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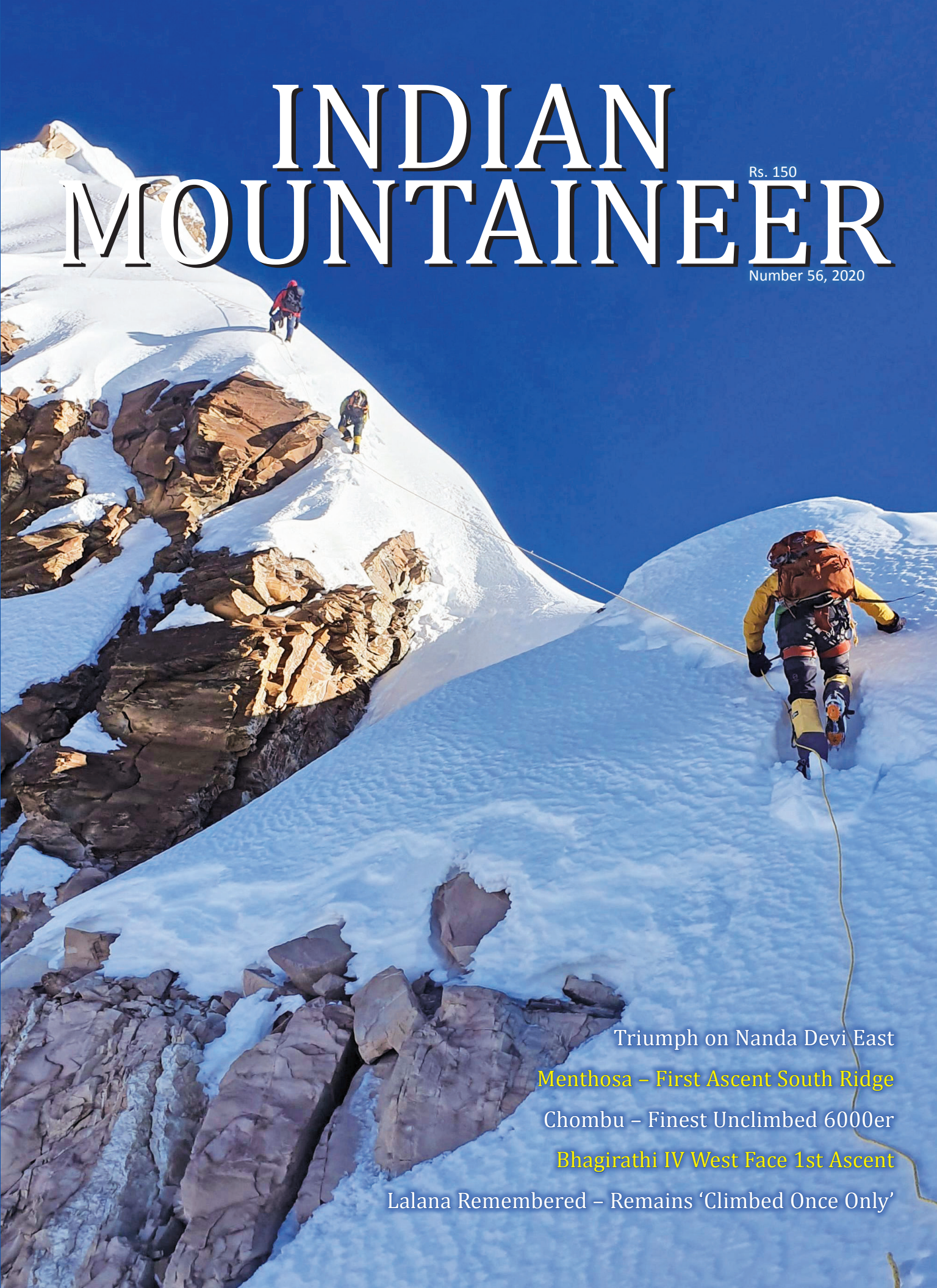

Triumph on Nanda Devi East

Menthosa – First Ascent South Ridge

Chombu – Finest Unclimbed 6000er

Bhagirathi IV West Face 1st Ascent

Lalana Remembered – Remains 'Climbed Once Only'

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INDIAN MOUNTAINEER

PRESIDENT'S NOTE

Dear Reader,

The year 2020 has truly been an unprecedented one, with many world-changing developments. The Covid-19 pandemic is still raging as it continues its devastating global journey, impacting almost every aspect of our normal life. India in this regard has been amongst one of the worst hit countries. The mountaineering fraternity too has been impacted adversely. Almost all nations closed their borders overnight, denying access and activity to any mountain within their frontiers.

At the IMF, we have had to cancel almost all our mountaineering expeditions in the pre and post monsoon periods. Some of our other key events and training activities either had to be cancelled or postponed indefinitely.

As things stand today, it is heartening to see an improvement in the overall situation with resumption of partial outdoor adventure activities. While mountaineers and trekkers are raring to get to the mountains and few expeditions and treks have also recently been successfully completed in the Himalaya, which is indeed a welcome sign, there is little room for complacency. For those venturing into the mountains for climbing and trekking, IMF Mountaineering and Mountain Outdoor Activities Advisory 2020 and the separate Central and State Government advisories, must be faithfully followed, to remain safe and healthy.

At this difficult point in time, our heart reaches out to the affected mountain communities, who predominantly rely on adventure tourism for their sustenance and survival. These hardy hill folk, living in remote areas, have lost substantial income and are most affected by lack of tourism. IMF is deeply committed to their well-being through this tumultuous period.

This year we have also lost some of our distinguished members, namely Nalini Jayal, Magan Bissa, SC Negi, and Mohammed Ashraf, whose loss we will always lament.

Volume 56 of the Indian Mountaineer has been brought out in the unmatched times of Covid-19 and therefore is a special volume by itself. In the absence of pre-monsoon expeditions this year, the recent volume, apart from covering climbing and exploratory expeditions undertaken in post-monsoon season of 2019, draws our attention to Himalayan habitat, specifically its communities and their genetic ancestry, avifauna in remote areas of Ladakh, and the glacial past of Siachen.

Happy Reading !

Brigadier Ashok Abbey (Retd.)

Altitude: 6443m
Area: Lahaul, Himachal Pradesh
First Ascent: 1970 via East Ridge – by British Military Team

MENTHOSA, SOUTH RIDGE AND TRAVERSE

Climb Year: 2019

By Spencer Gray and Rushad Nanavatty

Approaching the South Ridge on day 2.

In August 2019, Rushad Nanavatty and Spencer Gray climbed the south ridge of Menthosa (6,443m) in the Lahaul region (ED2 WI4 M6) over six days. As far as we know, this was the first ascent of the south ridge and first traverse (about 8km) of the mountain. Our third teammate, Alex Marine, unfortunately experienced symptoms of serious altitude sickness and was forced to descend from base camp before the climb.

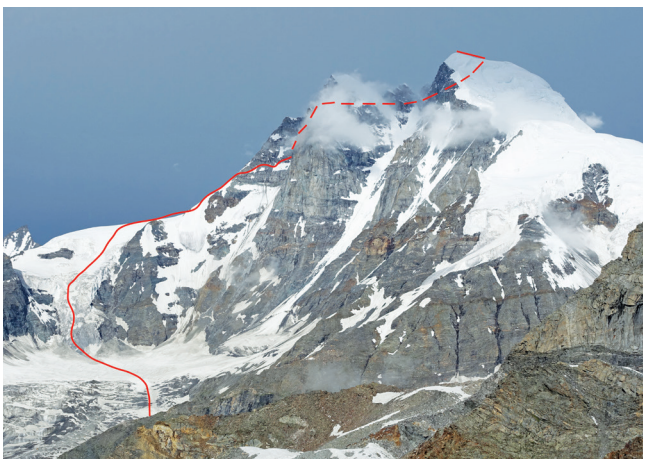
Menthosa from Base camp;
Facing page: Menthosa - Route Map.

We had come to India to climb an objective in Ladakh, within the state of Jammu and Kashmir. The Indian government scrapped the state's special constitutional status, imposed a lockdown, and revoked our climbing permit the day we landed in Delhi. We were directed to find a new objective in another state. On the strength of a photograph of Menthosa's impressive south pillar, its location near the outer limit of the monsoon, and a bedrock map that suggested the presence of granite along a large fault, we picked Menthosa as our new objective.

Menthosa is downstream of the well-known granite walls of the Miyar Valley that have received sustained attention from climbers for over 25 years. It was first climbed in 1970 via the east ridge by a British military team and is regularly guided via a variation of the first ascent route.

Our base camp (4,470m) was in an alluvial side-valley bisected by a stream flowing out of Urgos Tal, a glacial lake two kilometres upstream of us. We pitched our tents amid a carpet of fleece flower, rock jasmine, blue forget-me-nots, and occasional spiny blue and violet poppies. On the approach to camp, we encountered a large herd of sheep and goats tended by several herders and two rambunctious black sheepdog puppies. We also surprised a large flock of Himalayan snowcocks on one acclimatisation outing.

After settling into a rhythm of acclimatisation scrambles and familiarising ourselves with our approach to Menthosa, we were hit by a week-long monsoon storm. The heavy wet snow draped the upper mountain, kept us confined to our



tents, and snapped the poles of our cook tent. The Indian meteorology agency reported that, at lower elevations, this storm caused the highest recorded rainfall (36 cm in one location) for a 24-hour period in the state of Himachal Pradesh. Dorje, our cook, who comes from a long line of local farmers, spoke of how a changing climate had been making Lahaul's summer weather increasingly wet and unpredictable.

Approaching the east face on day 2; Facing page: Traversing the east face on day 2, before gaining the South Ridge.

On Menthosa, warm, intermittently sunny conditions quickly caused the new snow to slide or settle, but snow stability and rockfall associated with snowmelt remained our biggest concerns during the climb. Several guided parties in the area who had planned to attempt the standard east ridge abandoned their expeditions following the heavy snows. Our final acclimatisation and reconnaissance trip to the base of our tentative route convinced us that most of the dangerously snow-loaded slopes had already slid. Meltwater channels indicated how quickly the snowpack was sintering after the storms.

Unfortunately, that last outing also revealed that Alex was in physical trouble—despite how quickly and strongly he had been moving in the hills prior to the storm. We knew his best option was to move to lower elevation. Our hope was that a

couple of days back at the roadhead, 1,400m below our base camp, would allow him to recover and rejoin us for our attempt. It quickly became clear that this was not going to happen. Alex messaged us with the suggestion that we go for it without him—a hugely generous gesture, given everything he had put into the expedition and that we were always supposed to be a three-man team.

On our summit attempt, we left base camp in the dark, reaching the base of the south ridge at dawn. This was followed by a hot morning of wallowing uphill through deep

Monsoon clouds starting to roll in on day 3;
Facing page: Bivouac on the South Ridge on day 2.

snow and picking our way through a jumbled icefall, stopping only to belay over the most heavily crevassed sections. We set up our tent on a roomy saddle on the south ridge (5,600m), with enough space to dry our gear and lounge in the late afternoon sun. Things would soon get harder.

Day 2 started with moderate mixed ground, where we alternated between running belays and pitching it out as we moved diagonally up the east face, aiming for an obvious notch on the south ridge. The climbing became progressively sketchier and more difficult. We had anticipated traversing into an easy couloir which would take us to the ridge-crest but loose rock plastered over with a thin layer of wet snow forced us onto steeper, drier terrain. The technical crux was a wandering pitch of M6—sparsely protected, delicate, balance-y layback moves, tools torqueing in granite seams, engaging just a few millimetres of metal on the front-points of our crampons and picks of our tool. The next pitch, climbed in the gloaming, was a "Jenga" tower of gently overhanging loose blocks. Well after dark, at the end of a 15-hour day, we pulled into the notch (6,100m), an impressive

gendarme spearing the night sky to our south and the shadowy bulk of the south pillar to our north. Unfortunately, we did not find the broad, pillowy ridge we were hoping for. Instead, it was a knife-edge of shattered rock, ice, and unconsolidated snow. We dug out a platform and collapsed

South Ridge on day 4; Facing page: Bivouac on summit slopes, c. 6,350m.

into the tent, wondering what would lie ahead.

Day 3 saw us traversing steadily along the western aspect of the south ridge. We had supposed this would offer more moderate climbing than we encountered. It was a sustained sheet of ice and neve, interspersed by patches and bands of variable-quality granite, with virtually no places to bivouac. Our maps had belied the topography. In addition, the southwest cirque of Menthosa would have been a nightmare to descend, with frequent wet avalanches released from corniced slopes above and complicated open crevasses to navigate down low. We were committed. Our best way off the mountain was over the top.

While the climbing was never more than moderate, the mental cruxes involved long stretches of poorly bonded neve, weakened in the late afternoon sun, between sometimes

tenuous ice screws and tied-off pitons. We typically found high-quality gear placements in granite faces and outcrops at the top of the ice slopes.

As night and thick cloud descended simultaneously, we resigned ourselves to an open bivouac (6,220m). Unable to find as much as a two-foot ledge, we spent the night hanging in our harnesses and a bosun's chair improvised with our rope. First light was more welcome than usual, as movement slowly forced the feeling back into our stiff limbs.

Day 4 brought similar climbing before a short rappel allowed us to skirt a blank granite apron and deposit us at the base of the summit slopes. With night falling, we simul-

Starting the descent down the regular East Ridge route on day 6; Facing page: Spencer Gray and Rushad Nanavatty on the summit of Mt. Menthosa.

climbed perfect neve in a plumb line toward the summit, stopping occasionally to place screws in the solid grey, thousand-year-old alpine ice.

The edge of the monsoon hovered a few miles to the south, where a lightning storm put on a spectacular sound-and-light show. It was hauntingly beautiful; reflecting neon white on the cloud above us and flashing illumination on slopes ahead as our headlamps slowly died. The sight was sublime, but we were very grateful the storm did not envelope us—though the screaming wind tailing off it turned the task of erecting our simple, single-wall tent into a 40-minute wrestling match.

We summited on the morning of day 5 (August 26), eager to start our descent down the east ridge (the regular ascent route). The mountain and monsoon had other plans, however. We spent the entire day on the summit waiting in vain for a white-out to clear. It was odd to be bound to the top of a mountain we had spent a month envisioning. It was the safest place to be in a cloud.

The next morning, the sunlit peaks of Zanskar and Kishtwar shone along the rim of a steely overcast sky as we started our descent. The great granite walls of Miyar Valley were still caked in ice. The metallic blue of this landscape, almost like a cyanotype, is one of our lasting memories. We spent one long day navigating the glaciated standard east ridge route to base camp - moving quickly whenever the cloud cleared, and carefully considering our route-finding options whenever it rolled back in.

Back in base camp, among the wildflowers, we enjoyed the

best weather of the trip over the next two days as we napped in the sun, drank our best coffee, and packed in as many calories as we could before meandering back down to the village of Urgos and the rest of the world.

We thank the Indian Mountaineering Foundation, Patagonia, Aftab Kaushik, Chewang Motup, Fateh Singh Akoi, Harish Kapadia, Karan Singh, Kaushal Desai, Raj Kumar, and Yangdu Gombu for their assistance.

POST-MONSOON 2019 EXPEDITION TO CHOMBU – THE UNCLIMBED 6000ER

23 September 2019 to 23 October 2019

By Victor Saunders

Though North Sikkim was extensively visited by British mountaineers in the early years of the twentieth century, the area remained trifle ignored in later years. Several summits near or on the Sikkim-Tibet border were climbed by the Scottish explorer and mountaineer Alexander Kellas. He undertook six expeditions in Sikkim, helped solely by Sherpas, between 1907 and 1920, and made the first ascents of Pauhunri (7128 m), Chomoyummo (6829 m), Sentinel Peak (6470 m) - among several others. Nestled between these great peaks was the overlooked

Fowler on day 5 descending the North East Ridge.

Chombu (6360m) later described by Doug Scott as the Matterhorn of Sikkim.

Mick Fowler and Victor Saunders had held Chombu in their dreams since 2016. They had wanted to make an attempt in the spring of 2019 but were shut down by bad weather and unstable snow conditions on west Chombu Glacier. They were finally able to make a post monsoon attempt in October 2019.

Chombu remains one of the finest unclimbed 6000m peaks in the world. Doug Scott called it the Matterhorn of Sikkim.

Chombu 6360m, North Sikkim, India
Expedition Members: Mick Fowler, Victor Saunders

Having faced difficult snow conditions in the pre-monsoon season of 2019 we reasoned that a post-monsoon attempt could not be as bad. We were only partly wrong.

The weather was consistently poor during most of our time in the field, with rain or snow through much of the day, usually in the afternoons. Though there was less snow below 5000m, enabling us to walk on relatively dry ground, but once above 5500m we found that all north facing snow was unconsolidated, deep and unstable, while south facing slopes tended to have a good re-freeze after cold nights.

The Exploration

We established base camp at 4600m, just below the terminal moraine of west Chombu glacier. Fourteen days later we were still in our tents at base camp, facing the longest spell of bad weather ever. While at base camp we explored various approaches to Chombu.

The west face, though strikingly crisscrossed with apparently

Mick Fowler high on Chombu; Kangchengyao (6889m) the central peak of the Donkya Massif in the background.

START OF AUTUMN EXPEDITION 2019

"There are three main hurdles to climbing peaks like Chombu: permits, weather, and climbing conditions." Getting a last minute approval from the Chief Secretary of Sikkim for their Chombu trip, relieved Fowler and Saunders flew in, two days later, to Delhi and onward to Bagdogra airport and thence by road to Gangtok, the mountain capital city of Sikkim. "While we were still in Gangtok, we were informed that a key bridge leading into the Tangu valley, had been washed away by heavy monsoons. This was not good news for us as we were to start our walk-in from the village of Tangu. Baichung, our Liaison Officer, somehow managed to get a special pass to drive through an army camp …. to get to Tangu, from where we began our two-day trek to base camp." – Mick Fowler (Extract from berghaus.com)

climbable ramp lines that seemed to link up and form a complicated but climbable route through some very steep ground, had several zones which avalanched routinely, and frequently along our intended line - all day in bad weather, and mid-morning onwards in good weather! This was enough to put us off the west face.

While acclimatising at 5,500m to the southwest on the col between Chombu and Chungukang (5824m), we were able to examine the line of the 1992 Japanese attempt. Above the col was a rocky barrier obstructing the way to ice slopes which culminated at the south end of the Chombu summit ridge. This was followed by two large gendarmes which we estimated would be extremely time consuming. We decided not to attempt this line.

The east face was ruled out as it was not accessible from

Dawn on day 5 at about 6100m looking east towards Bhutan.

base camp. The south west line (1992 attempt) seemed too long, and the west face (our original plan) too dangerous. This left just the north face by a line we had identified as a north-east spur.

The north face looked accessible from the north face glacier which flowed to the Sebu Cho on the Lanchung valley side (east side) of Chombu. The only question now was whether we could reach this glacier from the west (Tangu valley) side. A short exploration on 8 October, in the usual bad weather, showed that there was a good track on grassy moraines leading towards the Sebu La that could be used to access boulder fields and a 400m couloir leading to the watershed ridge between the Lasha Chu valley (west or Tangu side) and Sebu Cho valley (east side). What we could not know at the time was if the couloir, which we now dubbed the "Fowler Couloir", would lead to any kind of access to the north Chombu glacier. On climbing the couloir, would we be stranded on a difficult ridge, faced with a problematic descent to the glacier hidden from view?

The Climb

After days of rain the weather suddenly improved on 10 October. It was time to climb Chombu.

On 11 October, making a predawn start, we trekked up the moraines and boulder fields leading to the Fowler Couloir. We were in luck - at the top of the couloir we stepped off the watershed ridge and on to the north glacier. It was foggy the following morning, and not wanting to wander through unknown crevassed ground we waited till the sun burned off the cloud enabling us to see and follow a good route through

the long wide crevasses that guard the base of the north face. The snow became deeper as we approached the north face. "I didn't think I had ever seen a face with so much snow plastered on it. Everything, almost regardless of angle, was plastered with perhaps two feet of powdery snow, beneath which there was more snow which was only slightly firmer." – Mick Fowler

Day 3 began with climbing up bottomless snow flutings with no possibility of ice screws or other protection till we were in reach of the north east spur. After that, climbing continued on deep, unconsolidated snow on rocks. Fowler recalls "Because of the deep powdery snow, upward progress was painfully slow and insecure. Midway through the afternoon Victor, who had been out of sight in the mist, hurtled into sight and ended up dangling over a vertical cliff. He had fallen a good 20 metres. There was quite a long silence and then: 'My first ever Himalayan fall' he announced rather sheepishly. In 39 years of Himalayan climbing that was rather a good record. We moved at a snail's pace." Fowler led the next few pitches while I recovered my composure. The bivouac was on a fine narrow ridge, belayed to a large boulder and tied in through the tent. It was now very cold at night.

Day 4 was short but a demanding one. This was the crux of the route, passing through steep snow-covered buttresses before breaking out onto relatively smooth slopes leading to the north summit of Chombu. Most of the pitches were physically exhausting, with the added psychological uncertainty of unconsolidated snow and sparse runners. By the time we reached the shoulder we were at 6107m, the summit was only 250m above us and "the open slopes ahead

Fowler on day 5 descending the North East Ridge.

promised much easier and quicker climbing conditions." Given the snow conditions we were experiencing, and the horizontal distance involved, we estimated that it would take us another day and a half.

That evening we shared a freeze dried food pack - "Beef Stroganoff with Noodles"- that didn't taste right. "There was a nasty chemical smell and flavour to it. But preparing food at altitude is a hassle. Both of us were tired and just wanted to eat and rest ahead of what promised to be a great day tomorrow."

We were sick all night and felt absolutely awful. We had clearly poisoned ourselves. Eating that stuff was a mistake - a bad mistake. "After so many delays and heartache here we were in perfect weather and within striking distance of the summit we had dreamed so much about for so long. We discussed our predicament at length. The decision came quickly, if painfully." There was no option but to descend.

We abseiled slowly down the line of our ascent, surprised at how demanding the climb on the snow-covered buttresses had been. The wonderful Subhash saw us descending and helped us with our loads to base camp. It was 48 hours before either of us was able to eat anything again. Sadly, we did not have enough time to recover and make another attempt. It was the end of our expedition. We left for Tangu four days later trekking out in heavy snow. It looked like winter had begun. And Chombu remains unclimbed.

Team Members:
Subhash Rai (Sirdar), Buddha Tamang (Assistant Cook), Sanjay Rai (Cook), Fowler & Saunders (Climbing Members) plus six

porters and the excellent agent team of Barap Namgal and Baichung Bhutia of Sikkim Tour Trek and Expeditions.

Acknowledgments:
Our In-Country Arrangements were handled by Barap Namgyal Bhutia of Sikkim Tour Trek and Expedition.
This expedition was supported by Berghaus <www.berghaus.com> who were kind and generous to the old climbers.

BRIEF HISTORY OF ATTEMPTS ON CHOMBU

1944: C Cooke and D McPherson tried to reach the foot of north ridge but failed due to deep snow. (Himalayan Journal 1946)

1952: Reconnaissance by Trevor Braham. No attempt made. (Himalayan Journal 1954)

1961: Ascent by unspecified route claimed by members of Sonam Gyatso's expedition. Widely disbelieved. (Himalayan Journal 1961)

1992: Japanese attempt from the east via Sebu La and Chombu Glacier. High point reached below summit ridge. (Alpine Journal 1993)

1996: Doug Scott's expedition turned back on N side by bad weather and soft snow. (American Alpine Journal 1997)

2007: Roger Payne and Julie-Ann Clyma turned back on N side due to 'interesting' snow. (American Alpine Journal 2008)

2019: Mick Fowler and Victor Saunders explored approaches to the West Face in the spring season. Acclimatising on the Sebu La, they were shut down by bad weather and unstable snow conditions on west Chombu Glacier.

2019: Autumn Season; Mick Fowler and Victor Saunders attempted the mountain as per this article.

SHIVLING: ALPINE STYLE

By Nihar Soley

Shivling (6543m); Area: Garhwal Himalaya

Looking towards Shivling at Camp 2.
Meru and Shark Fin in background.

It was in the summer of 2018 that my climbing partner Brijeshwar and I thought of climbing Shivling alpine style. We had recently returned from our respective successful summits – I from Kamet and Brijeshwar from Ama Dablam. Shivling is undoubtedly one of the most beautiful, yet brutal peaks in Indian Himalaya. There was no doubt in our minds that it would demand every ounce from us. So far we both had experience only of climbing on fixed ropes. We would now need to learn new techniques of alpine climbing. So it was that we went to Spiti that winter and trained there for two weeks, climbing several frozen ice falls around the region.

Once we obtained our climbing permit from IMF (online), we tied up with Snow Spider Trek agency to arrange local permits, porters & HAPs, while we rented a few essentials from NIM in Uttarkashi. Prepared and determined, we arrived at Gangotri (road-head) on Sunday, 15 September 2019.

We began our 2-day trek to Tapovan base camp the following day with a night halt at GMVN guest house, Bhojbasa. The trek, which started off alongside a stream through forest and hills, and then led us through barren land of Himalaya, ended on a vast meadow at Tapovan, which serves as base camp for both Shivling and Meru, with a striking view of Shivling.

We arrived at Tapovan (4460m) in clear, warm weather - the only Indian team at base camp. Brijeshwar and I were the climbing members; Hrishikesh, a friend and an aspiring climber, was there to support us; and three HAPs to help ferry load to higher camps.

Desiring a fast ascent, our plan was to approach Shivling from its west ridge, the route followed by the first successful Indian expedition led by Hukam Singh in 1974. West ridge is the lowest-angle feature on the mountain, but entails serious mixed climbing. Exposed to a massive serac, the ridge leads to the col between the two summits and then onto the main summit.

To Camp 1

We set out the next day, along with our three HAPs, to identify a route and a spot for our higher camp. With Shivling to our left, we hiked up the right lateral moraine of Meru glacier, towards south. Continuing on the ridge alongside Meru glacier, we scrambled over boulders on a gradual upslope to finally reach the base of the west face of Shivling and its glacier. We dumped our load at this point, clambered up and

Clockwise from top: Camp 1; Route to Camp 1 through moraine & boulders; Shivling main summit as seen from base camp.

gained height on a subsidiary ridge coming down from the west ridge of Shivling. This is where Camp 1 was usually set up despite there being no nearby water source. Surprisingly we found a 250m coil of PP rope in good condition left behind by some team. We carried it with us. After a recce of the area and taking into account inputs from earlier teams, we decided to set up our Camp 1 at the base of the west slope, the spot where we had dumped our loads. It had taken us 5 hours to hike up and 3 hours to return to base camp.

The following day Hrishikesh and HAPs did a load ferry while Brijeshwar and I spent time at base camp resting, bouldering, and meeting members of other teams. We also improvised a small temple and prayed for our success and safe return. On the morning of 21 September we moved to C1 (4950m) where we now had to move a few boulders to create a platform for tents.

Onward to Camp 2 – 5500m

The climb above C1 was steep. Brijeshwar and I had to fix ropes on the vertical rock face next to the glacier. The route, in line of falling rocks and ice, was unsafe and dangerous. After climbing about 200m I realised we did not have

enough rope to fix the route ahead – a situation we did not anticipate in what was to be an alpine ascent. We had to return to C1 even before midway.

We spent the next day at C1 examining the PP rope we had found accidentally, and planning the week ahead. Behind schedule by a day, we decided to make it up by leading the way and fixing rope to C2 in a single push, with HAPs following the same day with the load. Brijeshwar and I left C1 at 7AM on 24 September while the remaining four team members left at 10 AM with the load.

Negotiating the rock face, we hammered eleven rock pitons and made three natural anchors using slings & tape. By noon we reached a junction at 300m where the route now lay upon a glacier. This transition was into a gully that leads to the Shivling west ridge. The snow was rather soft here, the gully being in shadow of a vertical rock face to its right. However, the gradient remained almost 60 degrees for the 200m to the top, which we climbed easily in an hour using ice tools, and without rope. There was a flat space on top, enough for 5-6 tents. Having identified the camp site we returned to the junction, descending easily without rope, through the gully in soft and thick snow. It was 4PM by the time HAPs reached the junction with the load. We quickly stuffed our sacks and said goodbye to them. We were now on our own. It took us four more hours to climb the gully once again – this time with heavy loads on our back. It was 9PM by the time we occupied C2 (5500m). It had been a long, tiring day.

Next day was a much-needed rest day. We were on west ridge of Shivling and the distant mountain ranges were now visible. Massive Meru and its shark fin was prominent to the south and Shivling to the north.

Gruelling Move to Camp 3 (Summit Camp) – 5950m

On 26 September we were ready to move to C3. Several strands of old ropes lay along the way up the ridge towards the summit. The ridge has three sections, each separated from the adjoining one by a near vertical face of 30-40 feet, requiring a moderate climb over rock slabs. C3 site is located at the top of third section. Few spots along the ridge were very arduous and it took hours to negotiate these with our heavy backpacks pulling us down all the while. In such gruelling and strenuous conditions I couldn't resist grabbing old strands of rope and even putting a Jumar or self-arrest on them until I realised, to my horror, that the rope strand I was

Clockwise from top: On top of west ridge, approaching the Serac; Entering ice gully enroute to Camp 2; Ascending towards Camp 3.

hanging on to was disconnected, its end barely stuck inside a chunk of ice! Thankfully I was on belay.

Soon it was dusk. It started snowing while we were still on the vertical face of the last section and so tired that it was difficult even to take a step with our heavy backpacks. On my suggestion, Brijeshwar anchored his backpack and went ahead in the dark. Thirty minutes later he messaged on radio that he had managed to get to the top. We decided to tie both the bags to the rope and haul them up. It wasn't easy. The bags would either get stuck among boulders, or get bruised, and at times the loop would break. Amidst this chaos, we only lost a glove, a water bottle, and a gas burner!

By the time we, along with our bags, reached the top, it was dark and snowing, with no visibility and no flat land to put up a tent. The exposed ridge, at 40 degree angle, was barely five feet wide. The snow on ground was semi hard that couldn't be dug with shovel. We dug an 'L' shape section for our tent and secured it with anchors. It was midnight! C3 (summit camp) was now established at 5950m.

Summit Attempt

Next day, 27 September, we remained ensconced in our

tent due to heavy snowfall and a blizzard. All the equipment left outside of tent was buried under one foot of snow. We heard the roar of dozens of avalanches that day from Meru and around; some from within a stone's throw distance. We waited patiently and took turns to keep an eye on weather that night. At 5 AM on the morning of 28 September we saw a few stars and speculated it might be clear enough for a summit attempt. We geared up fast and rushed out by 6.30AM and by 8 AM we were at the bottom of the serac.

The first section of the serac was broken and the ice debris had formed into a structure of sorts, climbing which required 30m rope and three ice screws.

Behind us, the entire route from Meru glacier through Camp I, II & III was clearly visible. The ice walls, cracks, and crevasses appeared in astonishing clarity in amazingly beautiful shades of blue and marble-like textures.

From the top of the serac, it was a 90° climb through a massive crack on the main ice-wall. Inside the crack, I belayed at the base of second pitch. Anchored on a 70° slope, above a massive crevasse, I, for a few moments felt detached from the surroundings. With each swing of a tool, the near-blue hard ice would come crashing down. At one point, when Brijeshwar was near the top, a huge chunk of ice fell right on his face, knocking him unconscious for a moment. He recovered within minutes. It took us six hours to reach the top of the upper section. (Rope was fixed and 12 ice screws and a cowstail placed)

When we emerged out of the crack at 6150m, we realised the weather had worsened while we were busy negotiating the ice wall. It was 4PM, snowing heavily with partial whiteout, and the summit was still another 400m climb. Standing in 3-feet-deep snow, looking at the gradient of slope, we feared a possible avalanche. Since nothing seemed to be in our favour we aborted our summit attempt, rappelled down in a blizzard, and reached C3 by 8PM.

The Descent

On the morning of 29 September we began our descent to C2 under very trying conditions. The strands of ropes we had seen on our way up were now buried under deep snow. The whiteout too had made it impossible to gain any sense of direction. To add to our woes, freezing temperatures made it difficult to bend rope into a descender. Visibility continued to diminish. At one point, I was standing on a ledge with vertical drops on all three sides and couldn't figure out which

Clockwise from top: Descending towards Camp 2; The Team (L-R) Nihar Soley, Brijeshwar Singh, Hrishikesh Gokhale; Camp 3 on a ridge with exposure on both sides.

way to go. Except for the 10-12 ft of red rope I was hanging onto, the entire world seemed grey. We left something or other like ice screw, piton, snow stake or a carabiner at every anchor, just to make our descent secure, and somehow managed to stumble into C2 by 8PM in continuous snowfall.

It stopped snowing for a while the following day. We called up our team to meet us below the ice gully in order to transfer loads, so that we could remove the fixed ropes and clean the route. While descending through the ice gully, an avalanche triggered from the west ridge. I heard it just in time and jumped aside from the fall line to dodge it by a couple of feet.

Our fellow team members, happy to see us, had been worried and concerned for us, in such severe weather conditions. Subsequently, we moved to Tapovan base camp where, during our interaction with other teams, we found out that they had sent a lookout party in search of us during the bad weather. They returned only after ensuring we were safe and on our way down. Sheer mountain ethics!

We left Shivling with memories and lessons to cherish for a lifetime. I am reminded of a famous quote by a legendary mountaineer - Sir Edmund Hillary, *'IT IS NOT THE MOUNTAIN THAT WE CONQUER, BUT OURSELVES'.*

Nanda Devi East (7434m; 24,390')
Nanda Devi Main (7816m; 25,645')
Area: Garhwal Himalaya, India
The two peaks are connected by a 2-km-long east-west ridge.

NANDA DEVI EAST EXPEDITION 2019

By Rajsekhar Maity

Surrounded by rugged 20,000-foot peaks, it is a physical and mental challenge to get to the top of the lofty Nanda Devi East peak. Pradip Bar of South Calcutta Trekkers Association, together with four Sherpas - Phurba, Lopsang, Chongwa Dawa, and Palchen – accomplished this rare feat on 15th September 2019, thereby becoming the first Indian civilian team to do so.

Heavily corniced ridge at the start of the snow neve.

It was a fine summer morning of 2010. We were on the upper slope of Changuch's summit ridge. At break of dawn as the first rays of sun fell upon the eastern face of Nanda Devi East, the full span of its south ridge cropped up from the dark like a shining thread soaked in gold. It was love at first sight. The route looked formidable, yet tempting and alluring. Climbing a 7434m high mountain that requires a thousand metre ascent to reach the first high camp, three towering pinnacles at 6000m, a 3km long sharp and exposed ridge with steep rock steps and overhanging snow cornices - was a mere fantasy for a small group of non-professional climbers. The lure towards Nanda Devi was inevitable. It haunted us for years. That dream turned into a reality nine years later when our team stood atop its summit in September of 2019.

Nanda Devi East (a.k.a. Sunanda Devi) has a rich history of attempts and ascents. Apart from one or two instances it has generally been climbed using traditional techniques of Himalayan climbing, despite which there have been significant number of failures and deaths. Since its first ascent in 1939 by Polish climbers Jakub Bujak and Janusz Klarner, the mountain has seen 17 failures from 31 attempts. In fact, of the twelve attempts made in the last fifteen years, only two were successful. The death rate too on Nanda Devi East is significantly higher than on most mountains of Indian Himalaya - 15 casualties in 31 attempts.

Start of Nanda Devi East Expedition

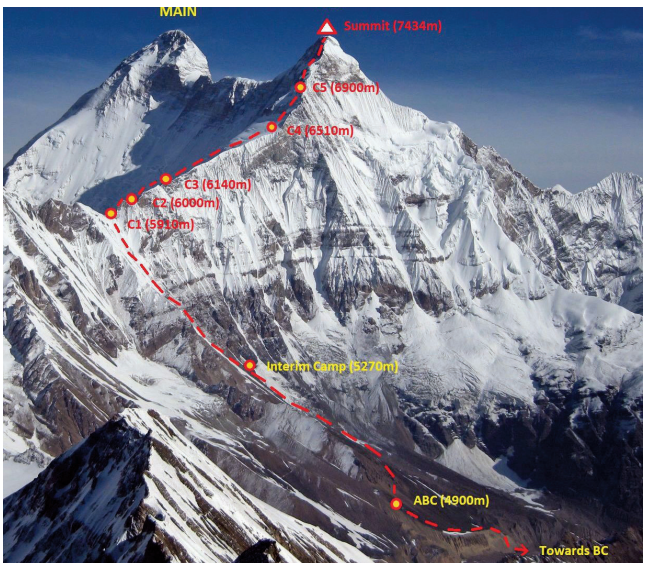
Our four-man climbing team from 'South Calcutta Trekkers Association' – Rajsekhar Maity (Leader), Pradip Bar, Upal

Clockwise from facing page: Arrival at base camp; C1 at Longstaff Col, with the 1st pinnacle and east summit in background; Climbing Route NDE 2019 (SCTA).

Chakrabarti, and Ashish Gupta – together with an invaluable Sherpa support team comprising Phurba, Lopsang, Chongwa, Norbu, and Palchen started from Munsiyari on 20th August and reached Bidalgwar Base Camp (4300m) in Lawan valley on 26th. The lush green meadow surrounding the base camp, with a number of streams and breath-taking views, was strikingly beautiful and rejuvenating after the six-day trek.

27th Aug – 7th Sep – Setting up ABC

We established Advanced Base Camp (ABC) on a spot of flat ground at an altitude of 4900m, at the base of the mountain. The first major obstacle to the peak was the



approach to Longstaff's Col (5910m) that takes one to the south ridge of the mountain. The route was through a couloir, full of loose and rotten rock, covered in places with thin layer of snow. We ferried load to Longstaff's Col over the next few days and though we had fixed the route to ensure fast movement, the terrain and the distance left us depleted of energy.

This part of the outer Nanda Devi sanctuary is known for its unpredictable weather pattern, and we were not spared from it either. Frequent downpour and intermittent whiteouts interrupted our progress and compelled us to stay at BC and ABC for a week longer than planned. During that week we sent regular updates to our club senior Brijes Day in Kolkata over the BSNL satellite phone and he managed to derive a near-perfect weather prediction model

which later proved to be amazingly useful.

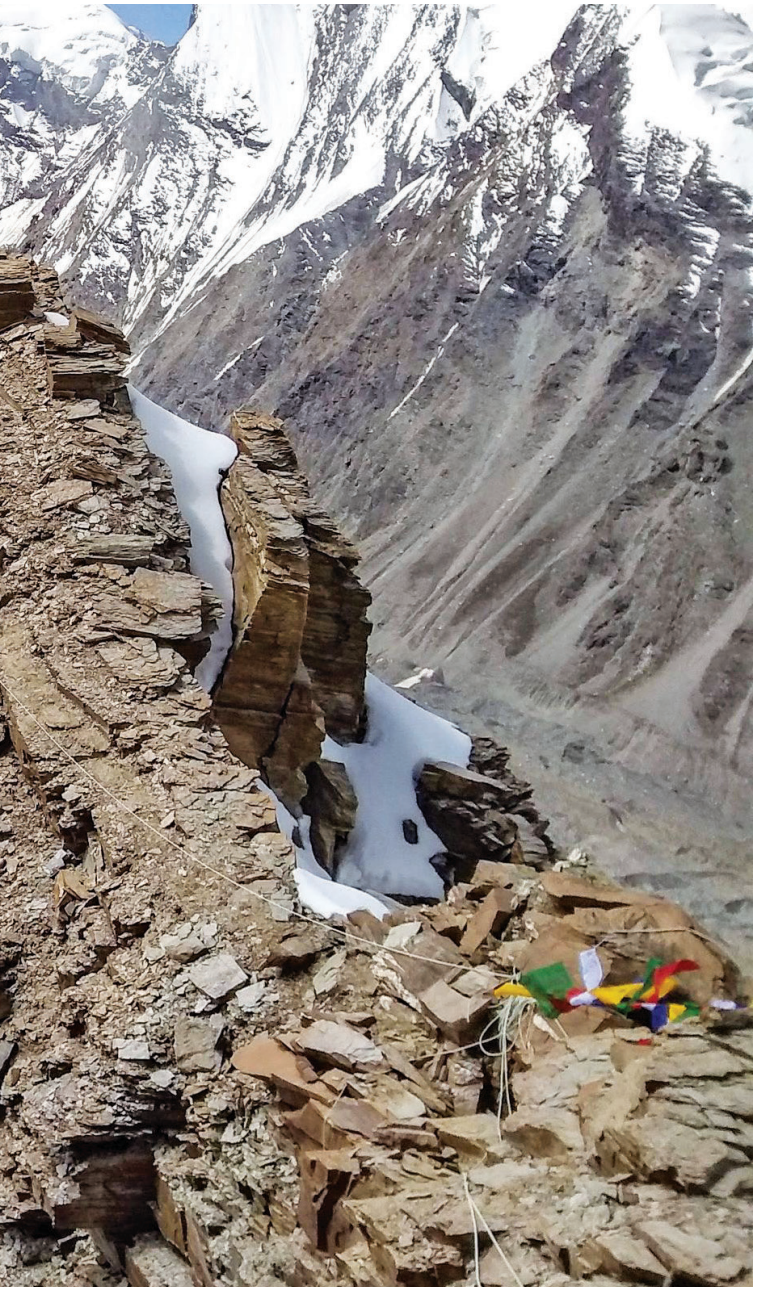
8th – 12th September – Camps 1, 2 & 3 and negotiating the three pinnacles

Camp 1 – 5910m; Camp 2 – 6000m; Camp 3 – 6140m

On 8th September, after a gruelling 11-hour struggle through intense whiteout and frequent rock fall we reached Longstaff's Col at 5910m and set up Camp 1. To our surprise the weather across the col was absolutely clear and we were awestruck by the spellbinding vista of the inner sanctuary of Nanda Devi. Atop the col there was a very small stretch of space, barely a few feet wide, where we managed to put up four tents alongside.

The way ahead from the col started with the three rock pinnacles of 300 feet height and the route all the way up to Camp-3 was nothing but highly exposed narrow rocky ridge with a mix of hair-line ledges, towers, buttresses, overhangs, tricky traverses, and drops of more than three thousand feet on either side. The three pinnacles still held remnants of old anchors and weather-torn ropes fixed by earlier teams. We also fixed static ropes on the pinnacles but the brittle rock and loose rubble made the anchors unstable and unfit to withhold any weight.

The connecting ridge between the first and the second pinnacle was barely a foot wide, narrowing in places to a single pile of loose stones. We rappelled down from the second pinnacle, climbed a small pitch till the top of the third pinnacle where we set our Camp 2 at an altitude of 6000m. On a very tiny platform, barely enough for one tent, we somehow squeezed into two tents to spend an



Clockwise from facing page: Sharp and exposed ridge between 1st and 2nd pinnacle; Climbing over the rock butress; Rock overhang at 6140m before C3.

uncomfortable night.

Next day a short vertical descent through a rotten rock section from the third pinnacle brought us to the base of a steep 100-foot rock buttress. The ridge thereafter was a mixed climb – snow arête and snowed-up rock steps with exposed drops on either side. Parts of the section needed traversing along the sidewall to avoid the unstable arête. We then came to a 25 ft high rock-wall with an overhang near its top. It was atop this overhang that we cleared up a corniced snow ridge to make a platform for Camp 3 (6140m).

13th – 14th September Establishing higher camps

Camp 4 – 6510m; Camp 5 – 6900m

Beyond Camp 3 the ridge becomes corniced merging ultimately into a wide snow névé which is a part of the huge ice-field enclosed between the two peaks of Nanda Devi. At this point we changed our strategy due to shortage of rope and also to speed up our movement. While Upal and Ashish remained at Camp 3, Pradip and I, along with Phurba and four Sherpas moved ahead. After a 5-hour-long approach through the corniced arête we arrived at the base of the main headwall of the mountain. Cutting a platform on a 45° slope we put up Camp 4 at 6510m altitude. Though many of the earlier attempts began their summit push from the location of our Camp 4, we, however, decided to place one more camp before the summit, considering the remaining distance

to the summit and our physical state.

By the time we reached Camp 4 all our static ropes had been used up. And the remaining route was more complicated and involved greater vertical ascent than before. (The traditional summit route ran over the three rock bands across the headwall.) We decided to remove one static rope from the section behind and fix it on the steeper section of the first rock band, hoping that we could manage the remaining climb thereafter with belay and rope-up method.

On 14 September, ascending a high gradient slope varying from 60° to 80°, we crossed the first rock band, and cut a small platform on a 60° slope to set up our Camp 5 at 6900m. We decided that I would remain at C5 while Pradip would attempt the summit with Sherpas Phurba, Lopsang, Dawa and Palchen.

15th Sep – Summit attempt

On the full moon night of 14 September the sky was clear and the temperature minus 20°C, with winds rolling 25 km/h. Pradip Bar, together with Sherpas Phurba, Lopsang, Dawa and Palchen began the final summit push at 1:30 AM. They had only one rope with them. The 2nd rock band on the headwall was a mixed pitch of rock and snow gullies with an average gradient of 80°-85°. In one section the climbing route followed a knife-sharp arête with cornices on both sides, an unusual feature. The second rock-band was clearly the most difficult section of the entire south ridge. The team crossed the zone while it was still dark and the snow hard and stable.

After sunrise the wind got fiercer and so too the risk of frostbite. The team contemplated turning back at one

Clockwise from facing page: Corniced upper section of the South ridge; Pradip Bar on the top of Nanda Devi East summit. The main peak of Nanda Devi visible in the background; Corniced arete section between rock buttresses.

point, but then decided against it and continued their push towards the summit. After the second rock-band the rest of the route seemed relatively easy. The team negotiated the third and final rock-band by following a snow gully. Lastly, a small cornice, after the last stretch of ascent, had to be broken apart before the team members could set foot on the vast summit field of Nanda Devi East. They finally reached the summit at 10:36 AM, where they encountered strong gust of wind, blowing furiously at 55 km/h, and a crystal clear blue sky above. We couldn't have expected a better day for a summit. The grand view of Nanda Devi Main

was captivating. The horizon below was covered with clouds but the surrounding giants - Tirsuli, Hardeol, Nandakot, Nanda Khat, Panwali Dwar, Maiktoli and Trishul-1 – were visible.

Our quest was rewarded, but the spell of Nanda Devi still lingers.

Climbing Team:
Rajsekhar Maity (Leader), Pradip Bar, Upal Chakrabarti, Ashish Gupta

Support Team:
Phurba Sherpa, Lopsang Sherpa, Chongwa Dawa Sherpa, Norbu Sherpa, Palchen Sherpa, Devender Singh, Narinder Singh Danu

IMF PRE EVEREST TRISHUL WEST RIDGE EXPEDITION 2019

Area: Garhwal Himalaya, Uttarakhand

By Col. Anil Goth

Plans for an attempt on a 7000M Peak in the Indian Himalaya in autumn 2019 were conceived by the IMF in the form of a selection Camp for the Pre Everest Massif Expedition 2020. Kamet (7,756M) was the chosen objective. However, since inner line permission for the Peak was not forthcoming, it was decided to adopt Trishul (7120M) as an alternative.

My association with the expedition too was a coincidence brought about by a sudden need to relieve Shri Prem Singh (ITBP) who had been recalled by his organisation during an early part of the IMF project. Col IS Thapa, SM, VSM, Principal JIM, Col Amit Bisht, SM Principal NIM, Shri Loveraj (BSF), Ms Anshoo Jamsenpa along with Iqbal Khan, Chander Negi, Deep Sahi and Anil Kumar, mountaineering Instructors from NIM and JIM, were my colleagues on the Trishul venture. The responsibility of conducting the Expedition was given to NIM, Uttarkashi by IMF while I was the nominated leader. The coalition management arrangements gave everyone the opportunity to involve themselves with the expedition plans and activities, leaving my own role to moderate things.

Our team comprised of a strong group of 40 men and 13 women. They came from 14 different States / Union Territories. The group's strength lay in its physical fitness, youthful enthusiasm and ability to live hard - a necessity in the mountains. What it lacked was the necessary altitude experience before Everest which the Trishul Expedition planned to provide. The team assembled at IMF over 25th and 26th Aug 2019, collected the expedition stores from IMF and after a pep talk by President IMF, Col HS Chauhan, SM, VSM, made a start from Delhi to Dehradun early on the morning of the 28th in chartered buses. Our overnight stay was arranged at Sardar Bhagwan Singh University for Bio Medical Sciences by NIM where we met up with Col Amit Bisht and Deep Sahi.

At Dehradun, the team was given a warm send off by girl trainees who were being prepared by the Youth Foundation for recruitment into the Corps of Military Police. In a landmark decision, the Indian Army had recently opened its doors for women to join as soldiers years after it started taking them as officers. The enthusiasm which we saw in the hill women to don the military uniform and the missionary zeal of the trainers left a deep impression on us. Next day, the team commenced its journey from Dehradun in smaller buses travelling to Rishikesh and then following the holy Ganges till Dev Prayag and Alaknanda, passing through small and big towns. Our route branched off at Nand Prayag towards East following the Nandakini river till Ghat which we reached after dark. A transhipment from buses to jeeps was carried out at Ghat for the remaining 35 Kms of jeepable journey to Sutol. Sitel was a prominent village en route which had to be crossed to reach Sutol. While Col Amit Bisht and I stayed for the night in the Panchayat Guest House at Sitel courtesy Jor Singh, our pony / porter contractor, the team stayed in the local school premises at Sutol, arrangements for which had been made by Shri SS Bhandari (NIM) in-charge for the Expedition administration.

We spent a day at Sutol, (2200M) the road head village, to re organise and give rest to our jolted bodies after the previous day's road journey. A short acclimatisation walk till Tatra (summer residence for some Sutol households) above and administrative chores of packing and segregation of pony and porter loads for the approach march helped us rest and prepare for movement ahead. Sub Maj Limbu, Shri SS Bhandari and the advance party from NIM having enlarged our group, the team strength which was 59 at Delhi swelled up and was to exceed 80 with the arrival of Loveraj, Col IS Thapa and HAPs.

Sutol had been linked by extension of the jeepable road from Sitel a few years back. The small village of about 100 households had electric supply, running tap water, a middle school and shops to cater for essential needs of the community. A short uphill walk facilitated net connectivity to link up with the outside world.

After the dull road travel, the gradual uphill walk from Sutol to Lata Kopri (3085m) was joyful. Till Tatra, it passed through a beautiful landscape of Amaranth fields in full bloom, interspersed with patches of kidney bean vines supported by trellises. Dry stone walls constructed without

Mt. Trishul

any mortar protected the fields along the path and demarcated their boundaries. It was amazing to see how the stone art created through human labour had turned plain earth patches into beautiful agricultural fields over the years.

Leaving Tatra behind, the historic pilgrim trail in regular use for at least one thousand years took us through a thick dense green forest of Spruce, Oak, Blue Pine, Tosh, Rhododendron and dwarf bamboo. Rain, slush and humus made us appreciate the role of weather in sustaining the mountain environment. It also impressed upon the need to accept the vagaries of mountain weather as an essential part of outdoor life.

Lata Kopri, which was a fairly large camping site for Jad Yatra pilgrims, was a half-hour walk from a prominent RCC bridge. It had a spring and a cemented area which we used for setting up the cook cum dining area and store tent. During the season, the place was covered with leafy and edible wild Rhubarb plants.

The trek from Lata Kopri to Chandniya Ghat (3685M) took us across slopes of wild flowers in bloom: mostly Royle's Snapweed (Balsam), small water streams and waterfalls. It was encouraging to see that our group was moving with great economy of effort to reach the next camp site or return after a load ferry in good physical state at the end of four to five hours, seriously challenging William Naismith's rule for mountain travel, which allows one hour for every five kms and an additional hour for 600 M ascent in the hills. Between Lata Kopri and Chandniya Ghat was a large snow patch over a re-entrant which marked the line after which trees gave way to alpine vegetation. A water obstacle over the Nandakini stream some 50 M below Chandniya Ghat required bridging efforts with a log bridge made out of birch tree trunks and ropes to facilitate a dry crossing for men and animals. Chandniya Ghat with a view of Shilla Samundar glacier lay in a hollow of a gentle slope and a low crest line with a fairly large stream of clear ice cold water. The camping site was well used. It had platforms for tents and remnants of bamboo frames for poly shelters left behind by villagers who come up annually for collection of the precious Codyceps / Insect herb roots in May- June. Prompted by administrative constraints, we decided to split the team into sub groups with the first group occupying Chandniya Ghat on 2nd September.

Base Camp (4212M), a little short of Hom Kund, was occupied by Col Amit Bisht with the lead sub group on 4th Sep. It was yet another beautiful camp site with imposing views of Nandaghunti Peak and was frequently visited by Bharals.

With Amit Bisht's scheduled visit to Chamonix, France on 7th September, there was a requirement for assured support for the Expedition to be tied up beforehand and a climbing plan to be formulated. To this end, we held an important discussion to take stock of essentials like butane fuel, gloves, mittens, socks and food that would be required for higher camps. I thank Col Amit Bisht who saw these concerns and arranged for additional butane cartridges to be sent up besides assuring requirements of the team for a plan which did not leave out any participant from being given an opportunity to attempt the Summit. Loveraj joined us at the BC a day after Amit Bisht left and Col I S Thapa came on 12th Sep, sprucing up the BC before settling down himself. His arrival provided cheer and friendly companionship which was missing since Amit Bisht's departure.

At the BC, we divided the team into five balanced Ropes on

Teams returning to base camp

the basis of age, experience, gender and region with Loveraj, Iqbal, Chander, Deep Sahi and Anil as Rope leaders. The administration, route opening, fixing of ropes and setting up of camps being pre-decided and organised efficiently by NIM we decided on the following broad outline plan.

A build up to site three camps above BC with load ferries for acclimatisation till Camp II. Fixing of route between Camp II and Camp III and from Camp III on exposed sections of summit ridge by the HAPs. To position one Rope at Camp III at one point of time and remaining Ropes in lower camps in support - the plan involved one day stay at Camp II, move up to Camp III / Summit Camp next day - a short bivouac at Summit Camp - Summit attempt during night with Summit by 11 o clock, descent to Camp II or Camp I the same day. There was no clubbing of members to give them notional climbing or support identities. Each member was to be given butane gas and climbing food individually at BC for use at Camp II and above.

Camp I was occupied on 7th September. From Hom Kund, the route to Camp I was along a scree slope and edge of a chute coming from the ridge dividing the Hom Kund valley and Ronti glacier. After crossing the ridge, a descent of some 50 M led to the camp site with tell-tale signs of earlier camps. It was a fairly flat area of scattered rock slabs on the west bank of Ronti glacier. The camp provided a grand view of ramparts of Trishul with Bethartholi (6352M) towards North.

Camp II (5290M) which lay over head of the Ronti glacier on snow was occupied by Anil's team on 10th September. Fraught with the danger of hidden crevasses, movement to Camp II had to be carried out roped up with requirement of probing in suspicious places. However, due to an unexpected change in weather, Anil's rope was asked to descend to BC the next day. On 12th September, with the return of clear weather and news of promising forecasts received from Wg Cdr Sudhir Kutty at IMF, Iqbal's rope occupied Camp II. By now, the three HAPs led by Gyalbo had fixed the route to Camp III/ Summit Camp (6300M) and partly on the summit ridge.

As planned, Iqbal's rope with Gyalbo moved up to Camp III on 13th September negotiating the steep and exposed ice slopes. They spent a few hours to rest and prepare, setting out for the Summit at 2.30 am to reach their highest point by 7 am on 14th September. Following a similar pattern, four more Ropes made attempts out of which three attempts made on 15th and 19th September also gained the high point attained earlier while the attempt on 18th September had to be abandoned at around 6650M due to high winds and bad weather. The climb by Anil's Rope was made in one push directly from Camp II.

Our Expedition's joy on the perceived achievement was dampened when the first Rope returned to BC and I noticed that the summit images clicked did not cover views to the North and East across the point identified as the Summit.

Queries and replies from the Rope which had returned attributed the inadequacy of photography to the corniced nature of the summit slope. It seemed absurd and difficult to realise then that our Guides/ HAPs having an expertise and past guiding experience on the Peak had been wilfully or erroneously misguiding Expeditions over the years, mistaking a lower prominent point on the ridge to be the Summit, establishing a kind of faulty climbing template. In the circumstances, I asked the Rope leaders of following Ropes to physically ascertain if the first Rope had indeed been on the true summit and also to take conclusive pictures. A confirmation and assurance to this effect after probing higher and further on the corniced slope by the leader of the last Rope which went up led me to conclude and submit the Expedition Report in favour of an ascent putting my previous questions to rest, leading to the Expedition being accepted as successful by IMF on its return. However, my later interactions with the IMF office, help from Presidents and Hony Secretaries, both previous and present, Col SC Sharma, SC, VSM, valuable description and photos from Martin Moran's 2017 Expedition to the Peak for which a handsome tribute is due to the late Chetan Pandey leads me to believe that our team's assessment had gone wrong and the Trishul Summit had eluded us. To ascertain the exact position, IMF has very appropriately referred the matter to the IMF Verification Committee to obtain the facts. It is nevertheless heartening that the Expedition of which I was a part will be playing a helpful role for future expeditions in expanding knowledge, understanding and information on Trishul Summit along the final portion of the West Ridge.

One year after the conclusion of Trishul Expedition and having the benefit of hindsight I now understand the import of the counsel that imagination exaggerates, reason understates and sense moderates... better.

I am convinced that our Trishul Expedition, which was a Selection Camp, fully achieved the aim given to it. However, I will always feel a little sad for our young and enthusiastic team members who after all the hard work and risk climbed high but missed out on the ascent of the Peak on account of our excessive dependence on convention and guidance than was necessary. Notwithstanding this, I think that the Trishul Expedition gave all participants a unique opportunity to understand and experience climbing in the Himalaya in a group with its accompanying rewards, responsibilities and surprises. I consider myself fortunate to have been associated with the budding young mountaineers from across the country on the IMF expedition, for the opportunity to work with the heads of IMF, NIM and JIM and their staff, of having the invaluable support of HAPs and porters and visiting an area which I had long wanted to see.

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HARSIL HORN FIRST ASCENT, JUNE 2020

By Col. Amit Bisht

A five-member team from Nehru Institute of Mountaineering (NIM) scaled a 4823m virgin peak in the Harsil region of Uttarkashi district.

Camping along a glacier.

Vast expanses and numerous peaks in the Himalaya still remain uncharted. Horn of Harsil, a set of two unnamed, unscaled, and steep peaks at 4,823m and 5,280m in Garhwal Himalaya, along with a large section of the route leading to these peaks was also hitherto unexplored. (Harsil area falls in Bhatwari block of Uttarkashi district in Uttarakhand.)

A team from Nehru Institute of Mountaineering, Uttarkashi, organised the 'Horn of Harsil' expedition to attempt the two peaks and carry out calibration and mark the most feasible route to the summit. The expedition was flagged off in November 2019 but was halted due to bad weather and heavy snowfall. It was restarted after a wait of seven months, and on 21 June 2020, a five-member team of mountaineers reached Harsil village.

Induction to Ratha Camp, for the first stage of acclimatisation, began almost immediately the following day – on 22 June. During the two-day stay at the camp, load ferries were carried out to base camp.

The vast variety of flora along the route kept Dr Prof Mahendra Parmar, Botanist from PG Degree College, excited and animated. His commentary on the medicinal values and special characteristics of flora enroute made the entire trek very interesting and fascinating.

The team moved to base camp (3620m) on 24 June.

On 25th June, a small team under Lt Col Yogesh Dhumal, deputy team leader, carried out a recce of the route to the summit camp (4387 M).

Above base camp the terrain consisted mainly of moraine, with a considerable amount of snow in the area. The route to summit camp, full of loose rocks, narrow re-entrants, sharp ridges and steep valleys, was a mix of grassland and bushes. The final stretch to the summit was a mix of snow-covered steep slopes interspersed with occasional rocky outcrops.

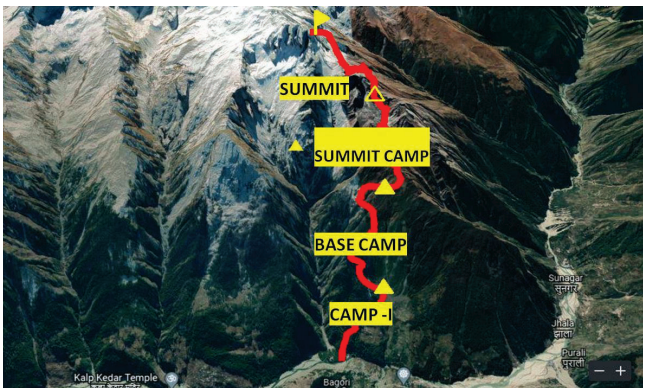
The team moved to summit camp on 26 June.

On 27 June ropes and other technical equipment were set up beyond summit camp.

Summit ascent began on 28 June at 0400 hrs. Negotiating the route involved a near vertical climb on hard snow, a traverse on a highly exposed slope with a mix of snow and

Clockwise from facing page: First ascent of 4880m peak in Harsil valley, Garhwal Himalaya; Fixing rope; The striking flora between Ratha camp and base camp.

Clockwise from facing page: Team at the summit; The climbing route to the summit; Summit camp.



rocks, and finally a climb on a patch of sheer rock at almost 60 to 75 degrees gradient, with rock pinnacles and rocky ridges that made the climb even more difficult. We used fixed rope in few sections and roped up with anchoring at some places.

We got a close look at the summit – full of rock pinnacles and cavernous cracks - once we attained a height of 4653m. The team finally reached the summit and achieved the first ascent of the lower peak (4823m) on 28 June at 0930 hrs. We stayed at the top for 30 minutes, clicked photographs, and recorded GPS shots. From the summit we could see the neighbouring peaks including Banderpunch, Black Peak and shoulder of Jaunli. We prayed and thanked almighty for our safe ascent and nailed a snow stake with NIM painted on it as proof of ascent. After registering the nearby peaks and gathering important data we were ready for our descent to base camp. In worsening weather and a whiteout we managed to reach the summit camp at 1300 hrs. It took us another two days to ferry load back to Harsil road head and complete the de-induction on 30 June.

Our main challenge during the expedition was the lack of any information either on the approach or on the peak. Because we attempted this mountain during lockdown due to COVID-19 pandemic, the team selected was small and availability of manpower & other resources were scarce. All along the trek traces of previously used routes were not evident as the terrain was a mix of dense forest, bushes, scree, snow and rock faces. With the early onset of monsoons, we had to weather rains, whiteouts, heavy winds and thunderstorms most days.

This was the first ascent of an unscaled and unnamed peak (4823m) of Harsil Horn by any Indian/ Foreign team. The team will attempt to scale the 5,280 metre peak within a few months.

Climbing team: Col Amit Bisht (Leader), Lt Col Yogesh Dhumal (Deputy Leader), Shivraj Singh Panwar, Hav Thinlass Gyalpo, Saurav Singh

Support team: Sub Chattar Singh, Sep Govind Ram, Sep Santosh Jayebhai, Prof Mahendra Parmar, Aarush Bisht

FIRST ASCENT BHAGIRATHI IV WEST FACE

By Matteo Della Bordella

Italian alpinists Matteo Della Bordella, Luca Schiera and Matteo De Zaiacomo made the first ascent of the much sought-after and difficult west face of Bhagirathi IV (6193m) in Garhwal Himalaya, India. This was their second attempt on the imposing granite giant. They summited at 11 p.m. on 15 September 2019, and rested for a few hours before making a descent from the east side of the mountain. They named their route Cavalli Bardati.

Start of the climb. Shivling peak in background.

Elevation: 6193m
Area: Garhwal Himalaya, India

Bhagirathi group of peaks, with their steep and imposing granite walls, tricky overhangs, and recurrent rockfalls, are an exceptional challenge for alpinists, some of whom have made legendary ascents on these mountains and opened difficult routes, such as "Estrella Impossible" on west pillar of Bhagirathi III (6454 m) and the one opened by Silvo Karo and Janec Jeglic right in the centre of the same face.

While looking for information on routes opened up in this gigantic amphitheatre, which starts from the south face of Bhagirathi II (6512 m) and ends with the "Scottish" route on Bhagirathi III, there was a detail that immediately caught my attention: one of these extraordinary walls was still unclimbed, despite attempts by a succession of teams in the 1990s – this was none other than the west face of Bhagirathi IV! At 6193m, Bhagirathi IV is the lowest among the peaks of the massif, but certainly not the least attractive from a mountaineering point of view.

The west wall fuelled my curiosity and I planned an expedition to Bhagirathi IV in 2015, with Luca Schiera (who has been my companion on various climbs spread between Patagonia and Pakistan), and Matteo De Zaiacomo "Giga", a 21-year-old who had joined our Ragni di Lecco group a few months earlier.

Our first attempt on the wall was a debacle: It did not take us long to understand what 'west face at 5,500m' means - 10°C until noon, and by the time blood finally returned to our hands and feet, we were exposed to the loud screeches of

Clockwise from above: The daunting climb after the traverse; Route followed for the west face ascent; The Bhagirathi Group of peaks.

stones falling all around us . We climbed two pitches and a half before beating a retreat.

However, we made another attempt the same year, following a more logical line 50m further right. This time we had three full days of climbing and bivouacking in a portaledge for two, before we came upon the final steep band of loose schist. Once again, we had underestimated the danger and difficulty of this 200m schist wall - made up of horizontal layers piled randomly one on top of the other, ready to crash down. Exhausted from fatigue and altitude, after two almost sleepless nights, we decided to give up and bail.

During our descent we discovered a line that might have allowed us to climb this wall: a 60m leftward traverse that led to a section where the schist band was much shorter – about 50-60m high. But deteriorating weather conditions did not let us attempt this possible route. It would have to wait for another time.

Four years later in 2019, Luca said to me: "How about returning to Bhagirathi this year?" I did not have to think long. This time we were organised to the smallest detail. In fact we didn't even have a "Plan B"

Things began exactly the same way in August of 2019 as

four years earlier: a flight to Delhi, the transfer to Gangotri, the two-day trek to Nandanvan base camp, perfect view of Shivling (6543m), tents in the same location, same cook - it seemed like deja vù.

On September 3, 2019 we were at the advanced base camp at 5000m. The monsoon had retreated, but it was unexplainably warm. All of a sudden I heard Giga shout "Look! ... Teo Look!" He sounded alarmed and I rushed out of my tent - just in time to see huge blocks of rocks almost the size of cars, bouncing down the proposed route that we were to climb the following day. Shattered rocks covered the entire wall with debris. I stood there speechless. Ten minutes later there was another massive rockfall along the same line. Had we been on our ascent line at that moment, we would have probably been crushed to death.

After witnessing such a terrifying spectacle, we aborted our climb and returned to base camp in low spirits.

September 14th 2019. Eleven days passed, during which we made another attempt on a more direct, sheltered line. This effort too turned futile when we found ourselves at the base of a completely blind dihedral after three days of climbing. Disheartened, we brought down all our gear and equipment and declared the expedition over. However, that night I seriously reflected on the possibility of a one-day ultralight speed ascent. I shared the idea with Luca and Giga and we decided to give it a try.

So it was that we were once again at the 5000m advanced base camp, staring up at the West face of Bhagirathi IV.

Clockwise from above: Final stretch towards the summit; Luca Shiera; Matteo de Zaiacomo; Matteo Della Bordella.

Leaving ABC at midnight in temperatures of -10°C, we started up our 2015 line at 3 a.m. on 15 September, taking turns to lead. The vertical and overhanging cracks were covered with dust and debris from the rockfall, which made climbing more difficult than in 2015. Ten pitches later we made a 60m leftward traverse that we had identified in 2015. This brought us outside the rockfall area into clean granite. But soon we had to negotiate several unstable blocks.

After a few more pitches, I passed the lead to Luca for the icing on the cake: the last section on granite before the last two pitches on layers of friable schist. It was the last of the day's light as he climbed the first pitch but the second pitch was climbed in the dark.

And then came the final snow slope. To keep our gear as light as possible we had carried only one pair of crampons, so now I took the lead to make anchors for my friends to jumar. At 11 p.m. we reached the 6193m summit, so euphoric that we no longer felt tired. We rested a few hours before making a descent from the east face of the mountain.

We named our route Cavalli Bardati.

Jogin I - 6465m (21,211ft)
Jogin III – 6116m (20,066 ft)
Area: Garhwal Himalaya, Uttarakhand
Date of Ascent: 6 September 2019

JOGIN I & III

By Abhishek Das

An expedition led by Abhishek Das, successfully summited Jogin I & III peaks in September 2019. From a base camp at Kedartal, they set up three higher camps and scaled Jogin I on 6 September at 09:13 AM. Two-and-half-hours later they stood atop the summit of Jogin III. This was the first post-monsoon expedition of the season on Jogin.

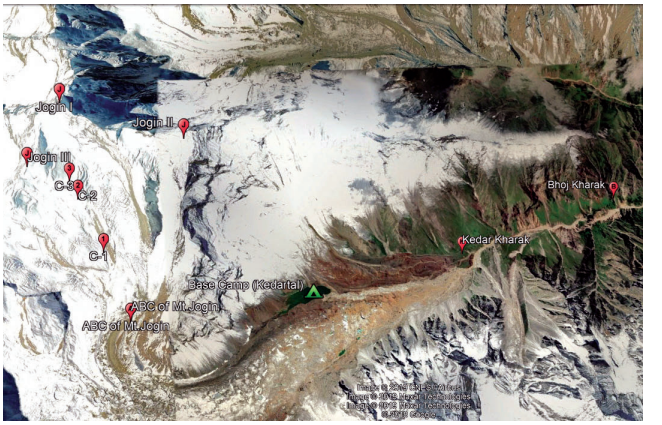
Negotiating a sharp ridge towards the summit of Mt. Jogin-I. Mt. Jogin-III can be seen in the distance to the left.

I first saw Mt. Jogin in 2016, during the course of another expedition. Three years later, I finally got the opportunity to climb the 6465m peak situated in Garhwal Himalaya.

After detailed planning and preparation that took us about five months, a six-member team departed from Kolkata on 21st of August 2019 for Uttarkashi, where we were joined by two other members.

We spent the next two days organising climbing equipment and provisions and completing the required administrative work before leaving for the expedition. On 26 August we left Uttarkashi for Gangotri (3415m), the road-head for our expedition.

The following morning, at around 0845 hours, we started our approach march from Gangotri towards our 1st transit



Top: Google Earth image showing the route map of Jogin Expedition; Facing page: Mt. Bhrigupanth (left) & Mt. Thalay Sagar (right), from Base Camp (Kedartal 4690m).

camp at Bhoj Kharak (3780m). Very soon we crossed Bhagirathi River and entered Kedar Ganga Gorge. The route has steep gradient but the gorge widens up into a valley as one gains altitude. The trail to Bhoj Kharak is along the left bank of Kedar Ganga River, and we had to trek through dense green bushes as we were the first team of the post-monsoon season. The entire route was fairly steep and it took us around four hours to reach the campsite.

The next day we started at 0830 hours for our camp at Kedar Kharak (4350m). The route led us through the lush green Kedar Ganga valley, while we trekked along the left bank of Kedar Ganga stream. After carefully negotiating a few tricky sections of the route exposed to rockfall, we arrived at our campsite near a small stream at Kedar Kharak at around 1300 hrs.

Post lunch, all team members went on an acclimatization walk by the small stream. We gained an altitude of 150m and also got an idea of the route ahead.

The following morning, on 29 August 2019, we started out for Kedartal, the site of our BC, at 0930 hrs. We trekked along the small stream flowing from the glacier ahead, and soon hit a terminal moraine. Walking up the moraine we came to a ridge connecting the left lateral moraine of the Kedar Ganga Glacier. Kedartal, a glacial lake at 4690m located on the left bank of Kedar Ganga Glacier, was visible from our end of the ridge. We set up our base camp between the lateral moraine of Kedar Ganga Glacier and Kedartal at an altitude of 4690m. It took us about three hours to arrive at our base camp.

The next day (30 August 2019), we woke up early to perform a Puja ritual and segregated our loads for higher camps. We then did a load ferry to the advanced base camp (ABC: 5045m). The route to ABC was entirely over the left lateral moraine of Kedar Ganga Glacier.

We spotted three possible locations for our ABC. The first

one was at an altitude of 4970m, a section of flat ground next to a small tarn, more appropriate for a larger team. The second location, at an altitude of 5045m, was comparatively smaller, with a water source nearby. The third possible campsite was at an altitude of 5107m. At higher elevation than the other two sites, the route ahead was visible from this location but unfortunately there was no water source nearby. Mt. Jogin, which had remained invisible so far, could also be seen from this point. We, however, decided to set up camp at the second location (5045m) but dumped some of our load at the 5107m site. We were back at the base camp by 1500 hrs.

The following day (31 August 2019), we again did a load ferry to ABC and offloaded some of our technical equipment further up at 5107m, before returning to base camp.

Top: Camp-II (5735m); Facing page: Towards Camp-I.

We woke up next morning to find it drizzling. The rain continued throughout the day, but a three-member team, nevertheless, went ahead and occupied ABC (5045m), while the rest of the team moved to ABC the following day - on 2 September.

On 3 September 2019, after an early breakfast at ABC, we trekked towards Jogin Glacier, a half-hour walk from our campsite. When we saw the enormous open crevasses on the glacier, we fixed a line and moved diagonally over the glacier, at the end of which there was a small rocky patch of moderate gradient, followed by a snowfield that spread up to the base of an ice wall. We decided to set up Camp-I (5270m) in the middle of this snowfield. Having done that, we trekked towards the base of the ice-wall to leave some ropes, snow stakes, and other climbing equipment at that point. Two of the team members occupied Camp-I, while the remaining team returned to ABC.

Next morning, on 4 September, those of us who had returned to ABC climbed back to Camp-I and after resting a while there, the entire team moved ahead to establish Camp-II. In order to do so, we first had to get to the base of an almost 500m high ice wall, the gradient of which varied from 60 to 75 degrees. Two HAPs/HAFs helped us to fix the rope. After negotiating the critical section of the ice wall we found a ledge, at an altitude of 5735m – this was to be the site for our Camp-II. It was now 1730 hours - it had been a long, tiring day.

We woke up late the next morning, and after winding down Camp-II, we started out for our next and final camp at around 1000 hours. Our plan was to set up the summit camp at about 6000m at some point between Mt. Jogin-I and Mt. Jogin-III. But surprisingly at the end of the ice wall, we found ourselves amidst a vast snowfield, ideal for camping. We decided to set up our Camp-III/summit camp there at an altitude of 5840m. It had taken us an hour and a half to reach this point from Camp-II. We could see Mt. Jogin-I right ahead of us, Mt. Jogin-II to our right, and Mt. Jogin-III to our

left – the three peaks together for the first time during this expedition. Mt. Thalay Sagar and Mt. Bhrigupanth were standing tall right behind us. This was a superb location to attempt the summit from.

We woke up at 0030 hours in preparation for our summit march. The weather was clear though it was tremendously cold that night, and felt more so with the wind chill.

Setting out for the climb at 0130 hours through the vast, flat snowfield, the gradient increased gradually to 70° till a point where the routes to the summits of Mt. Jogin-I and Mt. Jogin-III diverged.

This point was like a col, a depression, from where Mt. Jogin-III was to our left and Mt. Jogin-I to our right. It was 0430 hours now. We began our climb towards Jogin-I

Top: At the summit of Mt. Jogin-I (6465m). To the right in the photo are Mt. Bhrigupanth, Mt. Meru, Mt. Thalay Sagar; Facing page: Towards Camp-III/Summit Camp.

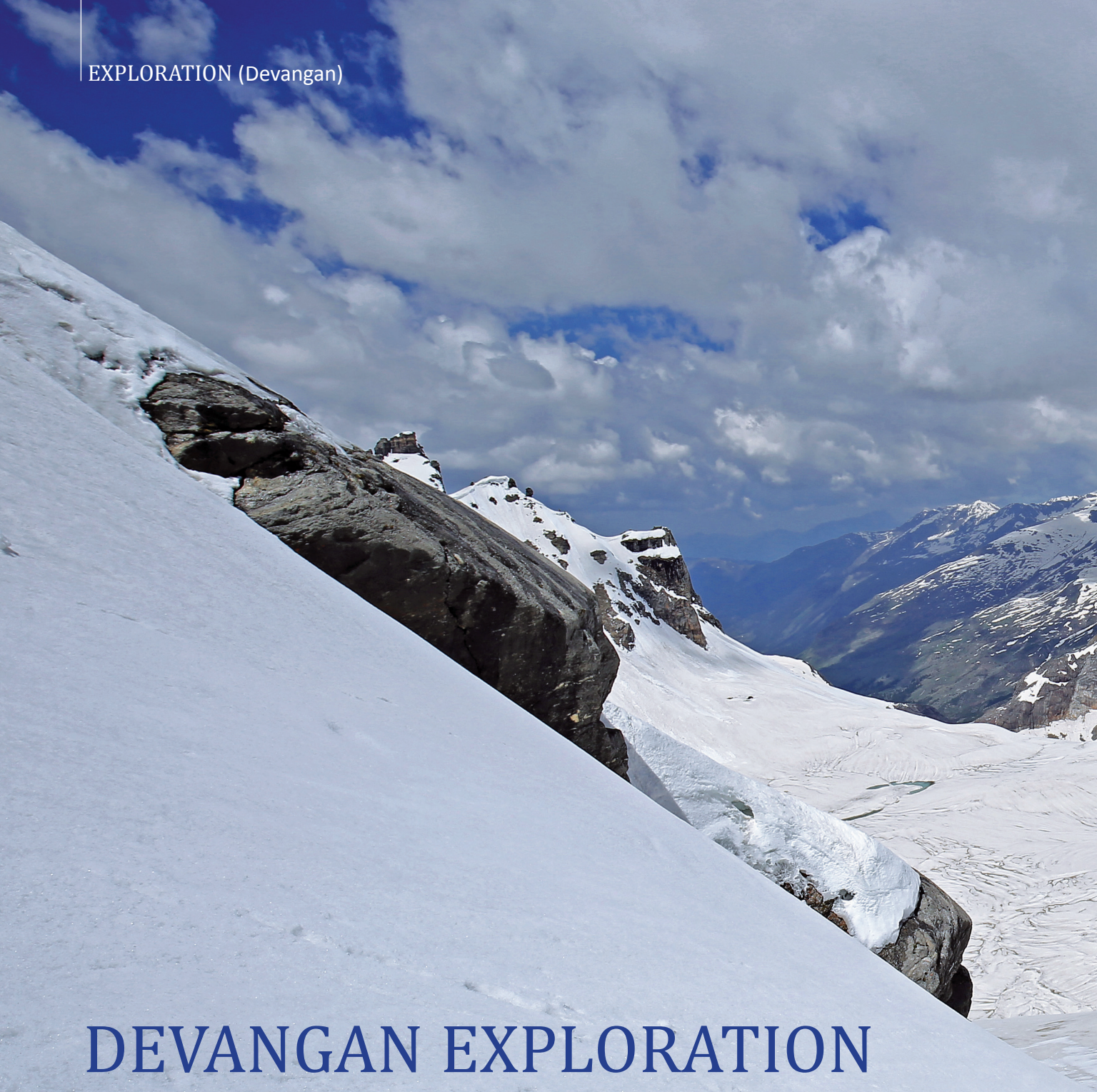
and after three pitches of moderate gradient, we found ourselves on a ledge, from where we had to negotiate a cornice. And at 0913 hours we were at the summit of Jogin-I (6465 m). There was a dangerous and huge cornice at the top, because of which we initially decided to summit at 6459m (altimeter reading). However, the three of us cautiously went up to the top and recorded the highest altitude to be 6484m.

After taking photographs at the summit, and of the surrounding mountains, we began our descent. Upon reaching the col, the depression where the routes of the two peaks bifurcated, we carried on towards Jogin-III. There were a few hidden crevasses right below the summit of Jogin-III which we negotiated perfectly and scaled the summit at 1143 hours, and soon thereafter began our descent.

Upon arriving at the summit camp, we rested for an hour, hydrated ourselves, wound up the camp, and started our descent towards ABC. Three team members climbed down all the way down to base camp the same evening while the rest followed the next morning (7 September 2019). We left for Gangotri later that day, happy with the success of the expedition.

Jogin, a 6465 m high Himalayan peak might not be one of the highest or the mightiest peaks, but the scenic beauty of the trails along the way, and the pristine view of the surrounding peaks made this expedition a memorable one.

Jogin I & III 2019 Expedition Team:
Mr Abhishek Das (Team Leader) (summiter),
Mr Arun Kanti Das (summiter), Dr Vikrant Sharma (summiter)
Mr Manjeet Kataria (summiter), Ms Arpita Roy (summiter),
Ms Mousumi Das, Mr Buddhadeb Das, Mr Subrata Datta.



DEVANGAN EXPLORATION MAY – JUNE, 2019

By Partha Sarathi Moulik

Jagatsukh - Devangan col - Malana glacier - Animal Pass -Tosh

In May of 2019 a team of five from Pathajatra Budge Budge, led by Debabrata Mukherjee, embarked on an exploratory trek in Himachal Pradesh, India, to open a new route from Jagatsukh to Tosh through Devangan Col (known synonymously as Duhangan Col) and Animal Pass.

Walking up from Twin Lake camp above Malana Glacier to Animal Pass. In the horizon Devangan/Duhangan col.

This page and facing page: Climbing up from Dhuangan Col Base following a new buttress route.

On 30th of May, we set off from Manali towards Jagatsukh, a picturesque village, and the capital of former state of Kullu, about 7 kilometres from the town of Manali, and then onwards to Duhangan Hydel Power Project site - the starting point of our exploratory trek - where we reached around 1 pm.

After an hour's break we began our Devangan Exploration march. A two-km trek along the right bank of Jagatsukh Nala, through a sparse forest dotted with patches of snow, brought us to a camping ground at 3013m just 500m short of Chikka. We found another team, on a different trek, at the camping site. A rivulet flowing into Jagatsukh Nala reinvigorated us.

31st of May began with a beautiful sunrise and a strikingly clear blue sky. Another team led by Chinmoy from Bengal arrived at the camp on its return march and we chatted with them for a while. But the pleasant frame of mind quickly changed to a sour one when three of the five LAPs hired in Manali two days earlier, refused to move any further claiming they were hired only for three days! After much persuasion they finally agreed to hike along.

We left the camping ground at 9 am for the day's upward trek. The route beyond the Temple of Takshak Nag had disappeared under the season's heavy snow and so had the Jagatsukh Nala! We had to take the snow-covered river track as our route to Seri. We got there at 3:30 pm. Once a glaciated lake, Seri is now a meadow, normally with an astonishing variety of herbs and alpine flowers. But this season Seri campsite at 3720m was covered in snow.

1st of June - We left Seri in the morning for Tenta. The route

Going down to Malana Glacier through hidden crevasses is the main challenge of this route.

up an uneven moraine was covered with snow. An hour and a half later we arrived at a rock slab from where we could see Seri and Chikka campsites, and also the Jagatsukh Nala.

After a 15-minute breather, we re-started our ascent and 30-40 minutes later a gradual walk brought us, a little after noon, to our camp site at 4024m. Mount Deo Tibba with its huge hanging glaciers rose in front of us.

The weather had remained perfect the last three days – since the time we began our expedition. The route so far had not been demanding. From Tenta up to Devangan Col base too, the route looked almost level barring a few ups and downs.

2nd of June – Before starting off on the trek ahead we first sorted our loads, and packed the redundant items to go back to Manali with the three LAPs. Interestingly, we had observed small pugmarks that morning, close to our tents, of marmots – so we thought. This turned out to be a blunder in the coming days.

On our approach to Devangan Col base we saw an unoccupied campsite that had leftover flour, potatoes, onions and some essential spices. Our cook Mahavir was quick to collect those as contingency.

After an hour and a half the entire team reached Devangan Col base camp site at an altitude of 4494m. This site is not the conventional Chota Chandrataal camp site – it is little further and much closer to Deo Tibba. We wanted a site that would offer a direct ascent on the wall. A vertical and short climb would not only save time but also ensure minimal snow on the vertical slope. Had we chosen the conventional route, we would have had to fix rope along the entire snow laden route and also risk sudden avalanches on the 45 to 60 degree slope towards Devangan col. Our current campsite required us to fix ropes only for the near vertical ascent. And our biggest challenge was to uncoil and cut the polypropylene rope!

Black clouds appeared in the western sky, heavy and black.

3rd of June – Much to our relief the dark, heavy clouds vanished, but the mystery of pugmarks re-emerged.

Starting at 9 a.m., Raghu and Biman were the first to go ahead with ropes. Dipak and Ganesh were next, followed by Rahul, Pradip and me, and finally Debu da. Subhamoy and Mahavir stayed back at base camp.

Climbing conditions changed rapidly. The slope quickly transformed from gradual to near vertical. Soft snow switched to hard ice, and the wall was awash with avalanche chutes! The weather too had slowly begun to deteriorate.

From a vantage point on the wall the beautiful lake Chota Chandrataal was visible, covered in snow.

Dark clouds were beginning to gather once again, and wind was picking up. We quickly off-loaded our foodstuff, stored it underneath a rock, and made our way back to base camp.

Lightning, thunder, and heavy snowfall carried on until 2AM. The heavy and loud sound of an avalanche kept us

Our route all along Malana Glacier coming down from below Indrasan.

PLACEMENT & LOCATION OF CAMPS

1st Camping Site: 2 km trek from Dhuangan project site. Camping ground at 3013m, 500 m short of Chikka; L 32° 12' 08.4''N; 77° 19' 42.1''E

2nd Camping Site: Seri, 3720m - a 5 to 6 hour trek from Chikka camp; L 32° 11' 09.4''N; 77° 19' 42.1''E

3rd Camping Site: Tenta camp site at 4024m. 3 +1/2 hour trek from Seri; L 30° 10' 37.6''N; 77° 21' 18.9''E.

4th Camping Site: Devangan Col base camp at an altitude of 4494m; L 32° 10' 10.6''N; 77° 22' 49.7''E

5th Camping Site: At 4863m; L 32° 09' 56.6''N; 77° 24' 04.3"E.

6th Camping Site: At 4540m; L 32° 10' 07.2''N; 77° 25' 12.7''E.

7th Camping Site: Near Twin Lake at 4453m; L 32° 08' 09.9''N; 77° 26' 05.1''E.

8th Camping Site: 800 m away from Samsi Thatch towards Tosh at 3854m; L 32° 07' 05.2''N; 77° 28' 45.1''E.

awake in our tents. Plans for the following day had to be altered.

4th of June – We woke up to the blinding reflection of fresh snow. The debris near Deo Tibba icefall was proof of last night's avalanche. The route that we established yesterday now lay buried under the snow. Curiously, pug marks appeared once again near our tents, coming all the way from the wall beside Deo Tibba. We wondered if it might be a snow fox family!

Overnight, the wall we had intended to climb became avalanche prone. Debu da, who had left soon after breakfast to retrieve the ropes fixed a day earlier, narrowly missed a couple of avalanches. Rest of the day remained calm and quiet.

5th of June - Divided in three groups, we began our ascent in the morning - the first group with Debu da, Biman, and Raghubir, followed by the four - the cook, helper, Ganesh, and Dipak, the last group being Subhomoy, Rahul and I. Fresh snow slowed us down considerably. To our surprise we noticed the upward trail of the snow fox family.

We were a little behind the rest of the team, so when we got to the point where we stored our food yesterday the others were already there, looking puzzled. Suddenly we were told, "*Khana Khatam...*" (There's no food.) Perplexed and bewildered we asked the reason; Dipak pointed to the empty food wrappers under the rock - neatly spread over ice. And wrappers, which were still intact and contained food, had been pushed further beneath the rock, impossible for any mortal to access or retrieve them. We suddenly realised that this fox family had been shadowing us for the last four days, right from Tenta. As the de facto quartermaster, I had to take stock of the remaining food urgently. We were left barely with four days of food!!!!

Ropes were fixed over the remaining pitches. The ones fixed below were retrieved.

Malana glacier from the way up to Animal pass.

We reached the top of the wall, a razor sharp ridge (5150m). Animal Pass was clearly visible to the east. Devangan col/ Doangan col/Duhangan col was 500m towards south. Mt. Indrasan could be seen towards NNE, Mt. Deo Tibba to the north, Norbu Kang to the south and Aliratni Tibba to our east, a little to the right of Animal Pass.

We now had to fix rope on the opposite side – a treacherous vertical drop over a snow-covered glacial field.

We abseiled down the wall, then roped up for the traverse over the glacial field. After traversing 2-3 km, away from the wall and Deo Tibba to avoid any possible avalanche, we settled for a camp site at 4863m. The site was like a grand amphitheatre - to the west was the wall we had just negotiated, Deo Tibba in North West corner, Indrasan in north, a small wall to the east, Aliratni Tibba in south east, Norbu Kang in south west, and Malana glacier below Indrasan. A truly magnificent 360 degree view! Sadly, the dark overcast sky deprived us of photo opportunity.

It took us two hours to prepare the camp site. Biman, meanwhile, performed a Sherpa Dance for the rest of us. Little did we know of his hidden talent!

6th of June - Relentless snow started the day on an ominous note. Furthermore, there was an imminent danger of serious food shortage - the snow fox family was still following us! Things could get complicated from here...

It finally stopped snowing around 1.30 – 2.00 pm. We decided not to waste another moment and prepared to move within 30 minutes! We suspected that the crevasses at the junction point of descent to Malana glacier - the crux of this exploration - would still be well-covered to provide some resistance.

Moving north we began our descent towards Malana glacier. The field was crisscrossed with crevasses – it was difficult to take a single step without first probing the next.

As far as we knew, this was the first time a group of mountaineers and explorers had crossed over from Devangan Col and stepped on Malana glacier. Finally, at about 6.30 pm we reached a site at 4540m where we pitched our tents, almost surrounded by crevasses. To our south, we could see a distinct depression in a rock wall, which could, after a steep descent through Malana glacier, lead to Tosh. We named that depression Tosh col. However, a 2-3 km trek followed by a fairly steep climb would take us to Animal Pass.

7th of June – We woke up to great weather. Divided in three groups, we descended gradually and within an hour reached a blue crescent shaped lake. From here it would be all uphill till Animal Pass. After resting an hour we began our climb over soft snow. At about 1200 hrs we were near Twin Lake at a height of 4453m. Such was the beauty of this place that we promptly pitched our tents! And that too at 12 noon!!! Relaxed, we took scores of photographs of the surrounding

Climbing up the last few steps to Devangan/Dhuangan; Facing page: Rappeling down to Devangan from the high point on Deo Tibba ridge. North of Dhuangan col.

valleys and mountains.

8th of June - Having left our camp site at 10.30 AM, a steep climb of 200m or so led us directly on to Animal Pass (4763m) at about 1200 hrs. Clouds had started to gather and as we began our descent it began to snow. We walked past a frozen lake just below the pass at a height of 4280m. The snowfall began to get heavier. After descending a few hundred metres, we removed our crampons. After almost eight days, we got to see grass in the distance. Tosh River was flowing torrentially through the plains of Samsi thatch. The camping ground at Samsi Thatch was covered with snow, so we camped 800m further away, towards Tosh at a height of 3854m.

9th of June - This was our last day of exploration. Relaxed and relieved we felt lighter. But there were large patches of ice that still had to be negotiated. Just before entering Saram Thatch, we met a shepherd who offered us curd. He declined to accept money from us saying we were his esteemed guests who had endured hardships to come to his place. We reached Budhabon at 2.30pm, snacked in a make shift restaurant named "Glacier Point Dhaba," and arrived in Tosh around 3.30pm – content and buoyant.

Mr. Khem Raj Thakur hosted us in his nature camp at Prini on our return. Our sincere gratitude to him and his team. We also acknowledge our thanks to Indian Oil for bearing some of our expenses. The lubricant division of Indian Oil also provided us with T-shirts and Caps.

Climbing team: Debabrata Mukherjee, Biman Biswas, Shubhamoy Ghosh, Rahul Guha and Partha Sarathi Moulik.

Support team: Raghubir Singh HAP, Mahavir Singh Rana (cook), and Pradip Thakur (helper)

ASCENT OF LALANA - TRIUMPH AND TRAGEDY

By Sudipta Sengupta

Fifty years ago, three women from Kolkata - Sujaya Guha, Sudipta Sengupta and Kamala Saha – summited a 6000m virgin peak in the Lahaul region of Himachal Pradesh. They named the peak 'Lalana', which means 'woman' in Bengali. Fifty years on, no one else has managed to summit 'Lalana'. It remains a once-only climbed peak

Mt. Lalana - 6265 m
First Ascent: Sujaya Guha, Sudipta Sengupta, Kamala Saha, 1970 (Members of an all women team from Bengal)
Area: Lahaul, Himachal Pradesh

It was in 1970 that a group of six young women climbers set out on a big adventure to climb a virgin peak in the Lahaul Himalaya. Most of us were in our early twenties. The leader Sujaya Guha, a keen climber and homemaker, was in her early thirties. I was then a geologist at the Geological Survey of India and the Deputy Leader of the expedition. The other members were Kamala Saha, Nilu Ghosh, Shefali Chakraborty and Purnima Sharma. Sujaya and I had completed Basic and Advance courses from the Himalayan Mountaineering Institute, Darjeeling and an additional Advance course from Nehru Institute of Mountaineering, Uttarkashi. Both of us were members of Ronti Expedition in 1967. Kamala, a second year MA student of Calcutta University, did her basic course from HMI and Advance

course from NIM. Nilu and Shefali had gone through basic training at NIM. Nilu, at that point of time was looking after her family business and Shefali was a biochemist at the Pathology department of SSKM Hospital, Kolkata. Purnima, our doctor was attached to Chittaranjan Hospital.

The aim of our expedition was to climb an unnamed virgin peak (20,130 ft) in Lahaul Himalaya. If successful, we planned to name it Lalana, which means 'woman' in Bengali. Before the expedition, we sought advice from Robert Pettigrew, the famous British mountaineer, an authority on this region who had visited the area several times since 1958. He warned us that it was a very dangerous and difficult peak.

Clockwise from facing page: Sudipta, Sujaya and Kamala at the summit of Lalana on 21 August, 1970; Negotiating a steep slope at the snout of Lalana glacier; Lalana peak.

"Don't kill five maidens of India", he cautioned Sujaya. However, it made us more determined since the peak had never been attempted. It was an adventure and a challenge we were ready to take on.

We left Howrah Station aboard Kalka Mail on 25th July, 1970 and reached Manali on 30th July. There we met Mr Harnam Singh, Director of the Manali Mountaineering Institute, and Sherpa Wangdi, Head of the Sherpa Guide School, to help us organise climbing equipment, Sherpas, porters and mules. The Institute supplied us with mountaineering gear and Sherpa Wangdi provided the manpower. We hired Sherpas Pasang and Gyaljen and high altitude porters Palgun, Lama, and Shering, and cook Guptaram. Mules were hired to carry the expedition loads till our base camp at the snout of the Bara Shigri Glacier. We bought rations, groceries, vegetables and other food items and packed them in loads to be carried on mules.

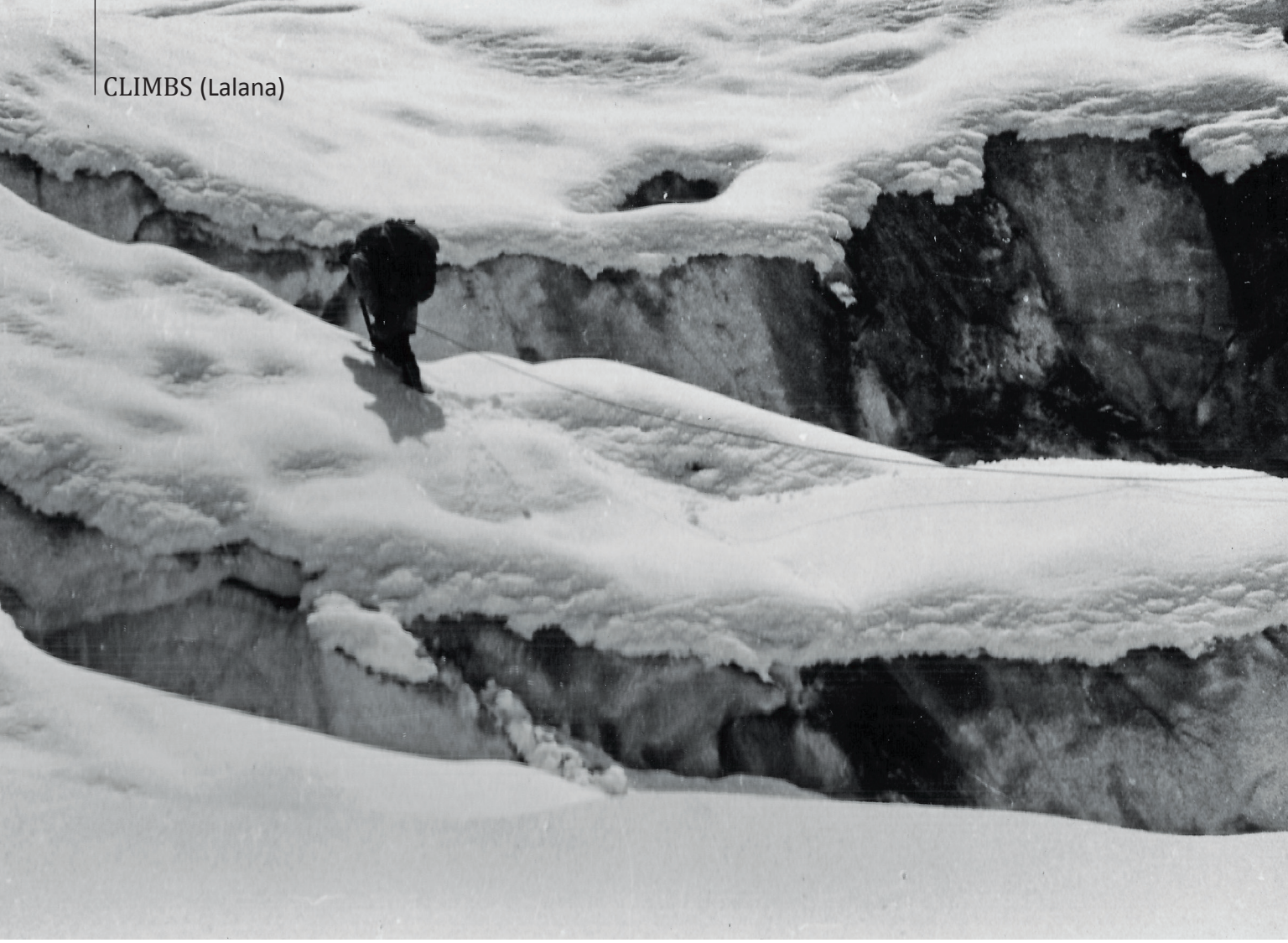
Finally the expedition started from Manali on 5th August. We got a lift in a truck from GREF up to Gramphu across the Rohtang Pass. At Gramphu we left the Manali-Leh Highway to take the road to Kaza which passes through Batal. After spending the night at a roadside shack in Gramphu, our trek started on the morning of 6th August. By that time, the mules and their handlers had joined us. The route was along the bank of Chandra River. The trek proved to be a geologist's delight for lack of any vegetation. All along the road I would stop now and then to study the rocks only to be hurried by our leader to keep up with the others. We stopped at Chhatru and Chhotadara for night halts, trekking about 17km a day.

On the morning of 8th August, we crossed the raging Chandra River by a rope bridge - a thrilling experience indeed! Trekking along its southern bank, we reached the confluence of Bara Shigri Glacier with the Chandra and crossed the glacier over its terminal moraine. By late afternoon we had established our base camp on the other side of the glacier snout at 12,700ft.

Setting up base camp and advanced base camp

The mule party had gone ahead along the road to Batal and crossed the river over a proper bridge. This was a longer route than the one we took. We expected them to reach the camp later, but they did not arrive that night. Our tents and all the equipment and rations were with them. Fortunately for us we all had our sleeping bags, air mattresses and some food in our rucksacks. So we had no option but to spend the night under the open sky. It was an exciting experience but also windy and very cold. Gradually with nightfall, the temperature dropped further. There was no firewood to light a fire. Huddled together, we sang till midnight and then snuggled into our sleeping bags. Our roof was the clear night sky in all its magnificence with bright stars shining brilliantly like diamonds.

Relieved to see the mules arrive the next morning, we set up our base camp. For the next few days, we were busy



unpacking and redistributing our loads.

To our dismay, it started to rain on 11th August. Nevertheless Sujaya, Shefali, Kamala and I established the Advanced Base Camp 1 (ABC1) at 13,100 ft. The rain continued but we decided to carry on and set up Advanced Base Camp 2 at 13,700 ft, facing the feeder glacier to Lalana. The route over the moraine was very slippery because of rain, and our ill-fitting, rented, climbing shoes were cumbersome. We had to wear thick socks to fit into them!

The boulders were mostly granite gneiss and quartzite with some conglomerates, quartzose mica schists and slates. At places, there were beautiful ice caves with small lakes of blue water. The weather turned worse over the next two days, with incessant rain and fierce winds. Inside our tents we could hear the clatter of rockfalls in neighbouring mountains. Rainfall is rare in this region and the porters told us they had not seen so much rain in a decade!

Journey to Camp 1

The weather improved after a couple of days. On 16th August, Sujaya, Kamala, Gyaljen and Pasang established Camp 1 on the Lalana glacier at a height of 16,100ft. The following day, Lama and I started for Camp 1, leaving Nilu, Shefali and Purnima at ABC 2. We encountered a sheer rise of over 1000 ft of a scree wall of loose rocks which led to the snout of the Lalana glacier. The next obstruction was a vertical ice wall which we negotiated with 200 ft fixed rope. This was followed by an hour-long traverse on yet another ice wall with a 70 degree slope after which the gradient of the glacier decreased but our progress was slow because of knee-deep soft snow. Finally we reached Camp 1 by late afternoon. Sujaya and Kamala greeted us with a cup of hot tea!

The Difficult Climb and Success!

On 18th August, we started for Camp 2. The going was tough and the altitude made breathing difficult. The entire glacier was crisscrossed with crevasses, some wide and some narrow. Most crevasses were transverse, across the flow of the glacier. Some were crescent shaped, resulting from joining of two sets of shear fractures. The wide crevasses, though difficult to cross, were at least visible. The treacherous narrow crevasses, covered by snow-bridges, were not obvious and collapsed if one stepped on them. We had to keep deviating from our route under the circumstances.

After an arduous trek, unable to find a suitable spot for Camp 2, we pitched our tents along the length of a narrow

ledge between two monstrous crevasses at 17,000 ft. Given the precarious location, we had to anchor ourselves with a rope tied around us, each time we stepped out of the tent. We spent a tense night, fearing the ledge might collapse whilst we were asleep.

We were happy to get up in the morning and set out for Camp 3. Roped up, we began the climb. The weather was good but the route ahead was dangerous. All of a sudden I found myself dangling on the rope! Looking down I could see a bottomless pit turning from deep blue to absolute black. I was second on the rope after Gyaljen, followed by Sujaya. The snow-bridge bore Gyaljen's weight but collapsed when I stepped on it. Luckily, both Gyaljen and Sujaya secured themselves immediately and then pulled me up. This incident unnerved us a bit and we were more vigilant for the rest of the climb. We established Camp 3, our final camp at 18,000 ft.

Clockwise from facing page: Finding a route between two crevasses on the way to Camp 2; Sujaya and Kamala on way to Camp 2; Traversing the glacier.

20th August was a gloomy day. After the howling winds and incessant snow of previous night, we took a much needed rest in preparation for our summit attempt. On 21st August, Sujaya woke us up at 2 am. After a breakfast of hot tea and biscuits, we started for the summit at 4 am. It was surreal outside with soft moonlight bathing the mountains, and silence all around, except for the occasional crackling of ice. Lalana was clearly visible on the horizon.

After an hour of trudging through soft snow, we climbed a steep rocky slope. The rocks, mostly granite, were very slippery. We used fixed ropes to tackle this difficult route through hard ice and rocks. The crampons became a nuisance on rocks. At places we had to do rock climbing using pitons. After an hour and half, we reached the summit ridge and turned west towards the summit. Just 500 ft below the summit we discovered that we had used up all our five ropes. However, we carried on carefully, belaying each other. Just 10 ft below the summit, we all sat on a block of granite and rested for a few minutes. Then at 10.30 am, we went up together to the summit of our peak, Lalana.

We hugged each other and laughed, cried and talked. Finally we had reached the top! We put our flag and some offerings on the summit and took photographs. It is a pity that I do not have any colour photos of this expedition but the scene remains imprinted on my mind forever. All around us we could see several ranges of shining ice-capped peaks rising majestically into the blue sky. We saw endless number of glaciers, frozen rivers of white ice flowing down between the mountain ranges. There was a beautiful dome shaped peak of about the same height as Lalana, linked by a razor sharp ridge. We were tempted to go there but the Sherpas pointed out that it would be too risky without fixed ropes.

We sat at the summit mesmerised by the beauty around us. After more than an hour at the top, we began our descent. The return journey was far more difficult, especially the part without fixed ropes. Once we reached the fixed ropes, we all rappelled down, one by one. The rest of the path seemed long, dreary and endless. We recovered three ropes, left two on the mountain, and reached Camp 3 at 5 pm, collapsing almost instantly into our sleeping bags. Tired but happy, we slept like logs.

We descended to ABC 2 the next day, where Nilu, Shefali and Purnima were waiting anxiously for us. There was another round of celebrations with hot drinks and a real hot meal after many days.

Unexpected Tragedy

On 23 August we came down to base camp and arranged a

gala camp fire with our used cardboard boxes. Guptaram prepared a wonderful meal and we sat around the fire, our spirits high, planning the phrasing of our telegrams to the Indian Mountaineering Foundation and our families. On the morning of 24th, Lama went to Batal to fetch the mules for our return journey. We were packed and ready to leave the following morning. But Lama did not return. He did not return the next day either.

So, on 26th August, Sujaya, Kamala, Shefali, Pasang and Gyaljen started for Batal at 9 am to fetch the mules. Nilu, Purnima and I remained at base camp to finish the packing. The group did not return by 6 pm, so we assumed that they had reached Batal. At 6.30 pm, Gyaljen arrived breathless and declared "Leader didi mor gayi" (Leader Sujaya is no more). We were stunned and took some time to absorb the news.

Finally what we could gather from Gyaljen was that at 12-30 pm they had all reached Karcha Nala, 7 km from our base camp and just 1 km short of Batal, where knee-deep ice-cold water was swirling down the slope creating a strong current. It was impossible to cross the stream at that point. The Sherpas therefore advised Sujaya and others to return to base camp, while they climbed higher and crossed the stream where it was narrower, and managed to get to Batal. On their return journey, while crossing the stream at about 5 pm, they noticed a yellow windproof jacket downstream. They got down from the mules and to their horror found that it was the body of Sujaya, their leader didi. Gyaljen ran as fast as he could to reach us to break the news. Pasang was still looking for the others.

We were shocked. It was difficult to believe that after coming through such a perilous climb unscathed, a situation like this could arise on our way home. We wanted to rush to the spot but were prevented by the porters as it was already dark - they did not want another accident. All the porters went out immediately to join Pasang to search for the two missing members, Kamala and Shefali. It was a living nightmare. We lit up torches using clothes soaked in kerosene and put them around the base camp, so that the flares could be seen from a distance. Purnima got the first aid box ready.

Around 9:30 pm some of the porters arrived at the base camp with Shefali. We were very relieved to see her, though she was cold and wet, without shoes and shaking uncontrollably. Purnima took her inside the tent to give the necessary first aid. The porters informed us that they could not find Kamala. At our request they all went out again to search for her. They returned at 2:30 am in despair and

empty handed. She was still missing.

In the meantime, we learned from Shefali that after the Sherpas left, all three of them had sat at the bank of Karcha Nala till 2 pm. Then just before returning to base camp, Sujaya suggested making one last attempt to cross the stream. The other two, though initially reluctant, agreed when Sujaya said that they would back out if it was too difficult to cross. So hand in hand they got into the ice cold water. Sujaya first, followed by Kamla and then Shefali. Shefali was the only one who was carrying an ice axe. Suddenly the ice axe slipped from her hand and she along with it. While being carried

Clockwise from facing page: Returning from Camp 3; Setting up of Camp 2; The team at base camp (L-R) Shefali, Palgun, Sujaya, Pasang, Purnima, Nilu, Kamala, Gyaljen, Guptaram.

down by the swirling water she heard Sujaya shouting "ice axe, ice axe". Then Shefali got stuck between two boulders close to the bank, collapsed and perhaps lost consciousness for a while. When she regained her senses, she pulled herself out of the water with quite a bit of effort. She looked around for the other two and found no one. She shouted for them but there was no answer. Dazed with pain, cold and very wet, she started back towards the camp without any shoes as they had been washed away by the strong current.

Even after 50 years, it is difficult for me to write about that fateful night and the traumatic days that followed. Early next morning, we returned to Batal, crossing the Karcha Nala with the help of a rope. We went straight to the police station. They started an immediate search for Kamala but to no avail. Her windproof jacket was found at the confluence of Karcha Nala and Chandra River. It was concluded that she was carried away to the Chandra, a big turbulent river. The bad weather of the last few weeks had raised the water level dangerously.

Everyone including the Army, Border Roads and other agencies were alerted and they started their own search for Kamala. A very different telegram – from the one we had planned and worded - was sent from Batal. We, along with Sujaya's body, were taken to Keylong for necessary formalities. Everyone including the local administration, police and the Army were helpful and sympathetic. It took us three days to hear from Kolkata, which too was facing bad weather. Finally we were informed that Sujaya's husband, Kamal Guha, wanted her cremated in the mountains she loved so much. The Army carried out a ceremonial cremation for Sujaya near Stindri, a place near the confluence of Chandra and Bhaga.

We returned to Kolkata under very different circumstances - without two members of our team, to a tearful reunion with our families and friends. There was a tremendous sense of emptiness within me. Our remarkable success after an arduous climb of a difficult peak was overshadowed by the unexpected tragic turn of events. Not only had I lost two close friends but also my only companions with whom I shared the most thrilling and adventurous days of my life. The only consolation is that we left them in their beloved mountains.

After 50 years, I searched on the internet for Lalana peak to check whether it had been attempted or climbed again after us. I could get information on only one expedition. A team had attempted to climb Lalana in August 2018 but was unsuccessful. They had to return from a height of about 16,000 ft. I quote from a report by their leader Indranil Kumar, published in Indian Mountaineer.

"Lalana peak is a tough climb, with multiple crevasses all along, requiring a long programme for route finding and rope fixing, and a large quantity of equipment. We descended back to Base Camp, determined to plan another expedition to this majestic peak and repeat the feat of that first formidable team of women."

A CONVERSATION WITH COL. RANVEER SINGH JAMWAL

Colonel Ranveer Singh Jamwal has climbed Mount Everest thrice, been on more than 40 expeditions across seven continents, and scaled the Seven Summits. On 22 Jan 2019 he created a new world record when he climbed six Chilean peaks of 20,000 ft & above in a record time of just ten days.

Not only a mountaineer and a rescue specialist, Col Jamwal actively promotes Clean Adventure. He carried out back to-back cleaning campaigns on Mt Everest in 2013, 2015 & 2016..... bringing down more than 7000 kg of non-biodegradable garbage from higher camps of Everest. His efforts were applauded worldwide.

It was under Col Jamwal's leadership that a team from the Indian Army carried out an exceptional rescue operation at Everest base camp in 2015..... saving lives of more than 60 climbers in the aftermath of the 7.5 magnitude earthquake that hit Nepal. The documentary made on their rescue efforts by NDTV Prime has won more than six international awards.

He has been honoured with many awards including the Tenzing Norgay National Adventure Award, Vishisht Seva Medals, and the IMF Gold Medal.

A motivational speaker, he has given talks at the Indian Military Academy (Dehradun), Officer Training Academy (Gaya) & IIT Chennai, and at several corporate events.

He has featured in three documentaries that have been shown on Discovery & NDTV channels. In Aug 2017, Penguin published a book - Shoot Dive Fly - containing 21 motivational stories - his story is one of them.

What inspired you to climb mountains?

My Alma Mater HAWS (High Altitude Warfare School) inspired me to climb mountains. The rich history of HAWS made me confident that if all these legends can reach these heights after attaining skills from this institute, then why not me.

Who have been your heroes in life?

The mountaineering stories of legends like Tenzing Norgay, George Mallory, Col N Kumar, and Reinhold Messner really inspired me & they became my heroes when I started mountaineering around 17 years back.

Tell us about your fitness training prior to a major climb.

I do believe that the best practice for mountaineering is to go for mountaineering, but yes, I do increase the intake of carbohydrates & if possible, I go for long walks, hill climbing & Yoga in the morning.

High altitude climbing is not only physically exhausting - but also mentally challenging. How do you prepare yourself for the mental challenge? What is your diet plan before and during the climbs?

There is no training as such for mental preparation but yes, positive attitude and thorough planning of the climb make the task easier - one is mentally relaxed for the climbing challenge.

As far as diet is concerned, I adhere to my food preferences. I find daal bhaat more energising than any nutritional shake or protein powder... and Mango Tang any day better than energy gels.

What are your favourite climbs in the Indian Himalaya?

Mt Mana remains my favourite and also the most adventurous climb ever..... though the mighty Everest has its own charm and aura but the situations I faced during my very first mountaineering expedition as a leader on Mana make it my favourite climb. It had every challenge a mountaineer gets apprehensive about..... route fixing hitches, chilblains, frostbite, bad weather, blizzard, mix pitch climb, crevasses, snow blindness... I still get goose bumps thinking about it.

What has been your scariest moment while climbing?

It was the 2015 earthquake in Nepal triggering multiple avalanches at the Everest base camp. We were in the middle of Khumbu Glacier that day and it felt as though Nuptse on one side and Lo La on the other side were falling on us..... fortunately we survived and rushed back towards the crampon point. This was just a trailer – the scariest part was yet to come – the complete chaos and havoc we saw at the base camp. More than 18 climbers lost their lives and more than 60 were injured.

How difficult has it been to raise resources for the expeditions?

It is always a difficult task to raise funds for such adventures - 90% of the time it's a big no..... because the first thing sponsors ask is "Humein kya milega" (What's in it for us?) and another common response is: *"Cricketer hote toh kuch sochte".*

Have you had any climbing failures and if yes, what have you learnt from them?

I won't say failures but yes, there are a couple of mountains that I have been unable to summit. One is Mamostong Kangri in Ladakh. We had to turn back from our summit camp because of continuous bad weather. The other one is Pt 6565 in Garhwal Himalaya, which was an Indo-British expedition led by me.... we had to, once again, come back from the summit camp because of an avalanche prone gully where it had snowed there at the time.

You have conducted three cleaning campaigns on Mt Everest, bringing down more than 7000kg of non-biodegradable garbage from its higher camps. Do you support commercial climbing expeditions? Or do you feel they are not responsible enough towards the environment?

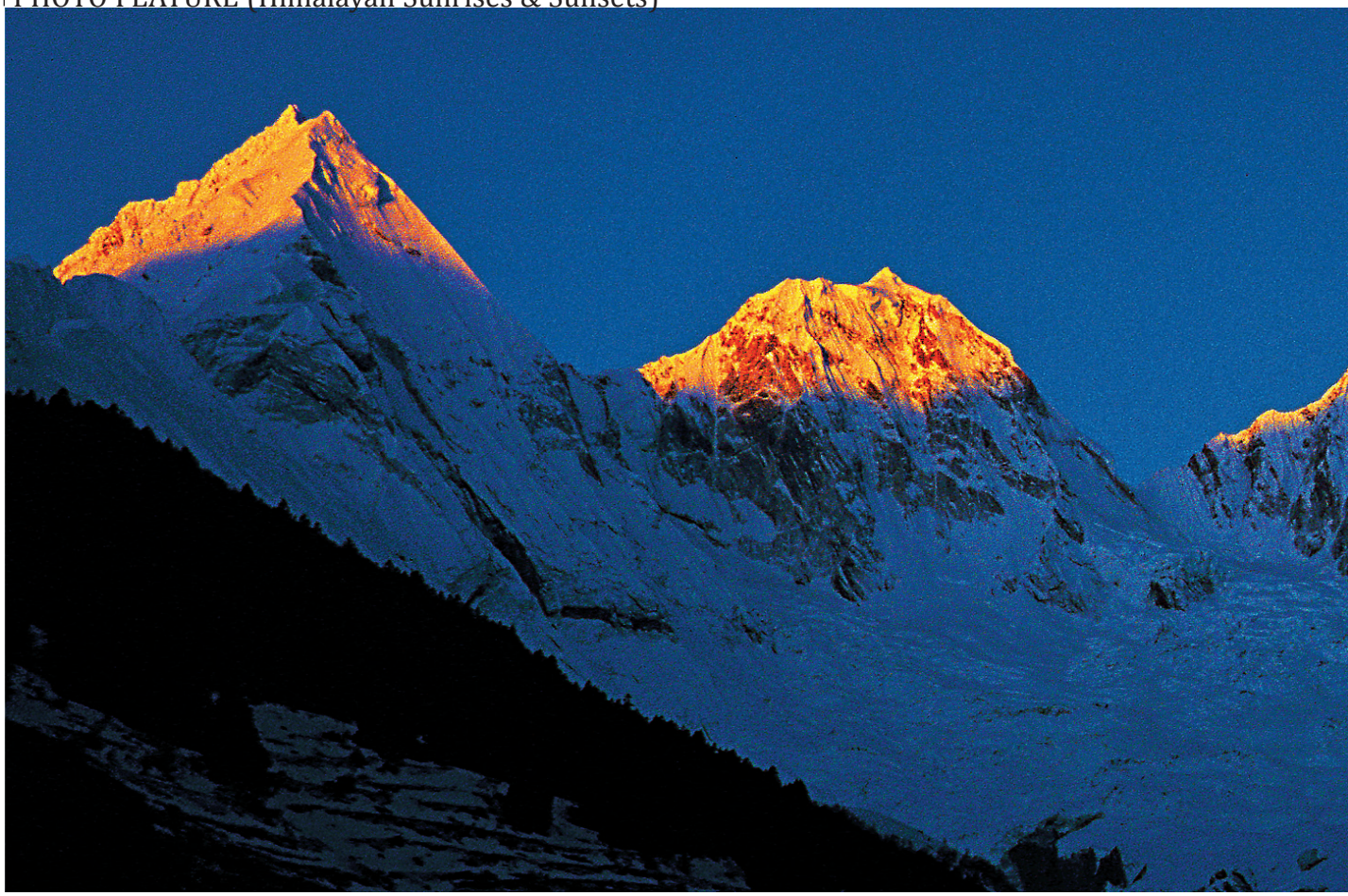
I am not against commercial expeditions but the irresponsible behaviour of some climbers really puts me off. There is an immediate need to keep a strict check on climbers by a regulatory body like what SPCC does on Everest, though they need to have more stringent rules and physical checks on ground.

SUNRISES & SUNSETS

By Ashok Dilwali

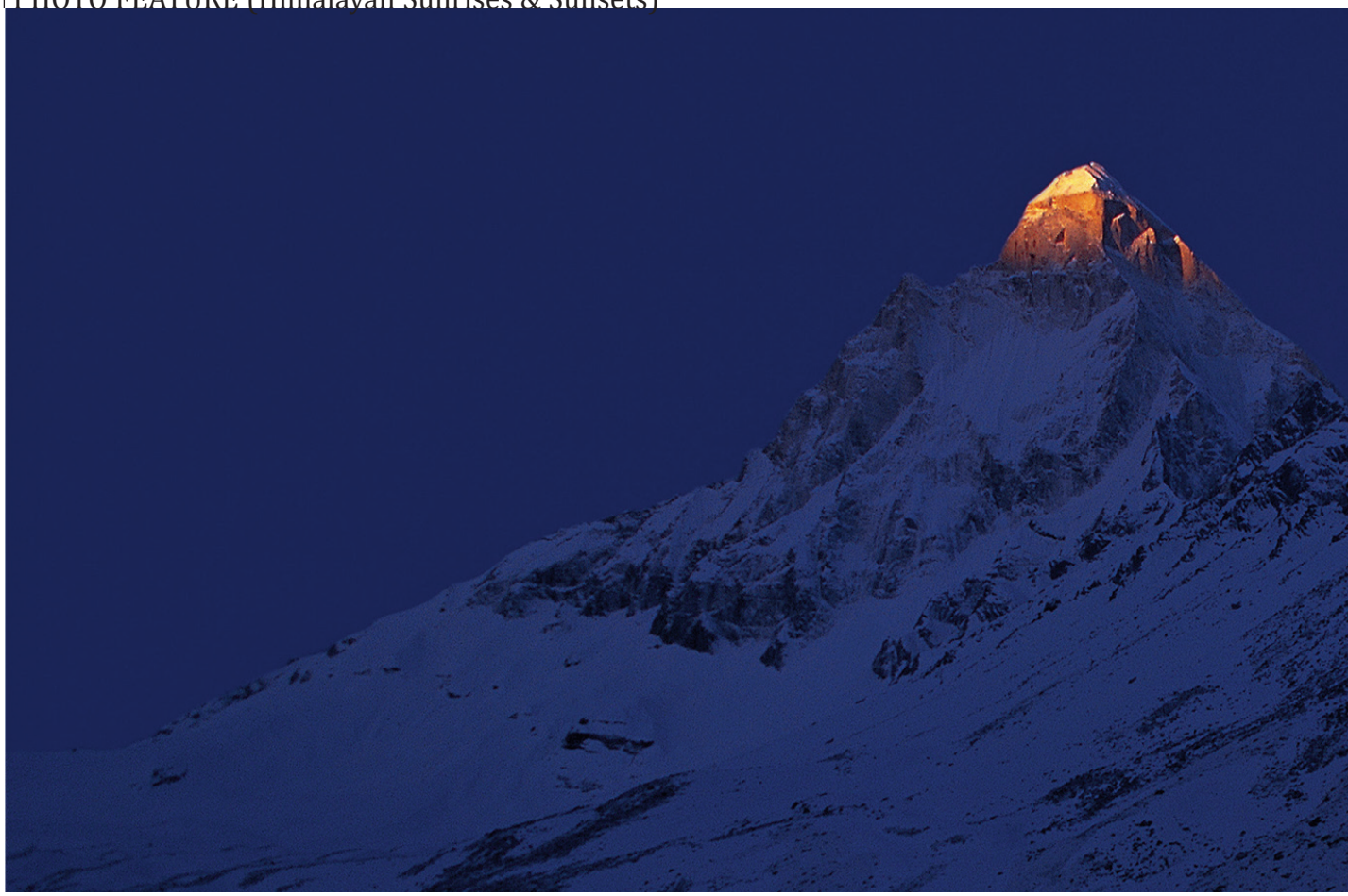
Ashok Dilwali has been passionate about Himalaya for over three decades. His collection of photographs of mountains and their surrounding landscapes have been immortalised in the two dozen books that he has published so far. 'Himalaya in Black and White' is a homage to Ansel Adams – whose ethereal and creative landscape photographs of the American West, in B & W, made him perhaps the best-known photographer of his time.

Haze often adds a touch of mysticism, as seen in this image. Shot from Kufri, Himachal Pradesh.



West face of Panchachuli massif. Panchachuli, a group of five peaks visible from several places in Kumaon region of Uttarakhand, are rich in mythology. Each peak, ascribed to one of the five Pandavas of Mahabharat fame, is considered an hearth where they cooked their last meal before ascending to heaven. (Uttarakhand)

East face of Panchachuli - a dramatic snowscape. From Dugtu village these huge peaks are just a touching distance – breathtakingly beautiful in clear weather. (Uttarakhand) Picture taken with Linhof 612 camera.

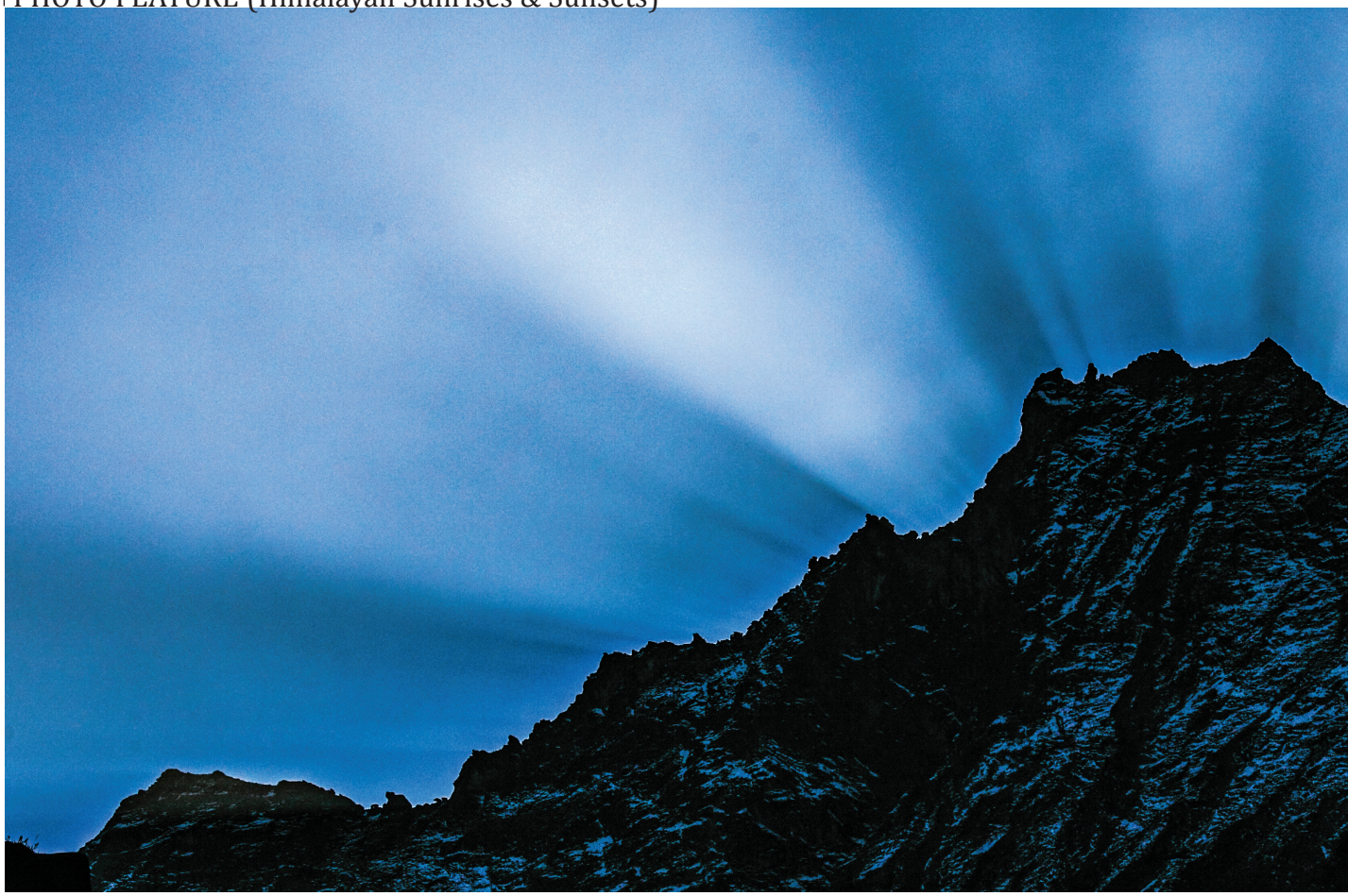


Sun sets on Nanda Devi and Sunanda Devi (Nanda Devi East) peaks, as seen from Sheetla Gaon, near Mukteshwar. (Uttarakhand)

On a trek to Tapovan in the month of June one year, I caught the morning rays brushing the summits of Shivling and Meru. A sublime moment. (Uttarakhand)

Sunrise - as seen from Kufri in Himachal Pradesh. A panoramic view of snow-covered mountain range in the horizon.

The interplay of sun and clouds during monsoons creates scintillating moments. This photograph was shot near Kufri, Himachal Pradesh. The clouds kept changing colours every few minutes with the setting sun.



Sunset on Kinner Kailash Massif (Himachal Pradesh). Generally, peaks are covered in clouds during the day but often the clouds begin dispersing at sunset. This happened here too. Kinner Kailash and Jorkanden (6,473-m) were concealed in clouds but I was able to catch the last rays of sun, a celestial necklace on the massif.

In Pangi Valley (Himachal Pradesh), driving very early in the morning towards a valley where the sun was just emerging. A matter of sheer luck, to be at the right place at the right time.

SIACHEN UNCOVERED - WAS IT ONCE 150 KM LONG?

Prof. Rajeev Upadhyay

Kumaon University, Nainital - Area of Specialization/Research field: Geodynamics, Himalayan Geology

Siachen, the 74 km long valley glacier in the eastern Karakoram region of northern Ladakh in India, is the largest glacier in Karakoram and second largest known outside the polar and sub-polar region. Lying between Saltoro Range to its west and the main Karakoram Range to the east, it sets off from an altitude of 5,753m (18,875 ft) at its source at Indira Col (erstwhile known as Col Italia) on the Indo-China border, and descends to 3,620m (11,875 ft) at its snout in the Nubra valley, With a number of fast-flowing surface streams, the glacier's melting waters are also the main source of Nubra River, which drains into the Shyok River of northern Ladakh, which in turn joins the Indus River. It is one of the longest mountain glaciers in the world, extending 74 km from north-northwest to south-southeast. However, Rajeev Upadhyay's frequent geological field trips in the area lead him to believe that the glacier was once 150 km long.

The word 'Siachen' means 'the place of wild roses' and in the glacier's context refers to the flowering plants that grow on the rocky outcrops near its snout.

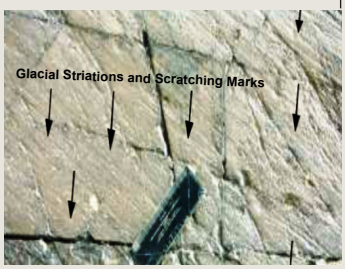
The existence of Siachen glacier was first reported 200 hundred years ago by Moorcroft in 1821. In 1848 British officer Henry Strachey became the first European to step on Siachen glacier, followed a year later by Drew. Subsequently, Ryall of the Survey of India sketched the lower part of the Siachen glacier in 1861 and estimated its length as mere sixteen miles. In 1909, Longstaff along with Neve and Lt. Slingsby were the first to traverse the length and breadth of Siachen glacier. They further established the size of Siachen up to Turkestan La, its northern limit.

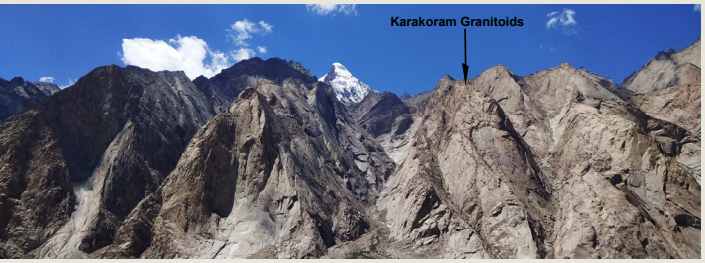
Receding or Advancing?

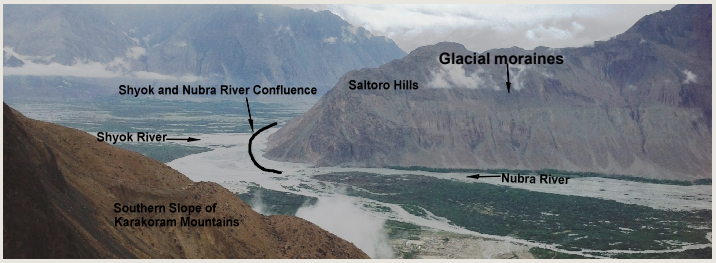
The 74 km long Siachen glacier is an example of the nature and size of the glaciers that must have once existed in the Himalaya towards the end of the last Ice Age. In 2005, the World Wildlife Fund (WWF) indicated and warned that the Himalayan glaciers, which regulate the water supply to the Ganges, Indus, Brahmaputra, Mekong, Thanlwin, Yangtze and the Yellow Rivers, are believed to be retreating at a rate of about 10-15 m (33 - 49 ft) each year. The concern over the melting of the Siachen glacier and its melting process has bracketed it amongst the fastest receding glaciers in the world. Its retreat is evident from the snout (base of the glacier) and through the continuous thinning of ice along its entire length. According to Hasnain (2005) the melting of ice in Siachen is accelerated by military presence on the glacier and if it is not demilitarized now, the glacier will vanish by 2050.

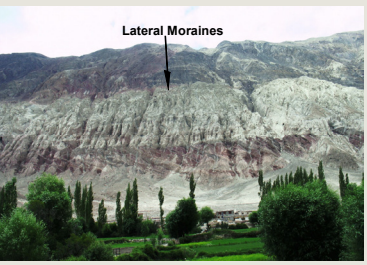
However, according to Taylor (2006), glaciers are growing in the Himalayan mountains, confounding global warming alarmists. Researchers found cooler summers are failing to melt winter snows, which are themselves becoming more frequent, resulting in advancing ice sheets. Similarly, Raina and Sangewar (2007) observed that the glacier's front, from AD 1862 until now, has revealed that there may have been a rapid advance of 700 m or so between 1862 and 1909, which was subsequently neutralized by relatively faster retreat between 1929 and 1958. The glacier, along its snout, has since been in 'rest mode' or with very low or practically nil retreat and one cannot pronounce any sensational retreat in the future unless a catastrophic climatic change takes place.

Based on several exploratory geological expeditions in the years 1995, 1996, 2002 and 2008 - 2019 in different parts of Nubra-Shyok river valleys and adjoining Karakoram mountains, I came across some exciting geological evidence which suggests that once upon a time (beginning of inter-glacial period) Siachen glacier was more than 150 km long, and extended at least up to the confluence of Nubra and Shyok rivers in Nubra valley of northern Ladakh. This is evident by the presence, in entire Nubra valley, of various glacial landforms including moraines spread all along the U-shaped glacial valley. The perched of glacial moraines and erratics can be seen along a straight line within the walls of valley up to a height of 600 m above the present valley floor









of the Nubra river. The volcanic and volcano-sedimentary rocks exposed around the villages of Burma, Charasa and Tircha etc. are carved out as roche moutonnée along with polished surfaces. Prominent glacial striation marks on the outcrops of sandstone of the Saltoro Molasse, exposed between the villages of Charasa and Burma - located near the Nubra-Shyok confluence further testifies that these bed rocks were once overlain by a thick cover of Siachen glacier. Similarly, between Sasoma and Changlung a huge hump of old morainic material could be a remnant of the glacier front of the present snout of Siachen glacier. All these pieces of evidence put together suggest that during the Holocene period the entire Nubra valley, which is more than 150 km long, was covered in at least 600 m to 1000 m thick ice cover of Siachen glacier. According to Raina and Sangewar (2007) the present length of Siachen glacier is 74 km. This suggests that since the last inter-glacial period Siachen glacier has receded more than half its original length or at least about 76 km.

Keeping in mind the critical positioning of Siachen glacier between North India, Central Asia and adjoining Tibetan Plateau, further detailed multidisciplinary work is required to understand the periodicity of advance/retreat or "rest mode', if any.

Acknowledgements:

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AVIFAUNA – IN AND AROUND TSO MORIRI, LADAKH

Dr Gopinathan Maheshwaran
Ornithologist at Zoological Survey of India

During my tenure at Zoological Survey of India's Arunachal Pradesh Regional Centre at Itanagar-yet another beautiful State within Indian Himalaya - I had the opportunity to visit Ladakh to document the faunal diversity in the state, especially its avifauna.

Departing from Solan, Himachal Pradesh, in August of 2008, we arrived in Koksar village the same evening. At an altitude of 3140m, Koksar is 19 km short of Rohtang Pass. I spotted some interesting bird species in Koksar, including the Citrine Wagtail and Rock Bunting. Rock bunting breeds in mountains of Pakistan and Western Himalaya, but comes down to adjacent plains during winter. The Rock Bunting that I saw was perhaps on its way down to the plains. Apart from these two migrants, I also recorded resident species such as Black-billed magpie, Yellow-billed chough and Hill Pigeon. These three species are so prevalent that one can see them around Rohtang Pass, onwards to Leh and beyond.

After crossing the Rohtang Pass the following day, where I saw a herd of Blue sheep - two young and three adults - we crossed Baralacha Pass, Noukila Pass, Thanglangla Pass and Moore Plain, arriving in Leh a little after midnight.

During our stay at the Forest Guest House in Leh I observed some interesting bird species, among them the Black-billed magpie. Like other magpies, Black-billed magpie also seems to scavenge on left-over food in the backyards of houses and is seen commonly in Leh. Just besides the Forest Guest House, I recorded a female Rusty-tailed flycatcher busy hunting insects and taking them to its nest placed in a small depression on a sand mound close to a pond. Not far, perched on an electric cable was an Oriental turtle dove, also seen ordinarily in Leh. While House sparrow populations are fast declining in many parts of the country, Leh and its surroundings still hold considerable populations of House sparrow. Within the premises of the Forest Guest House, I also saw a Mountain Chiffchaff struggling with a moth in its bill.

L-R: Common Rose finch is a brightly coloured male. It can be seen all over Ladakh and migrates to plains in winter; An Alpine Accentor in search of its prey; Plain Mountain Finch with an insect in its beak.

After a day's stay in Leh, we left for Nyoma via Thiksey, Karu, Upshi, Liktsey, Gyak, Kiari and Chumathang. On the Leh-Nyoma highway, a right turn at Mahe on an interminably narrow and winding road with a number of bends on an undulating terrain (33°16.13.9N, 78°28 14.2E) takes one towards Tso Moriri - the largest high altitude Trans-Himalayan lake. On either side of the road, one could see waterlogged grasslands and meadows with flowering plants. These grasslands are home to Himalayan marmots mostly seen basking in the sun, but they hastily retreat into their warrens

The high mountain lakes and bogs in the Ladakh region of the Indian trans-Himalaya are the sole breeding grounds of Bar-headed geese and the Black-necked crane in India. The largest of these lakes, entirely within India, is the Tso Moriri, believed to be the most important breeding locality for many waterfowl species in Ladakh. Besides, there are myriad resident species that are adapted to the cold and harsh environment of the region.

Tso Moriri Lake, situated 4,595m above sea level, is surrounded by mountains and fed by snowmelt and streams. This wetland in Ladakh is the habitual migration territory of Changpa nomads, home to the elusive snow leopard, and India's only breeding ground for bar-headed geese.

The state of Ladakh, in western Himalaya, is refuge to a unique diversity of avifauna - over 300 bird species have been sighted and documented. The Indus Valley in Ladakh has been identified as an important migratory route for birds that migrate between central Asia in the Palearctic region and the Indian sub-continent. The vast marshlands around lakes and along the shores of the mighty Indus River in eastern Ladakh provide critical habitats for breeding and migrant species such as the highly endangered Black-necked crane.

L-R: Desert Wheatear breeds in Ladakh and winters to plains especially in deserts in western India; Mountain Chiffchaff with a prey in its beak - a common warbler species in the region; Yellow-billed Chough is an alpine species mostly seen foraging on garbage in high altitude areas including Ladakh.

at the slightest human disturbance. Mammals like kiang, marmot, pika, or high mountain wolves also share this habitat.

Approximately 227 km from Leh, Tso Moriri is more than 25km long from north to south, and 8km wide at its broadest point. Sighting birds during pre-winter months can be difficult. However, I counted about 66 Bar-headed geese but did not see any Black-necked crane. Tso Moriri is thought to be one of the most important breeding sites for waterfowl in Ladakh. The high mountain lakes and bogs of Ladakh are the breeding grounds of Bar-headed geese and Black-necked crane in India. During autumn migration, the lake serves as an important staging area for multitude of waterfowl, including the near threatened Ferruginous Pochard.

The distance that I covered by driving my jeep on the periphery of the Tso Moriri lake was just a fraction of the total area of the lake and this could perhaps be one reason why I did not see any Black-necked crane. I also saw one juvenile Black Redstart close to the waters of the lake. It breeds in Pakistan and Tibetan steppe habitats.

While returning from Tso Moriri Lake, I saw a Woolly Hare - a plump brown hare with thick, curly fur, found on mountains between altitude 2500m to 5400m in Tibet, Gansu, Szechuan, Sikkim, Nepal and Kashmir. There is very little detailed information on Woolly hares, but their numbers seem to be very low except in a few favoured areas. Like all lagomorphs woolly hare is susceptible to population fluctuations that sometimes make it a very common animal in its habitat and sometimes fairly rare.

Not far from where I saw a Woolly Hare, was a Ladakh Pika crossing the road in front of my vehicle and stood for a while

on one of the granite boulders along the road. A large pale pika with a very narrow interorbital region, it closely resembles Pallas's Pika. It lives at approximately 4300-5450m elevation in extremely barren places.

After a brief halt in Nyoma, I decided to walk along the road to Hanle Plains, and saw a female Desert Wheatear hunting on insects to feed its fledglings inside a crevice on a clay mound besides the road. I stopped there for more than 15 minutes and observed the bird without disturbing it. In the waterlogged area across the road, I saw two Tibetan Wild Ass or Kiang feeding on grass, but they were very far from the road and I could not take a good photograph of the two. There were also a few water birds such as Brown-headed gull, Ruddy shell-duck and Green sandpiper. Unfortunately; I did not see many Kiangs though Ladakh is known for them. However, while passing through the Moore Plains just before Pang village I saw a lonely Kiang running in the opposite direction. It seems I did not visit the right places during my survey to record them.

Interestingly, I observed a convergence of more than 50 European Hoopoes over a 500m stretch. According to Dr. Salim Ali, breeding individuals arrive in Ladakh between early March and early April and depart around August and September. Most probably, the Hoopoes that I observed in Ladakh were probably assembling in one place before flying southwards after completing their breeding.

Upon my return three days later to Leh I went on a local survey to Shey, where I recorded White wagtails, Citrine wagtail and Yellow wagtail. Other interesting bird sightings were Great Rose finch (both male and female), Plain Mountain Finch, Rock Pigeon and Upcher's Warbler. While returning from Shey through Thiksey Monastery, I spotted five Chukars running away, having sensed my presence.

Other mammals sighted were five Ladakh Urials feeding on sedges near the confluence of Zanskar and Indus rivers. Ladakh Urials are usually confined to the lower valley slopes in western and central Ladakh, between 3000 and 4000m elevation. I also recorded a female Rufous-backed Redstart on the way to Kaltse, and Himalayan Marmots and a Large-eared Pika besides Red-billed Chough and Brown Accentor on my way to Khardung La.

The avifaunal survey also noted the developmental activities and increasing tourism that are threatening the existence of these important ecosystems. The area for long had remained closed to tourism because of its proximity to the politically sensitive Sino-Indian border. However, with its opening up in 1994, Korzok, the only village in the vicinity of the wetlands, has become an important tourist hub. During my survey I observed many tourists, along with their vehicles, camping near Tso Moriri Lake, mostly in hotels that have mushroomed recently.

L-R: Woolly Hare is an alpine species found throughout Ladakh regions often hunted for meat and killed by stray dogs; Himalayan Marmot is an alpine species found living in burrows in grassy meadows throughout Himalaya. At the slightest disturbance they retreat into their underground shelter; Tso Moriri Lake is one of the largest snow-fed lakes in Ladakh and is home to many migratory waterfowls and is also a designated Ramsar Site in India.

GENETIC ANCESTRY AND ADAPTATION AMONG THE HIMALAYAN PEOPLE

Contributed by: Saptaparni De, Divya Rai, Kumarasamy Thangaraj, Gyaneshwer Chaubey and Rakesh Tamang

Several ethnic tribal and nontribal populations inhabit the Himalaya and adjoining places. They vary substantially in their morphology, sociocultural practices and genetic structure from other Asian groups. The genetic studies in this region are more inclined towards the Tibetans and their high altitude adaptation. Nevertheless, studies on other groups in the Himalayan region, though scattered and sparse, are able to highlight the prominent genetic signatures in and around the Himalayan belt.

Modern humans originated in Africa about 200,000 years ago. There are contested views on the timeline and routes suggesting their migration out of Africa. However, the consensus is that a relatively small group ventured out of Africa through the southern coastal route to populate the Middle East, India, Southeast Asia and Australia. A later group took the northern land route to Europe, Central Asia and subsequently the rest of the globe. These journeys of modern humans were deciphered using genetic and archaeological data.

There are several high-resolution genetic studies on global populations in different geographic regions, aimed towards understanding their migration, ancestry and adaptation. But there is scattered and little research on the inhabitants of the Himalaya and adjoining regions.

The Himalaya are high altitude regions. An altitude of 8000ft (~2400m) above sea level is termed as high altitude. This extreme elevation in the Himalaya and the adjoining region is characterized by many challenging environments, such as low oxygen level, extremely cold climate, and harsh terrain. These extremities make the region inhospitable for human habitation. Further, the Himalaya form a great physical barrier for migrations and play a vital role in shaping population dynamics not only along its vast stretch but also in adjoining places. However, more than 140 million people live and work at an altitude above 2500m.

There is evidence of early human settlements in the Himalayan region. Over time, people living in this region acquired the ability to withstand the extreme climatic conditions through changes in their genome and ultimately their physiology. Thus, there exists a positive selection of several genes which are drivers of adaptation to high altitude.

Several ethnic populations inhabit the Himalaya and the neighbouring regions. Himalayan and Adjoining Populations (HAAPs) are represented by different cultures, social structures, languages and genetic structures. People in this region mainly speak the three major languages viz. Tibeto-Burman, Austroasiatic, and Indo-European, along with two language isolates - Kusunda and Burushaski. HAAPs have a unique combination of ancestries contributed by East/ Southeast Asians, Tibetans, Central Asians, and South Asians in descending order of proportion. Hence, the genetic structure of HAAPs indicates multiple admixture of events which may correspond to different waves of migrations in and out across the Himalayan region. However, the porosity of Himalaya in terms of human migration has been questioned by many scholars.

Early Peopling of Himalaya

Though the number of people living in the Himalayan and adjoining region is small when compared to the plains, their population size has increased significantly during the last century. More than 300 distinct ethnic groups and language communities have been living in the Himalayan regions. Despite the prevailing hostile climate in and around the Himalaya, there are evidences of early human settlement in the form of abundant lithic material from the Early, Middle and Late Palaeolithic, Mesolithic and Neolithic periods. The Acheulian artifacts found in the Siwalik region were made by archaic humans about 0.7 MYA. The archaeological records suggest that there was an increase in population density at the end of the last glacial maximum. There is also a unique

ancestry component among the HAAPs and the admixture suggests a recent westward migration of populations living to the East of the Himalaya. The Neolithic presence of modern humans in both south and north of the Himalaya is archaeologically well established. During Neolithic time, many pastoralist communities settled permanently in this region. The Changpa tribe in Ladakh, India, is one such pastoralist community who are thought to have originated from the ancient tribes on the Tibetan plateau.

Lineages among the Himalayan People

The male-specific Y chromosome is a powerful tool for reconstruction of human population history. The geographic distribution of genetic variations on the Y chromosome provides clues about prehistoric migrations. It is inherited by son from father, and is approximately about 60 Mb nucleotides long. It is mostly nonrecombining, therefore, the changes acquired in a generation pass to the next generation unchanged, ultimately preserving the history of paternal lineages over time. The Y chromosome is also thought to be more prone to genetic drift resulting in the differentiation between groups of Y chromosomes in different populations because of its small genome size. The variations in the Y chromosome are used to determine the specific paternal lineages in a population. The different lineages are represented by haplogroups. A haplogroup is a genetic population group of people who share a common ancestor on the patriline or the matriline and are assigned letters of the alphabet whose refinements consist of additional number and letter combinations.

There are distinct dominant lineages in most HAAP groups. Among the Tibeto-Burman speaking HAAPs, O3a lineage is present in the majority. Lineages such as D, J2a, and R are also present in a noticeable frequency. O3a lineage is also present in the other two language speakers in this region. The Indo-European speakers among the HAAPs mostly constitute the South Asian lineages (mainly branches of haplogroup H, L, K and R). The Austroasiatic speakers mostly harbour O2a lineage in majority followed by haplogroup O3a along with the lower frequencies of the South Asian lineages followed by West Eurasian specific haplogroup (J2a). The sharing of the lineages with the East and Southeast Asia and Western Eurasia firmly establishes human migration in the Himalayan belt at various time depths. The most prevailing O3a haplogroup among the HAAPs was thought to have originated in East Asia about 25,000–30,000 years ago. The other dominant haplogroup among HAAPs is O2a which was earlier thought to have originated in South Asia, but later, the Y chromosome resequencing resolved its Southeast Asian origin and subsequent dispersal to South Asia via northeast India. Besides the Austroasiatic speakers, the Tibeto-Burman groups inhabiting northeast Indian states harbour noticeable frequency of haplogroup O2a. Haplogroup D is also present among HAAPs who share their ancestry with Tibetans. The variations in mtDNA in a given population have been implicated in tracing the genetic affinity, genetic origin, population structure, their dispersals, and disease expression.

Genetic Structure of HAAPs as depicted through High-Density Autosomal SNPs

During the last two decades, a huge amount of genomic data on global populations has been generated. These data are used to decipher genetic structure, affinity, and understanding of human health to a finer level. In South Asia, a pioneering study dealing with high-resolution genetic data among large population groups was initiated by the Indian Genome Variation Consortium, which observed high levels of genetic divergence in Indian populations and was successful in revealing its distinct genetic structure. This was subsequently followed by an extensive study comprising a relatively larger number of populations where two ancestries in prehistoric India were identified - the Ancestral North Indian (ANI) and Ancestral South Indian (ASI). ANI ancestry was found to be shared with the Middle East, Central Asia and Europe (30-70%). However, ASI was not shared with any other group/s outside India. The present-day Indian populations bear various proportions of both ANI and ASI ancestries. When investigated carefully the date of ANI-ASI admixture ranged from about 1900-4200 YBP. The divergence of HAAPs genepool from other Indian groups may be contributed to their distinct ancestry which is more disposed towards East and Southeast Asians. A few HAAPs were found to have affinity with Chinese groups. Recently, an extensive population survey revealed five major ancestries in South Asia.

Initial high-resolution studies on HAAPs, aimed more towards understanding their genetic adaptation to high altitudes, were consistent with their observation of a closer link with East and Southeast Asians and a comparatively lower affinity with Central and South Asians. This unique genetic ancestry, shared with East, Southeast and Central Asians in descending order, was believed to have resulted from long-term isolation in geographically isolated regions, and genetic drift that occurred in many of the HAAPs. The mixture of ancestries indicates early initial peopling of Himalaya, followed subsequently by multiple waves of migration to and from all directions at different time depths. The high-resolution data also revealed the contribution of

genetic changes which enabled HAAPs to sustain life in the challenging environment. The signatures of high altitude adaptation were mostly found in EPAS, ELGN1, ANKH, COL4A4, SLC52A3, MKL1, GRB2 genes. These genes are directly or indirectly associated in maintaining efficient oxygen circulation and utilization in oxygen depleted environment. Interestingly, the signatures of archaic human genomes were also observed in the Himalayan groups. Further, the genome introgression from the archaic human was found to have resulted in high altitude adaptation.

High Altitude Acclimatization and Body Physiology

Himalaya is, without doubt, a challenging environment on earth. While settling there for a longer period of time, people in this region have acquired ways to fight back extreme climatic conditions in the form of changes in their genome, which ultimately led to changes in their body physiology directed towards their survival. The positive selections in several genes act as their drivers of adaptation. When humans move from low altitude to higher altitude, their body tries to acclimatize to the various stresses presented by the immediate environment. Acclimatization allows lowlanders to ascend to higher altitudes and remain there for a longer period. On the other hand, evolutionary adaptation allows highlanders to sustain their lives continuously over generations. When lowlanders ascend high altitude, a variety of physiological and molecular changes occur in their body. The most important physiological response to high altitude is extreme hyperventilation that decreases the alveolar partial pressure of carbon dioxide (PCO2) which is associated with respiratory alkalosis with an arterial pH exceeding 7.7. This in turn increases the oxygen affinity of haemoglobin. High altitude acclimatization is also associated with an increased amount of haemoglobin in blood (termed as polycythemia) brought about by the release of erythropoietin mainly from the kidney in response to low arterial PO2 which stimulates the bone marrow to produce more RBC. This process is slow and reaches its steady-state value several weeks after ascent. However, newcomers to high altitudes have an increased RBC concentration in their blood within one to two days after ascent, which is due to reduced plasma volume and not increased RBC production. Higher levels of circulatory nitric oxide (NO) and NO metabolites among high altitude dwellers facilitate high altitude acclimatization by vasodilation. After the ascent to high altitude, levels of endothelial nitric oxide synthase (eNOS) increases, and the levels of its inhibitor decreases. This is also marked by higher level of mRNAs of eNOS pathway that ultimately results in vasodilation. It is well documented that after acclimatization many sympathetic pathways are hyperactive but the heart rate remains unchanged due to increased parasympathetic neurotransmitter release and decreased adrenoreceptor activity. Acute exposure to hypoxia and acclimatization are associated with initial impairment and then partial recovery of the capability of CNS to drive muscles during prolonged effort.

Signatures of Genetic Adaptation

Compared to newly acclimatized people, permanent residents at high altitudes show enlarged lung volume, decreased alveolar-arterial oxygen diffusion gradient, higher maximal exercise capacity, less intrauterine growth retardation, more complete neonatal cardiopulmonary transition, etc. Hypoxia is a major concern in high altitude, and homeostasis bestows an advantage to people living there.

Genetic evidence has suggested that EPAS1 gene is under natural selection in Tibetans and Sherpas who also have lower than expected hematocrit and Hb concentration as an adaptive signature. The EPAS1 gene, often known as HIF2A, provides instructions for making a protein called hypoxia-inducible factor 2-alpha (HIF-2). This protein is one part (subunit) of a larger protein complex called HIF, which plays a critical role in the body's ability to adapt to changing oxygen levels. EPAS1 gene also influences the aerobic-anaerobic condition in elite endurance athletes, mainly in Sherpas. Gurkha soldiers from the Himalayan and adjoining regions have higher frequency of endurance-associated genetic markers. Interestingly, a study on current COVID19 incidence found lower incidence of COVID19 among people living at high altitude. Though this observation needs further detailing, the initial finding is noteworthy. High altitude inhabitants who are always exposed to hypoxic conditions, express reduced levels of ACE2 (Angiotensin I Converting Enzyme 2 is a Protein Coding gene. Diseases associated with ACE2 include Covid-19 and Severe Acute Respiratory Syndrome) in their lungs and other tissues which ultimately make them less susceptible to SARS-CoV-2 infection.

Conclusion

Genetic studies show that HAAPs have a unique genetic architecture. They share their ancestry mainly with East and Southeast Asians and very low but detectable ancestry with Central and South Asians. Thus, it is evident that the Himalayan and adjoining regions have witnessed multiple waves of modern human migrations across different time depths. Despite the fact that Himalaya and the plains of mainland India are located in close proximity, the gene flow from mainland India is very limited among the Himalayan population groups. This indicates asymmetrical movement of people to and from Himalaya.

CLIMBING SHERPAS OF DARJEELING
- THE SHERPA PROJECT & HOW IT ALL BEGAN

By Nandini Purandare and Deepa Balsavar

Nandini Purandare and Deepa Balsavar have collected stories and oral histories of the climbing Sherpas of Darjeeling. They are now weaving the stories into a book on this unique community.

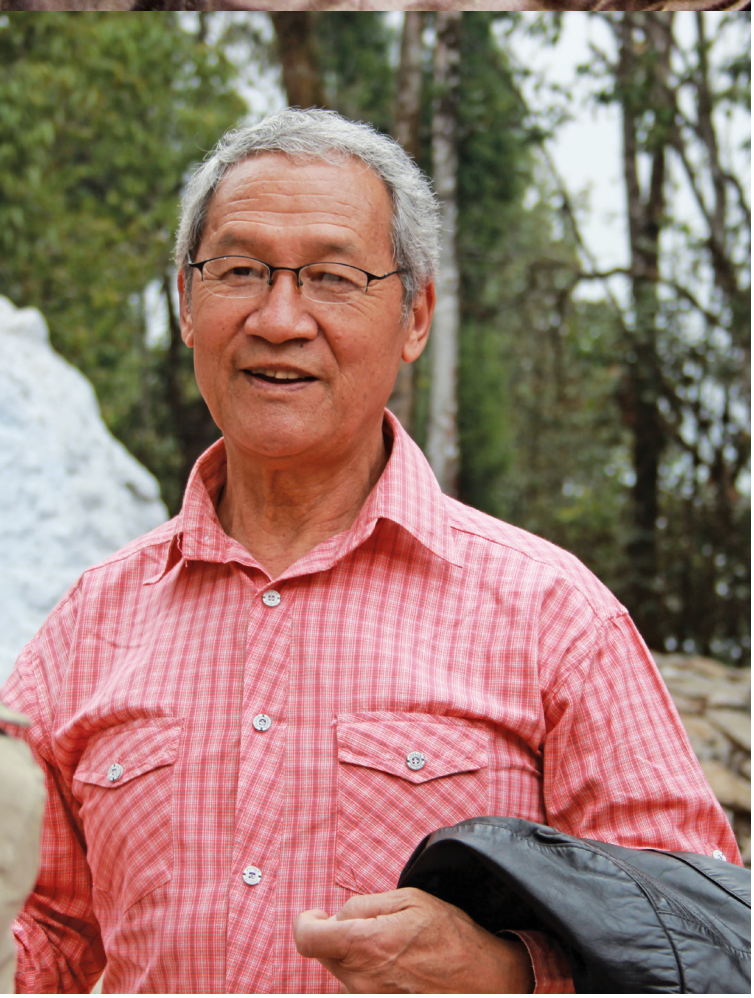
Almost every Sherpa house in Darjeeling has a prayer room. Even small one-room homes devote an entire wall to the altar. This was a large room laid with woollen rugs. There were thangkas on every wall garlanded with white silk scarves called khadas and the brightly painted wooden cabinets held an array of religious photos and figurines. Above the altar, which took up the entire rear end of the room, hung canopies of ruffled silk.

Three monks sat in a row fashioning the most intricate votive offerings. Dorjee Lhatoo explained, "Here in the permanent altar room, these figures are temporary. It's too warm for butter, so these monks are fashioning them using ghee, flour, wax and food colour. These mould and then melt, they can soften and harden as the Lamas please. Quite picturesque, isn't it? After the rituals they will be disposed of, for animals like dogs to get them, as they are all edible."

Downstairs, the kitchen was filled with women busy stirring pots of tea, shaping momos, boiling rice, and chopping vegetables. The requiem continued non-stop for a week during which time, the monks and visitors had to be refreshed and fed. The mood was what? Happy, sad, nostalgic? It felt a bit like all of these. Above all, it was a celebration, of the life of the famous Sherpa climber Nawang Gombu who had passed away exactly a year earlier.

We found ourselves in Nawang Gombu's house on a mild April day in 2012. Part of the ceremonies involved prayer and ritual but mostly it was a reason for the community to gather, and keep alive age-old bonds. And we were here as invited voyeurs.

The seed of this adventure was planted during a hiking conversation with Harish Kapadia. He told us there lived in Darjeeling a unique climbing community - the Sherpas - and that many of their stories had not been told. They wouldn't write about themselves so would we attempt something? That's how it all began. We found many stories over the coming years, in the narrow, often grotty lanes of Toong Soong. We found them in the warm homes of the sons and daughters of Sherpa heroes from decades ago. We dug into forgotten books and papers of The Himalayan Club to discover the role played by this institution in bringing the community on to the climbing map of the world. We found new stories among the current climbers in Darjeeling, so similar and yet so different from those who came almost a hundred years before them.



Clockwise from facing page: A young priest studiously carving edible offerings; A photo of Nawang Gombu in his traditional finery and medals; Dorjee Lhatoo, friend, philosopher and guide for the Sherpa Project.

On that first visit, we stayed at Dekeling Hotel, just next to Planters Club and across the road from Keventer's. On a clear day, through the large plate glass windows of Lunar restaurant, above the jumble of broken wires and antennas, we had glorious views of Kangchenjunga, suspended in the distance - the golden mountain and keeper of this chaotic town.

The first defining point in our long journey occurred the day we arrived. We were in the breakfast room when the hotel owner rushed in all atwitter. The Clint Eastwood of Darjeeling had arrived to meet us, she whispered excitedly.

Sitting in the small lobby was Dorjee Lhatoo: a dapper, handsome Sherpa with polished knee-length leather boots, leather jacket, blue jeans and a pink and white checked shirt. Wrapped around his neck was a silk cravat. Whatever we were expecting, it wasn't this. We were to spend many hours over the next few years in his wood-panelled living room, as he corrected our pronunciations, explained relationships, lectured us in history and re-lived conversations and events. But all that was yet to come. On this first meeting, leaving his Bullet motorcycle at the hotel, we were invited on a long walk through Mall road, across a beautiful deodar lined path towards the zoo and The Himalayan Mountaineering Institute, and finally to Mr. Gombu's house at the rear entrance of the Institute.

And now, we were in that house talking to Gombu Daju's wife, Sita la. She was busy with the cooking and serving but stopped to smile warmly and implored us to eat. We met her brother Phursumba, surely the tallest and lankiest Sherpa in Darjeeling. He had lived in America most of his life, teaching at the Mt Rainier Mountaineering Institute. In 1967, after a National Geographic trans-Arctic Expedition to the North pole, he stopped off at Seattle for a night and stayed on for 46 years. Back in Darjeeling now, he was carrying on the community work started by his dearest friend and brother-in-law Gombu.

We met Nawang Gombu's daughters – Rita, Yangdu and Ongmu – dynamic working women, living in Delhi.

In the garden sat a row of middle-aged Sherpanis, most of them dressed in traditional clothes, all working in offices

and shops or running businesses. Chatting with them was Phurtemba Sherpa, a local leader, well loved and respected. He worked tirelessly for Sherpa causes. From petitioning for a Bharat Ratna for Tenzing Norgay, to getting scholarships for Sherpa children, from wanting to start Sherpa language classes to overseeing gompa work – he did it all.

On the third day of our arrival, Lhatoo took us to Toong Soong. Over a hundred years ago Toong Soong was where the Sherpas came and settled on hillsides that were thickly forested. Today, it is overcrowded with narrow roads and rickety houses, piled precariously on the bare hillside. From the entrance to the area the road forks into three, forming upper, middle and lower Toong Soong.

The middle lane is called Tenzing Norgay road. Someway past the Sherpa gompa the packed houses have a little more breathing space. A flight of stairs led down to a green cottage in an open courtyard. The sign read 'Ang Tsering Sherpa, H. No. 10/1, Ganesh Gram, Toong Soong Basty, Darjeeling.' Ang Tsering's daughters Pema Diki, Phur Diki and Lhakpa Chamji, welcomed us like old friends.

In all our visits to Darjeeling, this home of modest means was always full of laughter, hot tea and Hindi film dialogues. When they talked about their father however, the voices lowered and softened. They interrupted each other frequently to make sure that not the tiniest detail was overlooked and one of them always climbed on to a sofa to bring down their father's medals. They were often joined by

Clockwise from facing page: Toong Soong basti, where we spent a large part of eight years collecting oral histories; Rita Gombu-Marwah, Nawang Gombu's daughter, one of India's finest woman mountaineers; Nawang Topgay's prized Tiger Medal and other medals wrapped in newspaper.

their brother Tharchen who lived next door and their cousin Nima Tsering, son of Ang Tsering's younger brother Ajeeba.

During this visit we also met Pem Pem – Tenzing's oldest daughter who in the coming years, over long tea sessions, would give us a glimpse of her father up close.

And on yet another sunny afternoon at Chowrasta, we met 101-year-old Ani Lhakpa Diki. Her husband was a celebrated porter who disappeared on an expedition to Green Lake in 1946. Ani Lhakpa herself was a load bearer when young, carrying heavy money boxes filled with coins to expedition base camps. Every day, this radiant woman walked halfway up the hillside to Chowrasta, to meet her friends, catch a bit of sunshine and nibble the occasional momo. We gave her a bottle of brandy. "What is this? Brandy! Thank you, thank you. After dinner, before going to bed I will have a little," she grinned and her face fractured in a million laugh lines.

Away from Toong Soong and Chowrasta, near the entrance to town, we descended vertiginous steps to one of our most emotional meetings. In the back room of an extremely modest home lay Nawang Topgay, cousin of Nawang Gombu and another nephew of Tenzing Norgay. The last Sherpa Tiger in Darjeeling lay immobile and incapacitated. A few days after our visit, his family was to shift to better surroundings and on our next visit ... but that is another story.

Finally, our first trip to Darjeeling was at an end. Our heads swarmed with people, names and faces. Our books were filled with copious notes, our precious recordings yet to be transcribed. On our way to Siliguri before we took our flight back to Mumbai, we made a last stop at the home of Tenzing Tharkay, son of the legendary climber Ang Tharkay. Tenzing had spent a lifetime teaching Nepali in Japan and had finally retired here to tend his beautiful garden and cook delicate Japanese meals.

From 2012 to 2018 we went to Darjeeling many more times. Each visit threw up more names and connections. Acquaintances became friends and their homes became as familiar as our own. And it wasn't just Darjeeling. Over the years, we met other people across India and abroad. From Kolkata to Bengaluru, Delhi and Nagpur to Dehradun, England, France and America and of course our home city, Mumbai, we chased anyone who had anything to tell us. And people were generous with their time and help.

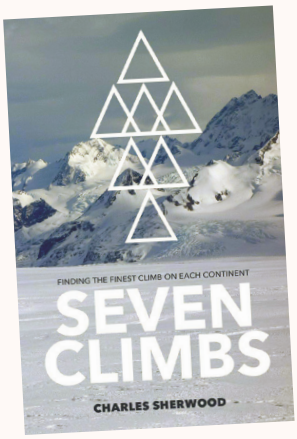
It has taken a long time, but the warp and weft of voices and history slowly come together. From the time the project began several Sherpas have passed away including Ani Lhakpa Diki, Nawang Topgay and Tenzing Tharkay. It is high time for us to tell their stories and that is exactly what we are doing.

THE LAST GREAT MOUNTAIN (THE FIRST ASCENT OF KANGCHENJUNGA)

By Mick Conefrey
315 pages
Published by: Michael Conefrey, April 2020

The Last Great Mountain tells the story of the first ascent of Kangchenjunga the third highest but reputedly the hardest mountain in the world. Drawing on interviews, diaries and unpublished accounts, Mick Conefrey begins his story in 1905 with the first, disastrous attempt on the mountain by a team led by Aleister Crowley, explores the three dramatic German expeditions of the late 1920s and brings it all to a climax 50 years later with the first ascent by Joe Brown and George Band. This is the final instalment of Mick Conefrey's acclaimed high altitude trilogy.

Mick Conefrey is an internationally recognised film-maker and author; he has produced several BBC documentaries on exploration and mountaineering including the award-winning series Iceman and Mountain Men.

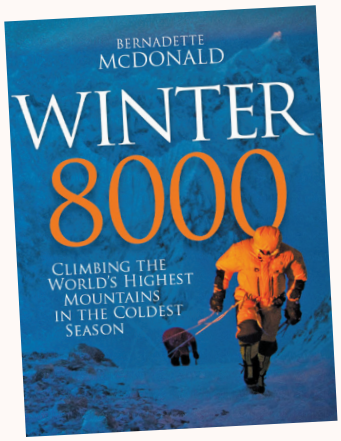


SEVEN CLIMBS (FINDING THE FINEST CLIMBS ON EACH CONTINENT)

By Charles Sherwood
192 pages
Published by: Vertebrate Digital, May 2020

The author is on a quest to find the best climb on each continent. He eschews the traditional Seven Summits, where height alone is the determining factor, and instead considers mountaineering challenge, natural beauty and historical context, aiming to capture the diverse character of each continent and the sheer variety of climbing in all its forms. The author's ambitious odyssey takes him to the Alps, the Himalaya, Yosemite, the Andes, Kenya, New Zealand and South Georgia in the company of his fellow climbers, including Mark Seaton, Andy Kirkpatrick and Stephen Venables. On classic routes like the North Face of the Eiger and the *Nose* on El Capitan, it is hard not to be swept away by Sherwood's unfaltering enthusiasm. Also featuring fascinating historical detail about each route, *Seven Climbs* is a compelling account of Sherwood's efforts to answer a much-debated question: which are the world's greatest climbs?

Charles Sherwood is an experienced climber. He has combined a thirty-year career in the risk capital industry with a love of adventurous outdoor sports. His adventures have taken in everything from the Old Man of Hoy and El Capitan to the North Face of the Eiger and a ski descent of Mont Blanc. He is an occasional paraglider and a PADI Divemaster and a fully certified cave diver.

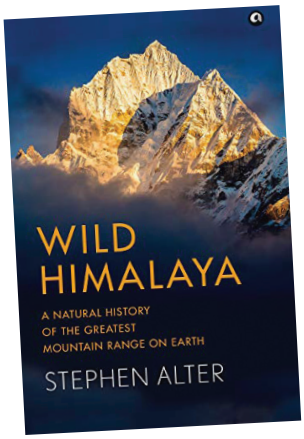


WINTER 8000 (CLIMBING THE WORLD'S HIGHEST MOUNTAINS IN THE COLDEST SEASON)

By Bernadette McDonald
268 pages
Published by: Mountaineers Books, Aug 2020

The stories range from the French climber Elisabeth Revol's solo winter attempt of Makalu, to American Cory Richards and his dramatic effort on Gasherbrum II with famed Italian alpinist Simone Moro and Kazakh hard man Denis Urubko. The author travelled extensively to interview many of the climbers featured in this book-including Revol, the climbing partner of Tomek Mackiewicz, and Anna Mackiewicz, his widow, meeting them just a few months after Mackiewicz's death on Nanga Parbat. McDonald's many personal relationships with profiled climbers and her ability to tap into emotions and family histories lend Winter 8000 an intimacy too often lacking in mountaineering histories.

Bernadette McDonald has won numerous awards, including two Boardman Tasker Prizes and the Banff Award for Mountain Literature. The American Alpine Club awarded her their highest literary honour for excellence in mountain literature.

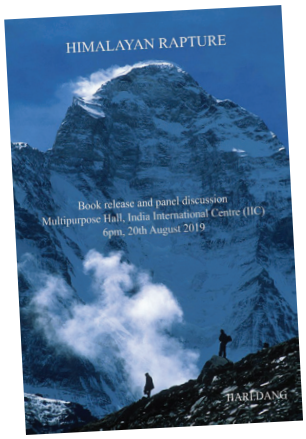


WILD HIMALAYA (A NATURAL HISTORY OF THE GREATEST MOUNTAIN RANGE ON EARTH)

By Stephen Alter
402 pages
Published by: Aleph Book Company, Aug 2019

The award-winning author brings alive the greatest mountain range on Earth in all its terrifying beauty, grandeur and complexity. Travelling to all the five countries that the Himalayan range traverses—India, Pakistan, Bhutan, Nepal and China— alter braids together on-the-ground reports with a deep understanding and study of the history, science, geology, environment, flora, fauna, myth, folklore, spirituality, climate and human settlements of the region to provide a nuanced and rich portrait of these legendary mountains. Adding colour to the narrative are riveting tales unearthed by the author of some of the range's most storied peaks. Although there have been hundreds of books and some masterpieces, about one or the other aspect of the Himalaya, not one of them has come so close to capturing the incredible complexity and majesty of these mountains.

Stephen Alter is the author of twenty books of fiction and non-fiction. He was born in Mussoorie, Uttarakhand and much of his writing focuses on the Himalayan region, where he continues to live and work. His honours include a Guggenheim Fellowship and a Fulbright award. His has also received the Kekoo Naoroji Award for Himalayan Literature. He was writer-in-residence at MIT for ten years, before which he directed the writing programme at the American University in Cairo. He is founding director of the Mussoorie Mountain Festival.



HIMALAYAN RAPTURE (MOUNTAINS IN MY LIFE)

By Hari Dang
327 pages
Published by: Himraj & Rupin Dang, Jan 2019

This book is a collection of the mountain writings of the late Hari Dang. This compilation is based on a book-length manuscript written in the 60s, as 'The Himalayan Vision,' but never published. Covered in this are his first visits, while at college, to Bandarpunch (1953, 1955), an adventure around Chiring We in Kumaon (1956), two expeditions to the Nanda Devi sanctuary (1960, 1961), his epic story of being benighted at the highest camp as part of the second Indian expedition to Everest (1962), and the last of the three expeditions to then-unclimbed Jaonli in Garhwal with school boys (1966). Added to this are his thoughts on introducing young people to adventure, Himalayan wildlife, and an odd one out, a poem from a trip to Lahaul – the only record of the climb of M5 in the Mulkila range of Lahaul in 1964. From the vantage point of later years, often spent in Landour, looking at the splendid panorama of the Garhwal Himalaya, he writes about what mountains meant to him, and why the mountains should now be 'unclimbed.'

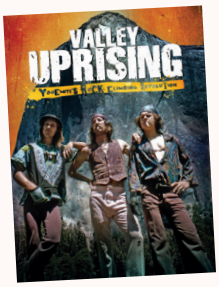
Hari Dang was a multi-faceted personality and a pioneer: an early Indian mountaineer, teacher and headmaster, wildlife conservationist, and environmentalist.

CLIMBING MOVIES ON NETFLIX

THE DAWN WALL

Runtime: 1h 40 min

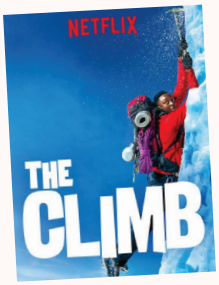
Tommy Caldwell and Kevin Jorgeson's dual ascent of the 3,000 foot Dawn Wall on Yosemite's El Capitan in January, 2015 - two world class climbers attempt to free climb the hardest route on Earth.



VALLEY UPRISING

Runtime: 1h 38 min

Documenting 50 years of climbing history in Yosemite National Park.

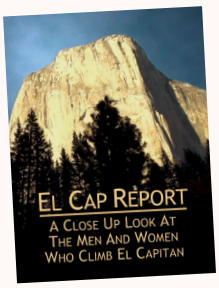


THE CLIMB

Runtime: 1h 45 min

This real-life based comedy follows a Senegalese-Frenchman as he takes on the challenge of climbing Mt. Everest for the first time with no prior mountaineering experience in order to win over the girl of his dreams.

BEST CLIMBING MOVIES ON AMAZON PRIME



EL CAP REPORT

Runtime: 56 min

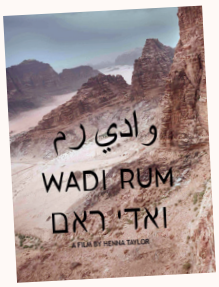
El Cap Report is an hour-long film that documents the journeys of the inspiring men and women who climb El Cap in Yosemite National Park.

Told through the creative lens of directors Dave Davis and Mary Grandelis, who spent many years hanging out at the base of El Capitan collecting these beautiful and unique stories of the non-professional climbers who brave the challenges of big wall climbing on El Cap, the El Cap Report is a heartwarming reminder that we all have the potential to be more than just couch climbers.

MERU

Runtime: 1h 30 min

One of the best climbing documentaries of all time, Meru follows director and climber Jimmy Chin and his team of extreme alpine climbers including Conrad Anker and Renan Ozturk as they attempt to bag the first ascent of the infamous Mount Meru, one of the most coveted walls in the world of Himalayan bigwall climbing.



WADI RUM

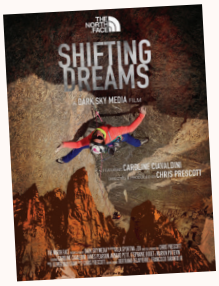
Runtime: 33 min

Wadi Rum follows four international climbers on their journey climbing one of the most prominent rock features in Jordan's prestigious national park, "Wadi Rum."

REDEMPTION: THE JAMES PEARSON STORY

Runtime: 52 min

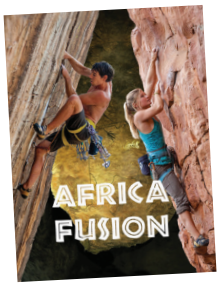
James Pearson may be one of England's (and the world's) best traditional climbers, but his rise to fame is full of controversy and intrigue in the world of professional climbing. The climbing world ostracised Pearson when the grading system he used to become the best trad climber was thrown into question, threatening to knock him off his place on top. This is his story of redemption, told from his perspective after returning to the UK having faced his demons and humbly reclaimed his place in the climbing community.



SHIFTING DREAMS

Runtime: 32 min

A short and moving film, Shifting Dreams, is about Carolina Ciavaldini, a world class climber who moved from the competitive world of professional climbing to the more extreme and variable realm of traditional and alpine after the sorrowful passing of her mother.



AFRICA FUSION

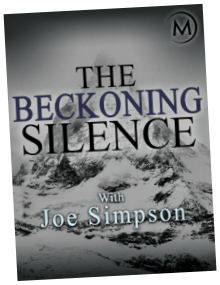
Runtime: 53 min

Africa is one of the most spectacular and underrepresented places to climb in the entire world, which is why pro climbers Alex Honnold and Hazel Findlay decided to make an hour long film to document their climbing journey through the beauty and challenge of climbing some of the most daunting cliff faces on the African continent.

SOLO BASE

Runtime: 36 min

Focused more on the free fall of base jumping after the ascent than climbing itself, Solo Base follows vegan & environmentalist David Fusté and his friend Turko as they free solo to the top of imperious cliffs and leap off into the void below, carrying only a small parachute bag as pro.



THE BECKONING SILENCE

Runtime: 1 h 13 min

The Beckoning Silence explores in detail the story of Joe Simpson, a well-known mountaineer who faced a near-death mountain climbing accident of his own while he struggles to understand his complex desire to continue climbing despite his close encounter with death.

WILD NEW BRAVE

Runtime: 1 h 13 min

Wild New Brave documents the rise of the dirtbag lifestyle in America during the rowdy and reckless era of the 1970s. Following the free climbing legends who got their start by denying their part in the all-American dream of white picket fences and nuclear families, this documentary will more than likely stir up your inner rebel or flower child and motivate you to get up off the couch and scale the nearest peak just like the dirtbags on the screen.

MOUNTAINEERING NEWS
FROM AROUND THE WORLD

Fatima Sultani, aged 18, climbs Noshakh (7492m; 24,580 ft) - the highest peak in Afghanistan
6 August 2020

Eighteen-year old Fatima Sultani summited Noshakh in the Hindu Kush mountain range in northern Afghanistan – becoming the youngest woman in the world to do so, in August 2020. Noshakh, the highest peak in Afghanistan at 7492 metres, lies in the Wakhan corridor,

Fatima Sultani, 18 (Centre) with her teammates during an exercise on outskirts of Kabul, Afghanistan September 4, 2020. Photograph: Reuters

Badakhshan Province of Afghanistan. The team of nine, including three women, claims to be the first all-Afghan team to reach Noshakh summit without any support of foreign climbers.

Fatima hopes to climb Afghanistan's Mir Samir mountain and after that travel to Nepal to attempt Everest.

Noshakh is the second highest peak in the Hindu Kush Range, after Tirich Mir and is the world's westernmost 7,000 meter massif.

Ski mountaineering debuts at Winter Youth Olympic Games in Lausanne

Ski Mountaineering, or "skimo" for short, is a winter sport in which athletes race over snow-covered terrain using both skiing and mountaineering techniques. The courses require competitors to ski uphill and downhill, often gaining up to 1,900m in elevation, as they pass through a series of checkpoints, and the first racer to cross the finish line wins. Some sections of the course also require athletes to travel on foot, carrying their skis on their rucksacks, and they may even need to use crampons or other specialist equipment for steeper, icier ascents. *(olympic.org)*

Lausanne 2020, Villars Winter Park course. Photo Courtesy: olympic.org

Switzerland's Caroline Ulrich became ski mountaineering's first Youth Olympic Games champion in the women's individual event. Bussard brothers continued the host nation's great start by taking gold and silver in the men's ski mountaineering individual event.

Re-measuring Everest
Nepalese and Chinese survey teams measure Everest

The first survey that measured Everest, identified it as "Peak XV" on British maps. The survey, undertaken in the 1850s by a British team, determined

Everest North Face

Everest's altitude as 29,002 feet. A century later, the 1954 Survey of India calculated an altitude of 8,848 metres, or 29,028 feet, with the snow cap – and this has remained the acknowledged elevation. China however has been showing Everest's height as 8,844.43 metres, excluding the snow cap.

Recently, teams of Nepalese and Chinese surveyors summited Mount Everest, a year apart, to re-measure the height of the world's highest mountain – Nepal in May 2019, and China in May 2020.

The effect of the huge 7.8 earthquake in 2015 on the mountain remains yet to be assessed. There is the possibility that the mountain's height may have changed by several centimetres or more. Also, there is the question of whether to include the snow cap —"which can add 10 feet or more to the mountain's elevation"—or just measure up to the rock beneath the snow and ice.

On May 22, 2019 Khimlal Gautam, mountaineer and Nepal's Chief Survey Officer , climbed Mount Everest with a team of four to recalculate the summit elevation as accurately as possible using state-of-the-art instruments and techniques. Chinese surveyors followed a year later in May 2020.

Both Nepal and China have yet to disclose the results of the survey. According to Navin Singh Khadka of BBC World Service, "During Chinese President's Xi Jinping's state visit to Nepal last October, the two countries issued a joint statement saying they would announce the height of Mount Everest together. It is not clear what the two countries will do if they come up with different measurements."

WSL Institute for Snow and Avalanche Research SLF Wins 2020 Albert Mountain Award for Avalanche Prevention

At the 2020 Albert Mountain Awards ceremony in Bern, the WSL Institute for Snow and Avalanche Research SLF was recognized for its outstanding contribution to avalanche prevention. Other recipients of the 2020 awards were the magazine L'Alpe and the Swiss musician Christian Zehnder. The King Albert I Memorial Foundation Albert Mountain Awards take place every two years, and are granted to people and institutions that have made exceptional and lasting contributions to the preservation of the mountains of the world – whether through research, conservation, development, arts and culture, or mountaineering.

Award Winners 2020 (left to right): Olivier Cogne, Pascal Kober (both L'Alpe); Christian Zehnder; Sophie Boizard (L'Alpe); Stefan Margreth, Christine Pielmeier, Jürg Schweizer (all SLF). Photo by David Schweizer; Courtesy: mountainresearchinitiative.org

To date, the award has been bestowed upon 60 recipients since its foundation in 1993. At this year's ceremony, which took place at the Swiss Alpine Museum in Bern on 25 September, the WSL Institute for Snow and Avalanche Research SLF joined their number for its commitment to avalanche prevention for both the mountaineering community and the public at large. The other 2020 winners were L'Alpe, a magazine based in Grenoble (France), and the Swiss musician Christian Zehnder.

The SLF is an internationally renowned interdisciplinary research and service centre located in Davos, Switzerland where, around 140 researchers study snow, atmosphere, natural hazards, permafrost, and mountain ecological systems, and develop innovative products which put their knowledge to practical use. SLF has taken a leading role in advancing knowledge on snow and avalanches in the high mountains, and their contribution has been vital in avalanche-warning service and practical guidelines for dealing with avalanche danger.

Courtesy: mountainresearchinitiative.org

Indian mountaineer Anita Kundu awarded Tenzing Norgay National Adventure Award

Sub-Inspector Anita Kundu of Haryana Police, a passionate

mountaineer, is the first woman to scale Mount Everest from both Nepal and China sides. She was awarded the Tenzing Norgay National Adventure Award 2019 by President Ram Nath Kovind in August 2020. Anita, from Hisar, Haryana, was honoured with the award in the 'Land Adventure' category.

Four "significant ascents" announced for 2020 Piolets d'Or

The Piolets d'Or committee has announced the selection of four "significant ascents" from 2019.
Out of the 51 noteworthy alpine-style ascents from 2019 that are listed on the Piolets d'Or website the four standout climbs selected by the eight-person international jury are (in chronological order):

The northwest face of Chamlang (7321m) with UFO Line (ABO: M6, WI5, 2500m) marked in red. Photo: Zdenek Hak and Marek Holecek collection, courtesy: alpinist.com

UFO Line (ABO: M6, WI5, 2500m) on the northwest face of Chamlang (7321m), Nepal.
Marek Holecek and Zdenek Hak (Czech Republic) climbed the route on May 17-23, round trip from base camp. This is Holecek and Hak's second time being recognized by the Piolets d'Or since 2018, when they were honored for their 2017 ascent of Satisfaction! on Gasherbrum I.
Rakaposhi (7,788m), first ascent of the South Face and Southeast Ridge, Karakoram mountain range in Gilgit-Baltistan. Kazuya Hiraide and Kenro

The south face of Rakaposhi (7788m) with the line of ascent. Photo courtesy: Asian Alpine E-News

Nakajima (Japan) completed the route up the mountain's more inaccessible aspect on June 27 through July 3 in a round trip from base camp. (The Piolets press release notes: "Although the route does not feature the high technical difficulties of the three other awarded ascents, its huge length, and the commitment and style of Hiraide and Nakajima's determined ascent on

A view of the Southeast Face of Link Sar from base camp with the line of the first ascent (AI4 M6+ 90°, 2300m). Photo: Mark Richey, courtesy: alpinist.com

a rarely climbed mountain, makes it of equal merit for a 2020 Piolet d'Or.")
Link Sar (7041m), first ascent of the peak via the Southeast Face (AI4 M6+ 90°, 2300m) in the Masherbrum range of the Karakoram. Mark Richey, Steve Swenson, Chris Wright and Graham Zimmerman completed the route on July 31 through August 8 in a round trip from an advanced base camp at 4700m.
Release the Kraken (AI5 M5+, 1600m) on the west face of Tengi Ragi Tau (6938m) Nepal. Alan Rousseau and Tino Villanueva (USA)

The west face of Tengi Ragi Tau (6938m) with Release the Kraken (AI5 M5+, 1600m) drawn in red Photo: Alan Rousseau, courtesy: alpinist.com

climbed the route on October 13-17 from a glacier camp below the face.

Bahrain team summits Manaslu, Nepal - 15 October 2020

A 15-member team of Bahrain's Royal Guard and three British climbers led by Prince Mohamed Hamad Mohamed

The mountaineering team of Bahrain scaling Mount Manaslu, on Thursday, October 15, 2020. Photo courtesy: Seven Summit Treks

Al Khalifa scaled the 6119 metre Lobuche East, followed by a successful ascent on Manaslu (8156m) on 15 October 2020 , in preparation for their Everest expedition next year. The team was supported by powerhouse Sherpas with stellar 8000m track records and a strong rope fixing team. The Bahraini team arrived in mid-September and was quarantined in Kathmandu for a week, under the COVID-19 prevention guidelines.

Igloos in lieu of winter tents! – An innovative first by Alex Txikon

Renowned Spanish climber Alex

Building igloos at K2 base camp

Txikon, considered one of the world's greatest alpinists and well known for his epic winter expeditions, thought of a novel idea of building Igloos, in lieu of winter tents, to counter the severe weather conditions at the K2 base camp during his 2019 winter expedition to 'the savage mountain.' He and his team built three large igloos to sleep 10 to 14 people. The igloos stay 10 to 15 degrees warmer than winter tents, and offer peace and quiet from the exasperating noise of the ceaseless winds.

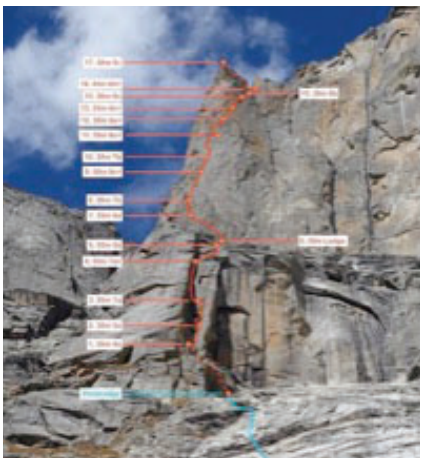
Alex was thrilled after his first igloo night. "Sleeping in an igloo has been the best night of my eight winter expeditions."

"In the dining tent we had temperatures of minus 13 degrees Celsius, in the normal tent minus 26 degrees, but in the igloo we slept at minus five degrees. When you go from the dining tent towards the igloo, all your muscles freeze, your hands get stiff and the wind blows in your face. But when you enter the igloo, silence returns, the sound of the wind disappears."

First Ascent of Baba Ji on Raldang Spire by Austrian expedition Baspa Valley, Kinnaur

In October 2019 an Austrian expedition, which included Alexander Blümel, Much Mayr, Peter Mühlburger and Matthias Wurzer, made the first ascent of Baba Ji on Raldang Spire in the Baspa Valley, Kinnaur, India.

The focus of the team was free climbing on Raldang, but its main wall seemed too blank to free climb, hence they changed their mind and switched to Raldang spire on the left side of the wall. For two days they fixed lines, and on the third day, October 11, reached the top of the spire. Most of the pitons and beaks were left in place. The climbing varied from thin to wide cracks. The route was named Baba Ji (500m, 17 pitches, 7b).



Raldang Spire. Photo courtesy: planetmountain.com

IN MEMORIAM
NALNI DHAR JAYAL
(1927 - 2020)

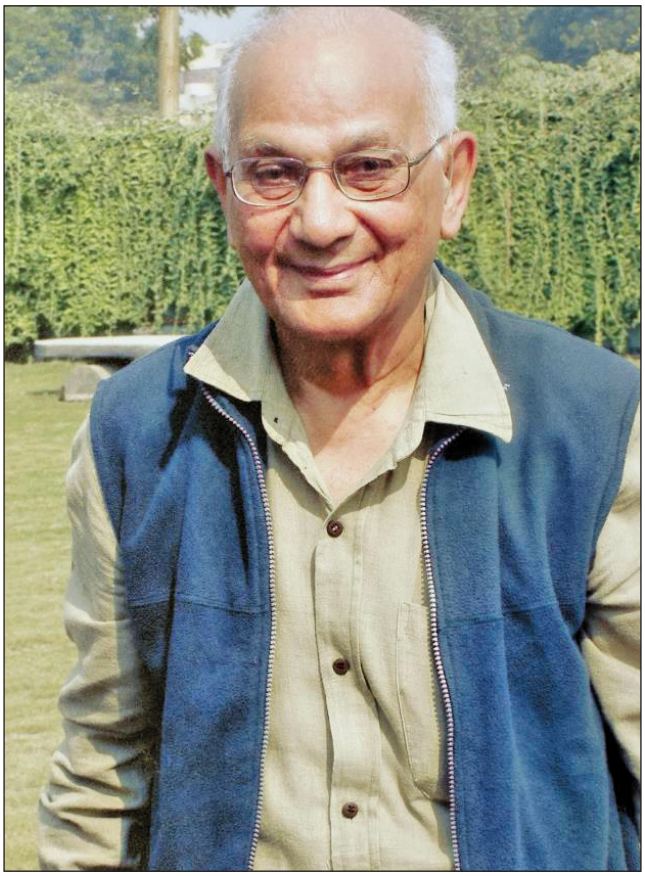
Nalni Dhar Jayal was born to a well-known and widely respected Garhwali family. All siblings went to the newly-opened Doon School in Dehra Dun where they were tutored by a stellar team drawn from Shanti Niketan, Eton, Harrow and Oxbridge, each charged with the passion to teach not only in the classroom or on the playing field but, equally, in the Himalayan hinterland.

True to form, Nalni flourished in this environment, growing up with Doon contemporaries who later shone in their chosen fields... among them Aamir Ali at the ILO who wrote extensively on mountains and is credited with the Siachen Peace Park concept, Bidhu Dhar Jayal who was among the first batch of the IAS, and Narendra Dhar Jayal (Nandu) widely regarded, with Guru (Gurdial Singh), as India's mountaineering trail blazers. Tragically, Nandu died leading India's first expedition to Cho Oyu in 1958. Nevertheless, in those pioneering times, the spirit of adventure was firmly ahead of the curve. Nalni bore the baton with expeditions to Trisul, Kamet, Nun Kun, Thangu, and Mrigthuni, in later life becoming Vice President of the Indian Mountaineering Foundation and the Himalayan Club.

Nalni's many splendored career graph began with IAF. In June 1953 Nalni flew over Everest, soon after the first ascent by Tenzing and Hillary, in an Air Force Liberator "to operate a cine camera and guide the crew to the correct peak." His iconic wide angle colour telephoto of Everest from the air was reproduced in the commemorative postage stamp released by Prime Minister Nehru.

Moving on, Nalni joined the Indian Frontier Administrative Service (IFAS) in NEFA, followed by 25 years in the IAS. His appointment as Kinnaur's first Deputy Commissioner sharpened his feel for environment and habitat protection. He campaigned relentlessly to empower local communities and to safeguard endemic plant and animal species as the principal beneficiaries in development programmes. Little wonder that he was called upon to set up the Environment and Forests division of the Ministry of Agriculture, Government of India, now metamorphosed to Ministry of Environment, Forests and Climate Change.

Nalni was development adviser with the World Bank and Member of the Island Development Authority chaired by the Prime Minister. He was also responsible for creating the environment and conservation focus at INTACH in its



formative years with Dr Pupul Jayakar. But most of all, unsparing eco-warrior that he was, Nalni created the NGO which he named Himalaya Trust - a platform for development initiatives in the Himalayan heartland. A strong supporter for closure of the Nanda Devi Sanctuary, Nalni sought to thwart ecological degradation resulting from strip grazing of meadows in the inner Sanctuary.

In many ways, Nalni's bond with the Nanda Devi Sanctuary resonates with Eric Shipton's closing lines in the lyrical 'Nanda Devi' recalling the first ever entry with Tilman to the Sanctuary's inner core:

"Return to civilisation was hard, but, in the sanctuary of the Blessed Goddess we had found the lasting peace which is the reward of those who seek to know high mountain places."

Nalni Jayal passed away in Dehradun in March 2020 – he was 93.

- Sudhir Sahi

IN MEMORIAM
SHARAB CHANDUP NEGI
(1950 - 2020)

Shri S.C. Negi, DIG (Retd), will be remembered as a passionate mountaineer, a thorough gentleman and a great nature lover. He passed away on 29 September 2020 in the upper reaches of Kinnaur district of Himachal Pradesh while on a trek with his old friend/guide to find a shorter route to the China border.

While negotiating a difficult patch, Mr Negi fell down a hill and sustained severe multiple fractures on arms, legs, back and head. Despite efforts by ITBPF patrol and his guide to rescue him, he did not survive. It was with great difficulty that his body was retrieved. It took another two & half days for the rescue team to get his mortal remains to the road-head – a distance of 60 km over a long, mountainous, and rugged terrain.

Negi was an ace mountaineer who climbed Everest at the age of 56 - first person from India at the time to scale Everest at that age. Besides Everest he had scaled many peaks in Indian Himalaya. In fact he was the one, who had introduced mountaineering in B.S.F. Today, B.S.F. has a strong team of mountaineers – all credit to him.

SC Negi had commanded a BSF battalion in Kargil during the 1999 war between India and Pakistan. Once asked why he was never awarded for his tremendous achievements in Kargil, he replied "I brought my men safe and ensured that no one went home wrapped in tricolor. This was my Ultimate Award."

He was one of the founding members of Himachal Pradesh Everesters Association (HPEA), formed way back in 2000. His immense contribution and commitment towards the activities of association will always be remembered.

Having retired in 2010 after 33 years of service, he remained busy with both social work and his passion - "trekking and climbing." He was a founding member and General Secretary of SHEETAL Society, which is voluntarily running the Kinnaur Public School. His untimely and unfortunate death has created a huge vacuum in both SHEETAL Society and Kinnaur Public School. The Sharab Negi Memorial Scholarship has been instituted in his memory at at the school.

A soft spoken person, a fine human being, and a dedicated mountaineer, SC Negi will be remembered and his absence felt at KPS, HPEA and IMF.

- DIG Prem Singh

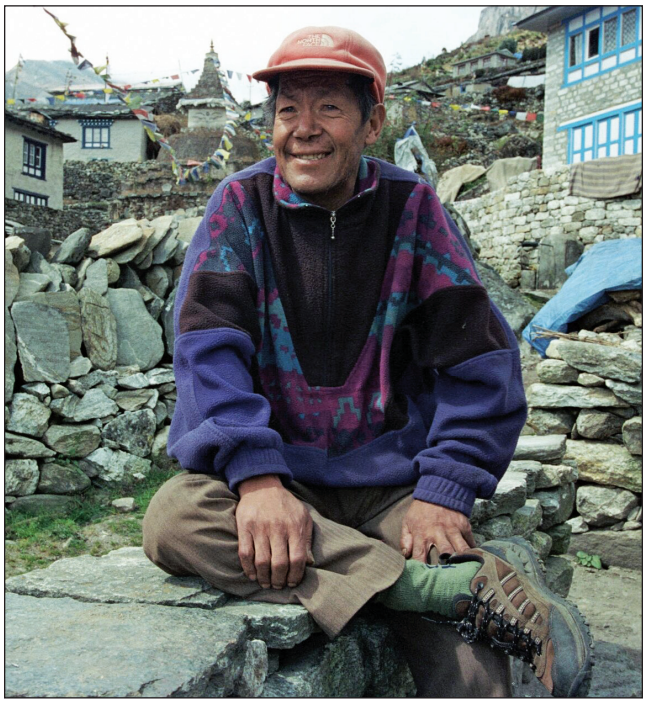
IN MEMORIAM
ANG RITA SHERPA
(1948 - 2020)

Ang Rita Sherpa passed away on 21 September 2020 at the age of 72. His death is a major loss not only to Nepal and the Sherpa tribe to which he belonged, but it has also deprived the mountaineering fraternity of a truly great Himalayan legend.

Born in 1948 at Thame, Solo Khumbu, one of Ang Rita's earliest responsibilities involved taking out the family yaks for grazing. The work was lonely and often difficult, but it prepared him for the hard life that would follow. Necessity drew Ang Rita to the steep Himalayan slopes in his adolescence: employment opportunities available to him at that time revolved primarily around mountaineering. Trading parties braving the high passes into Tibet were always in need of bright and able young men who were accustomed to the hardships one is required to endure at high altitudes. Mountaineering expeditions also provided opportunities to earn a living. Early experiences on such forays into the mountains moulded Ang Rita's adult life. He did not receive any formal education; his remarkable mountaineering achievements too were not backed by any sort of formal training. He learned his way around rock, snow and ice by spending extended time with the elements and developing a close kinship with them.

Ang Rita's first opportunity to earn proper remuneration came through his participation in a major Himalayan expedition at the age of 15. His first successful climb of a high mountain was Cho Oyu, in 1968, at the age of 20. This was followed by a string of quick and successful ascents of some of the highest and most challenging peaks in the world, including Mount Everest, K2, Cho Oyu (again), Lhotse, Annapurna, and Dhaulagiri. Most of these peaks were climbed by Ang Rita multiple times; what makes these feats even more noteworthy is the fact that he accomplished nearly all these climbs without the use of supplementary oxygen.

Ang Rita first climbed Mount Everest in 1983. Within a decade since that momentous year he was the brightest star on the extreme high-altitude climbing scene. During that charmed period, Ang Rita's breath-taking achievements made him an international figure and a much sought-after Sherpa for expeditions attempting Everest. In 1987, Ang Rita became the first person to summit Everest in winter, without supplementary oxygen. He still remains the only person to have done so. He also held the singular distinction



of having climbed Everest ten times without supplementary oxygen. Till his climbing years were tragically cut short by an illness in 1996, Ang Rita held the records for the highest number of ascents of Mount Everest - by the year 1990 he had summited Everest six times and by 1996 he had added four more Everest ascents - both were records for the time.

Ang Rita withdrew from mountaineering in 1996 after he fell ill due to a serious liver ailment which plagued him for the rest of his life. He had serious health problems in 2015 and 2016 and breathed his last at his daughter's residence in Kathmandu on 21 September 2020.

Ang Rita's last rites were held at Kathmandu with full national honours according to Buddhist customs. The mountaineering community learnt about the sad demise of Ang Rita from news flashed and covered by international media, which paid rich tributes to the great Sherpa whose name had travelled from a small village in Nepal to the biggest cities in the world for accomplishing feats bordering on the realms of impossibility.

Ang Rita is survived by two sons and a daughter. His elder son, who was also a mountaineer, climbed Everest nine times; he died during an expedition in 2012. His wife died one year later in 2013. Of his two remaining sons, one has climbed Everest five times.

I consider myself extremely fortunate to have met Ang Rita Sherpa during my tenure as Vice Principal, Himalayan Mountaineering Institute, Darjeeling, some thirty years back. The Institute had invited Ang Rita to Darjeeling to honour him for his stupendous mountaineering achievements after his ninth ascent of Everest. His presence amongst us was an exciting moment, experienced by all of us with a definite element of awe. As I look back over his climbing life, the awe is very much alive. Even my brief association with one of the greatest mountaineers of all times left on me an impression of his innocence and simplicity. His weather-ravaged features, simple countenance, along with an evident disregard for public attention make for reverent memories of a man who lived and worked his entire life in extreme environments to set high bench marks in an occupation he pursued through compulsion, to enrich the history of humankind.

- Anil Goth

IN MEMORIAM
MAGAN BISSA
(1954 - 2020)

The mountaineering fraternity has lost an accomplished climber and an adventure sportsman. Magan Bissa, Director of National Adventure Foundation (Rajasthan Chapter) and President of Rajasthan Adventure Foundation, died in an accident while demonstrating monkey crawling in Pune, in February 2020.

Hailing from a humble business family of Bikaner, the 'Oonth (camel) of Desert' had stunned all with his climbing ability and physical fitness when he summited Saser Kangri in 1987, in a single push from the ABC, as member of the Army expedition. This feat, which will certainly go down in the annals of history of mountaineering in India, earned him the Sena Medal. He was conferred with many more recognitions and awards during his long career in mountain climbing.

Though he had been on four expeditions to Mt Everest - in 1984, 1985, 1992 and 2009 – this was one summit that eluded him. He later switched to aero-sports and as a para-sailing instructor trained thousands of youth all over India. Deeply religious, mild mannered and well-dressed, Magan was always enthusiastic in his desire to share his rich experiences and assist youth, especially from rural Rajasthan, in learning all forms of land, aero and water adventure sports.

A fact not known to many, Bissa was a 'Master Chef', especially in the art of making stuffed paranthas. Our dining tent at the Everest Base Camp, in 1992, always used to have members of foreign expeditions clamouring for his spicy paranthas at 18,000 ft. Even at his own home in Bikaner, the Magans were zealous hosts. His house was a mountaineering museum – rooms brimming with eclectic memorabilia ranging from huge pieces of rocks to flags and photographs. Magan held an MBA degree from Rajasthan University.

His booming voice in chaste Hindi at the AGMs of the IMF and the NAF will be sorely missed.

- Group Captain S S Purl (Retd)

IN MEMORIAM
BHANU BANERJEE
(1937 - 2020)

Bhanu Banerjee, fondly known to the fraternity of mountaineers and adventure lovers as Bhanu Da, was a passionate climber and the lone Indian member of the 'Silver Hut Expedition' led by Sir Edmund Hillary from September 1960 to June 1961. The expedition was designed to conduct high altitude physiological research at Everest base camp area, and also attempt Ama Dablam and Makalu. And lastly, it sought to explore the existence/myth of Yeti.

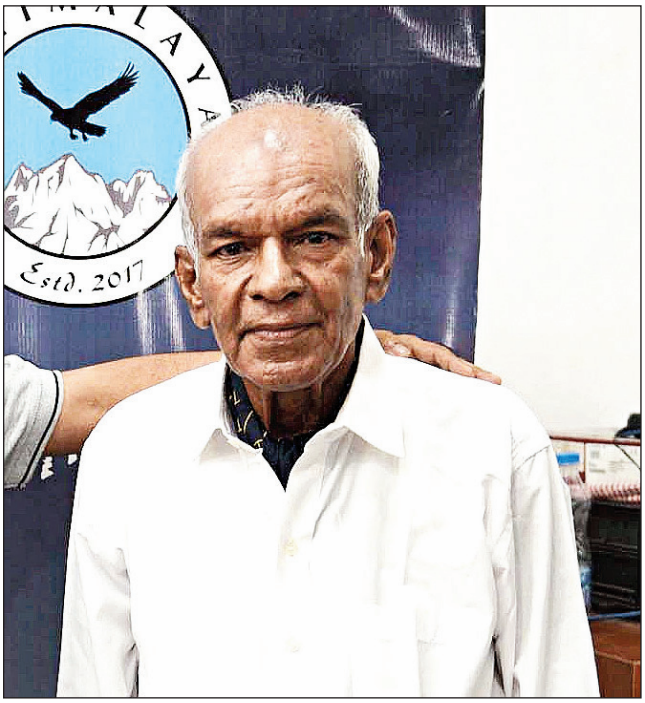
In October of 1962, Bhanu summited Nilgiri Parbat (21,140') in Garhwal, as deputy leader of an expedition from the Himalayan Association of Calcutta. This was the first Indian ascent of the peak after it was first climbed by British mountaineer Frank Smythe. During the Nilgiri expedition Bhanu lost two of his toes to frost bite while descending from the summit. This, however, did not deter him from pursuing his Himalayan ventures.

Bhanu also participated in the 1963 'School House Expedition' - an aid programme that Hillary initiated in the Khumbu area for setting up schools, water systems and medical aid for the Sherpas. Though the main objective of the expedition was not mountaineering, the members however took time off to climb Taweche (21,390 feet) and Kangtega (22,340 feet).

Bhanu subsequently joined Pre-Everest expeditions organised by Indian Mountaineering Foundation, first to Nanda Devi East and Tirsuli, led by Commander M S Kohli in 1964, and later to Rathong in Sikkim, led by Col B S Jaiswal the same year.

Born in Munger, Bihar on April 28 1937, where his father worked for Indian Railways, Bhanu Da received his education in Kalimpong, in Darjeeling district of West Bengal, where he acquired his love for the mountains.

In his professional life Bhanu Banerjee was a tea planter and also served as the Chairman of the Dooars branch of Indian Tea Association during 1998-99. In his later years,



Bhanu Da was always ready and willing to extend all possible help and assistance to various adventure programmes.

He later settled in Kharagpur and was a member of the Advisory Board of Tea Processing Unit under Department of Agriculture at I I T Kharagpur.

Bhanu Banerjee was felicitated in 2018 with ' Life Time Achievement Award' by Pahariya Group, a congregation of mountain and adventure lovers, for his achievement and accomplishments in mountaineering.

Bhanu Da had been unwell for a while and passed away on the night of August 4, 2020. He is survived by his wife, and two sons.

- Manik Banerjee

IN MEMORIAM
MOHAMMAD ASHRAF
Hero of Tourism (1943 - 2020)

Mohammad Ashraf passed away on 13 October 2020 following a brief illness, aged 76. He was the man who first put Ladakh on the tourist map and initiated and popularised adventure tourism in Kashmir. As the Director General of Tourism in what was then the state of Jammu & Kashmir, he was lauded for his tireless commitment to promote adventure tourism in Jammu & Kashmir, and for his dynamic marketing boost to the arid lunar-like terrain of Ladakh, metamorphosing it into one of the most desired places to visit. It fired the curiosity of millions of people worldwide to savor the beauty and complexity of Ladakh. But most importantly it re-engaged an entire generation with a stark natural world.

Ashraf was born at Srinagar to a civil servant father and a home-maker mother, in a house in Amira Kadal, near the famous locality of Maisuma. His grandfather taught at a local Polytechnic and was a well-known football player of his time. Ashraf chose to study civil engineering in Srinagar but could not sit his final exam for a degree due to unusual circumstances prevailing at the time. His attention was then drawn to adventure sports, especially mountaineering and skiing, and he received his training in both at the Himalayan Mountaineering Institute, Darjeeling and in Gulmarg respectively.

A while after he had completed his training, he put forward a proposal, in 1973, to the J & K State Tourism Department suggesting setting up an Adventure Tourism Wing. The proposition was accepted and Ashraf was offered charge of the fresh challenge. And that was the start of an illustrious career that would last 30 years, and steer him to the senior-most position as Director General, Tourism.

Ashraf was also a former Vice-President of the Indian Mountaineering Foundation, the apex body of adventure sports in India. He remained a member of the Governing Council of IMF and was also the Patron of the Jammu & Kashmir Mountaineering & Hiking Club – the oldest hiking club in J & K. He was awarded "Merite-Alpin" by the Swiss for his efforts in introducing rescue measures in the mountains of Kashmir.

A bachelor, he devoted a lot of his post-retirement time to writing. Ashraf contributed as a columnist and authored four books - 'Remembering Jammu', and 'Travels in Ladakh' were published in 2015.

He will be remembered not only for his unparalleled contribution towards growth and development of tourism in J & K – the home state he knew so well, having travelled its length and breadth, but also for the warm, considerate, immensely knowledgeable and affectionate person that he was.

**Mohammad Ashraf, born 25 August 1943; died 13 October 2020*

IN MEMORIAM
AKSHAY KUMAR
(1969 - 2020)

Akshay Kumar, CEO of Mercury Himalayan Explorations, passed away in New Delhi on 16 September 2020. A qualified mountaineer, a passionate and professional skier, rock climber, trekker, rafting guide, 4×4 specialist, biker, and ice hockey player (he put Indian ice hockey on the international map) – he was a true adventure enthusiast.

Kumar's love of outdoor adventure started at a young age. The pistes of Kashmir had been his home ground since he was three. He was the National Skiing Champion in 1981 and '82 and the Calgary Winter Games in 1988 would have been his Olympic debut had it not been for a skiing accident while training in Val Thorens, France. He trained as a river guide in Canada when he was 15 and rafted over 30 rivers across India and Canada. Not only did he pilot the first-ever descent over the Brahmaputra river in Arunachal Pradesh in 1990, he was the leader of the first trekking group to Nanda Devi Base Camp in 2001 when it reopened after a long gap of 22 years. He also spearheaded the first-ever Isuzu Challenge Expedition in India–a first of its kind that offered a jeep safari across the upper Himalayan region.

While at St Stephen's College, Delhi, he kept the legacy alive of the Hiking Club there, and later took on the reins of Mercury Himalayan Explorations, India's largest adventure travel company, set up by his father. Akshay Kumar was the son of the legendary mountaineer and soldier, Col Narinder (Bull) Kumar, best known for securing Siachen Glacier for India. Mercury Himalayan Explorations was known for its innovative approach towards adventure travel. "He was the architect of many important guidelines to professionalize and promote adventure tourism in the country."

Together with his wife Dilshad, he ran an adventure travel operation along with a rafting lodge in Rishikesh called Bulls Retreat. He was also the founding Executive Director of Outward Bound: Himalaya, a part of a global chain of outdoor education centres, a consultant with the Tourism and Hospitality Skill Council (THSC) and ran India's first Adventure skills programme along with KITTS (Kerala Institute of Travel and Tourism Services).

His greatest joy was taking his daughter on treks and ski trips to the mountains. He gave her the greatest gift he could as a parent—his love for the outdoors.

A champion of ethics, safety and processes, he was a mentor to innumerable adventurers, entrepreneurs and a trainer par excellence – and a great human being.

Akshay Kumar died of a cardiac arrest post his morning cycling routine. He was 51.

IN MEMORIAM
JOE BROWN
British Climbing Giant (1930 - 2020)

Joe Brown "died peacefully at his home in Llanberis" on April 15, 2020 "He was arguably the greatest ever all-round climber," Geoff Birtles wrote. "His new rock climbs in Britain commencing in the late 1940s were the hardest in the world."

Brown was 89 and had been ill.

Geoff Birtles, long-time Editor of High magazine also listed the Fissure Brown on the West Face of the Aiguille de Blatiere, Chamonix Mont Blanc, done in 1954 with Brown's many-year partner Don Whillans, as "possibly the hardest single mountain pitch climbed to that date," while Brown and George Band's first ascent of Kangchenjunga (8586 m), in 1955, "was a great high-altitude achievement, along with other Himalayan and Karakoram climbs, such as the first ascent of Trango."

Brown's career had incredible breadth: Trango, done with Martin Boysen, Mo Anthoine and Malcolm Howells, was in 1976. He, Tom Patey, Ian McNaught-Davis and John Hartog had made the first ascent of the west summit of Muztagh Tower (7276 meters) in 1956—20 years earlier.

Joe Simpson (UK) recalls: "Joe Brown was an amazing man, surprisingly quiet, shy even, but a gentle man for all his renowned hardness. He was probably my first British rock and mountaineering hero along with Don Whillans. Chris Bonington, Doug Scott and Dougal Haston were also in the loop but Joe and Don were at the very top. At the time, 1940's to 50's, his UK rock routes ranked as some of the hardest in the world and all were climbed with what today would be regarded as woefully basic equipment.

Brown had physical abilities on rock unlike those any of his peers had seen, such that he was revered nearly from the start.

Born in 1930, Joe was one of seven children in a family in Manchester. His father died when he was an infant, and his mother took in washing and later cleaned houses, eschewing the dole. Brown left school at 14 and started climbing at 16. He was a plumber and builder by trade, and put in a stint in the Royal Army Ordnance Corps. It was upon completion of that duty that he truly exploded on the rock, scooping the best lines in his region. He was inventive, too, taking nuts found on railroad tracks, threading them with sling, and

placing them in the rock for pro—the first to do so. He and his friends - Whillans and their compatriots in the Manchester-based Rock and Ice club—climbed 5.10 and protected it (or ran it out) with pitons, slings over flakes and spikes, and threaded pebbles. Joe would tuck small stones into his balaclava and take them out to place and sling as chock stones.

Possibly his greatest route was Cenotaph Corner (5.10+), 1952, on which his first attempt, at age 18 in 1948, ended when at 90 feet he dropped his piton hammer (actually a mason's hammer) and flattened his belayer; Joe had to hasten down the rope hand over hand to check the damage. The area is rife with Joe Brown routes, and when I lived there, and I am sure even now, if you were deciding what route to do and someone said, "Well, it's a Joe Brown route," that was enough.

As John Cleare says: "It's the end of an era".

- Alison Osius

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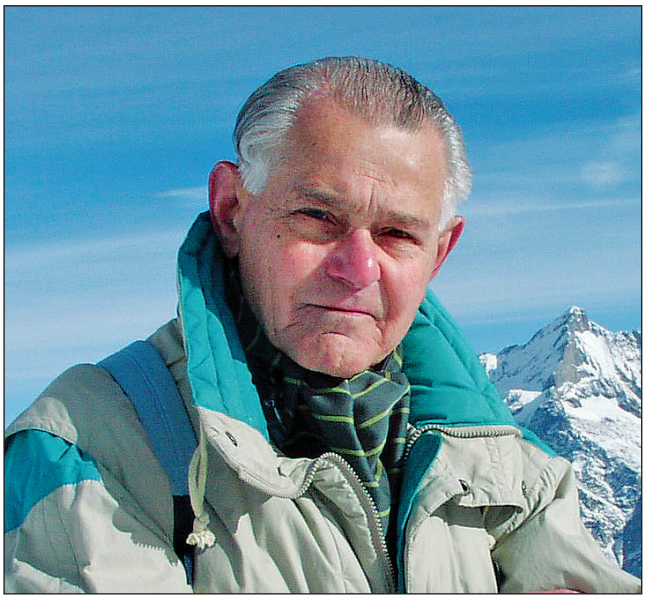
Photograph reproduced with kind permission from John Cleare.

IN MEMORIAM
TREVOR BRAHAM
(1922 - 2020)



Mr Trevor Braham, Hon. Member of the Himalayan Club, passed away on 2 March 2020 peacefully in Switzerland, a couple of weeks before his 98th birthday. He was born on 22 March 1922.

Mr Braham was a member of the Club since 1946 and was associated in many capacities: Hon. Secretary (1950-1955), Member of the Managing Committee (1956, 1967 to 1974), Hon. Librarian (1957), Hon. Editor of the Himalayan Journal (1957 to 1959), and Vice President (1958 to 1965). The Club had elected him as Honorary Member.

He visited Mumbai for the 80th Year celebrations of the Club. I and all editors before me had many exchanges of letters with him. It was an honour for me to meet him few times in Switzerland, visit his home and interact with him in Mumbai.

He wrote three best-selling books; Himalayan Odyssey, When the Alps Cast Their Spell, and Himalayan Playground, each a major reference on his Himalayan exploratory treks and early climbs and explorations in the Alps. He organized and took part in 15 Himalayan expeditions.

He was also Hon. Member of the Alpine Club (London) and honoured by many other world organisations.

He organized and took part in 15 Himalayan expeditions.

- Harish Kapadia

MOUNTAINEERING AND TREKKING AMIDST COVID-19 PANDEMIC: RULES & GUIDELINES

By Dr Anil Gurtoo - Director-Professor & HOD, Medicine In-charge, COVID Care Wards, Lady Hardinge Medical College & SSKH, New Delhi

While following these guidelines, one must stay updated and scrupulously follow the rules and regulations issued by the authorised Central, State and UT agencies dealing with the rapidly evolving COVID-19 pandemic.

PRINCIPLES AND RULES:

The Japanese Principle of 3-Cs: **Avoid: Close contact, Crowds and Closed spaces.** This is the mother-of-all rules, from which all others flow.

Self-Disclosure Rule:

- Every team member is under ethical obligation to disclose to the leader, under cover of confidentiality, any travel history, symptoms suggestive of COVID-19, sharing household or coming in direct contact with a COVID-19 infected person, during the past 14 days.

Physical Distancing Rules:

- Social and inter-personal interactions, trekking: 2m
- Hiking on a steep uphill trail (deep, heavy breathing): 6m
- While passing others: 2m
- Mountain biking and Trail running: 20m
- Long waits at bottle necks, choke points and cruxes (Belay Stations, Narrow Ledges, Couloirs, Gullies, Chimneys, Rock Steps, Crevasse Crossing, River Crossing, Tyrolean Traverses): 2m and a mask/face cover.
- Inside tents: 2m and mask. Between tents: 60m

Direct Contact Rules:

- Avoid touching frequently touched objects and surfaces with bare hands, shaking, dry dusting or flapping sleeping bags inside tents.

Quarantine Tents:

- Any one down with fever or Flu like symptoms must be put up in a separate tent, should wear a triple layer surgical mask and be served food in the tent through a dedicated set of utensils and cutlery.

Toilet Tents:

- One toilet tent to be shared by as few people as practically feasible. Flaps must be kept open when not in use. Carry out bleach disinfection of the surfaces after use and follow hand hygiene.

Acclimatization Rules:

- Above 3000 metres, no more than: 300 metres (1000 feet) of sleeping height gain per day, with a rest day thrown in every 3rd day. Though this may slow down the climb, it will curtail the need of emergency evacuations.

Planning, Preparation and Hiking:

- Select an objective that is a little below the threshold of the team's climbing competence and ability so as to avoid getting into situations requiring outside rescue help.
- Select hiking objectives based on the ease and reliability of obtaining advance information permissions, and safe lodging. Match the baseline physical fitness of potential members to the anticipated demands of the hiking objective.

The Hiking/Climbing Schedule:

Arriving at Home Station:

- If feasible, members may undergo a 7-14 day pre-departure quarantine.
- Avoid stays in dormitories as these can turn into super-spreading spaces.

Transport from Home Station to Trail Head:

- Dedicated buses with sanitized interior surfaces and seating arrangements at 2 metres distance with everyone in masks.
- Avoid stoppage at wayside eateries and dhabas.
- Air Conditioning must be turned off and all windows kept open to maintain cross ventilation.

Trail Head to Base Camp trek and beyond:

- Stagger the movement of porters and mules ahead of the team.
- Team movement in small groups of 5-10 each, while maintaining a minimum physical distance of 2 metres (6 meters while on steep uphill sections).
- Masks need not be worn while trekking, but must be worn at all rest points.

View from the East Ridge of Mt. Menthosa. Photo: Spencer Gray & Rushad Nanavatty.

INDIAN MOUNTAINEERING FOUNDATION