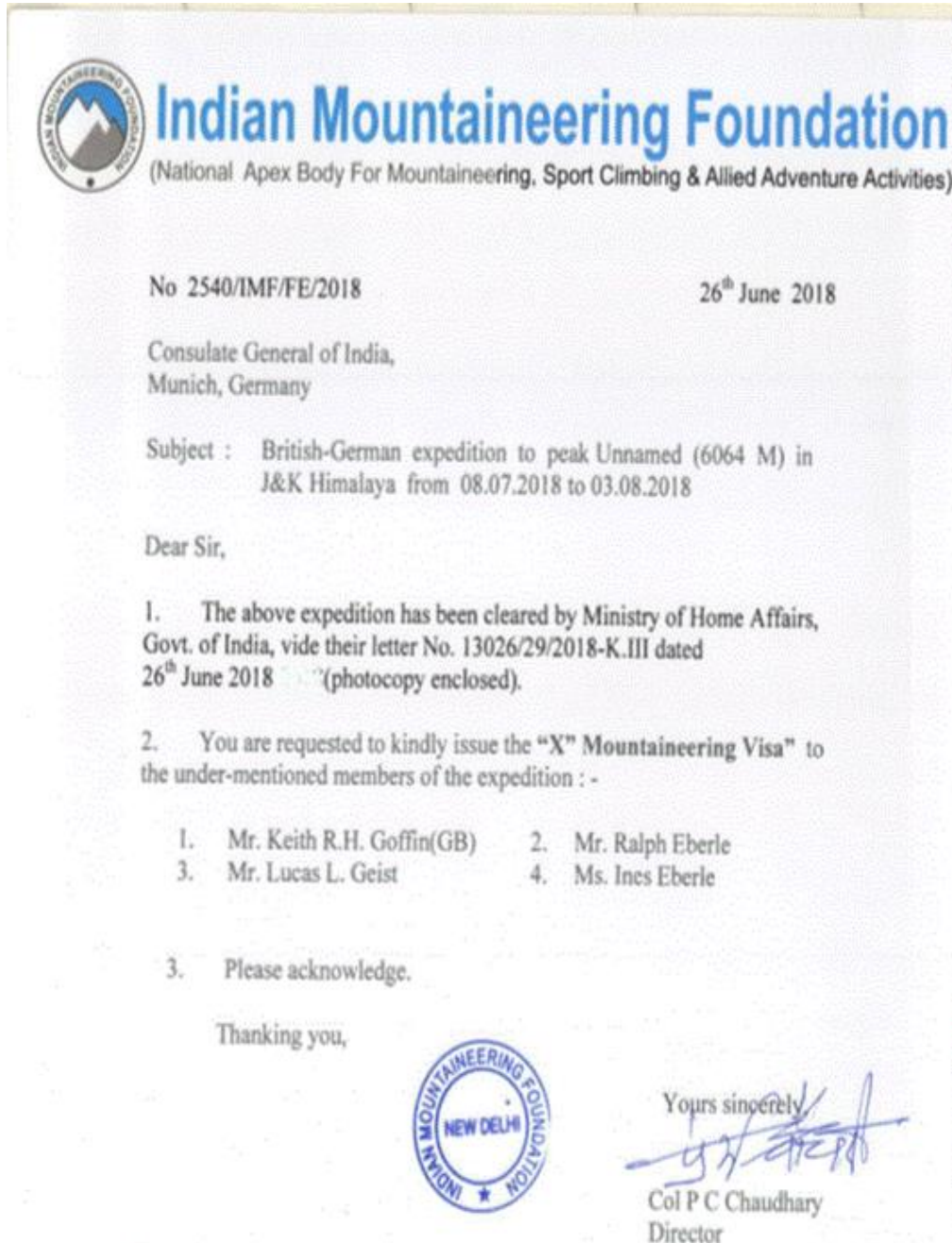
- 3rd April 2018:** Flights to Delhi and Ladakh reserved with KLM/Jet Airways.
- 5th April 2018:** Flights to Delhi and Ladakh booked with KLM/Jet Airways, leaving Stuttgart at 06:00 on 8th July 2018.
- 20th April 2018:** Expedition insurance booked through Phillip Abels at the DAV (German Alpine Club).
- 24th April 2018:** Confirmation of expedition insurance received from the DAV.
- 26th April 2018:** Reports in the Indian press of Chinese incursions in the Pangong area.
- 26th April 2018:** Email to Rimo asking when they expected to hear from the IMF.
- 7th May 2018:** Contacted IVS Services, the company responsible for arranging visas that will be issued by the Consulate General of India in Munich. Explained the challenges with obtaining *Mountaineering X-Visas* and asked for support with fast processing.
- 7th May 2018:** IVS Services replied that processing would take 5/6 days.
- 10th May 2018:** Hotel Bajaj Indian Homestay booked for 8-10th August.
- 10th May 2018:** Email to Rimo asking for news on the application.
- 11th May 2018:** Email from Rimo stating: *“Was on the phone with the IMF. The Military of Intelligence have cleared the expedition for Rongdo and now the documents are with the Ministry of Defence to give the clearance letter to forward to Ministry of Home Affairs.”*
- 22nd May 2018:** Email from Rimo: *“We had an Estonian team book for Rongdo and we submitted their application before your application. Their clearance has just come today so we are hopeful that your permission will be approved soon, most probably for Rongdo. We still have to wait a bit.”*
- 29th May 2018:** Letter to CEO of Jet Airways, Mr Vinay Dube, asking for extra luggage allowance for a mountaineering expedition.
- 4th June 2018:** Email from Rimo explaining about the Estonian expedition: *“We have an Estonian group going to Rongdo in early July and we just received their clearance so we are hopeful that if not Pangong, they will give Rongdo [approval to you] as they have already given permission for one group. Its [approval] for an unnamed peak 6751m. Much further inside of Rongdo valley.”* Rimo now believed that the application for Pangong had been rejected because of the security situation.
- 5th June 2018:** Email from Rimo: *“We are calling the IMF every 2 days. Hopefully we will have good news soon.”*
- 6th June 2018:** Letter to Assistant Consular Officer, Mr Sourabh, at the Consulate General of India in Munich asking for speedy processing of our *Mountaineering X-visas*.
- 9th June 2018:** Telephone call to Mr Sourabh, who said he would ensure that our application for *Mountaineering X-visas* would be processed within a day.

- 18th June 2018:** Email from the General Manager Ground Services, Mr Manish Dhawade. This confirmed that the airline would “*as a one-time exceptional*” offer allow an extra 23kg luggage, as it was for a mountaineering expedition. He also said: “*we have informed our teams at the Airport to allow the additional piece.*” Sent a reply with thanks and offering to write an article for Jet Airways magazine.
- 18th June 2018:** Email from Rimo: “*Was on the phone with the IMF. The Military of Intelligence have cleared the expedition for Rongdo and now the documents are with the Ministry of Defence to give the clearance letter to forward to Ministry of Home Affairs.*”
- 20th June 2018:** Application to the Consulate General of India for Mountaineering X-visas.
- 21st June 2018:** Email from Rimo: “*The IMF have still not heard back from the MOD and they are asking me to check tomorrow morning.*”
- 22nd June 2018:** Email update from Rimo: “*I have checked again with the IMF and they still have no news from the MOD. They have asked me to check again in the evening.*”
- 22nd June 2018:** First date planned to go in person to IVS Services / Consulate General of India to collect visas. Took our passports and application to the IVS Services offices.
- 25th June 2018:** Email to Rimo asking them to check the status of the approval with the IMF, as it was the last week that visas could be obtained.
- 25th June 2018:** Email from Yangdu Gobu at Rimo: “*Just spoke to the IMF a little while ago. The Defence have given the clearance and now it is with the MHA and IMF will call them up in the evening. Will be calling to remind them too.*”
- 26th June 2018:** Email from Rimo saying: “*We hope to receive the [IMF] letter by tomorrow evening.*”
- 26th June 2018:** Letter issued from Col. P.C. Chaudhary, Director of IMF, to the Consulate General of India in Munich, confirming that the expedition had been approved (see Figure A-1). The letter included a two-page “Security Clearance” note from MHA Jammu and Kashmir.
- 27th June 2018:** Rimo Expeditions emailed: “*We have just received a call from the IMF informing that a clearance letter had been granted for Rongdo Valley.*”
- 27th June 2018:** Rimo immediately confirmed this to us by email. An hour later, Rimo received and forwarded the clearance letter to us.
- 27th June 2018:** When we reviewed the approval letter, we found that the attached notes on the security situation wrongly referred to an ‘Estonian expedition’. As time was short and this letter had been sent to the Consulate General of India in Munich, we were concerned that this mistake would cause problems. Immediately contacted Rimo to have a correction issued.
- 28th June 2018:** Rimo asked the IMF to correct the security clearance notes, which wrongly referred to an ‘Estonian expedition’.

29th June 2018: Received email from Rimo Expeditions that the IMF informed us that: the briefing would be on 9th July at 3pm; a Mr Abhinav Pandey had been assigned as Liaison Officer (LO); and that the Peak Fee was \$500 and the LO Fee was \$500 (to be paid in cash).

3rd July 2018: Rimo conformed that Tsewang Gyalsen could join the expedition as *Sirdar*.

Figure A-1: Letter Approving the Expedition.



Wednesday 4th July 2018: Tried to telephone Mr Sourabh, at the Consulate General of India in Munich to tell him that we had received an approval letter and would visit the Consulate / IVS on Friday. Shocked to hear that he had moved departments and his colleagues had not heard about our application. Fortunately, the department agreed to help.

Friday 6th July 2018: Second (and last possible) date planned to go in person to Consulate General of India in Munich to collect visas. Finally, with all the necessary paperwork we were given Mountaineering X-visas.

Sunday 8th July 2018: Flights from Stuttgart, via Amsterdam, to Delhi.

Monday 9th July 2018: 15:00 Meeting with IMF in Delhi. Briefed by the Director of the IMF on the responsibilities of an expedition. Completed and signed the 3-page “UNDERTAKING GIVEN BY THE LEADER OF EXPEDITION” form.

11th July 2018: Office of the District Magistrate Leh issued permits for us to visit the ‘protected area’ of Nubra.

1st August 2018: Email from Alka Deb of Rimo; “*My heartiest congratulations on the summit. Debriefing is at 3pm at the IMF.*”

APPENDIX B: EXPEDITION COSTS

The expedition costs are detailed below for two people (Table B-1). Note that currency conversions to Euro were made with the July 2018 exchange rates (i.e. 1Rs. = €0.0123; and 1\$ =€0.73555). As the two of us are active mountaineers, we already owned almost all the equipment needed for the expedition (e.g. ice axes; ropes; crampons; etc.). Some new equipment was purchased for 2018 (Table B-2) but this was not included in the expedition costs.

All expenses were paid personally, as it was a private expedition that, in the end, had no sponsorship. We acknowledge the offer of support by Mountain Equipment (part of OSC Limited), which offered us equipment at discounted rates. Unfortunately, with the issues with our application, we did not have the time to visit Mountain Equipment’s Munich warehouse and select new equipment. However, despite their age, our existing mountain jackets again worked well.

The main costs of the expedition were flights from Europe to Delhi and on to Leh; peak fees; hotel costs in India; and Rimo’s charges for organizing 14 days in the mountains. Rimo’s fee covered 4x4 travel from Leh to Rongdo; tents for BC and ABC; ABC rations; staff; horses; and food. Table B-1 shows that the total cost was €8,814, or €4,407 per person.

Table B-1: Expedition costs (for two climbers)

No.	Item	Rs. / US\$	Euro
1.	Mountaineering ‘X’ visas (for two people)		€220
2.	Two trips to Munich to arrange visas (petrol)		€64
3.	Inoculations (hepatitis and typhoid)		--
4.	Medical supplies (inc. Diamox tablets—which were not used)		€100
5.	Taxi to airport		€55
6.	Flights for two people (<i>Jet Airways: Stuttgart to Amsterdam; Amsterdam to Delhi; Delhi to Leh; and return</i>)		€1,881
7.	Flight cancellation insurance		€104
8.	Hotel Delhi—two nights / taxi to airport	Rs. 9,113	€115
9.	Food and drinks in Delhi—1 day	Rs. 1,200	€15
10.	Hotel in Leh (5 nights before and 6 after time in Rongdo; most meals in hotel)		€525
11.	Food and drinks in Leh outside hotel—6 days	Rs. 3,600	€44
12.	Rimo Expeditions—fees for 14-day expedition (2 people), including \$500 for Tsewang Gyalson joining as a climber.	\$4,790	€4,140
13.	IMF fees for LO and summit fee	\$1000	€864
14.	Deutsche Alpen Verein (DAV) expedition insurance (two people)		€203
15.	Tips and gifts for Rimo team		€320
16.	Hotel Delhi—final nights / taxi to airport	Rs. 9,113	€115
17.	Food and drinks in Delhi (last two days)	Rs. 3,900	€49
		Total	€8,814
			€4,407 per person

The new equipment purchased in 2018 (B-2) cost a total of €2633. Most of this was camera equipment: a new Nikon D750 camera body, a second-hand Nikon 24mm lens, extension tubes; and a camera rucksack. The other items were glacier glasses, trekking boots; and a second pulse oximeter for assessing acclimatization.

Table B-2: New equipment costs

#	Item	Number	Euro
1.	Nikon D750 camera body	1	€1500
2.	Nikon 24mm second-hand lens	1	€200
3.	Kenko extension tubes (12mm, 20mm, & 36mm)	1	€300
4.	Lowe camera rucksack (Lowe Flipside Trek BP 350AW)	1	€105
5.	Glacier glasses	1	€300
6.	Pulox Pulse Oximeter	1	€29
6.	Trekking boots (Belorado II Mid Bunion GTX)	1	€199
		Total	€2633

APPENDIX C: EQUIPMENT

Luggage allowance on flights is a challenge. Therefore, in the planning stage all our equipment was carefully checked and weighed. We flew with KLM/Jet Airways and these airlines limit economy luggage to 23kg per person on the main connections but only 20kg on the Delhi to Leh flight. Therefore, we wrote to their CEO Mr CEO Vinay Dube, asking if the airline would allow us one extra 20kg piece of luggage for our mountaineering equipment. Fortunately, Mr Dube asked his head of operations, Mr Manish Dhawade to arrange this for us at no extra charge. However, KLM refused to allow extra luggage on the Stuttgart to Amsterdam leg. However, when ground staff at Stuttgart saw the large “Rongdo Himalaya Expedition 2018” labels on our bags, the word “Expedition” worked wonders. “Are you part of an expedition?” they asked, and we were checked through with no further questions.

Table C-1 gives an overview of the equipment and indicates that this weighed approximately 72kg in total. We checked in three holdalls at 20kg each and then carried about 15kg hand luggage—mainly the navigation, laptop, and photographic equipment. The total value for the equipment exceeded €14,000 and this had to be declared to the IMF. No problems were encountered with customs, as all of the equipment was re-exported. Figure C-1.

Figure C-1: Luggage consisting of three holdalls (checked-in luggage), a photo rucksack and a climbing rucksack. A laptop shoulder bag is not shown. Note the large labels on each piece.



Certain equipment was rented from Rimo Expeditions and this avoided having to bring them to India. The items were a mountain tent, camping mats for BC and ABC, one mountain gas stove canisters, and dehydrated meals (for six days). Obviously, staff, dining and toilet tents, cooking equipment, food, and an emergency oxygen cylinder were also provided by Rimo.

The electrical and electronic equipment included a GPS navigation device with altimeter, cameras, and head torches all with re-chargeable batteries. With an expected 10–14 days in the mountains a solar panel was necessary. The Me2Solar device (Figure C-4) was found to be fast enough to re-charge camera batteries in a couple of hours and a set of different

cables and adapters was required for the different batteries that had to be charged (Figure C-6). The Pulox Pulse oximeter was used to assess acclimatization (Figure c-6). This had two AAA size batteries and weighed 50g. Its battery working life was rated at 32 hours and its physical dimensions were: 57(L) × 31(W) × 32(H) mm. Note that the use of satellite phones is banned in the border areas of India and so we did not take this equipment. This made us very conscious that we would be out of contact with the outside world for the duration of our stay in Nubra, where the mobile phones need a special SIM card.

Table C-1: Overview of main expedition equipment (for two climbers)

#	Item	Number	Total Weight (g)	Total Value
1.	Expedition holdall bags	3	4800g	€300
2.	Climbing rope: 9mm x 60m	2	6120g	€200
3.	Climbing harnesses	2	1120g	€120
4.	Mountaineering boots—pair	2	4000g	€500
5.	Trekking boots—pair ¹³	2	N/A	€400
6.	Rock boots—pair	2	1440g	€150
7.	Ice axes (Charlet-Moser)	4	2800g	€600
8.	Telescopic walking poles (Leki) —pair	2	1000g	€140
9.	Ice screws (titanium), protection, deadman, etc.	10	4000g	€500
10.	Crampons (Grivel)—pair	2	2160g	€200
11.	Helmets	2	800g	€150
12.	Rock protection (friends, hexagonals, etc. various sizes)	10	3000g	€200
13.	Slings	10	500g	€100
14.	Quick-draws with karabiners	20	2000g	€200
15.	Screw-gate karabiners	4	320g	€60
16.	Head torches (Petzl)	2	160g	€120
17.	Sleeping bags (Rab and Mountain Equipment)	2	3400g	€800
18.	Down jackets (Mountain Equipment)	2	1600g	€860
19.	Goretex jackets (Mountain Equipment)	2	1800g	€700
20.	Goretex over-trousers	2	1160g	€600
21.	Goretex gaiters (Mountain Equipment)—pair	2	800g	€100
22.	Softshell jackets (Mountain Equipment and Marmot)	2	1600g	€300
23.	Thick gloves (Mountain Equipment)—pair	2	580g	€200
24.	Light alpine gloves (Mountain Equipment)—pair	2	300g	€240
25.	Spare gloves	2	240g	€40
26.	Base layer (mainly Icebreaker)	8	3200g	€240
27.	Climbing trousers (Mountain Equipment)	1	1000g	€100
28.	Climbing salopettes (Rohan)	1	1000g	€60
29.	Rucksack (Deuter Guide)	1	1500g	€150
30.	Rucksack (Mountain Equipment)	1	1600g	€250
31.	Personal clothing (T-shirts, socks, underwear, etc.)	2	4000g	€100
32.	First aid kits	2	1120g	€48
33.	Pulse oximeter BaSen BMS50D (Figure C-6)	1	50g	€40
34.	Various medicines (inc. Diamox)		500g	€40
35.	Water filter (Katadyn 2010000)	1	680g	€330
36.	Water bottles (Sigg)	2	400g	€15
37.	Altimeter watch (Weather Master and Suunto)	2	100g	€100
38.	Garmin 60CSx GPS (Figure C-11)	1	213g	€250
39.	Photographic equipment (details below)		6000g	€2000
40.	Tripod (Manfrotto MKBFRA4RD-BH)	1	1400g	€190
41.	Photographic rucksack (Lowe Flipside Trek BP 350AW) (Figures C-2 and C-3)	1	1400g	€105

¹³ Worn on the flight

42.	Solar charger (Me2Solar Aurora Pro 21102) and cables (Figures C-7 and C-9)	1	800g	€400
43.	HP Elitebook laptop	1	1600g	€2000
44.	Mobile phones	2	240g	€600
		Totals	72,263g	14,798€

Details of Camera Equipment

The team of three climbers used four cameras on the expedition. Three were from Nikon, as this meant that these all had similar operation and batteries. For use on the approach march and at basecamp, a Nikon D750 single lens reflex (SLR) camera with three lenses and a Manfrotto MKBFRA4RD-BH tripod (1400g) was used. Three other cameras were carried and used on the mountain, a Nikon D7100 and a Nikon AW100, which Ralph used exclusively for making videos. Tsewang used the D7100 sometimes but mainly his Huawei BND-AL10 mobile phone camera. The following sections give details of the Nikon cameras and lenses.

Nikon D750 SLR

The full format Nikon SLR was used with three original Nikon lenses: a 50mm 1:1.4G, a 70-300mm 1:4.5–5.4G lens, and a 20mm 1:1.8GED lens, as shown in Figure C-1. All of the lenses performed well. The D750 SLR was found to be excellent for use in Leh, the walk-in and basecamp but it was impractical for climbing. Full format gave much better picture quality than the APS-C format used in 2014. The specifications of the Nikon D750 are:

- Maximum resolution: 6016 x 4016 pixels (24 megapixels);
- Image sensor 35.9 x 24 mm (full format FX) CMOS;
- RAW and JPEG formats;
- ISO sensitivity: 100–12800, extended mode 50 to 51,200;
- Focusing: Instant single-servo (AF-S); continuous-servo (AF-C); auto AF-S/AF-C selection (AF-A); manual (M). All with 51 focus points;
- Shutter speed: 1/4000 s to 30 s and bulb;
- Battery: rechargeable EN-EL15 Lithium-ion Battery with 1200 shots per charge);
- Dimensions (W x H x D) approx. 141 x 113 x 78 mm;
- Weight approx. 850g with battery;
- Operating environment temperature 0 to 40°C.

Figure C-1: Nikon D750 with 50mm lens mounted and 70-300mm (centre) and 20mm (right) lenses.



Figure C-2: Lowe photographic rucksack with 70-300mm lens (left), extension tubes (top centre), 20mm lens (top right), plus filters (bottom centre).



Figure C-3: Lowe photographic rucksack (Lowe Flipside Trek BP 350AW) with Manfrotto tripod attached.



Figure C-4: Nikon P7100 compact camera with batteries and camera bag behind.



Nikon Coolpix P7100

As the SLR was impractical for climbing, a Nikon Coolpix P7100 was used (Figure C-4). The advantages of this were its size and weight; its operation was very similar to the SLR; and it used a similar battery; it had an easy-to-use exposure compensation wheel; and it could take RAW format shots. The main specifications of the Nikon P7100 are:

- Effective pixels 10.39 million;
- Image sensor 1/1.7-in. type CCD;
- Lens 7.1x zoom NIKKOR (35 mm format picture angle: 28-200 mm);
- ISO sensitivity ISO 100-6400;
- RAW and JPEG formats;
- Battery One Rechargeable Li-ion Battery EN-EL14;
- Approx. 116.3 x 76.9 x 48.0 mm (4.6 X 3.1 X 1.9 in.);
- Weight approx. 395g.
- Operating environment temperature 0 to 40°C;
- Humidity: not specified.

Nikon AW100

Ralph had purchased and used Nikon AW100 (Figure C-5) on our 2014 expedition. This waterproof and extremely robust camera (it is specified to withstand drops of up to 1.5m) was used for videos, such as a summit panorama video. It has an extremely high resolution, unlimited depth of focus, and was easy to use. The main specifications of the Nikon AW100 are:

- Effective pixels 16.79 million;
- Image sensor 1/2.3-in. type CMOS;
- Lens 5x zoom NIKKOR (35 mm format picture angle: 28-140 mm);
- ISO sensitivity ISO 125-3200;
- JPEG format;
- Battery one rechargeable Li-ion EN-EL12;
- Dimensions (W x H x D) approx. 110.1 x 64.9 x 22.8 mm;
- Weight approx. 178g;
- Waterproof to 10 metres;
- Shock-proof to 1.5 metres;
- Operating environment temperature to as low as -10°C.

Figure C-5: Nikon AW100.



Figure C-6: Pulse oximeter



Figure C-7: Solar panel mounted on tent



Figure C-8: Stuff bags



Figure C-9: Cables and battery charger



Figure C-10: Suunto Altimeter Watch



Figure C-11: Garmin 60CSx GPS/altimeter



APPENDIX D: AMERICAN ALPINE JOURNAL ARTICLE

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RONGDO VALLEY, PHOKTO SCHEYOK (BLACK PYRAMID), SOUTH FACE

IN FAR NORTHERN India, a number of steep-sided granite valleys are enclosed by the “Great Bend” of the Shyok River. Their mountaineering potential was first recognized by Chewang Motup of Rimo Expeditions, and his company has supported all approved expeditions to the Rongdo Valley. Various teams have climbed or attempted mountains in the valley nearly every year since 2012, sometimes mistakenly thinking they were making first ascents (*see note below*).

Our team in 2018 consisted of three climbers: Ralph Eberle (Germany), Tsewang Gyalsong (Ladakhi and our sirdar), and me, a British national living in Germany. We were accompanied by liaison officer Abhinav Pandey and four assistants. We took three days to trek with horse packers from Rongdo village to our base camp at 5,375m, covering 25km and ascending 1,895m. Tsewang had visited Rongdo before and suggested positioning our base camp higher than previous expeditions, which turned out to be good advice. Regular rockfalls on one of our objectives, Peak 6,064m, made us focus on the pyramid-shaped peak north of the head of the Rongdo Valley. An India expedition (*AAJ 2014*) and a British one (*AAJ 2016*) had previously attempted this peak but turned back due to poor weather and snow conditions.



On July 21 we ascended the side arm of the Sagtogpa Glacier and sited our advanced base at 5,820m below the south face of the pyramidal peak. We left camp around 5:30 a.m. in improving weather and climbed a very loose rocky rib that was covered with a few centimeters of new snow. This proved heavy going, so we roped up and traversed left into an open snow and ice gully. We reached the left rocky ridge of the gully and climbed along it unroped, then continued for several hours up the snow and ice slopes above. At around 9:50 a.m. we arrived on the southwest top. The eastern summit was clearly higher, so we traversed snowfields and reached the highest point at 10:45 a.m. A GPS established the height as 6,235m.

We initially started down the southeast ridge, but unstable snow slabs made us turn down

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Untouched granite in the lower Rongdo Valley. In the background lies the unclimbed peak of Yonchop Kangri (around 6,080m, summit hidden). *Keith Goffin*

of 500m-plus rock walls with no existing routes. However, the quality of the granite decreases in the upper valley, and some rock walls are sacred to Buddhists and so should be avoided.  

— KEITH GOFFIN, GERMANY

HISTORICAL CLARIFICATION FOR TWO RONGDO PEAKS: *In AAJ 2016 we reported the apparent first ascent of Sagtogpa Kangri (6,305m, 34°32'12.66"N, 78°1'44.46"E) by an Indian expedition in August 2015, via a route from the Sagtogpa Glacier to the south, eventually finishing up the southeast ridge. In fact, this was the second ascent, albeit by a new route. In August 2014, Graham Rowbotham and Joie Seagram, part of a Canadian expedition (AAJ 2015), climbed this same peak via the north ridge (AD, 45° ice), approaching from the west. They named the mountain Tara, and their GPS recorded 6,248m on the summit.*