

# IMPERIAL COLLEGE SHAR KANGSUM 2005 EXPEDITION REPORT



Imperial College  
London



# Imperial College

## SHAR KANGSUM 2005

### Expedition Report

WEST CENTRAL TIBET

An exploratory reconnaissance expedition  
to the Shar Kangsum range in west central Tibet  
Friday the first official visit to this mountain range

Thursday 11<sup>th</sup> July - Wednesday 24<sup>th</sup> August 2005

Aim  
To explore and classify a number of previously unclimbed  
and unnamed 6000m peaks.

[www.imperial.ac.uk/expeditions](http://www.imperial.ac.uk/expeditions)

Mount Everest Foundation (MEF) Ref: 05/05

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#### Foreword

Imperial College is pleased to support this expedition. The expedition is led by Chris C. Johnson and  
Chris C. Johnson, Director of the Centre for Global Change Science, Imperial College London.  
The expedition is supported by the MEF and the British Antarctic Survey. The expedition is  
led by Chris C. Johnson and Chris C. Johnson. The expedition is supported by the MEF and the  
British Antarctic Survey. The expedition is led by Chris C. Johnson and Chris C. Johnson.

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Right: Faces of everyone who played a key role in this expedition, for which we are eternally grateful. Thank you.

## THE TEAM



**JOSEPH JOHNSTONE**  
Mountaineer



**DANIEL CARRIVICK**  
Expedition Leader



**BENJAMIN GREEDY**  
Mountaineer



**NAOMI BESSEY**  
Mountaineer



**MOHAN LAMSAL**  
Makalu Adventure



**ANG KAMI**  
Cook



**LAKPA GELBU SHERPA**  
Base Camp Assistant



**RAJKUMAR**  
Cooks Assistant



**LOBSANG NORBU**  
Truck Driver



**DUBGYL**  
First Jeep Driver



**TENZIN**  
Tour Guide



**RINZIN**  
Second Jeep Driver



Above and insert: Footprint in the snow at Advance Base Camp.



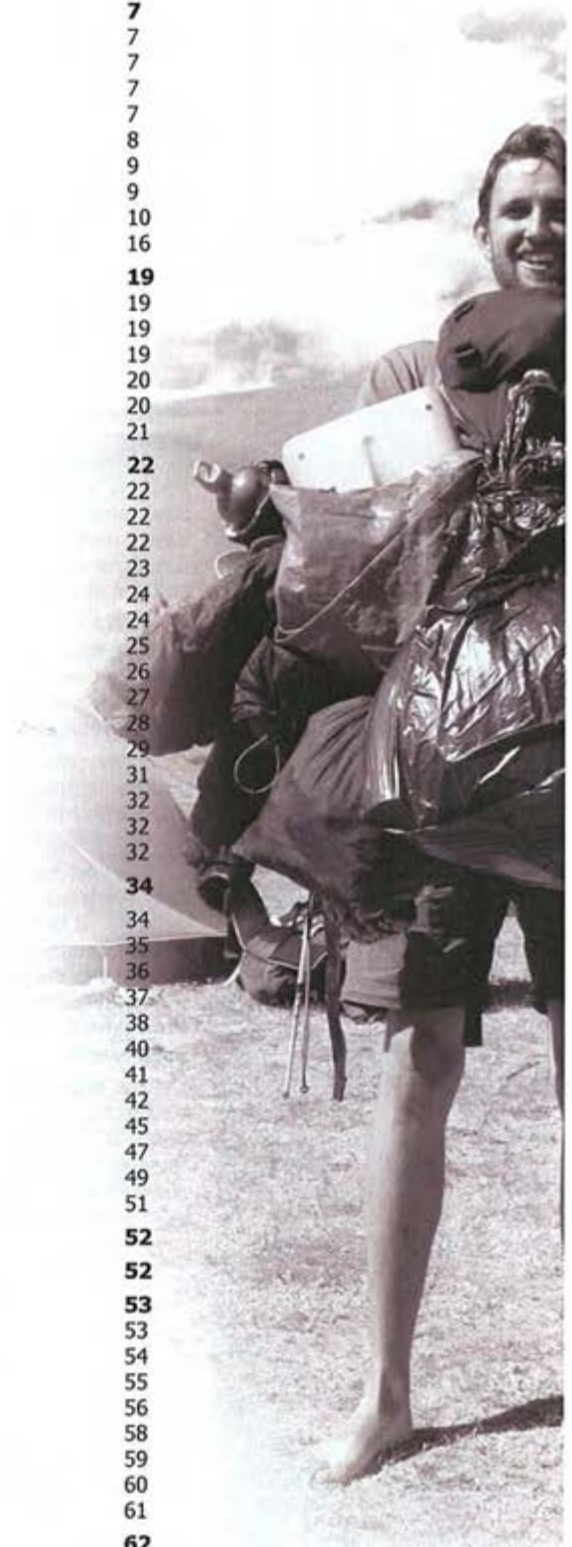


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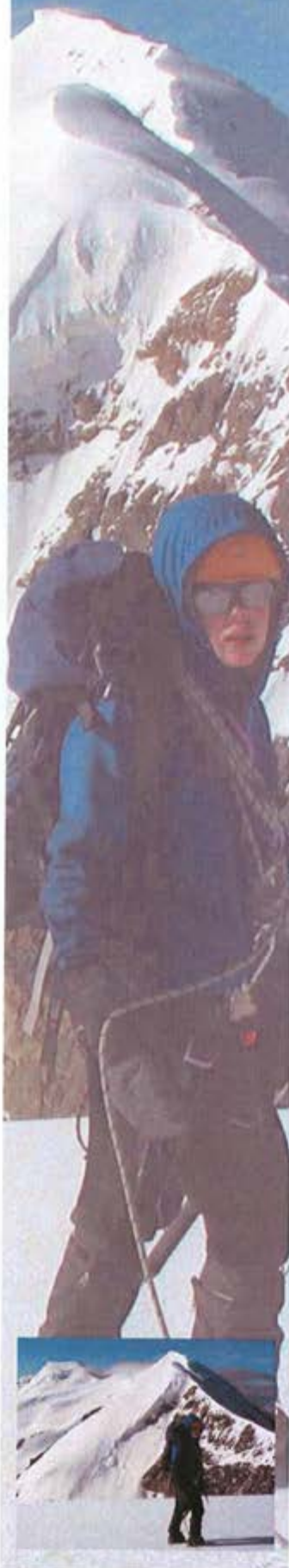
**Above & insert:** Throwing a ball around at Base Camp; Ben ready to catch a ball thrown by Lakpa.  
**Right:** Joe with a full rucksack having struck ABC.





**Below & insert:** Naomi on the summit of Tsachënbori (6210m) with unclimbed peaks in the background.

**Bottom right:** Naomi and Joe reading in the shade underneath the truck.



## SUMMARY

By Daniel Carrivick

### SYNOPSIS

After having their camp washed away in a flood, this strong, four person expedition team from Imperial College London, salvaged what they could to go on and reach the top of three 6000m peaks in the Shar Kangsum range in West Central Tibet. All three peaks were previously unclimbed and unnamed. Jemakari Thobo (6603m) was climbed by its south east ridge, Sum Kangri (6390m) by its west ridge, and Tsachënbori (6210m) by its southwest ridge. All were graded at around PD (Alpine grade).

An attempt to summit the highest peak on the range, Mt Shar Kangsum (6822m) was aborted around the 6000m mark due to avalanches. Exploration of other parts of the mountain range was carried out, when the weather permitted, with a view to providing information to any potential future expeditions to the range. The team was self sufficient throughout their time above base camp, carrying heavy loads high on the mountains in order to set up advanced base camp and subsequent high camps. Naomi Bessey, Benjamin Gready and Joseph Johnstone made up the team, which was led by Daniel Carrivick.

### STATEMENT

The weather played a pivotal role in the outcome of this expedition. Rain, hail, thunderstorms and low visibility all contrived to prevent team members from carrying out the expeditions objectives. The teams first night camping was interrupted when heavy rains caused the stream they were camped by to swell out of all proportion, bursting its bank and flooding the plain. The team were woken up shortly after midnight to find themselves in the middle of the river which was trying to wash their tents downstream. Fortunately most equipment was retrieved and swift action minimised losses.

The rain left roads impassable due to floods and landslides forcing the team to visit the west side of the mountain range where their base camp was set up. When more storms threatened, the jeep and truck drivers packed up and headed down valley fearful of being unable to get their vehicles back across the already swollen rivers. Increased water levels brought silt and dirt into the streams contaminating the natural drinking water supply. Low cloud and poor visibility conspired against the team hampering their ability to even see the mountains let alone search for and find a route up them. This resulted in advance base camp being set up in the wrong place and the team had to descend back to the valley floor and move further north along the mountain chain before re-establishing a new advanced camp at 5500m. A day later, camp one was established at the foot of the snow line, in a brief clear spell. Team members were forced to sit it out at Camp one while bad weather brought storms, heavy snow and a high avalanche risk.

With food running low and a restock of supplies from base camp needed, two of the team made a last ditch attempt for the summit of Jemakari Thobo (6603m). Although snow had ceased falling, conditions under foot were treacherous. Nevertheless the duo reached the south west summit via the heavily corniced south ridge, in knee deep snow and whiteout conditions which had prevailed from first light. Exhausted, the pair returned safely to advance base camp.

While collecting more supplies from base camp the weather improved and a week of clear settled weather ensued. The team promptly returned to their established high camps where an ascent of Tsachënbori (6210m) was made via the west ridge. Camps were subsequently moved along the range to attempt different peaks.

Ben and Joe headed further north to set up camp under a possible line on the south west face of Mt Shar Kangsum (6822m). However three avalanches roared down their planned line of ascent and they were forced to turn around because the snow slope was so unstable. Meanwhile Naomi and Dan returned to base camp from where they attempted Sum Kangri (6390m). After finding a way up some very unstable scree slopes the pair bivied at 5900m on the west ridge before going on to gain the north face to reach the summit. They returned to base camp the same day. Base camp was struck that evening as the jeep and truck drivers, who had returned thanks to the fine weather, were threatening to leave again due to the food situation; namely having run out of fresh produce.

The expedition deployed a box which measured atmospheric pressure, at a place called Tingri in Tibet for the duration of the expedition. Data was collected for the HIMAP project, undertaken by Imperial's Space and Atmospheric Physics research group, headed by Ralf Toumi. Two members of the expedition team are using the data collected, along with other data gathered previously from around the region, to study climate change and the effects of the Indian summer monsoon in the Himalaya as part of their fourth year University project.





# INTRODUCTION

By Daniel Carrivick & Naomi Bessey

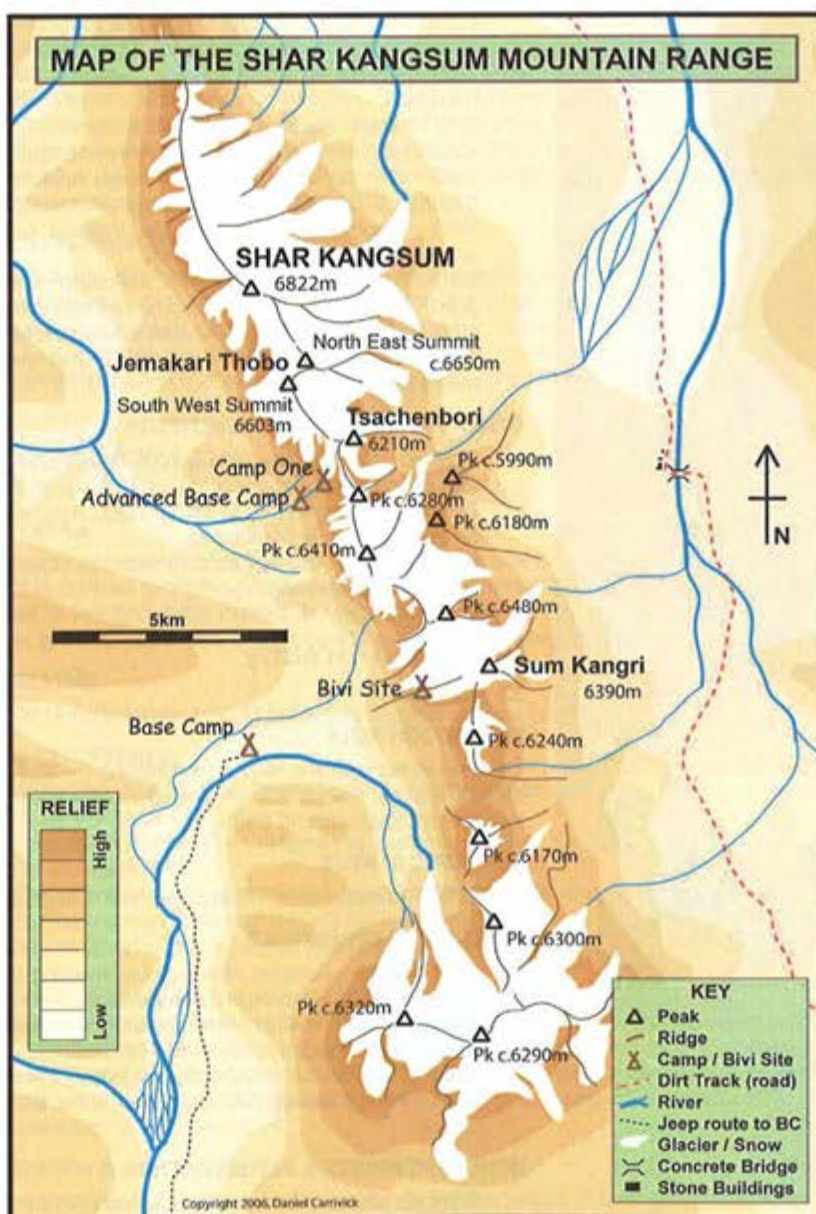
Tibet has long been a popular destination for foreign sightseers, who visit Lhasa and trekkers who have stayed close to the Nepalese border. Away from these tourist hot spots Tibet is still a remote and wilderness area where very few westerners have ventured; a land where only a few nomad yak herders make a living. In one such area, the western central portion of Tibet forms a high arid plateau called the Chang Tang, which means "northern plains". Isolated mountain ranges abruptly rise out of the Chang Tang plateau, one of which is known as the Shar Kangsum range (translated to "three peaks of the east").

Research revealed the area was visited in 1997 by a couple of people who were on their way to explore a different mountain range further north. They were able to drive right up to the foot of the mountain chain where they set up base camp. The pair were only able to climb a 5900m peak before the weather closed in and they continued north on their journey. However they estimated there to be at least a dozen peaks over 6000m, which were all thought to be unclimbed. By talking to other mountaineers we soon heard reports that the highest peak in the range; Shar Kangsum (6822m) had unofficially been climbed, though there were no such reports for the other peaks in the range. Thus the aim of this expedition was to explore and officially climb a number of 6000m plus peaks in the Shar Kangsum range.

This report gives an account of the expedition and details various other aspects including finance, health, equipment and food. It is hoped the report will be of use as a source of information for people planning similar expeditions or visits to the same area, as well as a document where those interested can discover more about our expedition.



Above & insert: Woman looking after market stall with child on Tibetan street. Naomi and Tenzin shop for yak butter candles



Copyright 2006, Daniel Carrivick



Below & insert: Ben playing cards in the tent at Advance Base Camp with Joe and Naomi.



## EXPEDITION MEMBERS

Compiled by Daniel Carrivick

### Daniel Carrivick

25 years old

#### EXPEDITION ROLE

Dan led this expedition as a result of his previous expedition experience and knowledge. Most of his leadership work was done prior to the expedition commencing. His work involved allocating logistical tasks to the other team members and ensuring they were carried out. Dan looked after the financial side of the expedition and secured equipment deals with manufacturers as well as organising all the group equipment. He also planned and purchased the food for above base camp, ensuring food weight and fuel consumption was minimised while enough calories were still maintained. Dan liaised with our agents as and when was necessary on the actual expedition and he acted as the link between the expedition team and the base camp staff by discussing things with Tenzin, the expeditions' tour guide while in Tibet. Dan made sure all the applicable rules and regulations were adhered to. On the expedition the team generally worked together, but when a decision was required, Dan, as leader had the final say. Dan also wrote and put together the majority of this report.

#### ACADEMIC STATUS

- 2002-to date - PhD student in Structural Geology, Imperial College London.
- 1998-2002 - MSci Geological Sciences, Imperial College London.

#### EXPEDITION EXPERIENCE

- 2004 - Led a team of four students who ski-traversed over 550km, unsupported, across Greenland's icecap in 29 days collecting a multitude of hydrological, meteorological and physiological data on the way as part of the Imperial College Trans Greenland 2004 Expedition
- 2003 - Co-led an arctic training expedition to cross the pressure ridges on the west coast of Greenland.
- 2002 - Field assistant for exploration into the small scale reservoir properties of transgressive sandstone bodies bisected by marine ravinement surfaces in New Mexico's canyon lands.
- 2002 - Member of the Imperial College Apolobamba 2002 Expedition. Ascent of three peaks up to 5700m, two of which were previously unclimbed. Ascent of Illimani (6462m) in the Cordillera Real.
- 2001 - Equipment Officer for the Imperial College Tagne 2001 Expedition. First ascent of two previously unclimbed 6000m peaks.
- 2001 - Wilderness Expedition First Aid course successfully completed
- 2000 - Six week geological mapping and wild camping in remote area on the Isle of Skye
- 1997, 98 & 99 to present - Annual summer alpine mountaineering trips to the French and Swiss Alps, including summiting Mont Blanc (4808m) at the age of 18. Led novice groups up to AD grade on mixed terrain.

#### OTHER INTERESTS & ACHIEVEMENTS

- Finished 5<sup>th</sup> in both the 2004 & 2005 British adventure ACE race two day series (male solo category).
- Regular competitor in marathons, with a sub-three hour personal best.
- Competent skier, learnt to ski in 1993, have skied more or less annually since 1998 across North America, Europe & Scandinavia.
- Keen participant in other outdoor activities including mountain biking, canoeing, rock and ice climbing, scrambling and caving.

### Benjamin Gready

22 years old

#### EXPEDITION ROLE

Ben helped with the task of fundraising by applying to trust funds for money. This involved writing applications and liaising with organisations which agreed to support us. Later he targeted companies for sponsorship, products and discounts.

#### ACADEMIC STATUS

- 2002 - to date - MSci Physics, Imperial College, London

#### EXPEDITION EXPERIENCE

- 2004 & 2005 - Summer Alpine mountaineering trips in Switzerland and France, climbing up to alpine grade D. Helped lead beginners up routes.
- 2004 & 2005 - Scottish winter climbing and mountaineering in Cairngorms and Glen Coe. Traverse of the Aonach Eagach ridge in winter conditions.
- 2004 - Passed a two day Outdoor Activities first aid course.
- 2001 - Passed a basic First Aid course in the UK and also passed a 2 day First Aid course whilst in Sri Lanka.

#### OTHER INTERESTS & ACHIEVEMENTS

- Went ice climbing in French Alps in Feb 2005 for one week climbing multi-pitch routes up to grade 5.
- Spends numerous weekends throughout the year doing outdoor activities; namely climbing, scrambling and walking. Confident leading at VS/HVS standard and seconding up to E1. Attempted





the Cullin Ridge Traverse on Skye and spent a week walking and scrambling in Glen Affric and Glen Strathfarrar.

- Equipment officer for Imperial College Union Outdoor Club 2004-05 and elected Chairman of the club for the 2005-06 academic year.
- Worked for Outward Bound Romania for two months in 2003, firstly as an assistant instructor, before rapidly progressing to become a full instructor. Led group activities such as rock climbing (top rope), kayaking, river crossings, different team games, and three day hiking trips, bivouacking at night.
- Organised a trip to traverse the Fagaras ridge of the Carpathian Mountains. The route took six days and included Romania's three highest peaks (up to 2543m).
- Spent twelve months working for Outward Bound in Sri Lanka (2001-02) having successfully fund raised £3350 towards it. Three months were spent observing the courses, another three working as an assistant instructor, before working for six months as a full instructor. Activities similar to those in Romania, with the addition of expeditions into the jungle.

## Joseph Johnstone

19 years old

### EXPEDITION ROLE

Joe joined this expedition in the spring of 2005 after one of the original team members was forced to withdraw from the team. Hence much of the planning had already been done. Nevertheless Joe was able to contribute by offering help and advice gained from his expedition in 2004. Joe also assisted with preparations as the day of departure grew near, organising things like the prescription medicines etc.

### ACADEMIC STATUS

- 2004-to date - MEng Civil Engineering, Imperial College London.

### EXPEDITION EXPERIENCE

- 2005 – Climbed Scottish snow and ice route up to grade III during the Imperial College Union Outdoor Club Winter Tour.
- 2004 – Member of a British expedition to the Tien Shan Mountains, Kyrgyzstan. This expedition of 14 British climbers aimed to summit Peak Chapaev and other peaks in the Inylchek area. Joseph was one of 5 climbers to make the summit of Peak Chapaev, ~6400m. Towards the end of the expedition an avalanche killed 12 Eastern European climbers on the mountain; Joseph was involved in the rescue and recovery of those caught in the avalanche's path.

### OTHER INTERESTS & ACHIEVEMENTS

- Loves road biking, non-competitive participation for the past seven years
- Regular rock climber, both indoors and outdoors, for over three years.
- Hill walker and scrambler (both summer and winter) in Britain since 1994. Including regular wild camping trips and trips with Imperial College Union Outdoor Club.
- Enjoys travelling, in particular extended trips to SE Asia and the Far East.

## Naomi Bessey

21 years old

### EXPEDITION ROLE

In her capacity as logistics officer Naomi arranged all the expedition requirements with our agents in Kathmandu. This covered everything from transport and accommodation to base camp staff and permits. She spent most of her time tailor making the expedition to suit our needs and liaising with our agents to discuss various options. Naomi also spent a great deal of time applying to trust funds for support.

### ACADEMIC STATUS

- 2002-2006 Undergraduate MSci in Physics at Imperial College, London.

### EXPEDITION EXPERIENCE

- 2004 - Thirty day tour of Scandinavia, including three weeks wild camping and exploring Lofoten Islands above the Arctic Circle.
- 2004, 05 and present- Alpine mountaineering, numerous routes graded up to and including AD level at altitudes of around 4000m.
- 2004 - One month trip to central and northern Sudan, including experience of extreme desert conditions. Worked with Sudanese doctors surveying houses for sanitary, schooling and medical needs of a section of refugee camps outside Khartoum; taught English classes in a community centre in the capital.
- 2004 - Ascents of classic Scottish routes on Ben Nevis, alpine style.
- 2003 - Five week sailing Expedition from England to St Petersburg in 30ft yacht, position of first mate / acting captain. North sea crossing and Baltic traverse. Planning, logistics and navigation in varied weather conditions; multiple practical tasks to keep boat afloat, often in situations of extreme stress.
- 2002 - Four week sailing trip through Holland and Germany, crossing into the Baltic Sea. Demanding storm experiences in 21ft river yacht.

### OTHER INTERESTS & ACHIEVEMENTS

- Enjoys being in remote areas as well as in the mountains - keen walker and mountaineer whatever the weather.
- Likes travelling abroad and visiting places off the beaten track.



Above & insert: Naomi and Joe doing their washing in the river near Base Camp.







Below & insert: Ben climbs up some rocks near Base Camp on a so called rest day.

## MOUNTAINEERING REPORT

By Daniel Carrivick

### Summary

The first official ascents of three peaks in the Shar Kangsum mountain range were made, with the highest being 6603m. All three peaks were previously unnamed. An attempt on Shar Kangsum (6822m) from the west side was abandoned at around 6000m due to a series of avalanches on the route above.

### Background Information

#### HIMALAYAN INDEX LISTING

Shar Kangsum is highest peak in the Shar Kangsum range. This peak is listed on the Alpine Club's Himalayan Index as Shahkangshan and is given the reference number 13301. The index lists the peak as being 6815m high (22,358ft) and its position is given as 31° 31' 48" 085° 04' 48". No other peaks in the range are currently listed on the Alpine Club's Himalayan Index.

#### MOUNTAIN RANGE NAME

The range of mountains visited is referred to by various names which are different in spelling as shown above by the listing of Shar Kangsum on the Himalayan Index as Shahkangshan. This may cause some confusion as some names appear quite different from each other and previous explorers who have visited the range use names from anything like Shar Kangsum to Shahgangsham. The listing of the mountain as Shahkangshan does not necessarily make it correct as the Himalayan Index acknowledges the spelling of mountain names is difficult and often arbitrary.

A team who explored the range in 1997 refer to the range as Shar Kangsum (and Shar Kang Sum – the two are used by the explorers interchangeably). They say Shar Kangsum means "3 peaks of the east". This interpretation is re-enforced by Tibetan translation tools which show "Shar", "kang" and "sum" to be three Tibetan words which mean "east", "snow", and "three" respectively.

Some locals who lived near the mountains did not recognise the name (or our guides' pronunciation of the name). This did not help when we were asking for the best way to get there. They soon understood though when Tenzin, our guide, pointed to the distant peaks, often replying with their own personal name for the range. Tenzin informed us one person had said the ending was wrong, with "sum" more likely to be something like "jang". He also recalled their was unlikely to be a "K" in the name as the letter "K" is not popular, with the letter G often being used instead. The replacement of the letter "K" with "G" is widespread on road maps of Tibet which commonly show two different names, or spellings of the same name, for example "Lungkar" is also spelt "Lunggar" in brackets underneath. However the use of "G" in the place of "K" is not universal. Take for example the word "Kangri" which means "snowy mountain". This is much more widely used than "Gangri". These road maps also show the widespread use of the word "Shan" in the names of mountain ranges, for example the Lungkar Shan is the name of the range of mountains a hundred kilometres west of the range visited by this expedition. However the word "shan" is never joined onto the end of a previous word - it is always kept separate. Hence Shahkang Shan is perhaps more likely than Shahkangshan.

From the evidence collected and presented above there appears to be no definitive write or wrong way to spell the name. It is probable there are at least two different ways of spelling this mountain range name given most Tibetan place names have at least two different (sometimes completely different) ways of spelling their name. Which spelling should be used here in this report is not obvious. Hence Shar Kangsum is used throughout this report to refer to both the mountain range and the highest peak as this is the only name for which the meaning is noted and it is known to consist wholly of Tibetan words.

#### HIGHEST PEAK POSITION

The Shar Kangsum massif is some dominated by a 2.5km, roughly north-south trending ridgeline, all of which lies above 6500m. The ridge is undulating with a number of small rises and crests along its length. This creates some uncertainty over where the highest point actually lies. Recently acquired satellite images show the highest point to lie in the northern part of the massif. This is in contrast to photos taken which show the highest point to be situated over 1km further south in the southern part of the massif much closer to Jemakari Thobo.

Throughout this report the location of Shar Kangsum's summit is defined as the highest point on the massif identified from the satellite data. Though there is a chance this data is incorrect, it is the best information there is, as the massif was only seen from the valley to south west where the perspective may make lower crests look higher than they actually were because they were a lot closer.

### Previous Visits & Ascents

#### 1997 – Ascent of an Unnamed 5900m Peak

A team of foreigners, believed to consist of at least three people, visited the Shar Kangsum mountain range in 1997. While on their way north to explore another range of mountains they stopped off and climbed a 5900m peak before bad weather forced them to move on. The exact peak this team climbed is not known, however skis were used. Because of all this the group is thought to have visited the east side of the Shar Kangsum range. They noted the range consisted of a series of at least fifteen peaks with summits averaging 6500-6900m. However, having visited the west side of the range, this seems at the upper end of the scale and in reality there are probably no more than fifteen individual peaks, whose summits are above 6000m.





**Below & insert:** Ben trying to keep dry feet while crossing the river next to Base Camp.



### 2002 – Shar Kangsum, first known attempt

Three people visited the northern end of the mountain chain in 2002 without permits. This team attempted to climb the highest peak in the range; Shar Kangsum, approaching from the east side. They claim to have reached the top of Shar Kangsum by ascending the east ridge of Jemakari Thobo and going over both summits before heading north along the ridge in poor visibility. Satellite imagery shows the south west summit of Jemakari Thobo (6603m) to be a significant detour from the most obvious route up to the summit of Shar Kangsum from the east ridge of Jemakari Thobo. Also the exact location of highest point on the massif is open to debate as satellite imagery shows the summit of Shar Kangsum to be located a significant distance further north than seen from the south west. Thus whether Shar Kangsum remains unclimbed or not depends on the high point reached by this team and the exact location of its summit.

### 2004 – Unknown visit

When approaching the mountains we stopped to ask local people on the best way to get to the mountain. Our guide, Tenzin told us one nomad had said that the previous year a group of foreigners had visited the west side of the mountain range (this was why our staff tried going up the west side of the range when they learnt the road was blocked on the east side). However no other details about this visit are known. No evidence of previous mountaineering activity was ever seen, and there were no signs of past camps. Thus other than knowing a team may have been to the west side of the Shar Kangsum mountain range we do not know why they were there or what they were doing.

## Access & Base Camp

### TO BASE CAMP

From Kathmandu (1300m) the Friendship Highway was taken up to Kodari (1873m) and across the border to Zhangmu (2300m) the Tibetan border town before the night was spent in Nyalam (3750m). The following day the top of Thong-la (5120m) and Lalung-la (5050m) were crossed before the Friendship Highway was left and a very bad road was taken to the army town of Saga. From there the main southern road linking western Tibet with Lhasa was taken east for about 60km. Just before Raka a smaller road north was taken past King Tiger Hot Springs and Tagyel (or Takyd) Tso towards Tsochen (also called Mendong or Coqên on some maps). In places the road was very poor often reducing progress to an infuriatingly slow 20km/h.

From Tsochen the road crossed a couple of passes and then descended to the picturesque waters of Dawa Tso. Shortly after rounding the lake the road passed up the eastern side of the Shar Kangsum range, however the road was blocked so an off road route was taken up the western side of the range. From turning off the road an initially 7km wide outwash plain was followed northwards into a broad valley with a floor some 2km wide. A succession of large alluvial fans fed into the valley from the east. These were crossed high on the eastern side of the valley where steep gradients and high water made finding places to cross difficult at times. Subsequently a better route was found around the fringes of the alluvial fans, in the middle of the main valley, where gradients were less steep and streams more dispersed. The main river which flowed down the valley switched over to the eastern side of the valley shortly before the valley curved round sharply to the east, some 30km after leaving the road. The large braided river was forded (only just due to recent heavy rains) shortly before the river ran under a distinct steep rocky outcrop on the eastern side of the valley. Another 2km were travelled northeast, across the grassy valley bottom on the northern side of the river. Base Camp was set up on a river terrace at 31°36'45.4" 085°03'26.0" in the middle of the valley floor, near the valley's northern most point. Upstream the river and valley continued to swing round until it headed back south forming a large U-shape.

The whole journey from Kathmandu to Base Camp took six days. However one day was lost in Saga after the floods and what had taken three days on the way there only took two on the way back thus the same journey could potentially be done a couple of days quicker.

### FROM BASE CAMP

From Base Camp the same route was taken all the way back to the road junction just after King Tiger Hot Springs. At the junction the road was followed east to Raka instead of heading back west to Saga. This main road, which links Lhasa with western Tibet, was travelled along through Raka and all the way to Lhatse where the Friendship Highway was joined as far as Shigatse. From Shigatse a detour was taken via Gyantse and Yamdrok-tso, before passing over the Gampa-la (4750m) to rejoin the Friendship Highway into Lhasa.

The journey from Base Camp to Lhasa took just over five days but this involved one lengthy detour and a number of stops to see sights on the way. The same journey could be done in about three days if stops and detours weren't made for sightseeing.

After time was spent in Lhasa, a return to Kathmandu was made along the Friendship Highway. One day was spent getting from Lhasa to Shigatse, another to Tingri and a third across the border to Kathmandu. Construction of a new tarmac road between Shigatse and Lhatse slowed our progress and thus might make things quicker in the future, however even after completion the journey from Lhasa to Kathmandu will still probably take about three days - just the days won't be so long!

## High Camps

### ADVANCED BASE CAMP (c.5600m)

From base camp the broad flat valley floor plain was crossed in a north easterly direction for over a kilometre to where a stream emerged from between hills to the north west and an extensive pile of moraine to the south east. This stream rounded the rocky spur of the end hill to flow down the northern side of the broad flat valley plain. The stream was followed north, northeast for some six hundred odd





**Below & insert:** Tenzin (R) and Lakpa with Ben enjoying a cup of tea in one of the many downpours at Base Camp.



metres to where it split. The left tributary was taken for a further kilometre north and where the stream started to bend round to the east up the mountain, a northerly bearing was maintained. Trekking continued up a gentle incline over a small watershed and down to another small stream, some 200-300m in a north north-westerly direction.

From this second stream, a ridge of scree was initially climbed and the head of an open valley crossed to reach the top of a second ridge of scree where a saddle was conveniently located to dump kit (c.5470m) as rain and low cloud engulfed the mountains. Returning a second time with more supplies in a brief weather window the team were able to move everything some 600-700m further north by traversing the difficult scree. A reconnaissance trek traversed for another kilometre along the scree before a steep drop prevented further progress the foot of the glacier from being reached. The only way round was to descend west northwest along a stream to where it joined a stream from the north east (c.5300m) before following the southern side of this stream east north east up to a large flat bowl at the foot of steeper scree slopes where ABC was set up (see appendix F for GPS data detailing the location of this and all other camps).

On later visits to and from base camp, after crossing the watershed the stream was crossed and its northern side loosely followed downstream for 1km cutting across lower slopes. After just over a kilometre heading west northwest and dropping a little over a hundred metres another stream was crossed just above its confluence with the stream (c.5340m) that had been loosely followed. A small open valley was taken northwards for 500m or so, climbing about 30m to high pass (c.5370m) before heading north west and dropping down some 60m over 800m to another stream (c.5310m). A small animal track was followed northwards between two hills by the side of a trickling stream. After crossing the stream the track climbed some 30m over a distance of about 300m to reach the high pass. From the pass the route contoured around the lower slopes of hills for about one kilometre until a large stream coming down from the east was reached. The southern side of this stream was followed upstream for over 1.3km, ascending some 250-300m to where the stream flowed across a flattish boulder strewn plain at the foot of scree slopes which led up to the mountains. Advanced base camp (ABC) was set up in this boulder strewn bowl.

#### CAMP ONE (c.5800m)

To the east and north east of advanced base camp (ABC) lay a broad steep slope of loose and broken rock which climbed some two hundred vertical metres over a lateral distance four to five hundred metres. This 20-30° unstable slope was climbed both directly by heading north east from ABC and by a more indirect route taking advantage of easier gradients by heading east before turning north halfway up the slope after ascending a hundred vertical metres or so. Camp One was set up at the top of this slope, on moraine just below the snowline, on the western side of the tip of a hanging glacier.

### Mountain Weather

The weather was stormy when Base Camp was set up on the 24<sup>th</sup> July and this unsettled weather continued relentlessly for more than two weeks. At Base Camp days were typically overcast in the morning. The cloud often built throughout the day and by early to mid afternoon the first precipitation fell. By late afternoon to early evening a few heavy or torrential rain or hail showers would quickly pass over. These were often accompanied by gusty winds which battered the base camp tents. Temperatures were relatively mild with day time recordings varying between 5°C and 13°C (see appendix G), though the wind often made it feel colder. Night time temperatures rarely dropped below freezing even at just under 6000m. The cloud base was typically only a few hundred metres above base camp thus on the mountain there were frequent problems with visibility being less than ten metres. Occasionally the clouds lifted towards the end of the day giving brief views of the setting sun and the peaks of the mountains.

At higher camps, in the thick of the cloud, there was a lot more precipitation. Sleet and snow showers were frequent often forming a light covering, though the temperature was such that this didn't hang about on the ground long. Hail storms came daily or every-other-day and were often accompanied by thunder and sometimes lightning. Though these were quite localised and passed quickly the thunder lasted a lot longer as it was heard from a long way away and from storms which passed around rather than over the mountains. Some storms missed us and others we just caught the edge of. Those that hit us head on lasted for up to an hour after which time the ground was often covered in a good few inches of hail.

On the 8<sup>th</sup> August settled conditions finally took over bringing fine weather. Clear skies meant the temperatures plummeted during the nights and a low of -9°C was recorded one morning at 7am at 6000m. Day time highs ranged from 4°C at around 6000m to 10-15°C at Base Camp, though in the tent in the sun this felt more like 33°C. Small clouds did develop on occasions but these remained scattered and high - above the tops of the peaks. Early morning thin clouds sometimes hugged the sides of mountains but these soon burnt off as the sun rose. Winds were light to non-existent. These conditions lasted until the 12<sup>th</sup> August by which time we were back on the road and a mixture of sunshine and showers was enjoyed for the remainder of our time in Tibet. Twelve hours of daylight were enjoyed each day with dawn breaking around 7am and the sun setting about 7pm.

The unsettled nature of the weather experienced at Base Camp was unexpected. Our impression was that the Tibetan Plateau is arid like a desert and that the effects of the monsoon did not reach that far north. Clearly either this is wrong or the weather experienced was anomalous.

### Acclimatisation

No specific acclimatisation was undertaken as team members acclimatised while on the journey to Base Camp. A stopover was taken in Nyalam (3750m) on our ascent from Nepal (1300m) up to the Tibetan Plateau (4300m) to give us time to partially acclimatise. Once at Base Camp continued acclimatisation was combined with reconnaissance trips to explore the Shar Kangsum mountain range on foot.





## Attempts on Mountains

### JEMAKARI THOBO 6603m (21,663ft)

Jemakari Thobo *Je-ma-ka-ra ri tho-bo* Sugar High Mountain

བྱེ་མཁའ་རི་མཐོ་པོ་

At over 6600m, Jemakari Thobo is one of the higher peaks in the Shar Kangsum range. The mountain is situated in the northern part of the range and is a couple of kilometres south of the highest peak in the range Mt Shar Kangsum. Jemakari Thobo has two summits which lie some five hundred metres apart and are linked by a curved ridge line which forms the back part of a much larger horseshoe shaped ridgeline. The south west summit lies at the western most point of the horseshoe while the slightly higher north east summit lies at its northern most point. The inside of the horseshoe lies to the southeast of the ridgeline which joins both the summits and is characterized by steep rocky cliffs. To the west, on the outside of the horseshoe lie 40° snow slopes.

A team climbing without a permit in 2002 ascended the east ridge of Jemakari Thobo on their attempt to reach the summit of Shar Kangsum. They claim to have gone over both Jemakari Thobo's summits on their way to Shar Kangsum. However the south west summit is out of the way and would require a significant detour from their attempt on Shar Kangsum.

The height of Jemakari Thobo's south west summit was recorded by GPS to be 6603m and this is the height used throughout this report. However the reader should be aware that the satellite data, also used throughout this report to provide information on the height and position of other mountains in the range, suggests Jemakari Thobo's south west summit is about 6500m high, 100m lower than that recorded by the GPS. Thus the 6603m recorded by GPS may be a bit of an overestimate.

The peak was named sugar high mountain as the peak looked like a mountainous pile of sugar from the approach to Advance Base Camp. Also the conditions experienced underfoot are thought to be akin to wading through knee deep sugar and eating sugar was what kept the climbers going.

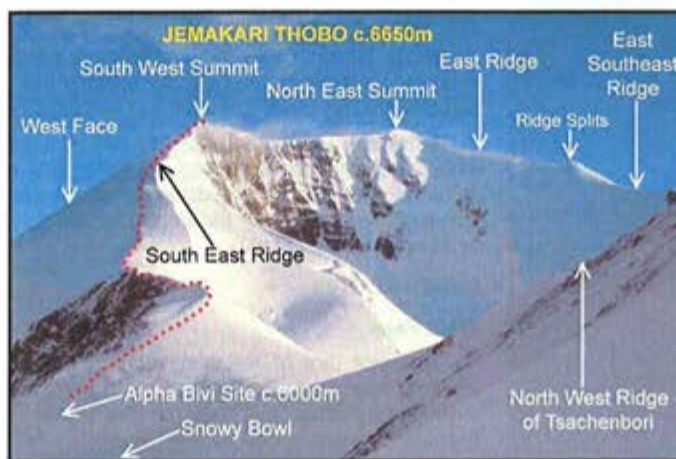


Fig.1 Photo of Jemakari Thobo taken from just below the saddle on Tsachenbori (looking north) showing line of ascent.

#### SUMMARY

**Route:** South east ridge

**Alpine Grade:** PD+ (*peu difficile*)

**Style:** Alpine

**Attempted By:** Benjamin Greedy & Joseph Johnstone

**Date:** 3<sup>rd</sup> August 2005

**High Point Reached:** South West Summit of Jemakari Thobo (*first ascent via the south east ridge*)

**Height:** 6603m (21,663ft) (GPS)

**Location:** 31° 40' 58.6" 085° 03' 56.8" (GPS)

**Camps:** ABC (c.5600m) 31° 39' 45.5" 085° 04' 06.8" (GPS)

Camp One (c.5800m) 31° 40' 01.1" 085° 04' 26.1" (GPS)

Alpha Bivi Site (c.6000m) 31° 40' 20.2" 085° 04' 25.5" (GPS)

#### SUMMIT DAY STATS

**Ascent:** 600m over 1.5km

**Descent:** 1000m over 3km

**Start time:** 05:00 hrs from Alpha Bivi Site

**Summit time:** 10:00 hrs

**Finish time:** 15:00 hrs at Advance Base Camp

**Time Taken:** 10 hrs

**Description:** Summit attempt launched from Alpha Bivi Site in snowy bowl at around 6000m, returning via Camp One on moraine at foot of snow and glacier to advanced base camp at approx. 5600m.

#### SUMMIT DAY CONDITIONS

**Weather:** More or less continuous light snow and hail

**Temperature:** 7°C at 12:00am at 5800m



Above & insert: Ben and Joe battle against the elements on the south west summit of Jemakari Thobo (6603m).





**Below & insert:** Snow at Advanced Base Camp. The rocky section on the lower part of the south east ridge of Jemakari Thobo can be seen on the skyline on the left side of the photo.

**Cloud:** Total coverage all day and low. Cloud base about 5700m.

**Visibility:** Poor, white-out, less than 10m

**Wind:** Steady up to 30mph, strong gusts on ridge and summit up to 50mph

**Underfoot:** Soft snow, unconsolidated to mid-calf depth

**Avalanche Risk:** High on lower slopes where significant accumulation of hail formed a weak layer under the fresh snow.

#### ROUTE DESCRIPTION

From Advanced Base Camp scree slopes were ascended to Camp One where supplies which had been previously dropped were picked up. Above Camp One lay the tongue of a glacier. The ice was reached on the west side of the snout and a route made up the initially steep snow slope to the eastern side of the glacier where it ran underneath some rocky cliffs. The gradient eased off and the slope was followed more northwards up to a flattish expanse of snow at around 6000m referred to here as a snowy bowl. A path a little west of north was maintained across the snowy bowl to the foot of a short snow covered scree slope where Alpha Bivi Site was set up (see fig. 1). Above the slope led up to the rocky ridge line which (from the south west) dominates the lower part of the south east ridge of Jemakari Thobo.

The following day was spent storm bound at Alpha Bivi Site. The day after this the weather was only marginally better but with not enough supplies to sit out the bad weather any longer an attempt to reach the summit was made. The scree slope was well covered with fresh snow which was ascended to the southern end of the rocky knife-edged ridge section (c.6100m). A steep snow slope lay on the northeast side of the ridge, the crest of which was traversed where possible bypassing some of the technical ridge sections. Where there was no snow crest, a route was found over or around the remaining rocky obstacles. No protection was placed and movement continued alpine-style, all be it much slower. The rocky ridge was about 200m long over which very little height was gained.

The upper part of Jemakari Thobo's south east ridge is made up of a long snowy ridge which runs from the end of the lower rocky ridge up to the summit over a distance of about 1km. The snowy ridge started off open with a poorly defined rounded crest but soon became better defined with ascent. After about 300m or so a knife-edged crest was followed. Slopes to the south west of the ridge dropped away steeply while those to the north east were sheer. Cornices lined the eastern side of the ridge so the few rocky patches which were encountered about half way along the upper ridge were passed by dropping down from the ridge line on the west side. Eventually the gradient eased and a high point - the south west summit of Jemakari Thobo - was reached. An elevation of 6603m was recorded by GPS on the top. Knee deep snow was waded through for much of the ascent and the whole climb was completed in thick cloud. Significant winds made the snow and hail seem heavier than it actually was reducing visibility further.

A descent was made back the same way almost immediately. Severe fatigue coupled with worsening weather - heavy and more frequent hail storms - made the return take a considerable time. Supplies left at Alpha Bivi Site were collected, but a rest was not taken until Camp One was reached. Partial recuperation was sought at Camp One for an hour or two before it too was struck and a descent made out of the cloud to Advanced Base Camp.

#### OTHER ROUTES

##### West Face

The west face of Jemakari Thobo is characterised by a sustained snow slope inclined at about 40° which provides the shortest and most direct route from the snowline to both the summits. One or two crevasses cut across this slope but they appear small and discontinuous. In bad weather the slope is prone to avalanches and is best avoided. See route description for Shar Kangsum for more information.

##### East Ridge

The east ridge can be gained from the north side by crossing the glacier, which descends from between Shar Kangsum and Jemakari Thobo, to a short snow slope at c.6100m. This snow slope leads up to the east ridge just west of its rocky tip at around 6250m. Note it should also be possible to reach this point on the east ridge without too much difficulty by ascending from the south side of the ridge. On joining the ridgeline a rounded crest line leads west southwest for just under 1km to where another minor snow ridge joins it from the east southeast at c.6450m. The ridge then heads due west and is more knife edged for the next 450m to a point where it is intersected by a minor ridge coming from the south west summit. After this the ridge curves round to a west northwest orientation for the final 250m up to the north and main summit of Jemakari Thobo. Easy angled slopes lie on the south side of the upper part of this ridge while very steep drops lie on the north side. This route was used by a team in 2002 to gain the south ridge of Shar Kangsum.

#### TSACHËNBORI 6210m (20,374ft)

Tsachënbori *Tsa-chën-bo ri* Precious Mountain

ཕ་ཚེན་པོ་རི་

Tsachënbori is a relatively low peak situated some 1.7km south east of Jemakari Thobo. The top lies near the western end of a 1.5km long ridge which comes up from the east side of the range and is orientated in a west southwest direction. The ridge continues over the summit on this orientation for a short distance before swinging openly round to a south, southeast direction which it maintains for 1km to the top of Pk.6280. Tsachënbori sits directly to the east of the snowy bowl where Alpha Bivi Site was located for the attempt on Jemakari Thobo. There are no known previous attempts on Tsachënbori.

The height of Tsachënbori was recorded as 6210m using an altimeter watch. The altitude displayed on this watch was calibrated at Base Camp using our photocopy of a 1:1,000,000 Russian topographic map. This wasn't ideal as it meant the watch which had an accuracy of 5m could only be set to the nearest 50m. The altimeter watch is also sensitive to pressure changes associated with the weather. Given this the actual



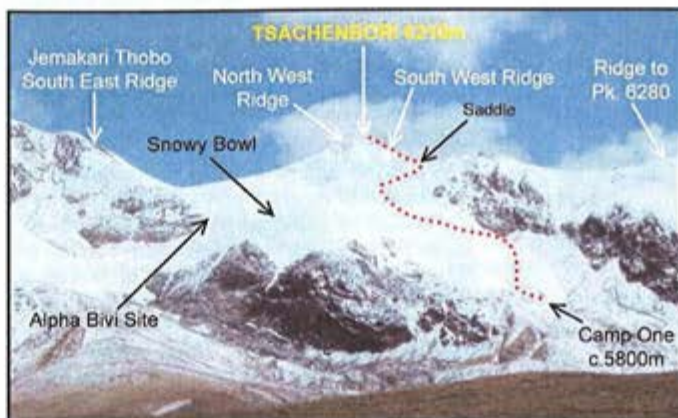


**Below & insert:** Naomi approaching the summit of Tsachënbori (6210m). The summit can be seen just along the ridge in the background.



height of Tsachënbori may be as much as 100m higher or lower than 6210m. However satellite data suggests 6210m to be an appropriate height for Tsachënbori, thus this is what is used throughout this report.

This peak was named precious mountain after an in-joke from J R R Tolkien's most famous piece of work. Translation of precious mountain into Tibetan gives Tsachënbori; hence this is the name by which this peak is referred to in this report.



**Fig. 2** Photo of Tsachënbori taken from the approach to Advance Base Camp (looking east), showing line of ascent.

**SUMMARY**

- Route:** South west ridge
- Alpine Grade:** F+ (*facile*)
- Attempted By:** Naomi Bessey & Daniel Carrivick
- Style:** Alpine
- Date:** 8<sup>th</sup> August 2005
- High Point Reached:** Summit of Tsachënbori (*first known ascent*).
- Height:** 6210m (20,374ft) (*altimeter watch*)
- Location:** 31° 40' 22" 085° 04' 47" (*from satellite data*)
- Camps:** Base Camp (c.5050m) 31° 36' 45.4" 085° 03' 26.0" (*GPS*)  
 ABC (c.5600m) 31° 39' 45.5" 085° 04' 06.8" (*GPS*)  
 Camp One (c.5800m) 31° 40' 01.1" 085° 04' 26.1" (*GPS*)

**SUMMIT DAY STATS**

- Ascent:** 400m over 1.1km
- Descent:** 1100m over 10km
- Start time:** 06:30 hrs from Bivi Site
- Summit time:** 10:00hrs
- Finish time:** 19:30 hrs Base Camp (arrived Camp One 11:30pm and left at 13:30pm)
- Time Taken:** 11hrs
- Summary:** Summit attempt launched from Camp One. Intended to attempt Pk.6410 (via Pk.6280) along ridge to the south of Tsachënbori but turned out more technical than expected and the weather was unpredictable. Climbed Tsachënbori instead. Descended to base camp after striking Camp One.

**SUMMIT DAY CONDITIONS**

- Weather:** Dry with periods of low clouds
- Temperature:** 4°C at 11:30am at 6000m
- Cloud:** Cloud base somewhere below 5800m rising and breaking up by late morning to leave isolated and scattered clouds in the afternoon
- Visibility:** Poor, white out, less than 10m in the cloud. Good out of the cloud.
- Wind:** Slight breeze
- Underfoot:** Hard wind blown snow on much of the upper slopes. Lower slopes beginning to soften by mid morning.
- Avalanche Risk:** Moderately low.

**ROUTE DESCRIPTION**

The glacier was gained from Camp One via its west side and a route taken up its steep snout (up to 40° in places) to some rocky cliffs which bounded the east side of the glacier. A firm snow surface allowed good progress to be made. Passing underneath the rocky cliffs the gradient of the slope steadily eased, leading northwards into a broad gently undulating snowy bowl at around 6000m. The cloud cleared intermittently allowing the south eastern part of the snowy bowl to be skirted around and a diagonal path up a 35° snow slope to be made to reach a saddle in the ridge line at around 6120m (*see fig. 2*). The ridge to the south was climbed for a distance of about 200m over a high point from where the heavily corniced and knife-edged ridge ahead could be seen. It was both longer and more technical than first envisaged. Clouds continued to roll in and engulf the mountain. Fearing the weather would deteriorate the decision was made to turn around and climb the peak on the other side of the saddle.

After returning to the saddle the ridge was taken in a north north-easterly direction. The ridge rose abruptly at about 30-35° and had a broad crest composed of patches of small rocks and snow. After ascending 70-80m the gradient eased off and the summit (6210m) was reached by following the ridge, which had swung round to a more east northeast orientation, for another 200m or so.





The descent was back the same way, descending to the saddle and then retracing footsteps back to Camp One. Typically the cloud started to clear and the weather improved. The surface of the snow soon started to soften in the sun on the lower slopes but not enough to inhibit progress and Camp One was reached in less than ninety minutes from the summit.

#### OTHER ROUTES

In addition to the south west ridge, the east ridge and the north west ridge/face also appear to provide alternative lines of ascent. All routes from the west are particularly sensitive to the amount of snow cover on Tsachënbori as snow cover on the upper part of this side of the mountain is thin. Small patches of rock were exposed through the snow in places on the south west ridge and west face and recent satellite photos show much less snow on the upper west face of Tsachënbori.

#### East Ridge

From the summit a gently undulating snowy ridge descends towards the east. This provides the most obvious line of ascent from the eastern side of the range. The start of the ridge is rocky and sheer hence a way should be found up scree on the southern side of the lower ridge to join the snow at around 5900m above a line of rock buttresses which outcrop and form much of the north side of the ridge. From there the ridge leads easily up to the summit in a series of gentle rises over a distance of about 800m.

#### North West Ridge/Face

The north west ridge, which is only about 250m long, forms little more than the apex of the curve associated with the west face as it swings round to join up with the north face. This line of ascent leads up from the col (c.6100m) between Tsachënbori and the south east ridge of Jemakari Thobo. The ridge maintains a reasonably steep gradient throughout across snow and patches of scree. The col can be reached from the west by using the same route as for the approach on the south west ridge but on reaching the snowy bowl it should be crossed rather than skirted around. From the east the glacier on the north side of the east ridge seems to provide an easy ascent to the col.

#### SUM KANGRI 6390m (20,964ft)

Sum Kangri *Sum kang ri* Three snowy mountains

གསུམ་གངས་རི་

Sum Kangri is situated some 6km in a south easterly direction from Tsachënbori. To the south of Sum Kangri there are two smaller peaks which have no glaciers on their flanks. These mark the boundary between the northern and southern parts of the Shar Kangsum range which are both glaciated. Shar Kangri lies at the southern most end of the northern glaciated part of the Shar Kangsum range. There are no known previous attempts on Sum Kangri.

The height of Sum Kangri was recorded as 6390m using the same altimeter watch as the height of Tsachënbori was measured on. Thus the actual height of Sum Kangri may be up to 100m higher or lower than this. However satellite data suggests 6390m to be a reasonable estimate for the height of Sum Kangri, thus this is what is used here.

The peak was called three snowy mountains due to the fact two false summits were climbed before the final real summit was reached.

#### SUMMARY

**Route:** West ridge

**Alpine Grade:** PD- (*peu difficile*)

**Style:** Alpine

**Attempted By:** Naomi Bessey & Daniel Carrivick

**Date:** 10<sup>th</sup> August 2005

**High Point Reached:** Summit of Sum Kangri (*first known ascent*)

**Height:** 6390m (20,964ft) (*altimeter watch*)

**Location:** 31° 37' 42" 085° 06' 44" (*from satellite data*)

**Camps:** Base Camp (5050m) 31° 36' 45.4" 085° 03' 26.0" (*GPS*)

Beta Bivi site (6000m) 31° 37' 28" 085° 05' 52" (*from satellite data*)

#### SUMMIT DAY STATS

**Ascent:** 400m over 1.5km

**Descent:** 1400m over 6km

**Start time:** 07:30 hrs from Camp One

**Summit time:** 10:30hrs

**Finish time:** 17:30 hrs Base Camp (arrived Camp One 12:30pm and left at 13:30pm)

**Time Taken:** 10hrs

**Summary:** Summit attempt launched from Beta Bivi site to what turned out to be two successive false summits before reaching the main top. Descended to base camp after clearing Beta Bivi site.

#### SUMMIT DAY CONDITIONS

**Weather:** Dry, warm and sunny

**Temperature:** -9°C at 7am at 6000m

**Cloud:** Clear cloudless skies for much of the day

**Visibility:** Good – could see the Lunggar Shan over 100km away on the horizon

**Wind:** Slight occasional breeze

**Underfoot:** Hard wind blown snow. Upper slopes soft in places on snowy ridges but only ankle deep. Beginning to soften by the time we descended.

**Avalanche Risk:** Low.



Above & insert: Naomi descending from the summit of Tsachënbori with the south west ridge below.





**Below & insert:** Naomi in her bivi bag at Beta Bivi Site on the west ridge of Sum Kangri.



**ROUTE DESCRIPTION**

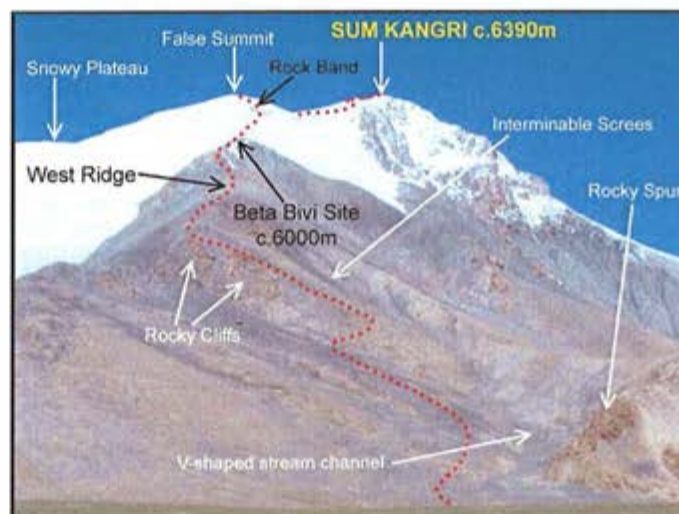
The foot of Sum Kangri was easily reached from base camp (5050m), by trekking east over the broad flat valley bottom, for a little more than two kilometres. Over that distance the valley plain rose about a hundred metres or so providing an easy angled incline. Numerous braided boulder channels, most of which were dry, cut across the green grassy valley floor and were thus subsequently crossed. Between the valley plain and the snow line lay a succession of tedious and seemingly endless scree slopes which became steeper and more precarious with ascent.

From the valley floor (c.5200m) a route heading east over easy angled, stable scree slopes was taken on the northern side of a steep v-shaped stream channel. A line of rocks lay on the other (southern) side of this v-shaped stream channel, poking through the scree. These rocks lay on the ridgeline of a spur which jutted out onto the valley floor. After ascending for an hour or so over sharp and irregular shaped scree the overall gradient increased slightly with the surface gently undulating in a series of rises. A more north easterly route was taken up to near the foot of a large, steep face of broken rock which descended some 200m south south westerly from the west ridge. This rocky cliff face was rounded on scree at its southern end. A line was then followed up a steep 30-35° scree slope where proper scree bashing commenced. Individual pieces of scree were flat making the whole slope loose and unstable. The scree slipped down with every step and care was required to maintain balance. One or two isolated large rocks lay in the middle of the slope and provided the only respite. From the highest (and largest) rock the scree was traversed west to the top of the rocky cliffs. A line along the edge of the scree slope and the top of the rock face was then climbed all the way up to the west ridge, across a couple of large scree chutes which bisected the rocky cliff.

The west ridge was joined at around 5700m and was followed up for some 600-700m to the snow line (c6000m) where Beta bivi site was set up (see fig. 3). From the top of the rocky cliff the west ridge rose in a series of broad and rounded, gently inclined sections followed by steep rises which often dropped away sharply on each side. At around 5900m a 50-70m section of loose and broken bedrock was encountered on the ridge before more steep and exposed scree led up to the snow line. The whole route took some seven hours from base camp.

Climbing continued on firm snow up the wide, rounded west ridge the next morning. A hundred metres above Beta bivi site lay a band of intermittent rock. The ridge increased steadily in gradient between the bivi site and the rock band (an estimated 300m or so). A steep short snow gully was climbed through the rock band to gain the southern side of the ridge. Some three to four rocky outcrops each between 20-50m long lay above in an ascending line, poking through the glacier over the next 250m stretch of ridgeline. These rocks were passed closely on their south side to reach the end 4m high rock pinnacle. From there the slope eased and an open convex snow slope led up to a false summit, which was nothing more than a wide snowy shoulder. From the top of the shoulder (c.6250m), a broad expanse of flattish snow was crossed for some three hundred odd metres before a northwest facing concave snow slope was climbed to the western end of a small ridge. The crest of the ridge was followed north east over another false summit before curving round to the right to reach the main summit (6390m) some three hours after leaving Beta Bivi site. Throughout the ascent, the snow was so firm no footprints were left - only crampon marks.

The descent was back the same way. The snow surface had started to soften but this was only by an inch or two, which did not inhibit progress and Beta Bivi Site was reached in little over an hour and a half. From there the descent back to base camp took another four interminable hours. The weather remained perfect throughout the day with cloudless skies for most of it.



**Fig 3.** Photo of Sum Kangri taken from Base Camp (looking east), showing line of ascent.

**OTHER ROUTES**

The whole southern part of Sum Kangsum is effectively missing offering little in the way of potential routes to the summit. All slopes drop away very steeply south of the summit and are characterized by rocky outcrops and scree chutes devoid of snow cover and glaciers. A broad snowy plateau lies to the north of Sum Kangri, on the other side of which lies another peak. Thus the only other lines of ascent are from the east side.







**Below & Insert:** Naomi in ankle deep snow descending from the summit of Sum Kangri (6390m). The Lunggar Shan can be seen on the horizon.



### North East Ridge

A long ridge was seen extending in a north easterly direction from just below the summit of Sum Kangri all the way down to the valley plain over 1000m below. The ridge was snowy near the top and small cornices had built up on its south east side. Lower down the ridge became more mixed with rocky patches leading down to the crest of large long pile of lateral moraine on the valley floor. Satellite data shows the whole ridge to be some 2.5km in length from the valley floor (c.5300m) to the summit.

A glacier lies to the north west of the north east ridge, which provides an alternative and probably easier ascent route. The lower part is heavily crevassed though so the glacier is best joined above these by ascending on rocks by either side of the glacier. Individual crevasse fields lie at various points on either side of the glacier thus weave a route up the centre of the glacier. In good visibility it may be tempting to cut across from about half way up the glacier after the gradient has eased at around 6000m and climb the steep northern snowy slopes to the summit of Sum Kangri directly. However these are steeper than they look, thus it is best to keep ascending on the south side of the glacier (effectively past steep slopes leading to the summit) to a broad snowy plateau at about 6200m. The slopes on the south east side of this plateau can then be gained and a route taken up them to reach the summit.

### SHAR KANGSUM 6822m (22,382ft)

Shar Kangsum *Shar kang sum* Three snowy peaks of the east

ཤར་གངས་ཀུམ་

Shar Kangsum is the highest peak in the range which forms the massif that occupies much of the northern end of this mountain range. The highest point on the massif i.e. the summit of Shar Kangsum is located two and quarter kilometres north northwest of Jemakari Thobo according to satellite data (see *highest peak position in the background information section*). There is one known claim of Shar Kangsum being climbed without permits (see *previous visits & attempts*).

The highest documented height of Shar Kangsum found is 6822m, hence this is the height used in this report. On the Alpine Club's Himalayan Index the peak is listed as being 6815m high. However this is not necessarily correct. Maps show various heights for high point of the range with 6778m being quite common. On the other hand, satellite data suggests the height of Shar Kangsum is somewhere nearer 6700m as opposed to 6800m.

### SUMMARY

**Route:** South ridge (*from west side*)

**Attempted By:** Joseph Johnstone & Benjamin Gready

**Date:** 9<sup>th</sup> August 2005

**High Point Reached:** High Camp at foot of western slope which leads up to the south ridge

**Height:** 6000m (19,684ft) (GPS)

**Summit Location:** 31° 42' 06" 085° 03' 22" (*from satellite data*)

**Camps:** High Camp (c.6000m) 31° 40' 56" 085° 03' 31" (*from satellite data*)

**Description:** Overnight three avalanches roared down the intended line of ascent up the south ridge, forcing the attempt on Shar Kangsum to be abandoned.

### ROUTE DESCRIPTION

From Advanced Base Camp a route was taken north north westerly across scree slopes a fair distance below the snow line but still high up the scree slope. The traverse was long with frequent need to climb up or drop down in order to bypass difficult parts of the slope. After travelling some 2.5km from ABC, High Camp was set up just below 6000m, on the southern side and at the western end of a small 500m-long rocky ridge near the snow line. Upslope the ridge acted as a dam, holding back snow on its south side from the lower valley to the north.

Above the camp (to the east) a kilometre long snow slope consistently inclined at 40-45° provided the easiest access to the ridgeline on the north side of Jemakari Thobo. The intention was to ascend this snow slope to the ridgeline which would be taken north to the summit of Shar Kangsum. However while at High Camp, three large avalanches roared down the intended line of ascent, so no further progress on the route was made. High Camp was struck the following day as no other lines of ascent which lay either to the north or south of High Camp looked possible. A return to base camp was made by dropping down to the valley floor as opposed to traversing the scree slopes back to advanced base camp.

### OTHER ROUTES

#### East Ridge

Satellite data shows a ridge leading up to the summit of Shar Kangsum from the east. A rocky outcrop and a crevasse field make joining the ridge at its tip where it meets the glacier difficult. Instead low angled snow slopes on either side of the ridge can be climbed to gain the ridge. Around 6200m the ridge becomes mixed with several rocky patches spread out over about 350m to where a minor ridge joins from the south. A snowy knife edged ridge continues up for another 150m or so before petering out into a broad round crested ridge bisected by several crevasses tens of metres wide. A large debris scar which originates from the ridgeline marks the slope to the south of the ridge. The crevasses cut deep into the slopes to the south of the ridge but do not appear to make it far onto the north side of the ridge. Above an open north northeast facing slope leads up over a distance of some 300m to the east ridge which continues in a knife edge fashion for another 500m or so up to the summit, over partly rocky ground.

#### South Ridge

Any attempt via the south ridge is not going to be easy as the snowy and often knife edged ridge from the saddle to the north of Jemakari Thobo to the summit is over 1.8km long. From the saddle the south





ridge rises in a series of undulations for over 1km to where it joins the east ridge, above a north northeast facing slope, before continuing up to the summit.

The south ridge from the east side is the route claimed to have been taken to the summit by a team in 2002 that climbed without permits (*see previous visits and attempts*). The only way of gaining the south ridge from the west side is over Jemakari Thobo or up the avalanche prone slopes to the west of the saddle i.e. from High Camp (*see route description above*).

**North Ridge**

Satellite images suggest Shar Kangsum could be climbed from the north via the north ridge. The north ridge is best gained from the east as the glaciers are much longer and the gradients much easier than on the western side of the range (as is with most peaks in the range). A way up steep scree and snow from the west should be possible but this is more likely to leave a longer trek along the ridgeline to reach the summit. It is also more inaccessible with regards to getting to the foot of the mountain.

**South-West Face**

To the north of High Camp lay the imposing south west face of Shar Kangsum. The lower part of the face is dominated by 300m high rocky buttresses above which lies five hundred metres of steeply inclined snow slopes and smaller patches of rock.

**Other Peaks in the Range**

**Pk.6280 6280m (20,603ft)**

**SUMMIT STATS**

**Location:** 31° 39' 52" 085° 04' 52" (*from satellite data*)

**Height:** 6280m (20,603ft) (*from satellite data*)

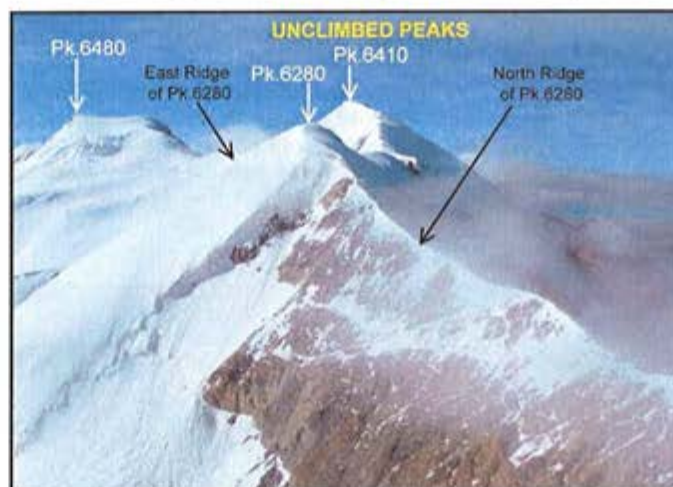
**Status:** No known ascents

**POSSIBLE ROUTES**

Pk.6280 lies some 1.0km south along the ridge from Tsachënbori. To the south of this peak lies Pk.6410 hence any attempt from the south must pass over this peak first. The west face of Pk.6280 is steep and composed of loose rock lower down providing no real line of ascent.

The best way of attempting this mountain is thought to be along its north ridge. The north ridge can be gained by ascending to the saddle in the ridgeline just to the southwest of Tsachënbori either from the east or the west side of the range. From there the long knife-edge ridge leads south up to the summit. The ridge is predominantly snowy though one or two rocky patches were visible. The gradient of the ridge increases towards the summit (*see fig. 4*).

A more challenging line of ascent is up the east ridge which is inclined at forty five degrees and this gradient is sustained throughout. This provides perhaps the shortest route to the summit but complications exist near the foot of the ridge where the crest is rocky and steep snow patches lie on either side. Above the snowy ridge becomes more straight forward but the gradient remains steep.



**Fig 4.** Photo of the north ridge of Pk.6280 with other unclimbed peaks in the Northern Shar Kangsum in the background. Taken from the top of Tsachënbori (looking south).

**Pk.6410 6410m (21,030ft)**

**SUMMIT STATS**

**Location:** 31° 39' 14" 085° 04' 58" (*from satellite data*)

**Height:** 6410m (21,030ft) (*from satellite data*)

**Status:** No known ascents

**POSSIBLE ROUTES**

Pk.6410 lies in the middle of the Shar Kangsum range, some 1.1km south along the ridge from Pk.6280. The summit can probably be gained via the mixed north ridge though this is long, technical and exposed, and Pk.6280 must be passed over first (*see fig. 5*).



**Above & insert:** Naomi on the corniced ridge near the saddle in the ridge between Pk.6280 and Tsachënbori.

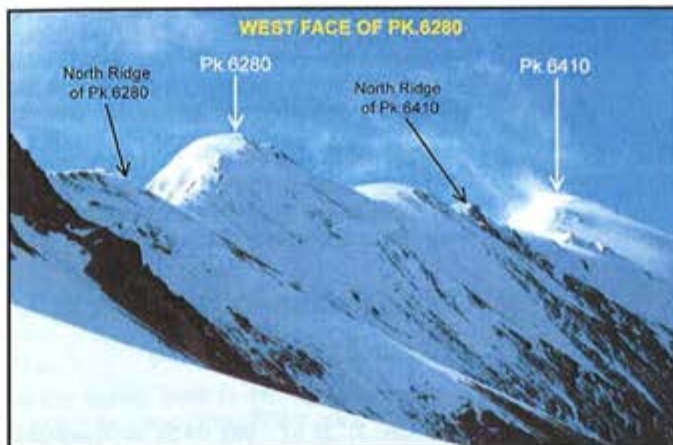




**Below & insert:** Naomi high on the west ridge of Sum Kangri. Base Camp was in the valley in the left centre part of the photo. The white peaks on the horizon are the Lunggar Shan.



The south ridge is much shorter and less exposed so providing a way can be found up to gain the start of the ridge then this looks like the best option. From the west side of the range there is no easy way of reaching the foot of the south ridge as a route would have to be found up steep scree slopes and over a hanging glacier snout. However satellite data shows the south ridge can easily be reached from the east side by ascending south westerly up the 3km long glacier, which leads up to the saddle in between Pk.6410 and Pk.6480. To the north west of this glacier lies the north east ridge which provides an alternative steep snow line direct to the summit of Pk.6410.



**Fig 5.** Photo of the ridge linking Pk.6280 with Pk.6410, taken from above Camp One (looking south east).

**Pk.6480 6480m (21,260ft)**

**SUMMIT STATS**

**Location:** 31° 38' 26" 085° 05' 58" (from satellite data)

**Height:** 6480m (21,260ft) (from satellite data)

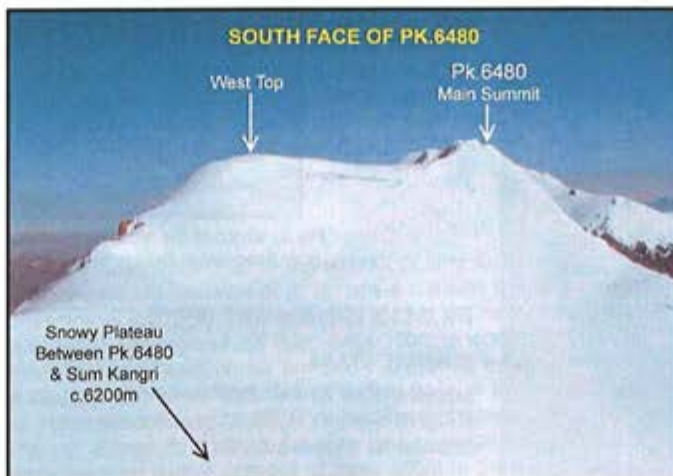
**Status:** No known ascents

**POSSIBLE ROUTES**

Pk.6480 is situated 2.0km north west of Sum Kangri and 2.1km south east of Pk.6410. The mountain has two tops; one on the east side of the range and the other on the west. These two high points are linked by a 300m long snowy crest (see fig. 6). Snow slopes lead right up to the summit on both the north and south sides of this peak. They curve down and round to the east side of the mountain range providing a relatively straight forward and easy angled approach up from this side of the range.

Any approach from the west side of the mountain range will be much longer and difficult. The southern snow slope can be reached from the snowy plateau which is best accessed by following the same line of ascent as for Sum Kangri.

The only way to reach the north face from the west side is to follow the same approach as for the south ridge of Pk.6410. A way must be found up steep scree slopes and over a hanging glacier snout before heading south up the northern slopes. Seracs and crevasses may cause difficulties on this route midway up the face where the gradient steepens as the ice breaks up over rocks. Thus a large detour onto the east side of the face may be necessary on the lower part of the mountain in order to gain easier ground and bypass this obstacle.



**Fig 6.** Photo of Pk.6480 showing its two tops, taken from high on Sum Kangri (looking north west).





**Below & insert:** Naomi ascending one of many scree slopes on Sum Kangri. The glaciers of the southern Shar Kangsum are in the background.



**CENTRAL PART OF THE RANGE**

**Pk.6240 Summit Data**

**Location:** 31° 36' 56" 085° 06' 38" (satellite data)

**Height:** 6240m (20,472ft) (from satellite data)

**Status:** No known ascents

**Pk.6170 Summit Data**

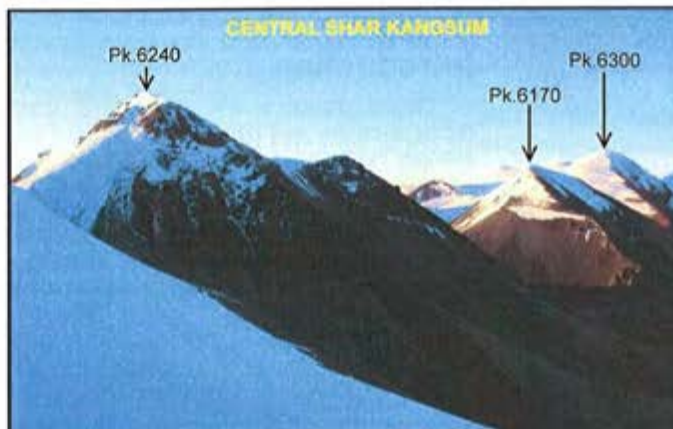
**Location:** 31° 35' 38" 085° 06' 42" (satellite data)

**Height:** 6170m (20,243ft) (from satellite data)

**Status:** No known ascents

**INFORMATION**

The north and southern parts of the Shar Kangsum range are separated by a break in the area permanently covered by snow and glacier. Two relatively low lying peaks are situated in this region. However both are above 6000m in height and are thus worthy of mention here. Pk.6240 is located some 1.3km south of Sum Kangri while 2.6km south of Pk.6240 lies Pk.6170 (see *panorama 2* and *fig. 7*). From the west both mountains had very little permanent snow cover and were essentially large mounds of scree and rock. No obvious lines of ascent were seen up either peak. Satellite data suggests they may be a little more permanent snow on the east side of both peaks but nothing significant enough to make an ascent worthwhile.



**Fig 7.** Sunrise over peaks in the central Shar Kangsum, taken from just above Beta Bivi Site on the west ridge of Sum Kangri (looking south).

**SOUTHERN PART OF THE RANGE**

**Pk.6300 Summit Data**

**Location:** 31° 35' 36" 085° 06' 48" (satellite data)

**Height:** 6300m (20,669ft) (from satellite data)

**Status:** No known ascents

**Pk.6290 Summit Data**

**Location:** 31° 33' 20" 085° 06' 31" (from sat data)

**Height:** 6290m (20,636ft) (from satellite data)

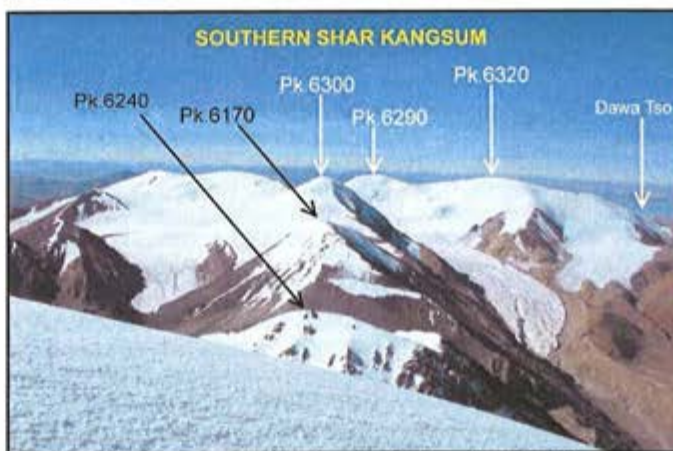
**Status:** No known ascents

**Pk.6320 Summit Data**

**Location:** 31° 33' 32" 085° 05' 47" (from sat data)

**Height:** 6320m (20,735ft) (from satellite data)

**Status:** No known ascents



**Fig 8.** Photo showing peaks in the central and southern Shar Kangsum, taken from the summit of Sum Kangri (looking south).

**INFORMATION**

The southern part of the Shar Kangsum range is circular in area unlike the northern part of the range which is more linear in shape. It is home to at least three peaks which are all around 6300m in height (see *fig. 8* & *panorama 3*). These broad snowy peaks are dome shaped characterised by undulating ridgelines and crests making them ideally suited to exploration using skis. Long gentle glaciers lead up to these peaks providing numerous different lines of ascent none of which pose much technicality once on the glacier above the snow (and hence crevasse) line.





# SCIENTIFIC RESEARCH

By Ben Gready & from Ralf Toumi [1]

## Outline

The expedition provided an opportunity to collect some scientific data both for Ben and Naomi's fourth year Physics MSci projects as well as for an ongoing research project into Himalayan atmospheric pressure (HIMAP). The data is hoped to complement that already collected from Everest's South Col together with data from the summit of Cho Oyu's due to be collected later in the year. The plan was to deposit a box containing a sensor and other recording instruments in Old Tingri at the beginning of the expedition so the necessary data could be being collected while the team was in the mountains climbing. The box was then going to be collected a month later when the team returned to Kathmandu through Old Tingri. However the expedition's route to the mountains did not pass through Old Tingri so our Tibetan travel guide arranged for a friend of his to drop off the instrument on our behalf. The instrument was safely recovered on our journey home and the data is in the process of being analysed.

The following details more about this research project and is taken from Toumi, 2005 [1] with his kind permission.

## Introduction

Climate change is one of the great scientific puzzles and social challenges. Changes in surface temperature are well documented for most parts of the globe. Mountains are particularly vulnerable to changes in climate. Dramatic reductions of glaciers have been observed. Other changes in the mountain weather are highly uncertain due to a lack of data. Atmospheric pressure on a mountain provides information about the local and large scale wind flows and is also a direct measure of the average temperature below the mountain. The Himalaya, and Everest in particular, are of interest as observations there will allow us to study the upper air during the Indian Summer monsoon and the fast winds of the jet stream in Winter. Data collected from Everest will give the first high frequency (five minute resolution) data for this important region.



Above & insert: Ben shows some Tibetan children a trick or two after stopping for lunch outside their town.

HGTprs 00Z Wed 01aug2001

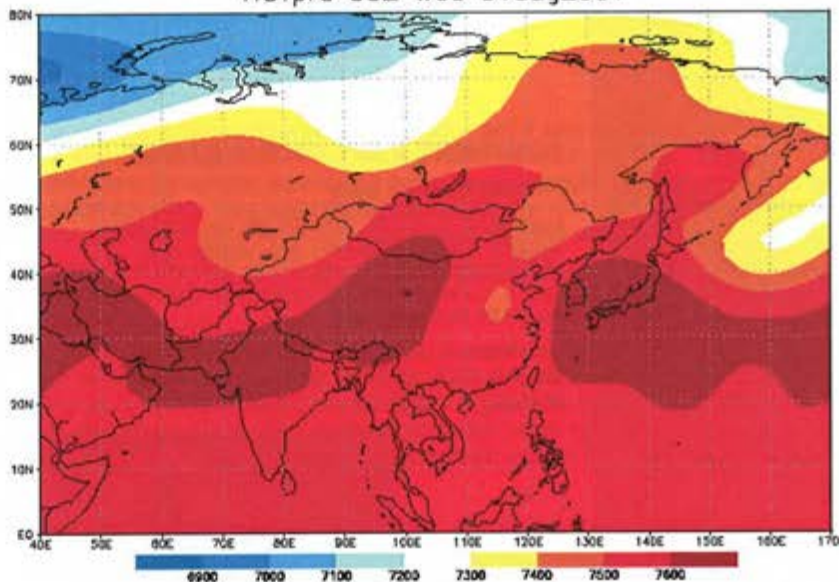


Fig. 9 Geopotential Height at 400 mb for the 1st of August 2001. The figure shows a break in the high pressure system near Mt. Everest.

## Background

In May 2002 a barometer was successfully placed on the South Col (8000 m) of Mt. Everest [1]. This data has subsequently been collected providing the highest continuous record of atmospheric pressure. The aim is to develop a network of barometers on three mountains in the same region: Mt. Everest, Cho Oyu and Shishapangma to monitor pressure over a number of seasons.

When investigating atmospheric pressure at high altitudes the complete range of time scales from diurnal to decadal are of interest. Recent model studies suggest that mountain regions are particularly vulnerable to greenhouse induced warming and there have been observations of dramatic changes in the mountain climate in the tropics [2,3]. Toumi et al. [4] have shown that long-term mountain station pressure increases are consistent with tropospheric warming below the mountain station. On synoptic timescales, the Himalayan mountain range provides orographic forcing for planetary waves. Furthermore, the region is at the centre of the upper level monsoon anti-cyclone which dominates the summer circulation from Africa to the West-Pacific. In winter the region is at the centre of the sub-tropical jet. Finally, there are diurnal (increasing with altitude) and semi-diurnal waves of pressure driven by solar heating. This fundamental property of the atmosphere is relatively poorly understood. Current theories are unable to explain much of the amplitude of the waves [5] and there are only sparse observations at mountain sites [6] (none at the altitude of the HIMAP project). Accurate weather prediction requires





**Below & insert:** Ben admires the irregular shoreline and the blue waters of Yamdrok Tso.

improved corrections for these waves. This critical region is data sparse with only a handful of radiosonde stations in India and Tibet. Lack of knowledge of the upper-level conditions is one of the limitations which restrict forecasts in Nepal to only one day ahead. The HIMAP project is highly timely as it overlaps with the GEWEX/ Coordinated Enhanced Observing Period (CEOP) and CAMP (CEOP Asia-Australia Monsoon Experiment) [7]. This will provide a unique opportunity to maximise the scientific value of the proposed measurements by providing simultaneous low level surface (particularly pressure) and satellite/radio sonde observations of the temperature structure. Commercial climbing has also grown rapidly over recent years so that organisers go to the same mountain every year making the timetabling of this project realistic.

## Methods

The primary aim of HIMAP is to establish a network of three barometers operating simultaneously on three mountains: Mt. Everest (South Col, 8000m), Cho Oyu (8201m) and Shishapangma (8027m). These three mountains form an approximate 80km long East-West chain along similar latitude (28N). The installation of the instruments will be done by a commercial climbing company. Instruments will be completely replaced as at these altitudes climbers can not be expected to perform data retrieval tasks. The 1st suite of instruments will be replaced by new copies in the second year so that there will then be one year of data to analyse. The 2nd suite of instruments will then be left to operate for three years before being collected and replaced again in 2007. If problems are identified the replacements may be brought forward. The project timetable is as follows:

- Phase 1: Spring/Summer 2003; installing barometers on the summits of Cho Oyu and Shishapangma. Data collection and replacing the current instrument on the South Col of Mt. Everest for a new one.
- Phase 2: Spring/Summer 2004; data/barometer collection and replacing the barometers on Cho Oyu and Shishapangma
- Phase 3: Spring/Summer 2007; data/barometer collection and replacing of all barometers.

## Discussion

### *Diurnal Variability*

Analyses [6] of three hourly observations have shown that at high altitude the diurnal tide can be as large as the semi-diurnal tide. The diurnal tide appears to be driven by surface sensible heating and is a good proxy for the diurnal temperature range. The diurnal temperature range itself is showing strong downward trends globally and regionally [2,3]. The HIMAP project will provide a unique data set of 5 minute pressure for the study of diurnal and semi-diurnal waves. The coupling of the diurnal wave with the seasonal cycle is of particular interest. The diurnal amplitude (approximately 0.6 hPa, our measurements will have an accuracy of 0.1 hPa for hourly means) has been reported to have only a small seasonal cycle [7]. However, this appears to be in conflict with the assertion of modification of the amplitude by sensible heating and the strong seasonal cycle of the diurnal temperature range in this region. Inspection of the data coverage shows (as expected) a large data gap for this region. Wavelet analysis on the 5 minute data will be used to demonstrate the coupling of the diurnal with the seasonal cycle and other longer period fluctuations. The seasonal mean amplitude of the diurnal cycle will also be calculated and compared with predictions by classic theory, climate models and reanalysis fields.

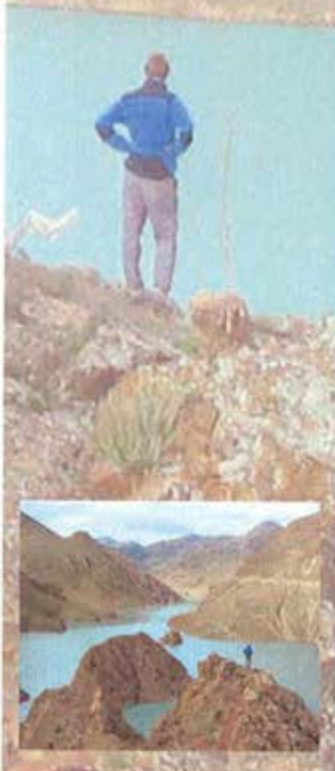
### *Synoptic Variability*

The Asian summer monsoon is characterised by active break cycles which correspond to shifts of the upper level (above 5 km) anti-cyclone. This is an important intra-seasonal mode which determines the total rainfall during the monsoon season. However, so far not much is known about the nature of the upper level higher frequency component of these cycles particularly in their transition periods. Specifically, the project will examine to what extent upper level features lead surface observations in Nepal and India and could thus be potentially used for forecasting. In winter, the winds reverse and the region is at the core of the sub-tropical westerly jet. Variability of the jet position and strength is partly controlled by the baroclinicity of the region and orographic forcing. The three in-situ observations will be compared with NCEP (or Met. Office) analyses of geopotential height in this region (the winter field trial on Mt. Blanc showed excellent agreement between pressure reading and geopotential in that data rich region [1]). The temporal and spatial scale of our observed fluctuations will then be interpreted in terms of the position and strength of the jet in the analysis fields.

### *Long Term Changes*

One of the longer term aims of HIMAP is to establish the network to study inter-annual variability and trends. Observations of pressure/atmospheric thickness can then be used to monitor warming in the region independent from surface temperature observations (which can be problematic) [4]. Recent work from this group [8] has shown that the end of the monsoon season is being increasingly delayed. This may be due to recent warming of the land mass and is the only observed change of the South Asian summer monsoon in the context of global warming. HIMAP data will be used to study the inter-annual variability of the withdrawal of the monsoon by monitoring the seasonal weakening of the anti-cyclone in-situ.

Local features such as mountains cause significant modification of the air flow and this needs to be considered in our analysis. This difficult problem is also an opportunity and is addressed in several ways. Firstly, the time scale of any random pressure fluctuations is likely to be short (less than days) so that by averaging 5 minute data over several years it will still be possible, at the very least, to identify the magnitude of the diurnal signal. Secondly, any local quasi-stationary pressure signals can be identified by comparing the three simultaneous observations. The three sites have their unique topography (e.g. Cho Oyu is a broad peak compared to the relatively narrow South Col), but are sufficiently close to be affected





by the same synoptic wind flow. The simultaneous observations on three mountains should allow us to distinguish between synoptic/regional pressure changes and those pressure fluctuations which are specific to the immediate topography. Thirdly, with Shishapangma and Cho-Oyu 55 km apart and 25 km separating Cho Oyu from Everest along the mean westerly flow for most of the year, together with a resolution of five minutes, it may even be possible to identify wave trains in the pressure time series. Finally, nothing is known about the magnitude, temporal or spatial scale of the fluctuations involved in this region. The data can be used to test the orographic formulation and consequent predictions of geopotential in weather prediction and climate models.

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3. Shresta AB et al., Maximum temperature trends in the Himalaya and vicinity, *J. Climate*, 2775-2786, 1999.
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7. Dai, A and Wang, J Diurnal and semidiurnal tides in global surface pressure fields, *J. Atmos. Sci.*, 56, 3874-3891, 1999.
8. <http://www.joss.ucar.edu/ghp/ceopdm>



**Above & insert:** Ben tries to keep his shoes dry while crossing a rather large stream.

**Right top:** Following a line of tour Jeeps across a river on the Tibetan plateau.

**Right bottom: Left:** Monkey on roof of the Kathmandu Prince Hotel which didn't like having its photo taken. **Upper:** Joe returns to Camp One ill and exhausted after reaching the summit of Jemakari Thobo (6603m). **Lower:** Salvaging the mess tent from the flood.





## ADMINISTRATION & LOGISTICS

By Daniel Carrivick

### Research Materials

#### MAPS

Detailed topographic maps of the Shar Kangsum area were hard to find, as you may expect for such a remote area. The best was a 1:1,000,000 Russian topographic map found at the Royal Geographical Society (145, World Series 766). Although this map contains all the key features and is relatively accurate the scale meant the black and white photocopy was not much use on the ground. However the map was useful to have in the planning stages of the expedition as it showed the location of the Shar Kangsum mountain range in the most detail.

In addition we took with us two road maps: the GeoCenter 1:750,000 world country map of Nepal and the 1:2,000,000 Tibet Autonomous Region Gizi Map. These were easily purchased from Stanford's map shop in Covent Garden, London for £5.99 and £7.95 respectively. Both were in stock and hence they did not have to be specially ordered.

The Nepal map was the largest scale map used. It covered a large chunk of Tibet and hence may be worth purchasing for people visiting southern Tibet even if they are not travelling from Kathmandu or entering Nepal as this expedition did. The Shar Kangsum mountain range was just off the area covered by the GeoCentre map of Nepal but much of the route taken to and from this range is detailed on the map.

The Tibet map covers everywhere this expedition visited in Tibet and Nepal. The map contains a lot of information and is well presented using colour to indicate relief. However due to its scale some areas are crowded and the Nepal map was often used as with minimal information at a larger scale it was easier to see what was where. We found it useful to have road maps as our drivers didn't have any. Our truck driver had been that way the previous year and hence knew roughly where to go but as we got closer so the maps were used more and more to check where we were going.

#### AIR PHOTOS & SATELLITE IMAGES

No air photos or satellite images were used in the planning and preparation of this expedition due to the cost and procedures involved in obtaining such data. However Google Earth came online at about the time of the expedition. This is a magnificent free resource, downloadable from the internet, which is highly recommended for all expeditions - we certainly wish it had been available when we were in the planning stages of our expedition! (see <http://earth.google.com/index.html>)

The resolution is fair considering the remoteness of the areas expeditions are generally interested in, and the resolution for the Shar Kangsum range easily surpassed anything that we had from maps. However it was still frustratingly not quite good enough to be able to depict individual mountains.

That was until summer 2006 when higher resolution data became available online for the Shar Kangsum mountain range. Now features less than 5-10m in size, such as individual crevasses and rock bands can be identified from images. This detail combined with a 3D terrain tool means imaging individual mountains is no longer a problem. Thus this report has been updated and republished to include the new information from this data.

### Training

#### ALPINE MOUNTAINEERING

At the end of June three members of the team spent a fortnight in the Alps mountaineering. This served a variety of purposes; namely to improve fitness, strengthen team building skills, help with acclimatisation and refresh mountaineering techniques. The routes undertaken were relatively easy so as to minimise the risk of potential injury.

#### GENERAL FITNESS

A general level of fitness was maintained through a variety of different methods involving running and gym sessions, however these suffered a bit during exam periods and when people had a lot of other work on. At least once a month the team would spend a weekend doing mountain sport activities in Snowdonia or the Lake District, and the winter break was spent climbing in the Scottish mountains. In February three members of the team went to the French Alps for a week of ice climbing.

### Permission & Permits

#### MOUNTAINEERING PERMIT

Mountaineering permits should be obtained from the Chinese authorities before attempts are made on any peaks in Tibet. Makalu Adventure, the agents hired by this expedition and based in Kathmandu, applied for our mountaineering permit once they had received the deposit they requested back in April 2005. However the Chinese authorities delayed the release of our permit until Tuesday 12<sup>th</sup> July 2005, just two days before the expedition team flew out. Apparently this is quite common and the Chinese body which issues the permits is known for killing time and releasing documentation only at the last minute.

The exact cost of the peak or permit fees for this expedition are unknown as this cost was included in the fee paid to Makalu Adventure. However given officially the peaks hadn't been climbed before and are between 6000-7000m in height, current charges suggest the permit fees for this expedition could have been anywhere between \$1000 and \$5000. Table 1.1 shows the current range of permit fee charges for virgin peaks, i.e. peaks which have never been climbed before. The final amount charged depends on factors such as the mountains exact height, whether it is in an open or closed area, and how much interest

**Above & insert:** Loading up our bus in Kathmandu ready to leave for Tibet. Ben, Naomi and Joe take their bags out while Lakpa passes them into the bus.







Below & insert: One of many painted statues in the Gyantse Kumbum.



has been shown in the peak. There are reports that recently the permit fee has become negotiable depending on who you are dealing with.

Table 1.1 – Permit fees for virgin peaks – previously unclimbed.

| PEAKS OF:            | PERMIT FEE               | MAX. GROUP SIZE |
|----------------------|--------------------------|-----------------|
| 8000 Meter and Above | \$27,000,- to \$41,000,- | 10 + Ex.Leader  |
| 7000 Meter and above | \$1,500,- to \$10,000,-  | 10 + Ex.Leader  |
| 6000 Meter and above | \$1,000,- to \$5000,-    | 10 + Ex.Leader  |
| Below 6000 Meter     | \$30,-                   | Per Climber     |

For peaks which have been previously climbed there is a lot less uncertainty over the exact cost of permit fees and presumably thus a lot less room for negotiating. These are shown in table 1.2 and as one would expect they are substantially less than the permit fees for virgin peaks. For new routes on previously climbed mountains the official line is that the permit fee is twice as high as the normal permit fee for that mountain, though there are reports that this too is negotiable. Note additional charges are made for each expedition member above the number of ten, typically 10% for each member.

Table 1.2 – Permit fees for previously climbed peaks.

| MOUNTAIN                    | PERMIT FEE | MAX. GROUP SIZE |
|-----------------------------|------------|-----------------|
| Qomolangma, (Mt. Everest)   | \$5,000,-  | 10 + Ex.Leader  |
| Qogori, (K2)                | \$3,250,-  | 10 + Ex.Leader  |
| Cho Oyu                     | \$3,000,-  | 10 + Ex.Leader  |
| Xixabangma, (Shisha Pangma) | \$3,000,-  | 10 + Ex.Leader  |
| Other 8000+ Peaks           | \$1,760,-  | 10 + Ex.Leader  |
| 7000 to 8000 Meter          | \$1,080,-  | 10 + Ex.Leader  |
| 6000 to 7000 Meter          | \$700,-    | 10 + Ex.Leader  |
| Below 6000 Meter            | \$30,-     | Per Climber     |

**TRAVEL PERMIT**

A Tibet Tourism Bureau Permit (TTB) is required by all visitors to Tibet. However this alone does not permit people to travel around Tibet, for this a separate Alien Travel Permit is required. Makalu Adventure organised both these permits for this expedition as the team travelled together as a group at all times while in Tibet.

**NEPALESE VISA**

Nepalese visas were obtained from the Nepalese Embassy in London with minimal fuss one month prior to departure. A single entry visa was purchased at a cost of £20 (\$30) per person as it was cheaper to buy another single entry visa when re-entering Nepal from Tibet rather than buying a multiple entry visa to start off with. This turned out to be the right decision as we were able to get away without having to buy another single entry visa. Instead the authorities issued each team member with a three-day transit visa, free of charge. We questioned whether this would be enough as we weren't actually leaving until the morning of our fourth day in Nepal, however we were reassured this was alright and it was for we had no problems when we came to leave.

**TIBETAN VISA**

There is a lot of conflicting advice out there about Tibetan Visas. Some sources say Chinese visas are valid in Tibet and are hence best purchased in a traveller's home country prior to departure while others contradict this. It seems that if travelling to Tibet from China this is true, however if travelling from Nepal then a Chinese visa is not applicable in Tibet.

Makalu Adventure organised Tibetan visas for us upon our arrival in Kathmandu. The Chinese Embassy in Kathmandu issue Tibetan visas on the same day as passports are submitted to them so there is a prompt turn around. However you may still end up having to wait as the embassy is only open for visa applications at certain times; currently on Mon, Wed & Fri mornings. Our flight got into Kathmandu on Friday evening thus we had to wait until Monday afternoon before we got our visas.

Individual visas are not available for Tibet. Some sources state the minimum number of people required for a group visa is five, however we did not have any problems despite there only being four people in our team. The cost of a Tibetan visa is about \$26 per person but the exact amount is unknown as this was included in the fee paid to Makalu Adventure.

**Fund Raising**

**TRUST FUNDS**

All funding came from various trust funds and grant awarding bodies apart from personal contributions, which made up approximately 20% of the total expedition income (see appendix E for details). Approximately half of the expeditions total income was derived from internal sources i.e. grant awarding bodies and trust funds within Imperial College and the University of London while the remainder came from external sources. External contributions were received from grant awarding bodies with strict criteria such as those only funding "geographical exploration, first ascents of, or new routes on, high or remote mountains" as well as those funding a diverse range of projects such as "people under 30 wishing to





Below & insert: A porter carries his load through a typical busy street in Kathmandu.



*support their education in the fine or performing arts, particularly music, drama or design, or to allow them to engage in educational travel which involves physical challenge and endeavour"*

**EXPERIENCES**

Start fund raising as soon as possible. It is never too early to start applying to trust funds and grant awarding bodies. We missed the deadline for applying to at least one trust fund which had their deadline at the end of October because we didn't finalise our expedition plans until mid November. We worked on the principal "if you don't ask, you won't get". Hence we didn't just ask for money, we asked for sponsorship or product discount where applicable. Based on previous experience, we were selective in the companies we approached; targeting small to medium UK based companies – very small and they can't afford to help while large companies are looking for more than an expedition such as this one could offer in return. Businesses also prefer to support local initiatives rather than foreign ones. Letters are far better than sending emails as generally we found letters were replied to while emails didn't get through, were blocked or ignored. Our biggest success was getting trade price for specific clothing and equipment with manufacturers followed by larger-than-normal discounts at Outdoor retailers.

**Finances**

**EXPEDITION ACCOUNT**

Financial arrangements were made by Imperial College Exploration Board's Honorary Treasurer with Imperial College Finance Division to manage the expedition accounts. In practice, Imperial College acted as the expedition's banker. All income was paid into the expedition bank account held within Imperial College and all expenses claimed back through Imperial College. The expedition's financial position was continuously monitored by Imperial College Exploration Board and all transactions passed before the Board's Honorary Treasurer.

**OPERATIONS**

Most pre-expedition expenses were paid personally by expedition members, by cheque or card and reclaimed later from our expedition account. The agents deposit fee (which was 10% of the total agent's fee) was paid by electronic transfer to an American bank account. Of the remainder, 15% was paid in cash on arrival and the other 85% transferred electronically shortly afterwards to a Nepalese bank account. Our aim had been to pay a larger portion in cash on arrival but exchange rates made electronic transfer better value for money. We weren't too happy about transferring large sums of money to someone we'd only previously had email contact with so we postponed doing this until we had arrived and met our agents face to face. This was not ideal for them as they were obviously incurring costs themselves until the money cleared and thus would have preferred the money to have been paid in full on or prior to our arrival. However for us this worked out the safest way to pay such a large sum of money.

**SUMMARY**

Contributions received totalled £14,277; which includes £2000 from the four expedition team members' £500 personal contributions; a £955 grant for tents and stoves which were returned to Imperial College Exploration Board after the expedition; and the expeditions insurance paid for by Imperial College, costing a total of £2022. The remaining £9300 came from various trust funds and grant awarding bodies.

Expenditure to date totals £14,739.98. Just over half of this, £7464.16, was spent on our agents fee, which included our accommodation in Kathmandu and Lhasa, base camp food and equipment, ground transport, local staff, permits and peak fees, customs clearance and our Tibet visa fees. Out of the other half, £2476.52 was spent on equipment costs, £2022 on insurance, £1980.70 on travel, £468.28 on subsistence and the remainder on miscellaneous and other expenses (see appendix E). Peter Hutchinson Designs (PHD Mountain Software) supported us, which helped keep our personal equipment costs down. Also we used some of Imperial College Exploration Boards equipment, including a GPS and snow shovel, which helped minimise our expenditure on equipment.

The difference between income and expenditure shows the balance to be overdrawn by £462.98 on the 1<sup>st</sup> December 2005. An approach was made to Imperial College Exploration Board to see if they could assist us by giving us a top-up grant. At the Boards summer meeting they agreed to cover the deficit in full due to unforeseen circumstances which were beyond the teams control and had resulted in this deficit.

**Insurance**

**POLICY**

Each expedition member was insured with the British Mountaineering Council (BMC) under a forty five day, worldwide, expedition insurance policy. The policy is fully comprehensive and includes up to £10 million medical expenses, £25,000 personal accident, £2 million personal liability along with other things like loss of passport, hospital benefit, legal expenses, delays, hijackings etc. We decided not to extend our personal possession cover and thus this stood at a total of £1500 per person and up to a maximum of £350 for a single item. The cost of this insurance policy was £490 per person. Together with the £15.50 for BMC student membership, the total cost for the four of us was £2022.

**EXPERIENCES**

Our experiences with the BMC have been generally very good, and we did not have any problem getting the cover we required once payment had been made. The BMC are one of the few companies who offer insurance for expeditions attempting unclimbed peaks in remote areas. With hindsight we wouldn't have done anything differently. The policy taken out was sufficient for our needs and no claims have been made.





**Below & insert:** One of the Jeeps we traveled in. Rinzin, our driver, fixing something which went bang under the bonnet, causing us to stall.



In the past Imperial College Insurance Division has gone elsewhere to try and find cheaper quotes but other insurers have either been unwilling to insure against such high-risk activities or been unable to match the level of cover offered by the BMC. We also knew exactly what we were getting with BMC insurance having used them previously and we feel it is worth paying a little more to be properly covered when the risks are so great. Thus for mountaineering expeditions, Imperial has always ended up using the BMC insurance.

## Travel

*By Joe Johnstone & Daniel Carrivick*

### FLIGHTS

We flew with Gulf Air from Heathrow to Kathmandu, via Abu Dhabi International airport where we transferred onto a connecting flight. Both flights were on time and we ended up waiting in Abu Dhabi airport for approximately two hours for our connection.

Our weight allowance was 30kg per person for checked baggage, which is more than most airlines give you. However despite this our heavy luggage still exceeded our group allowance mainly due to the 40kg of mountain food we took out with us. Fortunately the check-in staff were not in the slightest bit worried and the issue of us being over the weight limit was never mentioned. This may have been just down to luck or it may be that this is Gulf Air's standard way of operating. A few months prior to our departure we wrote to Gulf Air asking them to support the expedition by increasing our baggage allowance. However as nothing was heard from them we think this was unlikely to be the cause of our good fortune in not having to pay excess baggage charges.

Two members of the team were upgraded to Business class for the London to Abu Dhabi flight due to a shortage of economy seats. The extra leg room and plentiful food was naturally much appreciated. The Abu Dhabi to Kathmandu flight was not full, and so some members of the team were able to occupy more than one seat by raising the arm rests and lying down - allowing for a pleasant flight.

On arrival in Kathmandu the team changed some money at the airport but the exchange rates were not the best and this was the only place where we were charged commission so if possible, it is best to hold off changing money until you get into the city itself. We were met at the airport by Mohan from Makalu Adventure; this expedition's local agent. Some people who we thought were with Mohan insisted on carrying our bags so we let them not wanting to be impolite. However when they started demanding we paid them western money for carrying our bags across the car park we realised they were no more than random porters who rip off the poor unsuspecting traveller still weary from their flight. So like many people we too were caught off guard in an unfamiliar setting and ended up paying for it. They were asking for \$10 or £5 but we managed to get away with paying less than this. We were taken to the Kathmandu Price Hotel, near Thamel, by minibus which took about forty five minutes due to the heavy traffic.

### TO BASE CAMP

The team travelled from Kathmandu to the border in a privately hired twenty odd seat tourist bus. With us inside the bus was all our equipment, our Nepalese staff - Ang Kami our cook, Rajkumar his helper and a sherpa called Lakpa, all their luggage, equipment and supplies which took up the back half of the vehicle and some of the roof as well, and the driver and co-driver. The drive to the Nepalese border town lasted all morning, including a stop for tea. We ate lunch in a restaurant on the Nepalese side of the border and by the time we'd finished all our kit had been magically transferred to our truck waiting on the Chinese side of the border.

After the border formalities we walked into Tibet with Ang Kami, Rajkumar and Lakpa. We met up with our vehicles; a Toyota 4x4 and a large truck, and were joined by Lobsang our truck driver, Dubgyal our jeep driver and Tenzin our Tibetan guide and liaison officer. In Tibet the team travelled in the jeep together with Tenzin and Lakpa who lay in the boot. Meanwhile Ang Kami and Rajkumar travelled in the truck, which carried all the expedition food and equipment. The 4x4 and the truck were the team's method of transport in Tibet right up to base camp and back to the border via Lhasa. Our jeep and truck drivers changed in Lhasa on the return. Our hop back across the border into Nepal was done in much the same fashion as on the way out and there was a private bus waiting to take us back to Kathmandu.

### GETTING AROUND KATHMANDU

While in Kathmandu the team travelled around on foot. The city was very congested and walking provided a quick and pleasant mode of getting to different parts of the city. We felt relatively safe when walking the streets, and although we were interrupted by street sellers, we were not followed or harassed anything like as much as in India for example. Cycle rickshaws were not used for fear of being ripped off and because we were often just out for a wander, thus we didn't actually have anywhere we wanted to go. Taxis were used on occasions when returning from restaurants with other guests. A price for the journey would be agreed with the driver before we got in. On one outing one of our guests did this and told us how much we were to pay. When we got back to our hotel the cheeky driver tried to charge us more but we weren't having any of it. The going rate was about 200 Nepalese Rupees for a trip across the city (that's less than £2).

### GETTING AROUND LHASA

In Lhasa and other large Tibetan towns we got around much the same as we did in Kathmandu - mainly on foot. The streets were safe and we were not given any hassle from street sellers, however we did see one or two unsavoury sights when out after dark. Taxis and buses were used on occasions when travelling further a field with Tenzin our Tibetan guide.





Below & insert: Ben and Joe sorting out their food for the mountain.



## Food

By Joe Johnstone

### EXPEDITION

All hot meals while above base camp were derived from instant foods. These only required boiling water for cooking and thus did not need to be simmered or boiled for any length of time. When buying foods we looked for those requiring the least amount of heating, for example we took soup that could be made with warm water rather than boiling water. This dramatically reduced our fuel consumption and saved time as well. Main meals were heavily carbohydrate based (*see appendix D*). Pasta, noodles, instant mash and couscous provided the staple diet, all of which aid re-hydration when served with the water/sauce they were cooked in. Herbs and spices weigh nothing and can turn a bland meal into an appetising culinary delight so we recommend taking plenty of different ones. Desserts were included most nights and were an excellent way of getting fluids and sugars back into the body. We didn't worry what they turned out like either, as flavoured whips, blanchmange and custard all taste great whatever their consistency. For example banana whips were often drunk as a kind of milkshake before they set.

On the mountain, we did not have set breakfasts or lunches. Instead each person had their own supply of a variety of snacks such as cereal bars, chocolate bars, Kendal mint cake, peanuts, dried fruit, jellies and other sweets to eat throughout each day, as and when individuals required. This setup allowed the team members to ration their own food during each day, allowing for more choice on when to eat certain foods. Instant hot oat cereal was taken for rest days or half days on the mountain i.e. when early starts were not necessary.

### PREPARATION

To simplify organising our rations the bulk of our food was split up at base camp prior to an attempt on the mountains. Food was separated out into day bags for each tent pair and bagged up accordingly. This ensured each climbing pair had enough food for the maximum number of days they envisaged being spent above base camp (8 days for the first stint and 7 days for the second). Each day bag was centred on the staple food for that evening's meal and contained a two-person portion of either couscous, noodles, pasta or mash together with a complementary packet sauce and flavourings. Four different main meals turned out to be not too few so we didn't get bored of eating the same thing over and over again and not too many in so we weren't forever looking forward to our favourite meal. Thus a minimum of four different main meals is recommended for future expeditions as any fewer and the diet would become a bit monotonous. As well as the main meal our day bags contained soups and an instant desert for in the evening. Ingredients needed to cook or supplement meals such as salt, sugar, milk powder etc. were put in week bags and kept separate from the day bags so they could be easily accessed on a daily basis whenever was necessary.

Snacks were bagged up per person and although in the planning we worked on a set number per day, ultimately it was down to the individual and if they didn't eat their quota one day then they could eat more the next. This freedom allowed people to save up their snacks for when they were most needed, for example on summit attempts.

The average daily calorific intake of our diet above base camp was not calculated; however it is not thought to be sufficient to cover our energy expenditure. This was done deliberately in an attempt to be lightweight as we relied on our bodies' reserves which had been built up previously for this purpose and could easily be replenished at base camp. Each daily food intake aimed to keep the climber hydrated and ready for the next day's activities.

### TRANSPORTATION

Some of the staple expedition foods e.g. couscous and some of the key ingredients e.g. milk powder were weighed and bagged in London before the expedition. These foods along with instant mash, soups, sauces and some specialist food items (e.g. Kendal mint cake) were taken out with us on the plane. In total we estimate we flew out with about 35kg of food in a large dry bag. We did not incur any excess baggage charges and had no problems with customs. The remainder of the food was purchased in Kathmandu.

### LOCAL

Nuts, dried fruit, chocolate and biscuits were all purchased in Kathmandu, along with pasta, noodles and sugar. These items were bought from small street-side shops, market stalls and mini supermarkets which are found on virtually every street in Kathmandu's Greater Thamel district. Purchasing food and supplies in Kathmandu can be easy and inexpensive. Shops and markets are numerous. Most big-name products are available, but beware these are often at western prices e.g. Mars Bars and Marmite etc. Hence with supermarket own brand budget lines available in most British supermarkets e.g. peanuts and chocolate it would have been cheaper for us to purchase low-cost alternatives back home in England and taken them out with us, so long as we weren't charged excess baggage for them. Typical prices for western foods worked out at £1.55 for a pack of eight Granola bars, £1.52 for a pack of five standard size Mars Bars and 23p for a 40g bar of Cadbury Dairy Milk chocolate. Prices for local foods were equivalent to 35p for a kilogram of sugar, 31p for 500g of noodles, 44p for 500g of pasta, 79p for twenty chocolate wafer bars and 11p for a 65g packet of instant noodles. The quality of food was generally good, though the pasta, like pasta in many developing countries is very starchy and better suited for soup, so we regretted not taking pasta out from the UK.

Lhasa has a wide range of food shops and thus it should not be too hard to find expedition foods there. However Lhasa is not known for its trekkers and hence the food shops there aren't specifically geared towards tourist activities like they are in Kathmandu. For example in Kathmandu you can easily buy cereal bars, but these we did not find in Lhasa. Thus if buying food in Lhasa you'll be more restricted to products that the locals eat, where as in Kathmandu you'll find foods which the locals don't eat and are solely there





due to foreign demand. Also a few shop keepers in Kathmandu spoke bits of English but in Lhasa this is less common.

### WATER

One litre bottles of water cost either 10, 15 or 20 Nepalese Rupees (NPR), equivalent to 9-18p each depending on where they were bought. Bottled water was readily available both in Kathmandu and in towns and villages throughout Nepal and Tibet. On our way to and from the mountains our staff boiled stream water for use with preparing foods and for us to drink. Kettles were often supplied in the rooms of Tibetan hotels and guest houses, hence we could boil our own tap water to drink, however bottled water was also available to buy if we had wanted to.

Water was a bit more problematic at base camp as anything more than a trickle contained too much silt to be drinkable. Because of this the nearest drinking water supply was situated over 500m from base camp and thus involved a long trek to get to. And as it was just a trickle, collecting any amount involved laborious and time consuming bottle filling and decanting into a large barrel. This source, as with all sources of water on the mountain and at base camp, was very sensitive to fluctuations in water level - becoming washed out and silty after rain and drying up after several days with no precipitation. When our usual water source was too silty or had dried up another more appropriately sized trickling stream was found further a field. This did mean however at base camp long walks and a lot of searching was required as there was no way of telling where these trickles would be found until someone had been and looked. Thus it took our staff on some occasions up to an hour to collect one barrel of water, enough for every ones needs for one day at base camp. On other occasions our staff used the jeep to go and fill several barrels up with water at a time.

Our base camp staff boiled all water before giving it to us. While mountaineering water was collected from high streams, glacial melt water or melted snow and was often drunk without boiling or treatment. The team struggled to find Iodine tablets in Kathmandu, but did find chlorine tablets and liquid iodine, though we weren't sure whether this was diluted or how much we should use to purify drinking water. Therefore, in the end, no purifying tablets or solutions were used.

### EATING OUT IN KATHMANDU

Kathmandu offers a wide range of foods for the traveller, often at low prices - lower than in Tibet. Portions are often very tasty and are rarely small - the western dishes are often the smallest. The tourist area of Thamel has a profusion of both local and touristy restaurants and eateries. The majority serve Nepalese and Indian styled food as well as continental and western dishes.

Complete meals with drinks typically cost around £2 per person with the Nepalese dishes presenting the greatest value for money. By eating at local restaurants as opposed to touristy ones a good meal can be picked up for less than £1 per person and although the cleanliness is generally not as bad as has been experienced in other neighbouring countries it is still a bit dubious - so best to be on guard! The teams' favourites include curry and tandoori dishes, fried rice and noodle dishes.

We also sampled the more up market restaurants when Mohan, the team's agent, recommended a number of places to eat out at ranging from pizzerias to tradition Nepalese cuisine. All of these recommendations cost around £4-£5 per person and were very tasty (but very "western"). All were extremely good and you were well looked after, though less expensive alternatives should be adequate for all but the fussiest of travellers. We stuck to local beers (lagers) which cost as little as 50p a litre. Imported beers were available though they cost the same as western prices.

Outside Kathmandu the choice of places to eat becomes more limited, although most roadside eateries still serve Nepalese food as well as some sort of western dish or dishes. While travelling towards the border the team ate in Kodari the town on the Nepalese side of the border and were served the Nepalese set. This became a firm favourite of the team and consists of traditional Nepalese foods - rice, curry, chicken, potato and daal. Nepalese set menus are often very good value at less than £1 per person in most mid range establishments. Other favourites included chilli chips and Napali chai - spiced milky tea which was available everywhere.

### EATING OUT IN LHASA

Tibet offered less choice for the traveller with regards to food than Nepal did. When on the road i.e. out of the main cities and towns, meals consisted of either fried rice dishes from a road side shack for just over £1 per person, or lunches prepared by the teams' staff. Larger towns, such as Nyalam and Lhatse have a number of restaurants for tourists serving a mix of cuisines where traditional Tibetan and Chinese dishes are available alongside Western and Nepalese ones. Portions were often small and the local cuisine was a bit bland. Good dishes include the yak and chicken sizzlers as well as the Nepalese options. These places were more expensive than their equivalent Nepalese counterparts.

In the cities of Lhasa and Shigatse more options are available. Portions were still a bit on the small side but more was got in terms of taste and presentation. These cities have a range of Chinese, western, Nepalese and Tibetan restaurants. Meal prices varied, though less so than in Kathmandu, with eating out typically costing between £1 and £2.50 per head. Lhasa beer was around 75p a litre in most places though naturally this was higher in the more touristy outlets. On one evening the team ate with the staff at a cheaper and more traditional eatery. There mixtures of Tibetan and Nepalese dishes were eaten with barley beer (very strong and cloudy) and butter tea (made with rancid yak butter). The whole meal cost less than £6 for the seven of us and was very satisfying. Our most extravagant meal was an all you can eat Tibetan buffet with traditional dancing which cost less than £3 per person.

## Accommodation

### CAMPING & BIVI-ING

We camped on route while travelling to and from the Shar Kangsum range, for the duration of the time spent at base camp and for most of the time spent above base camp. Two, two man Mountain Hardwear



Above & insert: Ben helps Rajkumar carry a barrel of water back to Base Camp.





Annapurna tents were used above base camp on the mountain. These tents were lightweight and fairly small ensuring weight was minimised as much as possible. Inside they were small enough to be warm and cosy without being cramped or difficult to live in. When the weather was bad all four of us were able to squash into one tent to play a game of cards though there wasn't much room for movement.

Bivi bags were used for some summit attempts in order to travel as light and fast as possible. When bivi-ing, we all used Terra Nova Apollo bivi bags and enjoyed the space inside provided by the hooped design. They provided us with adequate shelter and were suitably breathable.

At base camp, and on the way to and from the mountain, tents belonging to our Nepalese agents were used. These appeared to have a style similar to that of Terra Nova Quasars; however they certainly didn't have the quality! They had seen better days too, with the zips nearing the end of their life. Some leaking occurred from the roof of one of them but despite this they never threatened to fall down and they stood up well in the flood – their groundsheets were solid and didn't let any of the four inch deep lapping waters in.

### KATHMANDU

In Kathmandu, we stayed in the Kathmandu Prince hotel both at the start and at the end of our expedition. It was well positioned in the Chetrapati district of Greater Thamel. The hotel was clean, though there were one or two uninvited guests in the form of mosquitoes and the occasional cockroach – they're in Nepal. The staff were accommodating and fixed any problems we found with our rooms. Each room had a fan which was used to relieve the heat and humidity of the monsoon. We paid our agents an extra \$5 (£3) per person per night for this accommodation which they arranged for us. For this we were given two rooms with two single beds in each. This seemed like good value as in the Nepal Lonely Planet guide the Kathmandu Prince Hotel is listed as a *mid-range* place to stay where single and double rooms cost US\$26 and \$30 respectively.

### TO AND FROM THE MOUNTAINS

We stayed in guest houses while stopping over in small Tibetan towns. Tibetan guest houses provide basic accommodation for travellers and tourists predominantly travelling along the friendship highway between Kathmandu and Lhasa, as well as for the odd group of mountaineers as well. Rooms tend to be bare with just a bed, bedding and a thermos flask of boiling water. Washing facilities are basic (jug and bowl in the corner of the room) to non-existent, and toilets are typically communal holes in the floor of an adjacent building. There is usually a restaurant affiliated with or attached to each guest house. These offer a suitable and convenient place for eating, at often a competitive price. The cost of staying in most of these places is not known as this was included in our agents' fee.

### LHASA

Lhasa, along with the larger town of Shigatse, has numerous guest houses and hotels. We stayed in hotels that were of a high standard and with which our agents appeared to have deals with. TV's, showers and mini bars were the norm in each room. This was a nice treat after so long camping in remote areas. Both more and less expensive hotels are readily available in Lhasa (and Kathmandu), as well as guest houses similar to those aforementioned, so their really is something for every ones budget. In Shigatse we stayed in the Gang Gyen Fruit Orchard Hotel which cost the four of us Y320 (approximately £25) for one night including breakfast. Note the Tibet Lonely Planet guide lists this hotel as a *budget* place to stay and that beds range in price from Y15 to Y40 per night. This clearly is a little bit out of date.

## Communications

### PRE EXPEDITION

While planning the expedition we communicated by email with our agents in Kathmandu. No major problems were experienced using this method of communication and most replies came back within a day or two of being sent. Having agreed our itinerary and paid a deposit communication from our agents dried up in the months leading up to the expedition. We sent emails checking on progress and even found ourselves asking how and when the balance of our fee should be paid. Thankfully our questions continued to be answered, all be it not so promptly, relieving any doubts we may have otherwise had.

### CONTACTING HOME

Post cards were sent from Kathmandu to the UK prior to leaving for the mountain, these took a number of weeks to arrive at home. Stamps and postcards were not too expensive in Nepal and worked out at 10-15p for a postcard and 45p for a stamp back to the UK. After the climbing, while travelling towards Lhasa, the team contacted home using email in internet cafes and by telephone in dedicated telephone bureaux. Internet cafes and telephone bureaux are numerous both in Kathmandu, Lhasa and some of the larger towns in Tibet. The internet provided an inexpensive means of communication, at approx 35p per hour in Tibet and even less in Nepal. On occasions we made use of telephone shops in Tibet to phone home. These calls to the UK mainland ended up costing approximately £1 for 3 minutes.

### SATELLITE PHONE

The expedition had free access to an Iridium 95 satellite phone; however it was not used or indeed taken on the expedition because of cost associated with operating it. There is a fee for the use of satellite phones in China, which is reported to be as much as US\$2000. We would have also had to purchase a minimum number of pre-paid minutes in order to use the phone. On an expedition the previous year seventy five minutes of talk time had cost just over £200. Thus on our budget, we simply couldn't afford to operate a satellite phone during the expedition.

Above & insert: Our accommodation at Base Camp. One of many snow showers.





## TWO-WAY RADIOS

Two-way radios – the cheap sort, available from most outdoor shops, with 3-5km limited range - were not taken on the expedition. However our Nepalese base camp staff recommended that in the future teams should take two-way radios out with them so contact can be made between those at base camp and those high on the mountain. When the weather was bad and we hadn't returned to base camp the staff there started getting a little worried and went out looking for us (although we were not overdue). Meanwhile we were safe sitting out the bad weather in tents higher up. If we'd had two-way radios we would have been able to reassure our base camp staff that we were alright as well as let them know our plans. This would have removed any unnecessary concern and improved safety all round. Thus we recommend taking them on similar expeditions in the future.

## PERSONAL LOCATOR BEACON

A Personal Locator Beacon (PLB) was taken in the event of an emergency. Once activated, the international distress signal given off is sent back home via satellite to a control centre. From there local authorities would be informed and a rescue attempt launched. The PLB we took was a McMurdo Fastfind Plus, Emergency Position Indicating Radio Beacon (EPIRB). This handheld PLB features a built in GPS receiver combined with a 406 MHz transmitter and 121.5 MHz homing signal, making it ideal for wilderness outdoor pursuits.

## Clothing & Equipment

*By Ben Gready*

Below is detailed information about specific items of clothing and pieces of equipment. For a complete list with more general comments see appendix A, B & C.

### CLOTHING

Rab summit jackets were a little over the top as they were very warm, perhaps a bit too much on occasions. Light weight and therefore slightly cooler down jackets, such as the Rab Quantum and PhD minimus jackets were more than adequate for the temperatures we experienced. Down jackets were not required whilst actually climbing. They tended to be put on in camp especially during the evening.

Base layers and thin leggings were generally worn for low level walking between base camp and ABC when the weather was fine. When it was raining or snowing waterproofs were worn over the top. Whilst wearing waterproofs we were often quite warm, too warm in fact when we were carrying heavy loads. However the wind was cold and as soon as you stopped so an extra fleece was put on.

At higher altitudes, where the temperature was lower and the winds often higher, wind-proofs or waterproofs were worn over leggings, and an extra fleece was generally worn underneath the waterproof jacket all the time. The temperature never really posed any problem and everyone was plenty warm enough with the clothing they took.

### FACE PROTECTION

All members of the expedition regularly wore Buffs. These proved to be very useful and versatile. Two or three Buffs were often used in conjunction to cover the whole face. This acted like a balaclava but had the advantage when on snow of regulating the temperature of the head while at the same time protecting the skin from burning, thus minimising the need for sun cream. Buffs were used in combination with more "traditional" headwear such as hats and balaclavas in colder spells and for more extreme weather conditions.

### EYE PROTECTION

All members of expedition used high quality glacier glasses from a number of different manufacturers. These proved to be fine, and were essential on sunny days. Most of the expedition members also had goggles for bad weather. These were absolutely essential and should never be forgotten, as Joe found out in a white out on summit day.

### GLOVES

A wide array of gloves were used by team members during the expedition, but the temperature never fell to such a level that the full "armoury" had to be used i.e. we never needed to wear all our layers of gloves at once. At low level below the snow line thin liner gloves were occasionally worn by members if the weather was cold or windy. At altitude windproof gloves were worn, and on really cold days an extra fleece layer and/or a waterproof shell were put over the top. One member used Dachstein gloves on one of the coldest days. These were very reliable and perfectly suited to the conditions experienced.

### SOCKS

A number of sock manufacturers were used by the different team members, and there seemed to be little to distinguish between them. Light weight ankle socks were generally used for the low level walking between base camp and advanced base camp. Thicker mountaineering over-calf length socks were used with boots at altitude. Often one pair of socks was sufficiently warm enough to be worn on their own at altitude.

### BOOTS

Three members of the expedition used plastic boots. There were no problems with these whatsoever; apart from plastics are not always the most comfortable of boots especially on scree (to be expected). That said there were no problems with blisters as all the boots were well worn in. Plastic boots are very warm and suited to extended expedition use. One of the expedition members used leather mountaineering boots and experienced cold/numb feet in the mornings when high on the mountain. This was thought to be a combination of perhaps having boots which were a little too small together with having poor blood circulation. If the temperatures had dropped much lower than they did then this may have been a serious



Above & insert: Joe, wearing his down jacket, is disgusted at Bens attempt at making mash having been looking forward to it all week.





**Below & insert:** Ben, wrapped up warm at Advance Base Camp, licks the pot clean. Joe drinks soup while recovering in his sleeping bag in the tent in the background.

problem rather than a mere discomfort. The use of plastic boots on extended mountaineering expeditions is thus recommended for assurance and peace of mind.

### APPROACH SHOES

Three members of the team used a generic "trainer" type approach shoes, which proved to be fine for the terrain experienced between base camp and our advanced camps. The other team member only took sandals and plastic boots. This seemed like a good weight-saving idea until we hit the scree, where the sandals were woefully inadequate and the boots were heavy, uncomfortable and cumbersome. Sandals were in the end worn but they proved to be a real nightmare as the scree could enter at will (but never seemed to exit). Also sandals offered little to no support to the ankles which didn't aid load carrying, whereas proper approach shoes gave that little bit of extra support required.

### NAVIGATION

We didn't have any maps which were detailed enough for using to navigate on the mountain however we did have compasses, one GPS unit and one altimeter watch. All the climbing was done in pairs so one pair had the watch while the other took the GPS unit. The GPS was not needed for navigation; it was only really used for mapping i.e. to mark significant way points and to measure altitude. We ended up regretting not taking a second GPS, which we had left at home to save on weight. Without a GPS for each climbing pair we were unable to mark all the high points reached by the team. For actual navigation compass bearings and distance estimations were used when the visibility was low – the high altitude climbing was generally on ridges and hence route finding was not difficult. One particular crossing of a small featureless glacier in a white out would however have been a little easier with a topographical map to refer to.

### SLEEPING

Rab and PhD bags both rated to around  $-20^{\circ}\text{C}$  were used and there was very little to distinguish between them in terms of warmth. Condensation inside the tents often left sleeping bags damp in the mornings. This can be a problem for extended expedition use because the down may become so sodden over time that it loses much of its warmth. This was not a problem for us as our sleeping bags were treated with a water repellent outer which prevented the down from absorbing much of the moisture and we always managed to find a break in the weather to air our sleeping bags, letting them dry out. Some members of the expedition also used liners with their sleeping bags. These weren't used for warmth but rather to keep the sleeping bags clean. These sleeping bags were used to bivvy at around 6000m where the temperature at 6am dropped to a low of  $-10^{\circ}\text{C}$ . Despite the sleeping bags being rated below this, to around  $-20^{\circ}\text{C}$ , everyone wore a full set of clothes inside their sleeping bag to ensure they were plenty warm enough while bivvy-ing. So bivvy-ing at 6000m may have pushed our sleeping bags near the limit of their use.

### TENTS & BIVI BAGS

Base Camp tents and tented accommodation on route was provided by our agents. Mountain Hardwear Annapurna tents were used for camping above base camp, and Terra Nova Apollo & Jupiter bivvy bags were used for some high camps. The two-person Annapurna tents had no problems coping with anything thrown at them. They were extremely light and quite easy to erect. We would have benefited from having a tent with two entrances and a larger rear porch, but this is more luxury than necessity and is probably not essential given this would have added to their weight. The ground sheets proved remarkably resilient to sharp scree considering their thinness.

Bivvy bags proved very useful for high camps, but with two Jupiter bags weighing only slightly less than the weight of a tent - two Jupiter bags have a combined total weight of 2.25kg while one Annapurna tent weighs 3.5kg – it was felt the benefits of this bivvy bag were superfluous. The Jupiter's main benefit is their hooped design which offers a bit more room and hence comfort than the Apollo bivvy. However two of the team were forced to sit out bad weather in a Jupiter bivvy bag at 6000m and they personally do not wish to repeat the experience. They would have much rather carried an additional kilo up and had the comfort and luxury of being storm bound in a tent rather than in bivvy bags. For more settled weather the Apollo bivvy bags were much preferred as at 600g each, they were half the weight of the Jupiter bivvy bags and yet just as good. These were well suited to style of attempt and conditions experienced on Sum Kangri.

### COOKING EQUIPMENT

Two Primus Himalaya Omnifuel stoves were taken – one per climbing pair. The stoves are ideally suited to remote expeditions as they are efficient, work well at altitude and can run on a variety of fuels including both liquids and gases. Gas canisters were readily available in Kathmandu, however these were more expensive than petrol so we ran the stoves on this and took a few gas canisters along in reserve / for emergencies. The stoves are usually reliable; although lighting them can take a bit of getting used to if you are not familiar with them.

Our stoves did not work as cleanly as they did back in the UK. This is common to a certain degree when in certain foreign countries as the fuel is often not a pure. However we think our problems may have been caused by using the wrong type of fuel. With hindsight it is possible we were given diesel rather than petrol when we filled up our jerry can in Tibet.

The major advantage of the Primus Omnifuel stoves is that they are very easy to take apart, clean and mend if necessary. A Trangia pot and lid was shared between two people for both eating off and cooking with. One spoon per person was taken to eat with. These ranged from plastic and ultra lightweight to heavy duty metal ones. A small plastic medicine spoon worked fine for eating with but not for stirring!

One of our Primus fuel bottles, which was full of fuel exploded in the back of the truck on the way to base camp. For some reason the bottle appears to have been unable to withstand the pressure build up inside probably associated with being shaken up by the bumpy road. This caused the screw thread of the







bottle to be ripped from the bottle taking the bottle lid with it. The leaked fuel contaminated both clothing and equipment but fortunately none of our food was affected.

#### WATER CARRIERS

Each team member carried a water bottle and there were no problems with these freezing up. Considering the relatively mild temperatures it may have been advantageous to use a camel back type system to "encourage" regular drinking and to keep well hydrated. These of course become useless at cold temperatures because the hoses freeze up very easily. See through water bottles are better than non-transparent ones as on the final day a small worm was found in water poured out from a metallic Sigg bottle (and the team member who had drunk from it previously proceeded to have bacterial diarrhoea). A ten litre Ortleib bag was taken for collecting and carrying water. These were well worth their weight and saved lots of trips back and forth to the water source at advance base camp.

#### CLIMBING EQUIPMENT

Two short forty metre ropes were used for mountaineering, one rope per climbing pair, which proved perfect for the routes we did. These saved weight compared to the 50m ropes normally used. Snow stakes were bought in Kathmandu to protect exposed snow sections, but in the end they were not needed for climbing. The stakes were however useful to anchor the tents and a few members of the team found carrying a couple of snow stakes offered a bit of reassurance while exploring in poor conditions.

The few ice screws which were taken were not used as the surface conditions encountered were on the whole too weak and soft for ice screws. Other protection such as dead men, warthogs and bulldogs were left at home and rightly so as the technicality of the routes attempted was such that the placement of protection was not required. Very little rock gear was taken because we didn't plan on doing any difficult climbing on the mountains we attempted and indeed it wasn't required. However, it would have been nice to have had a rack because there were many rocks waiting to be climbed near base camp. Thus some of the team would definitely have liked to have taken a pair of rock shoes and some nuts so they could have climbed a bit on their rest days. However a significant amount of the rock in the area is loose so extreme caution is required.

#### Risks

Expedition members faced a range of potential risks from the wind, temperature, remoteness and terrain. Specific hazards, their consequences and how they are managed is detailed in appendix H. The risks associated with hazards encountered, for example altitude sickness, snow blindness, frost bite, hypothermia etc. were minimised by planning thoroughly and preparing fully for these eventualities. During the expedition risks were continuously assessed and monitored, for if one person was injured and required evacuation we knew it would be the end of everyone's expedition. This daily assessment was particularly true for the risk of being avalanched which varied widely both on a daily basis and between mountains. Avalanches occurred on mountains throughout the Shar Kangsum range but our experience found slope instabilities and hence avalanche risks increased along the range towards the North where the higher peaks are found.

#### AVALANCHE RISK

Avalanches were typically small to medium in size with slide paths tens of metres in width and several tens of metres to a few hundred metres in length. Debris fields were both tens of metres in width and length. Avalanches were not airborne but flowed along the ground and their tracks channelled rather than being unrestricted. The sliding surface was not very deep and the type of release was loose as opposed to slab. Snow humidity tended to be wet. Layers of hail, some 10-15cm in thickness acted like slabs of ball bearings creating the main slope surface instabilities. These avalanche characteristics were gathered from visual observations of witnessed avalanches together with analysis of the scars and debris left behind by avalanches which occurred during the expedition.

#### HAZARDS OVERLOOKED

Two hazards experienced which were not identified prior to the expedition were the flooding of our camp and the wildlife we encountered. Joe and Ben spotted a pair of white bears *Ursus arctos*, three to four foot in height a fair way off. The bears did not notice them and there were no close encounters. Our base camp staff said although rare, sightings in that area are common - once every year or few years - and they have killed at least one person in the region before.

Yak *Bos mutus* pose another hazard as they are attracted to camps by salt and will literally trample over everything and anything to find it. One day when we were stormbound on the mountain Ang Kami and Rajkumar, two of our Nepalese staff, had come looking for us to see if we were alright. Meanwhile Lakpa who was back at base camp had to scare off several yaks that were after salt from the mess tent. The valleys around base camp are used for yak grazing but during our stay the only yak we saw were herded by Nomads from one valley to the next over an adjacent high pass. Wild yak roam the area and can be dangerous. We saw one on our way to the mountains less than 10km from base camp and our staff would not go within several hundred metres of it.

As for our camp being flooded, this was a freak incident and one of those things which perhaps no one could have predicted. We were camped at a popular camping spot about 25m away from a small brook, half a metre wide and less than a foot deep. Despite being not too deep and half a foot below the top of the bank, the water level was already high for it was chocolate brown colour with mud and hence the water could not be used for cooking - which was usually the main reason for camping there as suitable water sources can be few and far between. There were a couple of other tents there when we arrived, slightly downstream of us. The weather was stormy with heavy hail storms but this precipitation was not thought to be significant as although intense, its duration was relatively short lived. It is possible the heavy precipitation was concentrated upstream for a much longer duration resulting in the stream to flood



Above & insert: A yak - not one of the wild kind.





Below & insert: Ben sees a Tibetan doctor about his cricked neck.



however due to the sudden nature of the rise in water level it seems more plausible that either something blocking the stream gave way or a landslide caused the stream to change its course. Whatever the cause, we woke just after midnight to find our tent in fast flowing waters being lifted off the ground. The water flowed over the plain covering some 40-50m in width and although not too deep (on average about 15-20cm) the velocity at which it flowed was cause for concern. Being thrown into such a situation everyone coped incredibly well. Once out of our tents there was no immediate risk to personnel but there was a very apparent risk to our equipment and everyone worked well together to ensure these risks were minimised. In the end none of our equipment was lost thanks mainly to our Nepalese staff who collected all our shoes, water bottles and everything else floating around in the porches of our tents before they were opened. Some of the poles to the mess tent were lost resulting in us having to eat in the cooking tent on occasions. However at base camp our staff improvised by joining the two tents together and staking it out where poles were missing.

## Medical Issues

All expedition members had basic first aid knowledge and skills. Prior to the expedition three of the team successfully completed a two-day Outdoor Activities first aid course, with Dan having previously also attended a wilderness expedition first aid course. A large first aid kit containing antibiotics, creams, ointments, dressings, instruments, painkillers and other remedies was carried amongst the group and taken as far as advance base camp. As well as this group first aid kit, each person carried their own small personal first aid kit with day to day supplies in it. For a complete list see appendix C.

Should a casualty have needed to be evacuated we could have used our EPIRB (personal locator beacon) to initiate a rescue. However given the remoteness, any evacuation carried out ourselves would be better than waiting for help to come. Any injured person would have first needed to be got back down to base camp where they could then be transported out by Jeep. Lakpa, one of our base camp staff, was also a high altitude sherpa so he was on standby should help have been needed to rescue an injured climber high on the mountain. The closest medical facilities were in Kathmandu four to five days drive away.

No special vaccinations were obtained before the expedition departed as everyone had previously been immunised against hepatitis A and B, typhoid, diphtheria, tetanus and polio, though those that required boosters had them. Team members were not immunised against rabies as the risk was believed to be small – officially there is no rabies in Tibet, and in Kathmandu the vaccine is available for emergencies. Anti-malarials were not taken as there is virtually no risk of contracting malaria in the parts of Nepal we visited (i.e. outside of the Terai region) and in Tibet there is no risk due to the altitude.

No medical emergencies were experienced however a couple of team members did suffer from both extended and repetitive cases of diarrhoea. These were generally left to their own devices to sort themselves out, with no medicines or drugs given, unless travelling when Imodium was on occasions taken. Although traveller's diarrhoea is almost expected when visiting that part of the world, not everyone on the team got diarrhoea, so it is possible to avoid getting the squits! Our first aid kits came back virtually the same as they went out, minus a bit of tape which had been used on some team member's feet to prevent blisters. A few antiseptic wipes were used on small wounds and blisters to prevent infection.

At the end of the expedition Ben cricked his neck while we were in Lhasa. It was quite painful and after a few days of discomfort he went to see a local Tibetan doctor. After feeling the neck and causing Ben a lot more pain, the doctor put the injury down to sleeping in a dirty room and prescribed some herbal remedies. These weren't taken and Ben's neck fortunately got better in time for the bumpy journey back to Kathmandu.

## Environmental Impact

One of this expedition's main priorities was to minimise, as much as possible, its impact on the environment. The expedition aimed to, in that well known phrase, leave nothing but footprints and take nothing but pictures. Environmental impacts were assessed prior to the expedition and standard operating procedures implemented to minimise our environmental impact. These were continuously monitored throughout the expedition and where necessary refinements made. We worked sympathetically with our Tibetan and Nepalese staff encouraging them to avoid damaging their environment and any litter they left behind was cleared up by other team members.

The British Mountaineering Council's (BMC's) guidelines on waste management were followed throughout the expedition. All food packaging was carried back to base camp where it was taken with us to Lhasa and disposed of in bins there. Toxic waste was minimised by using rechargeable batteries as much as possible and where normal batteries were used, these were brought home to England for proper disposal. At base camp two deep pits were dug one for food waste and biodegradable packaging, and the other for human waste. These were situated well above the nearest flowing water, which was more than one hundred metres away. The contents of both pits were buried more than one foot below surface. On the mountain, human waste was also buried in pits where possible and where not it was covered by scree; again well away from flowing water in each case. Such operating procedures minimised any potential visual, chemical and/or physical impacts. No equipment or non food items were dumped at any time during the expedition.

## Photography

### DIGITAL CAMERA

The majority of the expedition photos were taken by Dan. He used a Canon PowerShot A85 digital camera with two memory cards a 512MB and 32MB one. Picture quality was reasonable with 4.0 effective mega pixels, 3 x optical zoom and a large screen. The camera was fully automatic, very easy to operate and took up to 3 minute long movie clips. Digital cameras have numerous benefits not least because they





**Below & Insert:** Spectacular waterfalls in Nepal nearing the Tibetan border.

**Bottom right:** Stopped on a high 5000m pass covered with prayer flags on the Tibetan plateau.



remove the need to fiddle around changing films in adverse weather conditions and unwanted photos can instantly be deleted making room for more better photos as and when they're taken.

However most digital cameras eat batteries and the Canon PowerShot A85 is no exception. Due to this rechargeable Ni-MH 2300mAh rapid charge compatible AA batteries were taken for use with the camera. The camera takes four AA batteries at a time and so three sets (twelve rechargeable batteries in total) were taken along with a rapid charger, plug and adapter. The batteries were kept charged up while in Kathmandu and on our way to base camp, with recharging possible whenever we stayed at a guest house or hotel. The three sets of batteries were then plenty to last the duration of time spent at or above base camp together with the start of the journey to Lhasa until recharging was once again possible. The cameras consumption of batteries was reduced by ensuring both the flash and the LCD screen was switched off at all times unless needed. Editing and deleting of unwanted photos was reserved for when the batteries could be recharged i.e. before arriving and after leaving base camp. Photos were taken on a medium resolution setting giving finely compressed images with dimensions of 1600x1200 pixels. Both memory cards came back full containing over 950 photos between them plus a couple of 320x240 pixel video clips. On the mountain the camera was kept around the neck and under several layers of clothing, which ensured there were no problems with the cold affecting the batteries. Everything worked well and there is nothing extra we would have taken or done differently with hindsight.

Naomi used a Pentax Optio S50 with 5.0 effective megapixels, 3 x optical zoom giving a range of 5.8-17.4mm. The amount of photos she took was limited by the size of her memory card which held just over 100 superfinely compressed images with dimensions of 1600x1200 pixels. Naomi had intended to purchase another memory card to enable her to take more photos but these weren't that cheap in Kathmandu so Dan's camera was shared instead.

**DISPOSABLE CAMERA**

Both Ben and Joe took a disposable camera each for their own private use, to record memorable moments. These photos were put on CD at the time of processing so they could easily be used for presentations and reports. The images are of variable quality, with some good ones used in this report and others coming out quite grainy. Disposable cameras are great back-up cameras as if everything else fails; if your batteries die or your card is full you can always rely on a disposable camera to take a picture. They will also take a bit more punishment and don't need to be looked after as much making them ideal in harsh environments and poor weather. They have few buttons and those they do have are often large and well spaced making them easy to press wearing thick gloves.

**PURPOSE**

Most of the photos taken are for private use by the photographer and for future personal memories. As well as being used here in the report, a selection of our photos have been put together to form a slide show. This has formed the basis of our post expedition presentations. Some of our photos are used by various website owners to enhance their sites. Others are representing our expedition on the internet and are there for general viewing, and some have been sent to companies for promotional use, as a condition of the support they gave us. Use of any image from this expedition requires prior permission from the photographer. Please direct all enquiries to the editor (see inside cover page for contact information).





## DIARY

*Kept and written up by Daniel Carrivick*

### Thursday 14<sup>th</sup> July – Leaving London

The day was consumed with all those silly little last minute things that needed to be done and hadn't, along with doing all those not so last minute things that shouldn't have been left to the last minute but had. Things like having immunisation boosters, packing, collect foreign currencies, photocopying manuals and guide books, weighing and bagging food, repacking, sorting out our agents fee, sending copies of our permits to those who required them, chasing up grants we hadn't received and of course more packing. It was a scorcher of a day in London, which didn't really help. By 7pm Naomi, Ben and Joe had squashed the final things into their bags. They headed down to Gloucester road heavily laden with the kit bags, stopping to buy things we'd forgotten like camera batteries. I caught up with them at the tube station and we took the Piccadilly line to Heathrow terminal three.

We arrived late and were one of the last to check in – there was no queue. Our progress was delayed further by a problem with the baggage-labelling machine and once sorted I couldn't help but think there was a good chance of our bags going astray. Still at least they didn't check the weight of our bags and charge us excess baggage. We were fast tracked through security control by a member of the airline staff and arrived at the gate just as the last remaining passengers were boarding. Joe and Ben, wearing mountaineering boots and all, got upgraded to first class, while someone wanted to sit in Naomi's seat so she ended up being able to sit next to me after all. The plane took off on time at 10:35pm.

### Friday 15<sup>th</sup> July - Arriving in Kathmandu

I hadn't had much to eat due to rushing around and was keen to get my in-flight meal. However the crew had other ideas and I think we must have been half way to Abu Dhabi by the time the seat belt signs were switched off and the food trolleys were brought round. Naomi and I were sitting right at the front of the compartment so we had limited legroom and were last to be served. We were offered chicken or vegetable. We both asked for chicken. We both got vegetable. For my sins, I queried it and was promptly brought a second meal – it too was vegetable! I gave up and ate them both. I watched a film I wish I hadn't and then slept for a bit.

Six hours later we arrived in Abu Dhabi and were hit by a blast of warm air as we stepped off the plane (and no it wasn't from the aircrafts engines). We were soon in the more comfortable air-conditioned terminal where we waited for a few hours before taking our connecting Gulf Air flight to Kathmandu. The compartment in which we sat had more empty seats than occupied ones so not long after take off we took advantage of this, spreading ourselves out so we could lie down. We got our chicken – in the form of chicken curry, which was pleasing but then they upset me by switching the film off ten minutes from the end because we were starting our descent – how frustrating!

We landed at 5pm local time in Kathmandu. Mohan, our travel agent contact, was waiting to greet us as we came out of the airport. Garlands were hung round our necks as hands were shaken and introductions made. Before we knew it porters had hold of our bags and we were conned for their service of carrying our bags the short distance from the terminal exit to the car park. There a minibus took us through the crowded and bustling streets to the Kathmandu Prince Hotel, where we arrived shortly after 7pm. We discussed arrangements for the next few days over a cup of Nepali tea, before Mohan left and we ate in the hotel restaurant.

### Saturday 16<sup>th</sup> July - First Taste of Kathmandu

I awoke to find myself nicely bitten by the resident midges. I seemed to have more than my fair share with the others getting off relatively lightly in comparison. We had an easy morning to help us recover from the previous day of travelling. Eggs were eaten for breakfast in the hotel restaurant before we returned to our room where we rested and sorted out. Around midday we hit the streets and headed for Thamel the main shopping area. It wasn't long before we stumbled across the mountaineering shops and we felt compelled to go inside and see what they had on offer.

For an hour or two we wandered leisurely along the colourful streets looking at the sights and in the shop windows. I upset a man who followed me around and insisted I did things that he tried to con me into doing. He started off just wanting to be my friend, then he wanted to be my guide for the day and then he wanted me to buy him things from a shop. In the end I just ignored him and two streets later he left in a fit of anger.

As the rain started we sought the refuge of a restaurant but it turned out a bit expensive so rather than having lunch there we just had tea. The heavens opened and we were stuck there for about an hour until the rain eased off. A late lunch was had at a nice Italian restaurant just down the road.

The afternoon saw us head round the back streets looking at the market stalls and street traders. Our haggling techniques were tested as Ben and then Joe were persuaded by sellers that what they needed was an umbrella. Joe got the better deal but ended up losing out when he traded his in for a different one.

In the evening we went out to dinner with Mohan and his wife. They met us at our hotel at 6:30pm and took us to the Bhanchha Ghar restaurant - a three-storey Newari house just east of Durbar Marg serving traditional Nepalese food and dancing. The food, music and dancing was great, that is until they wanted us to join in with the dancing. That night I found it hard to get to sleep. It was hot and our fan was not working.



Above & insert: Ben with Naomi and Joe at the airport wearing the garlands given to them to welcome them to Nepal.





Below & insert: A typical street in Kathmandu's Thamel district. The buildings are covered with signs.

## Sunday 17<sup>th</sup> July – Dealing with Formalities

After breakfast in we met one of Mohan's representatives in the reception of our Hotel. We walked with him through the streets to the Makalu Adventure offices where we met Mohan. There we sat and talked, discussing logistics and arrangements before meeting Lakpa - one of our Base Camp helpers. He was also a high altitude sherpa and had summited Everest twice. Mohan was sending him in case we decided we wanted to use his services. I sorted out the final payment of our agents' fee via email on the internet which was painfully slow and took forever.

Having finished formalities we wandered back towards our hotel looking in shops. We ordered some expedition T-shirts and bought some gas canisters for our mountain stoves – these were half price as they were second hand and partially used. Careful selection of only those over half full meant they still represented good value for money.

It was gone 2pm by the time we started to think about lunch. In the end we went to a small place near our hotel. Joe and Ben ordered while Naomi and I went back to the T-shirt shop to see if they had Naomi's trousers - she had put them down and forgotten to pick them up. They did. We returned and ate chicken curry. The food was cheap and there was lots of it.

What was left of the afternoon was spent resting in the hotel and sorting out things. Joe and Ben hit the town again later to look around and came back around 8pm when it was dark. No one was very hungry after our late large lunch so we went to the bakery and got half price cakes for tea. They looked good but tasted not so great and we got soaked in a downpour on the way back from the bakery so all in all it was bit of a disaster. That night I'd had enough of being bitten so I decided to give the mosquito repellent a go.

## Monday 18<sup>th</sup> July – Shopping for Supplies

The DEET did the trick and I woke with no noticeable new bites. Breakfast was not great with Joes' pancake not cooked in the middle and Bens' eggs raw on the top because he didn't want them fried on both sides. We split up with Ben and Joe heading off to get the final bits of equipment we needed while Naomi and I went shopping for food. After wandering around looking for shops that we thought we'd seen selling things and not being able to find them we ended up asking if places sold what we were after. At first we were put off as prices were the same as western prices, but in the end we found a small corner shop where things were a little, but not much, cheaper. Before long we had three heavy bags of shopping, so we decided to head back to the hotel via the pharmacies to get some iodine solution for the water. We ended up buying both Chlorine tablets and iodine solution as at first we couldn't find anywhere selling iodine solution and when we did it wasn't sold to purify water so we weren't sure what quantity to use. Soon after we got back to the hotel it started raining. An hour later a soggy Ben and Joe walked in with tarpaulin and toilet roll amongst other things, which they seemed to have paid over the odds for.

We all ate lunch together at the Yak Yak restaurant before hitting the shops again in pairs this time for more personal things. Naomi went looking for sandals while I was after a pair of thermal gloves. Later we bumped back into Ben and Joe and between us we were able to get the prices down to an acceptable level. Having returned to the Hotel and failed on the chocolate bar front I resigned to paying western prices for them and went to the mini supermarket a short distance away. On the way back I stopped off to buy biscuits at several roadside stands. Those that were too quick for their own good inflated the price when I asked how much they were, those that weren't just charged me the price printed on the packaging!

Mohan came round at 7pm with our passports and visas. After discussing the plans for the following day we followed his recommendations and went for a very nice, but quite pricy pizza at a place on the other side of the Greater Thamel district called Fire and Ice.

## Tuesday 19<sup>th</sup> July - Crossing the Border

We got up early for our specially pre-arranged breakfast at 6:30am. Our bus turned up just before 7am already fully laden with equipment, supplies and our base camp team. They loaded up our bags while we emptied our safe deposit box and settled the hotel bill. We made our way out of Kathmandu before the morning rush dropping various people off and collecting food as we went. The streets were already busy with pedestrians – mainly children on their way to school. Gradually we left the urban sprawl of Kathmandu and entered the lush green rural world dominated by padi fields that is outside the city.

Our journey to the border took all morning. The road took us up and over the Himalayan foothills. Somewhere on the way the tarmac ran out and the road turned to dirt. We stopped mid-morning at some random roadside café and had a glass of hot tea, sitting outside next to the road. In every town there were armed checkpoints at which we'd have to stop. Our co-driver dealt with the formalities while another armed soldier would board the bus and glance around. The checkpoints became more frequent and more rigorous, and got bigger the closer we got to the border. The hills got larger too, their tops soon hidden in the cloud. Waterfalls cascaded down the sheer valley sides, which were densely vegetated. Landslide debris lay across the road in places. One slide, we were told, had claimed two lives and a school only the previous week.

On reaching Kodari, the town on the Nepali side of the border, our bus joined the queue of parked vehicles. We were ushered into the back of one of the shabby wooden shanties perched perilously on the edge of a gorge. There we sat on the veranda gazing at the awesome power of the raging river below while filling out departure cards and exchanging money over lunch. Though what with Ben on Imodium, Joe on his fourth visit of the day and the general tiredness of travelling we weren't that hungry.

After lunch we went through a security control and walked across the Friendship Bridge with our Nepalese staff, crossing the red line on the road that marks the boundary between Nepal and Tibet. A Chinese man in a small booth took our temperature (presumably as a precaution against SARS) before we were aloud to proceed. Round the corner we met our Tibetan team, namely Tenzin our guide, Dubgyil our





Below & insert: Ang Kami takes down one of the flooded tents while Rajkumar tries to retrieve the pegs.

jeep driver and his jeep a Toyota Land cruiser. Seven of us squashed into the jeep, three in the front, three in the back and Lakpa in the boot. We were driven 8km or so up the winding dirt track, to the Chinese border post in Zhangmu. There we had to get out and walk through customs and immigration control. A senior official was called to double check Joes' identity – for the photo in his passport looked nothing like him now he had a beard. This didn't bode well for our return journey when Ben and I would also be sporting beards.

Once through we met up with the jeep again and had tea in a Tibetan restaurant before leaving Zhangmu and heading up onto the Tibetan plateau where the greenery was replaced by a barren and dusty environment. Rolling hills, mounds of scree and rocky scarps dominated the landscape. There was plenty more evidence of landslides and when passing them our driver would keep his eyes upslope rather than on the road to check nothing was moving.

We spent the night in Nyalam, arriving there around 4pm but we had to wait on the edge of town for our truck to find out where we were staying. Our truck was driven by Lobsang – the third Tibetan member of our group - and contained all our kit and the rest of our Nepalese staff. Once at the Alun Hotel, we were shown to our basic rooms and got what we needed from the truck. Tenzin told us dinner was at 7:30pm. Hungry and un-enthralled by the prospect of having to wait three hours for food, I checked what the time was with Tenzin. We'd lost two and a bit hours by crossing the border so we didn't have that long to wait after all!

Dinner was eaten in the restaurant joining onto the hotel. The food was not as cheap as in Nepal but not expensive either. The portions were not as big as we'd come to expect either and we were left feeling we could have eaten a bit more. That night, despite only being at 3500m, we all found it difficult to sleep. Joe and Ben resigned to talking for half the night, which did not go down well with Naomi and I who were trying to sleep in the room next door.

## Wednesday 20<sup>th</sup> July - The Flood

We made our way down to breakfast tired from lack of sleep. There was omelette and flat bread for those that wanted it. Naomi didn't feel like eating anything and the rest of us did our best to eat something. Then it was back on the road. Good progress was made for the first few hours while on the main dirt track road which was level and fast. At the top of a high pass we got out and wandered around the prayer flags fluttering in the wind, while we waited for the truck to catch up. The sky was overcast and we soon felt the cold.

Shortly after getting going again we turned onto a smaller dirt track, which slowed us down a bit. We were in a convoy with other jeeps ahead, all travelling at the same speed – the maximum the terrain would allow. On the flatter plains the braided tracks crisscrossed all over the place and were six or seven wide in places allowing us to travel side by side. Then we came to a number of fords, for which we had to slow right down and find the crossing point. Ben got really excited by the sight of snow on peaks whose tops were well hidden by low cloud.

We stopped for lunch at the end of a lake, just short of a few buildings where the jeeps we'd been following stopped. There our drivers and base camp staff put up a tent and cooked for us. Hot dogs, cheese sandwiches and mixed vegetables were on the menu with hot orange to drink – very nice. Nomads came round begging for money but our sherpa intervened, telling them we had none. They stood back either through fear or acceptance and watched us eat from a distance. Once we'd finished Ben taught them to skip stones on water while we packed up and put things back in the truck.

The afternoon saw the road continue to deteriorate and become very bumpy in places. Our mood was buoyed up by one of the drivers' tapes, which played techno versions of classic 80's hit songs. They were so bad they made us laugh. Later we played word games to occupy the time.

Dark clouds loomed overhead and it started to rain as Saga came into view. It took forever for us to get there, as we had to drive upstream, past the town to cross over the river via the newly built bridge before heading back into Saga. We stopped briefly in the town for our cook to pick up some things before driving out the other side to find somewhere to camp. The small stream by the campsite was a chocolate brown colour and thus no good for drinking or cooking with but we set up camp regardless as water could be got from the town. Massive thunderstorms echoed around the hills, and the rain turned heavy and into hail as our staff tried to pitch a few of the tents. Once the shower had passed and the tents were finished we rested for our heads were weary both from the altitude and travelling.

Tea and biscuits were served in the mess tent, where we played cards until dinner. It was gone 8pm by the time we dug into a feast of soup, rice, pig meat, curried vegetables and dahl, eating under candlelight. Heavy hail showers continued to bombard the tents throughout the evening. We were all tired and went to bed soon after dinner.

Sometime later, when it was still dark, I was woken by some commotion outside.

*From my diary*

*"I heard a calm voice say "Excuse me Sir. You must get up now, water coming". This baffled me somewhat given I was still half asleep. In the end I concluded it must be morning and that they were bringing us round a bowl of water each to wash with. I snuggled down into my sleeping bag waiting wearily for the first signs of dawn to appear. Then I heard the voice again, louder and a bit more anxious than before "You really must get up now". I sat up and heard the sound of rushing water. I could feel something moving under the tent. It was water. I was out of my sleeping bag in a flash, fumbling around for my torch. I turned to the zip to undo the top but as I neared I pressed the tent floor down causing the bottom of the zip to dip below the water line so I backed away again.*





Naomi was still half asleep so I told her we had to get out. While she got up I undid the top of the zip to see brown water racing through the porch. I fished around under the water with my hands for our shoes and water bottles but could not find anything. Resigning to the fact we'd lost them I emptied the tent pockets and threw as much as I could into my rucksack while Naomi packed up our sleeping bags. I panicked and told Naomi to hurry up – I didn't realise she didn't have a head torch. I was worried we were taking too long and was shocked by the speed and force of the water. The sherpa came round to make sure we were getting out. Naomi got out first with her rucksack. I passed her the sleeping bags she took them to safety while I stayed in the tent to prevent the water sweeping it away. When Naomi came back I passed her the sleeping mattresses before putting my rucksack on and getting out bear foot, wearing nothing but boxers on my lower half. The water was icy cold, biting at your ankles. I passed my bag up into the truck, which was now in the middle of the river too. My feet soon went numb as I waded back to our tent, which was hanging on for dear life as the river tried desperately to pull it from its moorings. We picked the tent up and moved it up onto the road – the nearest dry land before returning to help with the mess tents. Some poles were swept away as it was taken down - the speed and colour of the water being such that there was no chance of retrieving them. The canvas was so laden with water it could not be lifted. It took at least five of us to drag it through the water to the road. The jeep turned around and switched on its headlights so we could see what we were doing. Everything that was left was carried to the temporary safety of a small island of grass that was all that remained of the campsite. Then we were ushered into the jeep where we sat with frozen feet while the rest of our staff waded around in soggy jeans throwing the rest of the salvaged items into the back of the truck. We gave them our head torches so they could see what they were doing. Other campers downstream of us were up and about moving their stuff up to higher ground away from the water too.

The jeep driver took us to Saga where the town clock read a quarter past midnight. It was then I realised we'd barely been asleep two hours. My watch wasn't on my wrist. I figured I must have left it in the pocket of our tent as I didn't remember putting it in my rucksack. We drove slowly through the town and the number of people still wandering around surprised me. The jeep pulled into some place and the driver wound down his window and talked to a woman. We were ushered out of the car and into a room where we were sat down, given blankets and hot water to sip.

A short time later the truck arrived with the rest of our team. They joined us for a cup of tea before we were taken to a room where we could sleep. Tenzin got the woman to bring us an extra duvet each, not that we needed it because one was thick enough. We settled down once again. I found it difficult to get to sleep, there were so many thoughts running through my head."

## Thursday 21<sup>st</sup> July – Drying Out

It was well into the morning by the time we awoke. The ceiling of our room leaked and the heavy showers had continued through the night soaking one side of Joe's bed. Our sherpa brought us tea shortly followed much to our amazement by our wet shoes, which we thought had been washed away. Tenzin insisted we moved to a drier room so we transferred into the neighbouring room. Our base camp team cooked breakfast in large greenhouse out in the courtyard. After the porridge, egg and toast we helped hang up the things to dry which had been thrown into the back of the truck when the flood struck. Ben managed to pull a bit too hard on the washing line and the wire snapped with a twang sending everything already hanging up to the ground. This didn't please one of the women running the place who seemed to hold the sherpa responsible much to our amusement. The line was duly mended with ladders and pliers, and everything else was hung out to dry. I checked the pockets of our tent and found my pen but no watch.

We returned to our room where we read books, talked and snoozed. The truck driver found my watch in the back of the truck and returned it much to my delight and astonishment. They even found our drinks bottles which had been in the porch of our tents so in the end we lost nothing – apart from the end to Naomi's Camelbak hose, which had unbeknown to me come off when I'd put it in my rucksack. When I went to get out my trousers in the morning I found the Camelbak had leaked, soaking everything including my trousers, which I'd deliberately not worn so they wouldn't get wet wading through the flood waters!

Toasted cheese sandwiches were eaten for lunch while the afternoon was spent in a similar fashion to the morning. We didn't do much, just lay on our beds reading, snoozing, resting and writing. The only time we got up was to visit the toilets, which were special. The flies liked our room.

Afternoon tea was served in our room with biscuits and very good vegetable spaghetti with a tuna and tomato sauce was cooked up for dinner in the greenhouse. After fruit salad and more tea we moved back to our room so our staff could eat. We wanted to play cards but they were in the jeep. I went to see if it was open and rather embarrassingly set off the alarm, which put paid to that idea.

## Friday 22<sup>nd</sup> July – Journeying Northwards

The day started with Lakpa Sherpa bringing round the tea at 7:30am, which was shortly followed by breakfast in the greenhouse. Leaving soon afterwards we filled our fuel containers up with fuel for our stoves on the edge of town just before a checkpoint where they checked our visas and passports. Good progress was made on the road throughout the morning despite broken tracks and rivers in our path. Close to mid-day Ben saw smoke in the distance, and soon hot springs came into view accompanied by the stench of sulphur. It would have been nice to stop and take a look but the driver was deaf to our pleas to join the Indian tourists and took us swiftly past. Nevertheless we still managed to take a few pictures through the jeep window.

**Above & insert:** Truck convoy. Our truck (R) overtaking another truck leaving not much room to spare.





We ate lunch in the jeep to avoid the biting wind. The creamy vegetables made a reappearance, with jam sandwiches and tinned herring which contained a lot of bones; certain members of the expedition fared better than others with Greedy Boy living up to his name. The landscape got bleaker with less vegetation; towards mid-afternoon we crossed another high pass at around 5300m. Towards the end of the day we went to set up camp by a large lake, but the water was salty so we pressed on. The next site we came to looked ideal. It was an oasis of green grass next to a stream but their were concerns it may flood if it rained so we continued on down to a plain setting up camp on a small river cliff near a concrete bridge.

The cooks produced a miracle of pizza and chips over an open hob. We ate it huddled inside the cooking tent for warmth. Clouds continued to draw in and as we were settling down for the night a huge storm blew over the mountains on the horizon. A constant barrage of sheet lightning illuminated the sky in an impressive way. I tried unsuccessfully to take pictures of the spectacle, while everyone else watched in awe.

## Saturday 23<sup>rd</sup> July – Damp Roads

We awoke to a transformed landscape. The brown plain and our camp had been covered in a dusting of snow, and the mountains were thick with white. We felt both lucky and lazy to be brought first tea then porridge while still in our sleeping bags. Camp was struck faster than the things could be loaded into the truck, and we were soon on our way, passing through the mountains that had taken the brunt of the storm that night. The roads were damp, which kept the dust down so we could have our windows open for once. We drove down into a wide valley and the road deteriorated into a bog. The truck led the way attacking the waterlogged tracks head on and our driver followed suit in the jeep sending jets of muddy water in as we struggled to shut the windows in time.

The drivers proceeded slowly, appearing to be in no particular rush. They stopped often, more than usual, to have a chat, smoke, or make more mint tea. Over the next low pass was a checkpoint, requiring passports and visas. At checkpoints Tenzin would typically disappear with our documents for a good ten minutes before eventually appearing with a uniformed person to open the barrier, (not that it needed to be opened for with nothing but expansive plains on either side it would have been easy to drive round). What he did and why it took so long is anyone's guess but it probably included having a cigarette!

We pulled off the road in the early afternoon, and rolled disconcertingly towards a small cliff. At the edge, the drivers pulled up, and Tenzin announced that we were camping. Threatening rain meant that the tents were put up in double quick time despite our confusion at the early stop. After the shower the sun came out. There was no shade (except under the truck) and the sun's rays were scorching causing the sun cream to be used for the first time.

We camped on an overhanging, crumbling cliff ten metres high, looking down on a large braided river where yak were grazing. Having asked the staff if it was safe to approach the yak, and been told it probably wasn't, we decided to go exploring. Lakpa soon joined us as we waded the first stretch of water, and set off purposefully towards the yak, telling ourselves we wouldn't get too close. The yaks looked larger and scarier close up, but the prospect of a good photo was too much for Naomi and I, who approached to the point of a charge. Luckily the yaks decided we weren't worth the bother, and started moving away, so we chased them to the river, which they swam until out of reach. Satisfied with our encounter, we wandered back to camp, pausing to skim stones, get Ben wet as he waded back across the water and look at a dead sheep that had a far harder life than the welsh ones.

When we got back we discovered the reason why we'd stopped early and set up camp just outside a town called Tsochen. Our three Tibetan staff, Tenzin, Dubgyal and Lobsang were not there along with the jeep. Lakpa told us they had gone into town for some 'sightseeing', which we all knew meant they had gone drinking (and in the case of our jeep driver to find some women). Our mountain range was now less than a days' drive away so this was their last chance to party for a while.

Over dinner, and later over cards, we learned some facts about our celebrated Sherpa. Lakpa was going to work in finance, but decided that the lure of the mountains was too great, and so joined his father in climbing. He informed us that Everest is easy, as it is only a walk. We discovered that he has part of one finger missing because he took a party of Japanese climbers up Everest and they made him take off his gloves and film them during the two hours members of their team spent on the summit. He then had to amputate the frostbitten part of his hand, half way down the mountain. Ben and Joe went to bed feeling a bit humble.

## Sunday 24<sup>th</sup> July – Setting up Base Camp

After drinking our cups of tea in bed we struggled out into the cold morning where breakfast was eaten in down jackets before striking the tents. Tenzin, Dubgyal and Lobsang had returned long after we went to bed. When they rolled, weary-eyed, out of their semi-collapsed tent (our Nepalese staff had begun striking it) we packed up ready to leave. There was what looked like half a skinned yak sitting invitingly on the jeep's back seat so they hadn't done too badly.

The surroundings looked, if possible, even less inhabited than before, and we made slow progress as the drivers seemed to be feeling the effects of the previous night. We stopped at two tiny settlements, which were nothing more than farm buildings to get directions. Our staff would disappear inside for a drink and a cigarette before getting round to the business of asking which way we should go. The word we got back was that a few western parties had been to the range before, and one had approached from the west side. The road along the eastern side of the range was also reportedly impassable due to either flooding or landslides (depending on who you asked). Our drivers struck out onto the open plains, and almost immediately the wildlife became more varied. We travelled for two hours across rough ground, negotiating large rivers that seemed in low ebb. At the mouth of the valley we reached the last outpost of civilisation:

Above & insert: Yaks grazing down by a river.







**Below & insert:** Lakpa clears the bar in the high jump competition at Base Camp.



one man and his nomadic tent. Holes covered the grassy area around his tent and Himalayan hamsters (as we nicknamed them) kept popping out and running around.

Past this, the terrain got worse as we drove over the large alluvial fans stacked up on one side of the valley. We spotted a couple of herds of wild ass that the Tibetans call Zebra. The truck was abruptly pulled to a halt with cries of 'Dong, Dong'. There was a black dot in the distance; Lakpa explained that this was a wild mountain Yak. The truck driver wouldn't bring his vehicle close due to their reputation for turning trucks into piles of metal scrap. Everyone dismounted for a game of chicken, which consisted of getting increasingly closer to the huge animal. Eventually it got bored and wandered off.

Minutes later we got our first sight of the mountains. Everyone craned their necks and stared waiting to see what lay just out of sight around the corner. This continued for the next three hours as we drove up and down one alluvial fan after another to find a way over the river cliffs and across the braided streams. Some streams were so big our drivers thought twice before attempting to drive their vehicles across the loose uneven boulders. There was one would-we wouldn't-we make it moment for the truck but it pulled through and we continued onwards. After the last alluvial fan the main river ran under a rocky spur forcing us to cross it. On the other side of the river we drove up the grassy valley floor towards the mountains making good time on the much smoother surface. There was a debate on where to put base camp and we drove round in circles for a bit but with no good water anywhere we ended up stopping on a terrace overlooking the river.

The mess tent was erected while we stayed in the jeep, sheltering from the chilly breeze. A late lunch was eaten while Lakpa Sherpa went in search of suitable drinking water. Shortly afterwards we put up the rest of the tents but this turned out to be a race against the rain. The truck had been unloaded and stuff was strewn everywhere so a tarp was thrown over everything and we retreated to the warmth and shelter of the cooking tent. The heavy thunder and hail was accompanied by gusty winds, which continued for a while before eventually moving on.

That evening before dinner Ben, Joe and Naomi went for a walk to the head of the valley where they scrambled around on the rocky spur. Meanwhile Lakpa went off in a different direction in search of drinking water. Base camp continued to grow as the tent with no poles was tied against the side of the truck and pegged out next to the mess tent. Lakpa joined us for cards after a hearty meal of rice, vegetables and dahl.

## Monday 25<sup>th</sup> July – Acclimatising at Base Camp

Tea was brought round late, at about 9am so we had a chance to lie in. After a leisurely breakfast we played a few rounds of cards. Naomi and I wanted to do something a bit more active so we went to dig a toilet pit, but Lakpa beat us to it and when we tried to help we were waved away like errant children. Ben and I ended up throwing a ball to each other but we soon got short of breath due to the altitude. We were just about to stop when Lakpa came to join in so we continued as best we could with a lot of panting.

Showers returned again in the afternoon so we stayed in the tents reading and playing cards. Naomi had stomach problems and wasn't too well. Later as the showers eased off we played a bit of cricket with our base camp staff. They then went to collect water in a large barrel that they struggled back across the valley with – Ben and Joe helped them out by carrying it the last few yards, which almost killed them.

After dinner there was an impromptu shot put competition with a large rock. Lakpa and the truck driver battled it out for top honours as the sun set sending rays of colourful light through the scattered cloud. Joe and Ben both gave it their best shot but they were never really going to compete with the natives.

## Tuesday 26<sup>th</sup> July - Reconnaissance

We had a lazy morning having woken to the sound of snow falling on our tents. Omelettes were for breakfast with the usual toast and cereal which today was porridge. We played cards and read our books in the chilly mess tent. The rain and sleet continued until midday when the sun came out and suddenly it became very hot. The sleet soon disappeared and after a lunch of spam and cheese pastries, we set out to climb the 'relatively' (and deceptively) low hill to the north of base camp. This had two purposes; to help us acclimatise and to have a look at the higher more northerly mountains in the range.

We moved steadily across the plain, and up an easy-angled scree slope, panting like dogs to the summit. The wind was blowing hard on top, and we piled on layers before wandering along the spur and splitting into pairs. In between the clouds we saw what looked like several possible lines up different mountains, but we were too far away to be sure. We returned to camp around the nose of the spur under the threat of a darkening sky and the sound of thunder not too far off. When we got back to base camp tea and biscuits were waiting for us.

Later Tenzin told me that the drivers were worried about the vehicles becoming stranded by swollen rivers if the rain continued so they said they might have to retreat from base camp. If they did they would stay at 'the last outpost' we had passed (one man and his tent).

After dinner we played more cards before joining our base camp staff in a high jump competition using a hand-held rope attached to the grill of the truck. Joe with his long legs gave Lakpa and the Lobsang a run for their money. The rope was then used for a tug-of-war Tibetan style. The rope was put around the back of two people's neck and then they crawled on all fours in the opposite direction to each other. Ben and Joe had a go and soon found out that you had to keep low to prevent the rope, which ran between your legs, from removing your manhood. Thankfully no one was injured in any of these light hearted antics.





**Below & insert:** Ben solos up a rocky pinnacle while ferrying loads up the mountain.

## Wednesday 27<sup>th</sup> July – Ferrying Loads

We emerged from our tents into dull morning light at 7:30am. Before breakfast we started to get things together, collecting and sorting out fuel, ropes and other equipment. One fuel bottle was found empty with its top missing and our kit bags smelt of fuel so we guessed it must have exploded in the back of the truck while travelling. The pump was missing while the other pump was leaking badly before it gave up working altogether. I attempted to fix the broken pump while the other pump was found in the back of the truck. I dug out the info I'd photocopied from the manual so I could work out what to do but it was all in Spanish – I'd photocopied and brought the wrong side! We fiddled around with it, which didn't do much so the Nepalese cook had a go and managed to get the pump working better. After porridge and pancakes we sorted out food for six days above base camp and packed our rucksacks. There were spits and spots of rain but it didn't come to much.

At 10:20am we set off, ferrying our kit closer to the mountains and exploring possible routes. We moved slowly but steadily with our heavy loads over the plain, which was peppered with *Himalayan hamster* holes. We made our way to the foot of the spur down from the small hill we had climbed the previous day. From there a shallow-gradient rocky river bed led through the foothills which we followed northwards moving parallel to the mountain range. As the riverbed turned and led up into the mountains we exited out onto a wide plain where we startled some wild ass, which galloped away in a flurry.

After a short break we moved on across several mountain tributaries, and diagonally up a low hill. It began to spit with rain, and the temperature dropped noticeably as our ascent continued. We decided on a hill saddle in the distance just visible below the cloud line where we'd drop the gear, but getting there proved hard work, as it was further than we thought.

We unpacked our rucksacks and threw the kit under a tarpaulin in a half-frozen frenzy as the wind had picked up and it began to snow. Having weighted down the tarp with plenty of rocks we started back downhill with light packs and numb hands in the bitter conditions. What had been a hard three-hour slog uphill turned into a fast easy march home, marred only by the pain of defrosting hands. The snow turned to sleet and then to drizzle as we dropped down to the plain. Despite arriving back at base camp shortly after 2pm, we felt like the real work had begun. That afternoon, after biscuits and juice we played cards before resting in our tents. The weather brightened up a little in the evening and we ate outside. There were heated discussions amongst our staff about how our drivers wanted to leave and what was going to happen if they couldn't get back. Phone numbers were exchanged and any disagreements were soon forgotten with a final game, which involved retrieving a coin from under a pile of flour on a plate using only your mouth.

## Thursday 28<sup>th</sup> July – Moving above Base Camp

The weather didn't look too bad when we got up at 7:30am so everyone got their personal kit together and packed. We left after a breakfast of cereal, omelettes and pancakes, armed with mystery foil packed lunches prepared by our chefs. The route we followed was much the same as the previous day although we did contour around the slope up to the kit dump so the ascent wasn't so steep. We arrived at the tarpaulin (c.5350m) at 12:30am and after a rest decided to continue in search of water and a potential approach to the mountains. Picking up the tents, stoves and one days worth of food from our kit dump we traversed the scree slopes ascending as we went. Two hours later we were exhausted by the terrain, and with a thunderstorm looming, I found a stream and a flat-ish place to camp in a scree filled corrie. The tents were quickly thrown up, and the guy lines weighted down just as the first heavy drops of rain fell. Once inside we set about having a late lunch. Inside our foil packages we found, much to our delight, a number of cheese pancakes which were amazing.

The rest of the afternoon was spent in our tents while the unrelenting rain hammered down outside. At 18:30hrs I went and collected water in a brief respite from the rain so we'd be able to cook our first mountain meal – pasta and cheese sauce. Despite being told to pick up a stove, Ben and Joe had managed to leave theirs at the kit dump, so we took it in turns to cook with the one stove Naomi and I had brought.

## Friday 29<sup>th</sup> July – No way up

Sleet was falling on our tent when we woke so we stayed in the warmth of our sleeping bags, resting, snoozing and reading. The sleet continued all morning turning to rain and then eventually to drizzle around midday. The cloud soon started to break up and we got views of the valley floor. When the sun broke through it was very hot and the rocks soon started to dry. At 1pm we left to retrieve the rest of our food and equipment from the lower kit dump. Joe and Naomi made a beeline for the tarpaulin and ended up descending a nasty loose scree slope while Ben and I stayed higher on firmer ground before dropping down onto the shoulder on which our kit was perched. After sharing out the load and packing our items into our rucksacks we set off back up the scree. It didn't look far back to the tents but this was deceptive as it still took over an hour of hard work with frequent stops.

At one of the stops Ben fancied climbing one of the rock pinnacles. Getting to the base of the pinnacle was a mission in itself as the scree was steep and very loose. Nevertheless Ben went on to solo the pinnacle. He said he had second thoughts halfway up and then definitely had regrets on the way down as the rock turned out to be loose and more exposed than anticipated. Once he was down, we all continued up to camp where we dumped our loads. Ben and I went off in search of a route up to the snow slopes by wandering across the scree slopes as far as we could. After about an hour we came to an impassable slope and we knew if we were going to get to the foot of the snow beyond it, we would have to go down and around the spur. This was heart breaking given all the work we'd done to get all our things up so high.

We got back to camp at 5:15pm. Naomi had sorted out the food and equipment, and collected water. After a rest we ate couscous and discussed what we'd seen. Ben and Joe entertained us with their attempt





at make Blancmange which culminated with Ben not knowing whether to laugh or cry when he singed the down inside his new jacket causing it clump together.

## Saturday 30<sup>th</sup> July – Setting up ABC

Light snow was falling when we awoke but this soon ceased and we emerged from our tents to find ourselves in the cloud. We packed up anyway, in between bits of rain. It was bit of a mission to get everything in or onto our rucksacks but we managed somehow. Struggling to lift our heavy, over laden packs we helped each other put them on our backs before heading off across the scree slope. We half slipped and half stumbled our way down the scree and across a small stream. A rest was required before traversing another scree slope, which led onto a grassy slope covered with scattered loose rocks. We contoured around the nose of the spur to find we still needed to descend lower to get into the valley on the other side. I waited for Ben and Naomi but they managed to force a way down into the valley higher up so they never came. I trotted back down to pick up my bag after retracing my steps to look for them and descended into the valley. Two wild yaks roamed the valley across the way. I plodded up after the others but with no energy and a lack of enthusiasm it was hard work with frequent stops. Halfway up it started to rain so I had to take things off the outside of my rucksack so I could put the rain cover over it to keep it dry. Unable to reattach things and hence carry everything I decided to leave my rucksack and continue up with the tent so it could be put up. On my way up I passed a tarp, which I guessed the others had done the same and dumped some of their gear underneath. I continued on up feeling totally exhausted – Naomi had our lunch.

I found Ben with his tent on the lip of a scree filled corrie. It turned out the others were sheltering under the tarp so Ben and I put up one tent before returning to the tarp where the others brought their bags up. The rain intensified so we delayed putting up the second tent until it had eased. Sheltering under large rocks and in the erected tent, it was a good few hours before the rain stopped enough for us to put up the second tent.

Soon after, I went and retrieved my rucksack from where I had earlier dumped it. There was thunder on the horizon but I managed to get back to the tents before it arrived. After unpacking we collected water, cooked, ate and went to sleep soon after.

## Sunday 31<sup>st</sup> July – Reaching the Snow Line

By 8:30am the cloud had lifted so we resumed with our original plan and packed up to ferry stuff higher up the mountain. Our goal was the snowline, which lay on top of a wall of scree behind our camp. Ben and Joe took the direct route up the left-hand ridgeline while I took a longer but easier angled route out on the right side before cutting back left. Meanwhile Naomi made her way up in the middle, somewhere between these two lines. Ben and Joe reached the snow line first; taking just over an hour so they decided to continue up to the snowy col. It was another hour before they were roped up and ready to go.

Soon after they left Naomi arrived and we sorted out the gear we were leaving before turning round and heading back down. I was quite anxious to get down as big black thunderclouds had already dumped lots of snow on the mountains in the range across the valley. Naomi got back to the tent just as the rain started. Ben and Joe arrived back half an hour later at 1pm in the thick of the hailstorm. We ate our snacks and read books until the storm passed. The afternoon was spent playing cards and as the sun came out it became too hot to stay inside the tent.

That evening we cooked more mash than we could eat so we had a pause between servings. More rounds of cards were played until the chill forced us to retire to our tents.

## Monday 1<sup>st</sup> August – Preparation for a Summit Bid

The sun was warming the tent when we woke late in the morning though it was still drizzling. The weather soon cleared up and we cooked porridge outside where we also read and relaxed. There was much discussion over which peaks people would attempt – everyone made it sound so easy and I wondered whether they'd forgotten their own limitations.

After a snack lunch we packed up ready for the mountain filling fuel containers and sorting out supplies. By 2pm we were just about to take our tent down when the rain returned. We sat out the heavy shower inside the tent waiting for it to pass. It was 4pm by the time our tent was finally struck and we were ready to leave. There was still plenty of time to reach the high camp and we climbed the scree at our own leisurely pace. Ben and Joe preferred their ridge while Naomi and I went for the slow, steady and easier angled approach to the south. On reaching the snowline where we'd dumped our mountaineering equipment I set about clearing a pitch for our tent. Meanwhile Ben and Joe got kitted up and ascended the snowy slopes to the snowy bowl where they intended to bivi. Naomi went and got water while I finished anchoring the guys. The thunder on the horizon soon brought heavy hail as we cooked in the porch of our tent. We did not envy Ben and Joe who did not have this luxury at their bivi site. That night I struggled to fall asleep as lightening flashed and thunder roared overhead, and the hail battered our tent.

By Joe Johnstone

*"Ben and I left advanced base camp (ABC) hoping to position ourselves above Camp One where we'd left a load of equipment and supplies earlier in the week. There our plan was to bivi ready for a summit attempt the next day. We timed leaving the 'relative' comfort of ABC so that we would arrive at the bivi site with just enough time to cook and eat a meal before nightfall. This allowed a leisurely morning and brunch before departing upward mid-afternoon. Leaving our tent where it was at ABC, we ascended to Camp One where we collected our bivi bags. The journey to*



Above & insert: Ben (R) and Joe carrying loads up to Advance Base Camp over piles of moraine.





Below & insert: Playing chess with skittles at Camp One while the storm rages outside.

*Camp One passed relatively quickly and wasn't too taxing, what with being better acclimatised and having lighter loads than on previous occasions.*

*Camp One was positioned just at the foot of a hanging glacier. There we packed our bags with sufficient supplies for a maximum of two nights above the high camp and set off up the glacier. The glacier allowed Ben and I to access a snowy bowl, from where we hoped it would be possible to gain the south east ridge which led up to the unnamed peak we hoped to summit. With full loads we pressed on, roped up, for about two hours until we had reached a snowy ramp that led up towards the ridge. A few minutes were spent trying to find a suitable spot for our bivi, and in the end a small site was excavated on the western side of a broad hump. The bivi site gave views down towards ABC and the brown snow-less mountains further to the west of the Shar Kangsum range. A meagre meal of noodles and soup was cooked as the sun set. In the vanishing daylight we studied the line we were going to take and tried to memorise as many details as possible for we planned to start our summit bid well before dawn.*

*During the twilight we settled down for the night, setting our alarm for 4am, hoping to mount our summit bid the next day. Considering we bivied at just under 6000m (according to our GPS) we found the temperatures more than bearable - our sleeping bags were very adequate and gave a cosy temperature throughout."*

## Tuesday 2<sup>nd</sup> August - Stormbound

When our alarms went off at 6:30am we found a thick blanket of hail covering the scree outside. The cloud was thick, enveloping the tent. Light rain fell. We decided to wait for a while to see if it cleared up but instead conditions deteriorated further with heavy hail storms rolling through. We lay in our tents resting, talking and thinking. Thunder and lightening passed overhead. We read our books and ate biscuits as the hail turned to snow.

Eventually we had to get out of our tent to go to the toilet. The weather did appear to be easing but it was still pretty grim. Hangman and draughts were played to pass the time. Coloured sweets were used as pieces and a board drawn in the back of my notebook - the best bit was eating your opponent's pieces once they'd been taken.

The cloud lifted a little in the afternoon and I took some photos of the snow-free valley bottoms. More reading and writing followed inside the tent, which warmed to a toasty 33°C every time the sun made a brief appearance - though this was not enough to melt the snow outside around the tent. I went and checked the conditions at the foot of the glacier. The outlook for the following day didn't look good. A couple of inches of hail lay underneath the fresh snow making the snow pack very unstable. There had already been some avalanches on the slopes above. It started raining again at 9pm as we settled down for another nights sleep. Naomi was restless and ended up bivi-ing outside next to the tent.

*By Joe Johnstone*

*"The night was unsettled in many ways. The weather deteriorated with squally showers of hail and snow throughout the night. Both Ben and I didn't sleep much and most of the time was spent talking from within our separate bivi bags to help pass the time and later to keep morale up. Needless to say the alarm was redundant. At some time, before 4am, the thought of a summit attempt that day was abandoned, the wind was strong and we were enveloped in cloud. The two of us spent the remainder of the night stormbound in our bags waiting for the morning and a return of good weather.*

*The weather remained bad with hail and snow showers continuing throughout the morning. The whole day was soon written off and we remained bunkered down in our bivi bags only briefly venturing outside to collect food from our rucksacks and to stretch our legs.*

*As the long and frustrating day turned into night we once again set our alarm for 4am, again hoping for a summit attempt. We had agreed that if a star was visible, then the weather was good enough for us to have a go at the summit."*

## Wednesday 3<sup>rd</sup> August - Supplies Run Low

It was snowing outside when my 6:30am alarm went off, so I switched it off, rolled over and went back to sleep. I didn't even bother looking outside. The sound of snow falling on the tent was enough. By 9am snow was still falling, heavier than before. Naomi's bivi bag was covered and yesterdays footprints were long gone. We made jelly for breakfast. The stove didn't seem to be working as it should have been with fumes irritating my nose and eyes. The morning was spent inside the tent thinking what we should do in between reading and playing chess with coloured sweets in a step up from draughts the previous day.

Around midday we started to pack up our things ready to go down to ABC for we didn't have any more food supplies. It took time to empty the tent and get everything in our rucksacks before we ventured outside into the light snow and thick cloud to put boots and gaiters on. Then we rummaged around in the snow for our crampons and axes, which were all well buried.

As I turned I noticed the clouds had lifted behind me. There high up on the snow were the two distant figures of Joe and Ben descending. They kept stopping, so progress was obviously hard work. We watched until they got closer and then I went up to the edge of the glacier to meet them. They were exhausted and slid the last fifty metres down the snout of the glacier, gathering snow as they went. The slope wasn't too stable with slabs breaking off and rolling down ahead of them. Small fist sized balls rolled down picking up snow as they went. They continued growing until they reached the size of a large rucksack at which point they'd start to break up. Joe was suffering from a pain in his left stomach area and he didn't get up after





his slide. He just keeled over coughing and vomiting in the snow. I untied him from the rope and Ben gave him some water. After sorting himself out I took Joes' rucksack and we slowly made the short walk down to our tent together. He was very weak. We sat down for a bit a discussed what to do.

Naomi wanted to stay up and climb something while Joe had to go down before he got any worse. Joe was keen to keep going down to Advanced Base Camp where he could finally collapse so I sent him coughing and spluttering on his way. Ben said he'd stay up with Naomi so I left them and caught up with Joe. The descent was difficult as snow covered the scree. Joe was carrying his own pack but was stumbling and moving slowly. I went in front of him and he trod in my footsteps, which seemed to help. We dropped out the cloud to see our tent - a small orange dot - a fair way still below us.

Once at ABC Joe got in his sleeping bag in the tent. Meanwhile I got the stove going and made a big pot of sweet tea. Ben and Naomi decided to pack up and descend after all and Ben was down by the time the water had boiled. Naomi was some way behind suffering from cold feet, the terrain and things falling off her rucksack. Back in camp she got hot aches as her feet warmed which was very uncomfortable for her.

It was warm but overcast. We played cards and ate outside. Ben helped me put up our tent while Naomi talked to Joe who felt better but remained in his sleeping bag. We cooked up a feast outside altogether, eating up all the leftovers so we wouldn't have to carry them back down the mountain.

*By Joe Johnstone*

*"Another stormy and sleepless night proceeded. At 4am after some deliberation and a brief glimpse of a single star through a gap in the clouds, the summit bid was on. The day started in the dark and cold. The wind wasn't too strong but visibility was very low. Light snow fell more or less continuously with a few brief heavier spells. A hurried breakfast of Kendal mint cake and mars bars were consumed, along with a few peanuts. Then the two of us, head torches on, headed off towards the start of the ridge leaving all equipment and going light.*

*The lower section of the ridge proved to be the trickiest section; rock and snow with a sharp crest. Much crawling, shuffling and straddling later we reached the start of easier ground as the day began to break. The day thus far had been very entertaining, the ground interesting as the ridge had many strange and unstable snow formations that needed to be traversed along its crest. As the terrain eased in difficulty it increased in steepness. We had reached the snowy heavily corniced ridge that rose approx 500m to the summit. It was time for heads down and trudging up the slope, minding the edge to the east (corniced) and trying to keep on track in the very poor visibility and falling snow. Ben did a great job of breaking trail through the knee deep snow all the way. Every step was energy sapping and towards the top both of us were spent. Breaks got more frequent and longer, and much time was being spent doubled over, gasping for breath. We continued upward and could see the ridge levelling. I hurried up to meet Ben and we stepped onto the highest ground and sat down. The GPS read 6603m.*

*At this time the weather deteriorated, the snow turned to hail and a wind started to whip up. The descent was tough and we were both exhausted. I had no goggles and so found it very hard to see. As a result, and combined with our state of tiredness, the descent was slow. The decision was made that we would continue on past the bivi site, collecting the things we had left there, and go straight down to high camp, with the aim of getting to our tent at ABC before the end of the day. Despite the zero visibility Ben managed to navigate us to the foot of the hanging glacier where Camp One was.*

*Dan and Naomi were still in Camp One and saw us approaching from above. They greeted us and removed our rucksacks as we half-stepped, half-slid off the glacier. I, still exhausted from our mammoth effort, vomited due to the exertion of the day. After a sit down, a warm drink and a chocolate bar I felt much better. It was interesting to see that the area looked very different from when Ben and I had left it, the snow at Camp One was deep and fresh - there had been no snow there when we left two days previously to go higher. The storms had deposited a substantial thickness of hail which had subsequently been covered by a similar amount of snow making many slopes considerably unstable.*

*After our short period of recuperation at Camp One we set off down to ABC. I was still very weak and had to rest frequently though I did manage stagger down, carrying my own rucksack. We soon dropped out of the lifting cloud to arrive at ABC about 3pm. I collapsed in my tent and Dan, who had walked me down the mountain, made milky tea. I spent what was left of the day resting and eating."*

## Thursday 4<sup>th</sup> August – Back to Base Camp

I woke to the sound of slushy snow sliding off the tent. The snow soon stopped and the sun shone through breaks in the cloud, which baked the inside of the tent in minutes forcing us outside. It was 10:45am, so we packed up what we needed and put everything else inside the tents. Joe and Naomi set off back to base camp when they were ready while Ben and I re-anchored some of the guy lines on the tents to ensure they weren't going anywhere. We descended down after them following the stream towards the valley floor before contouring around the end of the spur and ascending to a col. I wore gloves as it was overcast and chilly, but we kept moving which kept us warm.

Ben was on a mission and disappeared out of sight on the climb up to the first pass. Meanwhile Joe was struggling a little after the previous day's exhaustion and Naomi was taking it steadily. I stopped at the crest of the slope to investigate some strange rock formations and have look in a small cave before



**Above & insert:** Ben (L) and Joe slide down the snout of the glacier in deep snow sending balls of snow tumbling down in front of them.





continuing on the traverse of more scree slopes. Naomi and Joe dropped diagonally down while I stayed high until round the next spur before dropping down to a grassy col. The river was followed back to base camp and I stopped under a cliff on the corner where the river exited onto the plains from the ravine through the moraine. Naomi and Joe stopped briefly before continuing back to base camp. I enjoyed the solitude and stayed there for an hour writing my diary and deleting unwanted photos until the flies finally got the better of me, forcing me to move on.

Base camp was just a short walk across the plain and I was soon being welcomed back by the cooks. Lunch was ready and waiting though it had been for some time as the others had eaten and mine was cold. Ben told me how the cooks had met him on the way back with a bag of juice and biscuits. They had been looking for us for the past three days and were worried something had happened as the weather was bad and we hadn't returned - despite us telling them we would be away for up to one week.

In the afternoon I went for a wander across the braided river, hopping and jumping across the channels. The water level was high due to recent rain and snowmelt so it was bit of a maze finding places where you could cross. I made it to the other side with only a few splashes. Ben and Naomi did likewise further downstream. On the far bank Naomi scrambled up the rocky river cliff while Ben climbed to the highest point. We took photos and played around until rain accompanied by thunder started to come up the valley. We sheltered in the tents as the rain passed, reading, talking and resting. That evening after a big Nepali meal we played cards with Lakpa and the two chefs. Everyone enjoyed it and we played long after dark, until heavy rain came and everything got wet from the holes in the roof of the tent.

## Friday 5<sup>th</sup> August – Washing and Resting

The sun came up and baked us while we were still inside our sleeping bags waking us up. We lay around and talked before eventually having a wash with the once warm water which Lakpa had brought round several hours earlier. It looked as though it was going to rain so we went and did some washing of clothes in the silty river before breakfast. I washed my hair too. We had a late breakfast at 11:30am of pancakes and an omelette as light showers passed by. What was left of the morning was spent reading and playing cards.

After a lunch of vegetable pie and fried potatoes we played more cards until people had, had enough. Ben was the first to give up after losing half a dozen times in a row. Joe, Naomi and I spent the rest of the afternoon playing around in the river, building a dam and trying to divert the flow of one of the braided channels. We returned to camp for afternoon tea and biscuits. We sat and talked in the tent until dinner while thunder echoed outside and strong winds buffeted the tent knocking gas cylinders over. On the menu for dinner was poppadoms and soup, followed by vegetable spaghetti with tomato sauce and fruit salad for pudding. It was great and we all went to bed feeling full.

## Saturday 6<sup>th</sup> August – Re-stocking ABC

The cook brought tea round at 7:30am and we got up shortly afterwards to start sorting out food to take up to ABC. The packing continued after breakfast and by 10am we were ready to depart. Naomi, Joe and I set off slowly while Ben paid a last visit to the toilet tent. We headed across the plain and up around the edge of the moraine field stopping after an hour by the usual rock. Joe and I waited there for a while for Naomi who was feeling quite ill. After a rest we all moved slowly together up towards the grassy saddle where we met Ben sitting on a rock. He'd come over the top off the spur taking the more direct but hilly route. We soon got cold sitting there resting so we continued down across the lower slopes of the valley side. Deer and zebra sensed us coming and ran away while we were still some way off. The lower hill slope turned boggy in places before we ascended a gentle slope to another pass. By the time we reached the saddle, the cloud had all but left the mountains leaving a mostly clear blue sky behind.

Joe and Ben detoured out to a small high point to get a better view while Naomi and I contoured around the hill slope from the pass, which took us into the tributary valley that led up to ABC. We stopped to eat our packed lunch of cheese and Tibetan bread at 1pm and then made our way up the valley to ABC at our own leisure. I arrived at the tents just after Ben and Joe at 3pm. The sun was out and we lay around on the warm scree soaking it up. Later, after Naomi arrived, a light shower forced us to retreat to our tents. Once passed, we returned outside to cook tea. The stoves were not working as they should have been so they were taken apart. The parts were checked and thoroughly cleaned before being put back together again, though this didn't improve them much. Fortunately the stoves still worked, just not as efficiently as they should have done. Couscous and noodles were eaten outside before we all retreated to one of the tents to play cards.

## Sunday 7<sup>th</sup> August – Up to Camp One

We woke to the familiar sound of light snow falling on the tent. There we lay talking, thinking and resting all morning. A few chocolate bars and some peanuts were eaten for lunch. Naomi and I went to get ready to go up to Camp One but a heavy hail shower halted proceedings temporarily. By 2pm it had passed and we continued to sort food, fill fuel bottles, pack and get ready. Our tent was taken down and everything that wouldn't fit in our rucksacks was attached to the outside. We made our way across the rocky bowl to the foot of the scree after saying goodbye to Ben and Joe at 3:40pm - they were having a rest day before planning on moving further north to look for a way up Mt Shar Kangsum itself.

The ascent was slow going what with all our weight for we had six days worth of food in case of bad weather. Every time the sun came out the flies would fly around and land on me, which was irritating. Despite taking it easy the 200m climb took just over an hour, which pleased me and showed we were acclimatising well. I set up the tent in the strengthening wind and the odd bit of hail but it never developed



Above & Insert: Ben climbing rock near Base Camp on the rest day before restocking Advance Base Camp.





**Below & insert:** Naomi with full rucksack just below the snowline on the west ridge of Sun Kangri. Base Camp was in the valley in the foreground on the right hand side of the photo.



into a full on shower. The spot was well hidden and Naomi stopped too low, unable to see it, but we eventually found each other.

We unpacked our things and sorted out before getting some soup on followed by noodles and mash. The clear sky made for a beautiful sunset, which we watched eating banana whip from the warmth of our tent for outside the temperature had plummeted and the water on the outside of our tent was already frozen.

## Monday 8<sup>th</sup> August – Summit Bid

The stars were out at 5:30am when my alarm went off so we were full of optimism and hurriedly got ready to go higher. However by the time I had my boots on and was out of the tent no stars were visible. And by the time we had harnesses on low cloud had engulfed the camp. We continued anyway and walked up to the snowline where we put crampons on and roped up.

With snow torches illuminating the cloud we set off up the steep snow slope. Progress was slow and there were frequent pauses for us to catch our breath and work out where to go. It started to get light just after 7am and by 7:30am we were traversing under the rock face, the top of which formed the skyline from ABC. The cloud was thick and we were in a white out. We kept plodding on vaguely in the right direction until the cloud lifted slightly and we found ourselves in a large snow bowl with the saddle in the ridgeline still a fair way above us. We zigzagged up to the saddle from where we got amazing early morning views of the surrounding peaks and ridges. From the saddle we walked along a half snow covered rocky ridge to the top of a small rise. There we stopped as the route ahead looked formidable. The ridge, which led vertically up into the cloud had a large cornice on one side with steep rock on the other. We decided we didn't have enough time to complete the route what with its unknown length, our slow progress and the fact the cloud could continue to build bringing bad weather. So we backtracked to the saddle and climbed the peak to the north east. Sticking to the rounded ridge, Naomi led up on the snow next to the patches of rock. The summit was set back on a pointier snowy crest with an easy angled snow slope on one side. We reached the top at about 10am and continued past it for some distance. The snow was good and firm, and the views were pretty spectacular now the cloud had lifted a bit. I was glad we hadn't gone further along the ridge we initially set out to do, as from where we stood you could see it was a long way to the summit, which was set back further than we first envisaged.

We descended back the way we'd come, down to the saddle and into the snowy bowl. A breather was taken on the easy angled slope before dropping down the steep snout of the glacier into Camp One. We collapsed into camp at 11:30am where we lay in the warm sun eating and drinking. Having eaten as much couscous as we possibly could and still not finished it we set about packing up Camp One. This took a long time as neither of us had much energy or enthusiasm. By 1:30pm we were done and stumbled down the scree with heavy packs in the hot sun. Some forty minutes later we arrived at ABC to find it deserted - Ben and Joe had left to explore elsewhere. We decided to return to base camp so we left Joe and Ben a note telling them where we were going and stuck it on Joes pole which we'd found at Camp One and brought down for him. Having collected the things we'd left at ABC we set off for Base Camp around 3pm. The stream we usually followed was low and some of its tributaries had dried up altogether. It was hot though a cool breeze occasionally blew which was welcome. The trek was hard work, though we took it steadily with many stops to take the heavy weight off our hips and shoulders. The ground was still boggy in places but I was beyond caring and often waded right through.

We arrived at Base Camp at 7:30pm exhausted and aching. Our base camp team was pleased and semi-surprised to see us. They had been sleeping in our tents while we were away so when they saw us approach there was some frantic moving of stuff and sorting out. The jeep and lorry had returned to Base Camp for the weather was supposed to be good for the next three days. Before long hot orange and biscuits were coming our way as we sat and talked about what we'd climbed and what Ben and Joe were doing. Despite being very tired we managed to stay awake just long enough for a great Nepali meal. Tenzin told us they were running out of fresh vegetables so we ate our vegetables as if they were the last we'd have for a while.

## Tuesday 9<sup>th</sup> August – No Time for a Rest

Lakpa brought round a cup of tea at 9am, which was shortly followed by a bowl of warm washing water. The sun shone brightly outside the tent. The cooks had lain out on a tarpaulin to dry some wild garlic, which they'd collected while Tibetan hamsters popped in and out of their holes everywhere. After omelettes and porridge for breakfast we unpacked our rucksacks from the previous day and then packed ready for an attempt on another peak. Everything we didn't need for this fast and light attempt was left out. Naomi changed the jet in the stove so it was set up for gas while I washed the remains of couscous from the cooking pot in the half-dried up river.

Packed and ready, we said our goodbyes and left base camp at midday. We walked up the undulating but always rising plain, across boulder channel after boulder channel. After an hour we reached the foot of the scree slopes. There our climb properly began after a short breather. The scree lay at a stable angle to begin with and we stopped halfway up for lunch. The rocks were sharp and nasty to sit on and we soon felt the cold when a cloud passed in front of the sun. We headed up to a rocky bluff before joining the steep scree slope off to one side. The scree here was flat and loose causing us to slip with every other step. It was a case of sliding down one step for every two steps taken up. Their were patches of earth where the scree was thin which looked better but in fact were baked so hard, kicking steps into them was difficult.

We zig zagged up the slope heading from one large boulder to the next nearest one as these offered the only bit of stability on the whole slope. When the large rocks ran out and the slope seemed to increase in steepness, we ascended a line between the rock and the scree to the ridge. There we convinced





ourselves conditions underfoot must surely improve but it wasn't to be. The scree was just as bad and the rocky outcrops weren't much better. Everything was loose and no foot or hand hold could be trusted.

We followed the ridge upwards. The crest was broad and easy angled where we joined it but it narrowed and got steeper in parts as we got higher. Naomi was struggling a bit but there were no suitable bivi sites because the ridge was not wide enough. Also there was no snow or drinking water – there hadn't been since we set foot on the scree, so we had to press on up to the now rearing snow line. The scree ahead looked particularly steep and I didn't fancy the look of it, so I went and checked it out without my rucksack on. It was not as bad as I thought but it was still going to be difficult with rucksacks on. With no other option we gave it a go. We scrambled around at the bottom, feet sliding down as we tried to go up. Every few steps we'd stop in a natural hollow to get our breath back. Eventually the ridge eases a little and we plodded on up to a shoulder. Naturally it was a false shoulder and the slope continued on up to the snowline, which we reached at 7:30pm.

Where the snow had retreated a little there was just enough flat space on the ridge to set up our bivi. The ground was made of flat small stone sized scree fragments and was thus easily levelled with the use of our axes. Cleared material was left as a ridge around the site to stop us rolling off the mountain. It was warm in the sun but a chilly wind blew across forcing us to put all our layers on. We cooked mash and ate it, before getting into our bivi bags to stay warm just as the sun set. Sleeping in my down jacket in my sleeping bag I soon got too hot and had to remove my jacket before I eventually fell into a half comatose sleep.

## Wednesday 10<sup>th</sup> August – Reaching the high point

I woke to the sound of what I thought was my 5:30am alarm going off. It was still dark and there was little to be gained from setting off before light so I waited for my next alarm. It never came.

Naomi woke me at 7am. We got up and out of our bivi bags. The sky was clear and it was fresh but not too cold because there was no wind. The thermometer read minus nine degrees centigrade. We got kitted up as the sun came up and around the mountains and set off roped-up, up the broad snowy ridge. The gradient increased up to some exposed rocky ledges which we climbed up alongside before traversing up and along over the top of them. Our pace was slow and steady with frequent breathers to get our breath back. We ascended on the snow staying close to the rocky ridge crest to what we had thought all along was the summit. However as the gradient eased we discovered it was little more than a shoulder of a much larger peak set behind.

The sun was high as we crossed the snowy plateau. The gradient once again gradually increased until we were forced to zigzag. As we got higher so the exposure became worse. We gained the ridge on the right hand side but stayed low as we couldn't tell how corniced it was. As we traversed we caught views of the other side to find the ridge was not corniced at all so we carefully made our way along its sharp crest. At the far end we made our way up and around a steep slope until its gradient eased and we'd run out of slopes to ascend. We were on the summit but stayed well back from the heavily corniced eastern side.

It was 10:30am and the snow was softening quickly so we didn't hang around long, just long enough to take some photos. We descended the way we'd come, back down and along the short but exposed snowy ridge before dropping down the concave snow slope to the snowy shoulder. There we had a long rest and something to eat before descending by the rocky outcrops to a large rocky pinnacle. We stopped momentarily before continuing down through the rock band and safely back to our bivi site. There we collapsed, totally exhausted in the scorching heat just before midday.

Once we'd taken our gear off and finally been able to remove some layers I found a bit of energy to get the stove going and melt some snow so we could have a drink. Afterwards we lay around recuperating and slowly packing but not really wanting to. My back ached which didn't help matters. In the end we left the bivi site around 1:30pm and descended the dreaded scree slopes back to base camp. The scree was just as nasty to descend, as it was to ascend so we took it slowly and steadily with frequent stops.

We contemplated descending a different route but we weren't sure whether it was feasible so for fear of not being able to get down that way we decided to continue back the way we'd ascended. After slipping down the steep loose scree we noticed one half of a massive boulder, which stood taller than me had toppled over since we'd stopped next to it on the way up the previous day. Tired, we made our way down to the plain and stopped at a stream for a final breather before getting to base camp. By the time we got up two people were making their way towards us. It was Lakpa and Ang Kami. They greeted us and took our packs. We walked with them back to base camp which we reached around 5:30pm.

Ben and Joe were sitting outside the mess tent in the sun. They had packed up and come back to base camp because several avalanches had obliterated their intended line of ascent up Mt Shar Kangsum. They had only got back an hour or so before us. Tenzin told me they wanted to move down the valley because they had no fresh vegetables and the drivers were ill, but first we were instructed to relax.

As we sat and caught up on the news with Ben and Joe over biscuits and juice, our staff were packing up and taking things down all around us. It was clear they meant business so we didn't hang around. Before long we were throwing everything into the back of the truck and squashing into the back of the jeep.

By 6:30pm we were on the move down the valley to the tune of the Backstreet Boys much to Joes delight! We chased the Kiang (Tibetan wild ass) across the plains and watched as the mountains grew smaller out of the rear window – but their dominance over the surrounding topography was always maintained. It was difficult to believe that only eight hours previously we were standing on top of one of the peaks. They were perfectly pictured against the clear blue sky. I couldn't help but feel it was a shame to leave while the weather was so good, given all the poor weather we had.

We stopped at a lone farm building for our cook to get some food before driving to the other side of a couple of scattered buildings alongside a lake at the mouth of the valley. There we camped next to a



**Above & insert:** Naomi on the corniced summit of Sum Kangri (6390m) with the cornice to her right. Looking east over the plains on the other side of the Shar Kangsum range.







stream with the Shar Kangsum mountain range still visible on the horizon. One or two locals passed by and others came to have a look as we put up our tents. Tea and biscuits were consumed outside as the sun went down. We struggled to stay awake for our meal but it was worth it for we were treated to pizza and chips. These were devoured under the light of a gas lantern in the mess tent before we were finally able to get some much needed sleep.

### Thursday 11<sup>th</sup> August – Back on the Road

We woke late at about 9am to yet more clear blue skies. Breakfast was eaten outside as the sun came up over the lake and then we hit the road. We crossed the same plains, which we'd travelled across a few weeks previously. They were much drier now. The truck and the jeep raced each other, searching for the best and fastest way across the plain through the maze of pot-holed tracks. Sometimes the two vehicles would be hundreds of metres apart on opposite sides of the plain and at others they'd be side by side fighting neck and neck for the same piece of dirt road. Neither of the drivers wanted to give in, for they both knew how bad it was to be stuck behind another vehicle in their dust cloud. Eventually someone had to give way as we came to the end of the plain and the dirt road went up through some hills. Our jeep driver was forced to surrender by virtue of the fact that the truck was bigger than the jeep. Travelling in the cloud of dust produced by the truck we were forced to put our windows up. The dust still found a way in and we baked in the midday heat.

Lunch was eaten by the side of a largish river so we took the opportunity to paddle in it and cool off. The cook tent was not put up because for once it was nice enough outside to cook and eat. After eating the flat bread with tinned vegetables and sausages we packed up and got back in the jeep for a long afternoon of bumpy driving. It was getting late by the time we reached Takyd Tso (5170m) - a large lake so we looked for somewhere to camp along its shoreline. However the truck driver didn't like the spot we'd selected so we continued on for another hour around the lake and up over a pass. It was 7:30pm by the time we set up camp at the same spot that we'd stopped for lunch on the way to the mountains. A cold wind blew and it spat with rain as we battled to put the tents in the failing daylight. The tents continued to be buffeted by the wind as we sheltered inside before eating a hearty traditional Nepalese meal.

### Friday 12<sup>th</sup> August – Journey to Lhatse

We were up at 7:30am as it became light. Tea and washing water was brought round to entice us out of the warmth of our tents and into the chilly morning air. Breakfast was eaten in the chef's tent out of the cool breeze and then we packed up and left. The track was very bumpy and twisty-turny as we drove around another lake. We passed the hot springs and bubbling pools at the far end of the lake, before heading out onto a plain to join the main road. This dirt road was a bit bigger and flatter enabling us to make better progress. The road was out in places where bridges were either broken or under construction so we were forced off road to bypass these sections.

We stopped for lunch in Zangzang where a small festival was going on. Our mess tent was put up in a field with yak and other festival goers. After wandering around to take a look we sat outside in the field. Under a warm sun we ate tasty cheese pasties, beans and sausages in front of the gathering number of people who'd come to watch. After lunch Naomi and Ben talked with the children, getting them to draw pictures and whistle using their fingers. We packed up quickly as rumbles of thunder echoed around the valley and large spots of rain started to fall.

All afternoon we were on the road. By about 5pm we reached the hot springs, tired, weary and aching from being cooped up inside the jeep. Tenzin checked out the place but it was dirty so we decided to continue on to Lhatse, another two hours away. The tarmac road into Lhatse didn't come a moment too soon. We pulled off the main street, under an arch and into a courtyard. Tenzin soon had us sorted out with rooms, where we rested until there was a knock at the door to say dinner was ready. Our staff had put up a tent in the courtyard and there we ate spaghetti with vegetables and a tomato sauce. We were all hungry but even after everyone had gone back for seconds even we could not empty the pot!

### Saturday 13<sup>th</sup> August – Monastery Tour in Shigatse

Breakfast was provided by the guest house so we made our way downstairs for 8:30am, where we sat at the low Tibetan style tables and chairs. There we were brought tea, one hardboiled and one fried egg, and some rolls. Then it was back in the jeep and off to Shigatse. Our truck was not with us for it had gone straight to Lhasa. Outside the town the roads turned back to dirt but this time they were wide and flat. However this was short lived and most of the rest of the morning was spent travelling along by the side of the new 150km long road, which was being built between Lhatse and Shigatse. It was interesting to watch the labour intensive work going on for mile after mile. However after a bit the novelty of driving through this massive bumpy construction site wore off.

We were forced to wait for construction vehicles to get out the way – they seemed in no hurry to do so. Chinese officials in green uniforms kept an eye on proceedings. The work continued up over a high pass and down the other side until eventually the road improved, works ceased and good progress could be made once again.

We got to Shigatse in time for lunch. Tenzin took us to the Songsten restaurant however it was full so we wandered up and down the street and had a look around until a table was available. Everyone was hungry. The meals came one by one in the order they were placed. Portions were small but the food was good. We drove across town and checked into the Gang Gyan Hotel. The reception was very plush with many paintings and carvings. There was even a guard manning the arch into the courtyard. We waited as they made up our rooms. Tenzin had run out of money so he asked me to pay saying he would refund the money when we got to Lhasa.

**Above & insert:** The truck gets a drink ready for another long day on the road.





**Below & insert:** The Gyantse Kumbum with the town of Gyantse and the surrounding hills in the background.



That afternoon we walked to Tashilunpo monastery where Tenzin gave us the guided tour of the chapels and temples. We started off in the Chapel of Jampa, home to a 26m high statue of Jampa (the future Buddha), before visiting the tomb of the 10<sup>th</sup> Panchan Lama which was surrounded in kaleidoscope rainbow material draped from the ceiling. Then it was on to the main attraction; the Kelsang temple home to the tombs of the fifth to the ninth Panchan Lamas lavishly decorated with an unbelievable amount of gold and jewels. Once we'd finished inside we headed back to the main gate along cobbled lanes which twisted around the ancient buildings.

On the way back to the hotel we went to change money but the banks had closed so we got dropped off at an internet place. The person behind the counter laughed at our request to use the internet so we left and found another place. Dinner was eaten next to our hotel in the Kailash restaurant after a shower and a bit of a rest. Again portions were small.

## Sunday 14<sup>th</sup> August – Visit to the Gyantse Kumbum

Breakfast was eaten in a large function room across the other side of the courtyard, at the back of the hotel. After our eggs, toast and fruit we cleared our rooms and waited for Tenzin in reception at 9am as arranged. It was gone 11:30am by the time Lakpa showed up and ushered us to the jeep where the others were. Tenzin apologised saying the reception staff didn't call him like he'd asked them to.

We stopped off at the bank on the way out of town to change money and then took the road to Gyantse. A large group of people were practicing for a festival parade in a field by the road. The driver pulled over so we could get out and have a look along with the other groups of tourists. However our viewing was cut short when Ben was told to get back in the jeep and change his T-shirt as it displayed the Tibetan flag. The flag is not liked by the Chinese as it is the symbol of free Tibet. Had the authorities have seen it things would have been a lot worse both for Ben and Tenzin our guide so we were very lucky.

Gyantse was only a few hours drive away on good roads. We checked in to the Jian Zang Hotel which was small but nice. Again Tenzin asked if I could pay and then we went to the hotel restaurant for a late lunch. Soon after 3pm we drove through town to the Pelkar Chöde monastery. The jeep driver parked outside and Tenzin took us in and showed us around. We started off in the assembly hall which had stories painted in immense detail on the walls. They were worn and faded due to their age but this added to the atmosphere. The adjacent rooms on each side of it were stacked full of ancient texts – large scrolls of paper in wooden boxes. Yak butter candles burnt everywhere providing the only light in these dark and dingy rooms. On the way out we passed through the protector chapel containing many beautifully decorated yak butter cakes. Inside a monk sang to the tune of the gong he was bashing.

Back outside the bright sun took a moment to get re-accustomed to. Tenzin took us over to the Gyantse Kumbum. After we paid a fee which allowed us to take photos, he left us to explore the chapels at our own pace. There were seventy seven chapels in total spread over nine floors in a pyramid sort of shape where the number of chapels per floor diminished as you went up. Only the lower six floors were open for access but even at this height their were great views from a roof terrace of the monastery, the town and Gyantse Dzong – a fourteenth century fort on a rocky hill over looking the town.

Once we'd had enough, we exited and climbed the hill behind the Kumbum (which means 100,000 images). There a roof top balcony gave us superb views of the whole chorten and monastery area. We met Tenzin by the gate at 5:30pm as arranged and headed back to our hotel. There we read and rested before eating in the hotel restaurant. Naomi was not feeling like food so she stayed in her room.

## Monday 15<sup>th</sup> August – Arriving in Lhasa

The restaurant was packed so we didn't spend long eating our pancake and egg which formed breakfast. Soon after we were on our way heading east out of Gyantse. The road meandered along the shore of a reservoir before climbing over a pass. We stopped at the top and walked to the end of a spur to look back at the spectacular emerald coloured waters. The dirt road descended down the other side and climbed relentlessly up to the next pass; the Karola pass (5045m). Nomads had set up camp there, grazing yak. They had stalls by the side of the road to sell what they could to passing tourists. The bottom of a glacier could be seen beneath the clouds, precariously perched above a rock wall. There was a crack and a loud roar as an avalanche of ice debris emerged out the cloud and tumbled down the rock face.

Over the other side of the pass the road went on around lake Yomdrol Tso before climbing up over the Kamba-la pass (4794m). There we stretched our legs in the chilly wind. Nomads were also camped on top of this pass. It seemed like an inhospitable place, exposed with nothing for miles around, but the views were amazing and that's why the tourists stopped there. The nomads cashed in on this by making it a "have your photo taken on a yak" type of place.

It soon started to rain so we drove on, dropping a thousand vertical metres down the other side of the pass before joining the friendship highway into Lhasa. Tenzin jumped in the boot because the Chinese had something against three people sitting in the front of jeeps. We crossed the Brahmaputra River and followed it towards Lhasa - the mighty river on one side and steep rocky slabs on the other. A new bridge was being constructed along with a tunnel through the hills to shorten the distance to the airport. As we got closer to the city the roads got busier. We passed the Potala Palace outside which they were setting up for next months festivities. A three lane road was taken through the centre of the city before turning off down a pedestrianised side street lined with market stalls. There we checked into the Oh Dan Guest House which had a very plush reception. It wasn't long before we met our Nepalese staff who brought our bags to our rooms – all apart from Naomi's for some reason.

We went to the hotel restaurant for a late lunch at 2:30pm and then rested in our rooms before venturing out to find somewhere to check emails. The remainder of the afternoon was spent on the roof of our hotel looking at the rooftop views of Lhasa which nestled in a valley surrounded by big hills. A good





Below & Insert: View across Lhasa from the roof of the Jokhang Temple. The Potala Palace can be seen in the background.



meal was eaten at the Yeti restaurant that evening. The pabora (fired vegetable balls) made a great starter.

## Tuesday 16<sup>th</sup> August – Sightseeing in Lhasa

The morning started leisurely at 9am when we went downstairs for the standard eggs and toast with a cup of tea, which we'd become accustomed to for breakfast. Ben was in a fair amount of discomfort having trapped a nerve by cricking his neck. Nevertheless around mid morning we all headed out around Lhasa on foot looking at the market stalls lining the sides of the road on the way to the Jokhang temple. We watched and did battle against the constant stream of pilgrims on the Barkhar circuit, which ran around the temple. In Barkhar square we lost Ben in amongst all the people but we soon found him and joined the pilgrims for a lap of the Jokhang temple. The corners of the circuit were marked by high poles draped in prayer flags with yak skins on top. Joe and Naomi stopped at stalls to look and haggle for possible souvenirs. It was a lengthy process, which Ben and I soon tired of.

Back at Barkhar square we wandered down the main street in front of the Jokhang temple looking around and in the shops. On the way back to our hotel we stopped off for lunch at the Highland restaurant - a small side street local restaurant, which turned out to be very cheap.

The afternoon was spent resting and relaxing back at the hotel and enjoying an afternoon beer on the roof of the building. When it started to spit with rain we were forced to retreat to the downstairs restaurant where we played cards and watched the torrential rain outside. That evening the Nepalese staff took us to their local restaurant, the Prosperous Ethnic Tibetan Restaurant, just around the corner for dinner.

## Wednesday 17<sup>th</sup> August – Visit to the Jokhang Temple

We met up in the restaurant for breakfast at 9:30am. After eating Tenzin came and took us to the Jokhang temple. There was bit of a scam to get in but as tourists we were ushered past those praying around the entrance without having to join the long queue of pilgrims. Once through the closely guarded gate Tenzin disappeared to buy tickets. He was soon back and we were able to go across the assembly hall, past a never ending stream of people on the Nangkhor Kora pilgrimage circuit. The guards physically held back the pilgrims while a second set of gates were opened just enough for us to slip through.

We made our way past a queue of pilgrims waiting to enter the inner sanctum. Inside it was packed. We stay close to Tenzin for fear of being separated. We shuffled clockwise around the statues with everyone else. Behind the statues we joined an argy-bargy queue to see the Chapel of Jowo Sakyammi. At the chapels' entrance a guard and a monk held people back making them form an orderly queue. They were not afraid to use force either if necessary. We followed the pilgrims into this important shrine where each pilgrim touched their head on the foot of the statue before being urged to keep moving by a watching monk. Once outside the chapel we met up once again with Tenzin and continued our tour of the inner sanctuary. Afterwards we left the pilgrim mayhem and went up to explore the roof of the temple with the other tourists at our own pace. We looked down on Barkhar Square and the entrance to the Jokhang temple, and the views across Lhasa all of which were great.

Afterwards we wandered back to the hotel before heading back out to lunch with a Canadian woman called Valerie who Tenzin had introduced us to that morning. She was another of his clients. A good meal was eaten at the Tashi I restaurant and Ben revelled in being able to tell someone all about the expedition.

We were back at the hotel for 3pm to meet Tenzin but our bus was not there so our departure was delayed until 3:30pm. The bus took us through Lhasa to the Sera monastery famous for its courtyard which was full of monks, some teaching and the others learning. Monks who were teaching would slap their hands together every time a student gave an answer. If palms were slapped together the student got it right, and if not then the teacher would show this by slapping the back of one hand in the palm of his other.

On the way back through Lhasa we stopped off at the Tibetan hospital so Ben could have his neck looked at. Tenzin paid for the appointment and seeing we were foreigners space was made for Ben to see a doctor immediately. The doctor was very old and put Ben in more pain by touching and trying to straighten the neck. After a while he concluded Ben had slept in a dirty room – or at least that's how it translated. We picked up the drugs downstairs and left, walking back to the hotel. That evening we went to the Kailash Restaurant but had trouble finding it as the sign called it something else; Namste Restaurant. The waitresses were a bit too sarcastic for their own good but the yak burgers were nice.

## Thursday 18<sup>th</sup> August – Potala Palace Visit

Ben was ill so he did not join the rest of us for a late breakfast at 10am. Our jeep driver came to say good bye as he was off on another job so we thanked him and gave him his tip. We went to leave but Tenzin insisted Ben should come with us so we waited for him to get ready. Eventually we walked up the street in the spitting rain and jumped in a taxi to go to the main museum. There was plenty to see and an audio hand held thing which told us everything we could possibly want to know about each individual artefact on display. Some of our favourites were the yak skin canoe and the stuffed animals which helped us identify the species we'd encountered on the Tibetan plateau.

Poor Ben was no better. He spent most the time sitting on a chair outside the toilets. The museum was large and we had to whiz through some halls just so we could say we'd seen it all before our 11:30am rendezvous with Tenzin. Ben was in the toilets so we waited for him to emerge before two taxis were taken to the Potala Palace. Outside the main gate we waited while Tenzin sorted out our tickets. Valerie who was joining us for the tour was also there. It was exhausting waiting in the sticky heat and Ben was complaining about his neck and stomach hurting.





**Below & insert:** Ben, Naomi and Joe on their way into the museum in Tibet with Tenzin. Its raining again.



We had tickets to let us in at midday, so at 12pm as the gates opened we made our way through the gate and up the steep access ramp. Half way up Ben was not feeling any better so Tenzin went down with him and helped him get a taxi back to the hotel. We continued on up with Wongu; another guide and work colleague of Tenzin's who accompanied Valerie. The paved street led us up to the Deyang Shar, the courtyard in front of the White Palace. There we stopped for a breather and to look at the amazing views over the city. Tenzin caught us up and took us into the White Palace and around the former living quarters of the Dalai Lamas. From there we continued up onto the roof of the red palace before descending inside the Potala to view the gloriously decorated chapels and tombs. We exiting on the northern side of the palace and made our way back down the steep path to the main gate where we got a taxi back to the hotel. The whole tour took two and a half hours so our both our legs and stomachs were aching by the time we got back.

After lunch Tenzin took us to the Ramoche temple where we had a quick look around. It is the sister temple to the Jokhang but given all the other temples and monasteries we'd seen it was nothing special. Nevertheless Ramoche was only a hundred yards down the street from our hotel so it seemed a shame not to pay it a visit even though we'd all really had enough of trudging round temples for one day.

The rest of the afternoon was spent souvenir shopping in the market streets near the hotel. It shouldn't have taken long but it did, mainly due to all the bargaining involved. In the evening Ben was feeling a little better and he joined us as we went to the Shangri La Restaurant where traditional dances accompanied our Tibetan buffet. It was an appropriate way to spend our last night in Lhasa.

## Friday 19<sup>th</sup> August – The Friendship Highway

We were up relatively early and had the usual breakfast ready to start the long journey back to Kathmandu. Our truck had already left before us with all our equipment and some of our staff. We had a new vehicle and a new driver called Rinzin. The jeep wasn't as new, big or nice, and it seemed strange for we'd spent so long in the other one this new one didn't feel like home.

The streets were already crowded and we had to do battle with the pedestrians before we reached the main road out of Lhasa. It was tarmac road all the way to Shigatse which was good as it was fast and smooth. However there was still the danger of rock falls. In one place we passed a metre cubed block of rock which lay in the middle of the road having fallen from a neighbouring rock face. The Brahmaputra River lay by the side of the road and we followed it upstream all the way to Shigatse where its awesome size was just as big.

After about three hours on the road we stopped off at a roadside café where we sat outside and had noodles with chop sticks all round. Something went bang and misfired as the driver slowed to park the vehicle, so our driver disappeared head first under the bonnet for a good ten minutes to try and fix the problem. Nevertheless we got going again and made it to Shigatse some three to four hours later.

We tried to check into the Gang Gyan Hotel however it was full so we ended up in a nice but empty hotel a long way from the main attractions of the town. Tenzin arranged to have us driven to a restaurant so we could get food but Ben wanted to go in search of souvenirs as he'd missed out in Lhasa by being ill. So the others went into town with him while I waited at the restaurant to meet Tenzin. He never turned up and eventually a phone call came to say he couldn't make it. So I made my way quickly across town for some 30mins to find the others waiting at our agreed rendezvous, starving and wondering what was going on. In desperation we ate at the Songsten restaurant and then walked back through some rather dodgy districts to the hotel.

## Saturday 20<sup>th</sup> August – Stopover in Tingri

Tenzin and Rinzin came and collected us from our hotel in the morning and drove us to a place in town where we had a good buffet breakfast. A road block on the edge of town was not letting vehicles through as the road ahead was closed due to construction works and the authorities wanted vehicles to use another road to the north which provided a long detour. However Rinzin had other ideas. After pulling into the neighbouring petrol station and filling up he turned around and took us down some side streets, through some fields and around the barricade. A dirt lane was then followed for some distance before we rejoined the main road.

The tarmac soon ran out and our progress slowed as we made our way slowly through the bumpy construction site which we'd come through the other way a week before. It was an impressive display of labour intensive work kilometre after kilometre as far as the eye could see but as the hours slowly passed we just wanted to get to the Lhatse. Again our truck had left Shigatse long before us for it had to go the long way round as it was too big to make it along the old road while the new one was being built in its place.

Once past Lhatse we were on new roads which we hadn't travelled along before so the scenery was more interesting. The roads however didn't get any better but at least we weren't held up by the road works. We made our way up a thousand metres or so over a 5200m pass and back down the other side where the roads were terrible. In places the road was so potholed it was better not to drive on the road and at one point we made our way along a stream around the boulders. Again works were being undertaken to improve the road in places, in the form of cuttings and retaining walls and I'm sure it's only a matter of time before the Chinese tarmac all this too.

We did not see Everest as cloud covered the Himalaya but we did pass the turn off to Everest base camp, well one of them anyway. The sun slowly set and the last hour of the 150km stretch between Lhatse and Tingri was done in darkness. A truck had tipped over in one muddy puddle and we were forced off the road to find a way around it. After almost twelve hours in the jeep we were please to finally arrive in Tingri where we were taken to a basic guest house. There we were fed and given rooms for the night.





## Sunday 21<sup>st</sup> August – Back in Nepal

After some tea and an egg on toast we got into the jeep and left. On the edge of the village we stopped off at a house where Tenzin went with Naomi to pick up the box which we'd left to record metrological data for the duration of the expedition. With the box safely recovered we set off on the 200km journey to the Nepalese border.

Back on the road our early start was soon rewarded with views of Cho Oyo and Mt Everest as the sun came up over the peaks and the cloud lifted. We stopped again when there was a problem with the rear underside of the jeep. Ben took the opportunity to go to change his underwear – he was still suffering. By midmorning the cloud had dissipated and we were left with stunning views of Shishapangma as we went over the La Lung-la pass (5124m) shortly followed by the Tong-la pass (5120m). On the descent from the Tong-la our driver used a shortcut down the hillside which cut across the hairpin bends. All I can say is I'm glad the brakes worked.

The dirt roads were notably better and faster and it was all downhill to Nyalam (3750m) or so it seemed. The valleys started to become cultivated once more with fields full of colour. From there the road wound its way down into the lush green valleys. Water fell from the overhanging cliffs onto the road. Under one such fall we stopped momentarily before moving on a little way. Rinzin got out and scrubbed the dust off the windows using large leaves from a nearby shrub.

We dropped down into Zhangmu (2300m) which was heavily congested. Our passports were checked and our paper work taken off us at the checkpoint before we could descend to the border. Lines of trucks waited on either side of the steep road but somehow we found a way through and got as close to the bridge as we could. We thanked and said goodbye to Tenzin and Rinzin and went with our Nepalese staff through the control and across the bridge.

Lunch was eaten in the same restaurant we'd visited on the way through at the start of the expedition overlooking the almighty river. By the time we came to leave our visas had been sorted and all our bags had been brought across and loaded on to our mini coach ready to go. We gained two and a quarter hours crossing the border so it was going to be a long day. The journey to Kathmandu took five hours. The first few passed quite quickly as the scenery was so different and interesting and we stopped for a drink in a roadside café. However as the sun went down and it started to get dark, time began to drag and we just wanted to get to our hotel. I was not looking forward to doing battle with the congestion in Kathmandu however this wasn't as bad as I had feared.

We were dropped off at the Kathmandu Prince Hotel and after helping unload our vehicle we collapsed in the reception. Our luggage was scattered all over the place and took up most of the floor space but we were too weary to care. Once we had rooms we helped the porters take everything up to them. Dinner was eaten in the nearby Everest Steak House which was busy, and although we had to wait a while for food, I think we were all agreed it was worth it.

## Monday 22<sup>nd</sup> August – Celebratory Meal

We lay in and recovered a bit from our journey before having breakfast. Then around midmorning we ventured out in search of Nepalese souvenirs. A lot of time was spent in the Ghurkha shops admiring the knives and trying to decide which ones to get. We had lunch on the Helena Roof Top Restaurant overlooking Kathmandu which was nice and relaxing away from the hustle and bustle of the streets below. Then it was back down to the street for some more shopping with clothing and yak wool shawls at the top of the list.

That evening we took our Nepalese staff and Mohan out to dinner. Lakpa was unable to join us but Ang Kami and Rajkumar turned up. There was a debate where we should go and whether we should walk or get a taxi there. In the end we walked to the Royal Saino Restaurant which turned out to be a fair trek away. It was dark and the streets were poorly lit however they were just as busy with vehicles, people and sellers all getting in each others way. We went for the Indian meal which was amazing. They kept coming round and topping up our plates until we could eat no more. Having had a thoroughly enjoyable time we left feeling full opting for the taxi back to the hotel. Mohan left on his moped.

## Tuesday 23<sup>rd</sup> August – Souvenir Shopping

After breakfast we headed across the Greater Thamel district to the Makalu Adventure office. There we sat and drank cups of tea while waiting to give our base camp staff their tips. Mohan came in and had a good chat about everything and then we showed him some of Naomi's photos which were burnt onto a CD. After finalising arrangements for departure we thanked everyone and left to do some more shopping. Joe and Ben went off to look at more knives, CD's and bags while Naomi and I looked at books and clothing. We were supposed to meet up in the Yak Restaurant for lunch however Naomi and I got fed up of waiting so we went ahead and ordered. Joe and Ben showed up just as we were finishing.

In the afternoon the others continued shopping while I went and had a look around Durbar Square in the old part of Kathmandu. The square is home to a number of temples along with the Old Royal Palace which was where the city's kings once ruled from. After wandering around I spent an hour or so sitting on the platform steps of the Shiva temple, known as the Maju Deval, watching the crowds go about their business in the square below. Couriers carried unbelievable volumes of goods on their backs. Often you could not see the person doing the carrying. You would just see a settee or a stack of boxes and some feet walking them down the street. A man insisted he mended my shoes but his price was too much. In the end I gave him all the Rupees I had left in my pocket and he seemed happy for the trade.

That evening we met up back at the hotel and went to K-Too Steakhouse in search of more red meat. The restaurant had moved and we ended up wandering around to try and find it. We actually passed it several times before we finally found it. It wasn't that it wasn't signposted, it was just that there were so many signposts it was difficult to see the right one. Inside the atmosphere and food was good, though a



Above & insert: Woman making a offering on a street corner in Kathmandu



Below & insert: Prayer flags blow in the wind on one of the many passes we went over in Tibet.



little pricey for the quantity. It wasn't busy and I think we were the last ones to leave after hearing the American owner tell us all about the famous mountaineers who'd eaten there previously.

## Wednesday 24<sup>th</sup> August – Flying Home

We were up early to finish packing and eat the breakfast they laid on especially for us. Our minivan turned up while we were still eating so we finished off and did up the last zips on our bags. After loading the van we left the hotel around 7am and made our way across Kathmandu to the airport. There we said good bye to our Makalu adventure representative and checked in for our 9am flight to London via Abu Dhabi with Gulf Air.

Some fourteen hours later after numerous in-flight movies and meals we arrived back to a rain drenched Heathrow shortly after 5:30pm. Joe got picked up at the airport while the rest of us took the group stuff back to University on the tube before heading home on our separate ways.

## CONCLUSION

*Written by Daniel Carrivick*

1. The Imperial College Shar Kangsum 2005 expedition team successfully achieved its aims by returning home safely having;
  - a. Explored the little known Shar Kangsum range and presented its findings here in this report
  - b. Climbed three previously unnamed 6000m+ peaks in the Shar Kangsum range. Two of these were previously unclimbed (Sum Kangri and Tsachënbori) while the third (Jemakari Thobo) was a new line on a mountain which had previously been unofficially ascended at least once.
  - c. Assisted in the collection of scientific data for the ongoing HIMAP project at the Imperial College, London Physics Department.
2. All the team members worked hard together using knowledge they had gained from previous expeditions to help make this expedition a success. When unforeseen circumstances arose members worked well together to see that they were resolved as quickly and safely as possible.
3. The achievements of this expedition were limited by unusually unsettled weather and by the fact the east side of the range could not be accessed as the road was impassable. Finding routes up the west side of the range was difficult as gradients are a lot steeper and glaciers do not extend very far down the mountains at all - unlike on the east side where they flow right down onto the plains. Hence mountaineers visiting the Shar Kangsum range are recommended to visit the east side of the range as virtually all the peaks are more accessible from that side than from the west.
4. The precise location of the highest point on the Shar Kangsum massif is still not certain and this is likely to remain so until the top has been reached in clear conditions. Attempts to date have focused on gaining the summit via the south ridge, however if the satellite data is correct then maybe an approach from the north would be better. Such an attempt would have the added benefit of determining what lies to the north of Shar Kangsum as this is not known either.
5. The peaks in the central Shar Kangsum are low offering little interest to mountaineers while those in the southern part of the range looked like long slogs more suited to teams using skis.

## ACKNOWLEDGEMENTS

*Compiled and written by Daniel Carrivick*

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**INDIVIDUALS** – Valerie Campbell, Philip Carrivick, Steven Carrivick, David Chinn, Mark Daniels, Dhokho from the Oh Dan Guest House, Lobsang Norbu Dhokho our truck driver, Dubgyi our jeep driver, Jonathan Ellis, Christopher Green, Lindsay Griffin, Ian Hey, Peter Hutchinson, Chris Ince, Ang Kami our cook, Mohan Lamsal, Ciaran McKeown, Richard Morgan, Jon Miceler, Rajkumar our cooks helper, Rinzin our replacement jeep driver, Bill Ruthven, Jane Simpson, Bob Schroter, Doug Scott, Lakpa Gelbu Sherpa, James Smyth, Tenzin our guide, Ralf Toumi, Nigel Wheatley, Catherine Wilson, Nigel Winsler, Shane Winsler, Wongu our stand-in tour guide.

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Finally, we also thank our friends, family and relatives for their understanding and positive encouragement throughout.





## APPENDICES

### APPENDIX A - Equipment List

By Daniel Carrivick

List of equipment taken to Tibet along with some notes about their usefulness based on our experiences. Quantity of each item is shown in brackets where more than 1.

#### CAMPING EQUIPMENT

- Bivi Bag (4)** – One per person. Everyone used theirs at least once. Useful to have this lightweight option.  
**Guy Ropes** – Spares taken for internally guying the tents during storms. This never needed to be done.  
**Karrimat / Z-rest (4)** – One per person. Z-rests good for keeping moisture away from sleeping bags.  
**Pole Sleeves (2)** – For mending tent pole breakages in the field. Not used.  
**Rucksack (4)** – Large ones used range from 60-80Ltr in size. Needed for ferrying loads. Bit large and heavy for summit days but better than carrying two.  
**Shovel** – Not required to clear tent pitches as camped below the snow line.  
**Sleeping Bag (4)** – Used PHD Diamir 700 sleeping bags which have a minimum rating of -19°C. This was plenty warm enough and no one felt the cold at night.  
**Sleeping Bag Liner (4)** – Essential for preventing sleeping bag getting smelly and requiring post expedition professional cleaning.  
**Tents (2)** – Mountain Hardwear Annapurna tents taken. Lightweight – material ultra thin thus needed looking after. Good sized porch essential for cooking in.

#### COOKING EQUIPMENT

- Cooking Pot 1.75ltr & Lid (2)** – About the right size for the portions we cooked, though these were deliberately small to minimise weight. Ate out of the pot and lid doubled up as a plate.  
**Fuel Bottles (4)** – Worth taking more than one per stove in case one burst in transit like ours.  
**Fuel Funnel** – Essential for filling fuel bottles.  
**Pan Handles (2)** – Very useful, kept in stove bag so always knew where they were.  
**Petrol Containers 5Ltr (1)** – For storing petrol in on route to base camp  
**Screw Top Containers 50-200ml (6)** – Much better than bags for items used regularly. Useful for salt, herbs and spices. Recommend larger ones for sugar and milk powder.  
**Spoon (4)** – Lightweight plastic medicine spoon worked fine, need one long handled spoon per tent to stir while cooking – double up and use for eating as well.  
**Stoves (3)** – Primus Himalaya Multifuel stoves used. These are a little heavy but their efficiency usually outweighs this. A bit fiddly to clean and can block easily if not careful. If using petrol make sure you aren't given diesel by mistake – doesn't work half as well.  
**Windshields (2)** – Used now and again when the wind got under the tent fly. All cooking was done in the tent porch.

#### DRINKING EQUIPMENT

- Iodine** – Good for purifying water without boiling if you can get used to the taste.  
**Water Bottle 1Ltr (4)** – Nalgene bottle or similar plastic bottle. Kept in the inside of the tent – only froze on one or two occasions. Transparent bottle recommended as it enables bits in water to be seen easily.  
**Water Carrier (10Ltr)** – Ortlieb bag used to collect melt water from streams. Prevents having to get out the tent to get water in between cooking.  
**Thermos Flask (4)** – Used for cold water high on the mountain to prevent it freezing. Not big fans of hot drinks or the hassle required to prepare the night before.

#### CLIMBING EQUIPMENT

- Axe (4)** – One mountaineering axe taken per person.  
**Crampons (4)** – Grivel G12's or equivalent. Clip-in preferred for ease of attaching to boot.  
**Harnesses (4)** – Lightweight – DMM Alpine or equivalent. Only drawback is lack of gear loops though these weren't required on this expedition.  
**Hammer (2)** – These matched two of the axes taken to form two complete mountaineering axe pairs for more technical routes. Not needed or used.  
**Ice Screws (8)** – Not used – snow conditions unsuitable.  
**Protection** – Half set of nuts taken. Not used.  
**Prusik Loops (8)** – Two each taken for crevasse rescue, not used. Nevertheless general useful piece of cord.  
**Quickdraws (5)** – Half set taken. Not used.  
**Rope 8.5mm 40m (2)** – Was a 50m rope but damaged end cut off saving us a bit of weight. Dry treatment essential.  
**Screwgate Karabiners (8)** – Two each taken for crevasse rescue – not used. Useful for attaching guys to anchors.  
**Snow Stakes (10)** – Used to anchor tent when pegs no good. Not used while climbing though potentially useful in the right situation given the snow conditions.  
**Slings (8)** – Assorted sizes, for crevasse rescue. Not used.  
**Tibloc** – Not used, taken for crevasse rescue.  
**Trekking Poles (4)** – One per person. Can double up and one person go without if someone in the group is struggling and needs two. Useful for trekking between base camp and high camps. Good for support on treacherous scree slopes.

#### SAFETY & NAVIGATIONAL EQUIPMENT

- Altimeter Watch** – Not essential if you have a GPS.  
**Binoculars** – Not really used as low cloud often prevented their use.  
**Bothy Bag, four man** – Not used. Though would have been useful when ferrying the loads in bad weather.  
**Compass (2)** – Two small hand held ones, not used much except for getting general directions.  
**EPIRB** – Took a McMurdo Fastfind Plus personal locator beacon. Not used.  
**GPS** – Took a Garmin Etrex Summit. Should have taken two as mountaineering was done in pairs not altogether. Used to mark waypoints. Not kept on continually in order to conserve batteries.  
**Head Torch & Batteries (5)** – One per person plus a spare. Used for the first hour or two on summit days. Needed most evenings in camp as got dark around 7pm. Still no battery replacements needed for LED torches.  
**Penknife / Leatherman (4)** – One Leatherman in the group is good but they are heavy and everyone doesn't need one. Single blade sharp knives are sufficient for most uses.  
**Maps (3)** – Two road maps and one photocopy. Once at base camp not really used.  
**Whistle (4)** – Worn by each person round neck in case of separation in poor visibility. Not used.



Above & insert: Dan wrapped up warm while cooking at Beta Bivi Site on the west ridge of Sum Kangri with Pk.6240 in the background.





**Below & insert:** Child wearing Tibetan clothes turning the prayer wheels outside the Ramoche Temple.



## HEALTH & SAFETY

**First Aid Kit - Personal (4)** – Contains none emergency items used on a day to day basis. See appendix C for complete contents list.

**Goggles (4)** – Better protection than sun glasses and warmer. Essential for windy wet days on the mountain.

**Lip Salve (4)** – Used to stop lips drying and cracking.

**Sun Cream (4)** – Used minimised by covering up instead.

**Sunglasses (4)** – Good for fair weather days. High quality lenses essential to block out harmful rays.

## WASH KIT

**Anti-Bacterial Cleansing Wash** – Ideal as no water required to use. Individual hand-wash sachets are useful when travelling for cleaning hands before eating.

**Biodegradable Soap (2)** – Good for washing body and hair at base camp - share.

**Nail Clippers** – Useful, one small pair amongst the group is sufficient.

**Toothbrush (4)** – Can chop the handle down to save on room and/or weight.

**Toothpaste (4)** – Can share a large tube 100ml between two or take a small 50ml tube each. This is plenty.

**Trek Towel (4)** – Lightweight and good at absorbing moisture. Takes up little room too.

## MISCELLANEOUS

**Black bags** – For rubbish, separating it from our mountain food.

**Books (4)** – Too tired to read most evenings after writing diary. Essential for tent bound days.

**Camera, Film & Batteries** – Neck strap useful to keep camera close to the skin – warm and easily accessible.

**Duck Tape** – Useful for repair though not used much. Short length kept around neck of trekking poles.

**Duffle Bag 100ltr (4)** – Good for putting equipment and supplies in while travelling.

**Earplugs** – Personal preference. Know who you are sharing a tent with and whether they snore.

**Frisbee / ball** – Used once at base camp. Soon exhausted due to lack of oxygen in the air.

**Pack of Cards (2)** – Essential for passing the time. Played a lot in the evenings while travelling and on bad weather days.

**Pee Bottle** – Not taken. Either hung on or got up out of the tent.

**Sewing Kit (2)** – Not used much. One would probably suffice.

## DOCUMENTS

**Flight Tickets (4)** – Essential for the return.

**Foreign Currency US\$** – Changed to Nepalese Rupees and Chinese Yuan on arrival in Nepal and Tibet respectively. Needn't have changed UK pounds to dollars before leaving England as sterling is widely accepted.

**Insurance (4)** – Essential, keep with you.

**Passport (4)** – Essential, keep it on you at all times.

**Visas & Permits** – Essential, make sure everyone knows who has them and where they are.

## APPENDIX B – Clothing List

*By Daniel Carrivick*

Each expedition member used clothing that they already owned rather than buying new clothing especially for the expedition. Hence a range of different types and brands of clothing were worn. Below is a summary clothing list which has been amalgamated from what every one wore together with notes on their usefulness. The quantity is shown in brackets where more than one of each item was taken.

### MOUNTAIN CLOTHING LIST

**Balaclava** – Not worn / used.

**Boots** – Plastic / leather capable of taking clip-on crampons.

**Buff** – Much used, definitely take if you have them. Can use the polar buff or normal ones in layers are good for protecting the face.

**Down Jacket** – Lightweight one is fine. Only really needed when around  $-10^{\circ}\text{C}$  while bivi-ing at camp 1, but still worn while sitting out bad weather at base camp where it was a nice luxury. Not worn when moving on the mountain.

**Fleece Top** – Worn under synthetic insulated jacket / soft shell jacket on chillier days and worn on their own lower on the mountain when not too windy.

**Fleece Trousers** – Not worn when mountaineering. Worn on occasions in the evening.

**Gaiters** – Essential when wading through soft snow.

**Gloves - Fleece, Windproof** – Worn in the early morning when high on the mountain. Too hot for them on the descents.

**Gloves - Thermal Inner** – This type of glove was used the most. They were either worn on their own or in conjunction with additional pairs.

**Gloves / Mitts Waterproof** – Worn with just thermal gloves underneath most of the time.

**Hat, Fleece / Woolly** – Worn over buffs for added warmth on summit days. Taken off on descent.

**Liner Socks** – Worn under thick socks

**Synthetic Insulated Jacket / Soft Shell Jacket** – Much used both on a day to day basis and on the mountain. Not waterproof but wind proof and water resistant. Worn on summit days as outer layer.

**Thermal Leggings / Ronhill Tracksters** – Great base layer, worn on their own on approach to mountain and underneath waterproof trousers high on the mountain.

**Thermal Top, Long-Sleeved (2)** – Worn all day, every day above base camp. Spare kept at base camp.

**Thick Socks (2)** – Knee length taken. Those with warmer boots got away with wearing just one thick pair of socks.

**Underwear (2)** – The dryflo type, spare kept at base camp.

**Waterproof Jacket** – Worn on rainy days instead of a synthetic insulated jacket or a soft shell jacket.

**Waterproof Salopettes / Soft Shell Trousers** – Soft shell trousers were worn on their own but were a little warm. Both were worn high on the mountain in conjunction with thermal leggings / Ronhill Tracksters underneath.

### LAYERING SET-UPS

#### TOP HALF

##### Person 1

- **Base Layer: Icebreaker** - the thinnest one you can get, women's long sleeved with zip neck. Very warm with zip up neck, to give good ventilation. Very comfortable and stayed fresh longer than over peoples base layers.
- **Mid Layer: Mountain Hardwear 100 weight**, thin technical micro-fleece. Carried at all times above 5500m just in case, but never used except when  $-10$  in high bivi.







Above & insert: The contents of our first aid kit taken to Tibet.

- **Outer layer:** *Patagonia Mixmaster* jacket - again massive temp. range dependent on ventilation zips - 99% wind stopping property was invaluable.

**Person 2**

- **Base Layer:** *Low Alpine Dry Flo* thermal top - long sleeved. Worn on its own on the lower mountain with sleeves rolled up when the sun was out.
- **Mid Layer:** *Mountain Equipment* - medium weight fleece. 85% wind proof so keeps most the wind out but still a little chilly most of the time. On the up side it keeps you well ventilated and was good when carrying heavy loads.
- **Outer layer:** *Montane* synthetic insulated top rated to -5°C. Windproof and splash resistant. Dries quickly. Very good at keeping you warm both when still and when moving. When really wet this outer later was exchanged for a lightweight waterproof jacket.

**Person 3**

- **Base Layer:** *Berghaus Tech T* - great insulation and takes the edge off the wind when worn on its own. Zip on neck is a good feature.
- **Mid Layer:** *Karrimor* thermal prolife fleece - very warm, lightweight and quick drying. No wind proof qualities.
- **Outer layer:** *Karrimor* phantom packlite jacket. Very lightweight, but not very durable. Worked well as a lightweight windproof layer when not needed to protect against rain/snow.

**BOTTOM HALF**

**Person 1**

- **Base Layer:** *Icebreaker* merino wool thermal leggings - worn on cold days
- **Outer Layer:** *Patagonia Mixmaster* soft shell trousers with 200 weight fleece bound inside. Warm on approach when worn on their own, but brilliant up mountain.

**Person 2**

- **Base Layer:** *Ronhills* as thermals - worn on their own most of the time.
- **Mid Layer:** *Mountain Equipment* fleece trousers - very warm and wind resistant. Only worn on storm bound days spent in tent.
- **Outer Layer:** *Mountain Equipment* salopettes - generally hot so only worn on summit days. Zips open on the descent to assist cooling.

**Person 3**

- **Base Layer:** *Icebreaker* merino wool thermals - not worn as they were too hot.
- **Mid Layer:** *Berghaus extrem* windstoppers - very warm and extremely tough.
- **Outer Layer:** *Berghaus GorTex* over trousers. Fine, no problems - did the job.

**GLOVES**

**Person 1** - Thermal inner gloves worn with *Outdoor Designs Gore-Tex* outer mitts with very breathable detachable fleece liners. Fleece liners were rarely worn except on the coldest of occasions.

**Person 2** - Wore thermal inner gloves, *Extremities Windy* wind-stopper fleece gloves and *Extremities Tuff Bags* waterproof outer mitts. Combination worked well. Didn't use fleece liners to waterproof mitts as hands plenty warm enough without them.

**Person 3** - *Dachstein* mitts worn over wind-stopper gloves and thermal inners. The wind-stopper gloves were purchased in Kathmandu - they were not branded but were pretty good. The *Dachstein* mitts were brilliant in the blizzard and were adequate making my *Extremities Gor-Tex* outer mitts surplus to requirement.

**SOCKS & BOOTS COMBINATIONS**

**Person 1** - *Thorlos* mountaineering socks with women's *La Sportiva Nepal extremes*. Two pairs of socks used, only one pair ever worn at once, rotated use, both pairs heavily worn by the end but invaluable. Feet numb for up to one hour in the morning due to combination of cold boots, poor circulation and boots which are perhaps a little small.

**Person 2** - *Thorlos* ski over calf sock with old (1998) *Asolo* plastic boots. Boots were very warm - only wore one pair of thin socks in them and never felt the cold.

**Person 3** - *Scarpa Vegas* (old type) with *Bridgedale* mountaineering and trekking socks. These were fine - the temperature never dropped to a level where the type of boot being used might have been an issue.

**DOWN JACKETS**

**Rab Summit Jacket** - Extremely warm and durable. It even survived having the arm set on fire whilst lighting the stove.

**Rab Quantum Jacket** - Lighter weight than the Summit. Warm enough but not very durable. One was ripped in transit, but was alright on the expedition. The outer pertex is durable, but the weakness lies inside as the lining is easily torn.

**PHD Minimus Jacket** - Plenty warm enough for the conditions and being so ultra lightweight (380g) made this a real advantage. Rated to -5°C.

**TRAVEL CLOTHING LIST**

**Approach Shoes / Sandals** - Approach shoes better - worth the extra weight - warmer and more versatile.

**Fleece Top** - Needed in the evenings and during the day when overcast on the plateau.

**Socks** - moderately thick ankle length for use with approach shoes / sandals.

**T-shirt / Shirt (2)** - Expedition T-shirt along with a wicking one and/or a travel shirt.

**Trekking Trousers** - Convertibles taken by some team members but not essential as too cold for shorts and no large rivers to wade across.

**Underwear** - Normal, every day type, comfortable.

**APPENDIX C - First Aid Kits**

By Daniel Carrivick

List outlining the contents of the first aid kits taken on the expedition along with some comments where appropriate.

**ANTI-MICROBIALS** - None Used.

**Amoxicillin 250mg Capsules (21)** - 2 courses, very versatile. Dose: Take one three times daily. Amoxicillin is an antibiotic in the class of drugs called penicillin's. It is used to treat many different types of infections, such as pneumonia, bronchitis, venereal disease (VD), gonorrhoea, and infections of the ears, nose, throat, urinary tract, and skin. Antibiotics work by killing bacteria - they will therefore not work for colds, flu, or other viral infections. Overlaps a lot with the other two antibiotics taken, perhaps not necessary.

**Ciprofloxacin 250mg Tablets (28)** - 3 courses. Dose: Take one twice daily. Ciprofloxacin is an antibiotic used to treat certain infections caused by bacteria e.g. pneumonia, bronchitis, diarrhoea caused by bacteria, typhoid fever, and bone, joint, skin, prostate, sinus, and urinary tract (bladder) infections.





Below & insert: Who can make the best Blancmange? Joe happy at the prospect of having to eat the leftovers.



**Flucloxacillin 250 mg Capsules (28)** – 1 course. Dose: Take one four times daily. Flucloxacillin is a narrow spectrum antibiotic that has specific activity against penicillinase-producing bacteria. It is used to treat certain skin, chest, and soft tissue infections.

**CREAMS AND OINTMENTS** – None Used.

**Caneston Cream 15mg** – Anti-fungal cream, not used.

**E45 Cream 50g** – For dry skin conditions, not required.

**Savlon Cream 60g** – Antiseptic cream, prevents infection and aids healing.

**DRESSINGS AND INSTRUMENTS** – Again used very little of these because no serious injuries were sustained. Most of what was used, was used to replenish the stock in individual's personal first aid kits.

**Antiseptic Cleansing Wipe (10)** – To supplement personal first aid kits. Not many taken as can always use iodine solution taken for purifying water.

**Crepe Bandage 7.5cm (4)** – Useful to have lots but not used this time. Supplementary to personal kits.

**Eye Dressing No.16 (1)** – Not used but recommended.

**Gauze Swabs 5x5cm (5)** – Not used, essential for open wounds.

**Latex Gloves** – Not used.

**Melolin Dressing, Adhesive (4)** – Not used, good for blisters though if no blister pads available.

**Melolin Dressing, Non-Adhesive (4)** – Definitely required but not used.

**Plasters, Adhesive, Assorted (50)** – Quantity was fine, variety useful. Supplementary to personal kits.

**Safety Pins (5)** – Handy to have a few even though can often make do without them.

**Scissors, Medical** – Not used as scissors on Leatherman used for cutting tape. Essential though.

**Steri-strip Large (2)** – Not used.

**Steri-strip Medium (6)** – Not used. Large ones perhaps better for all round use.

**Thermometer** – Digital one. Not used.

**Tweezers** – Not used. Useful to have though.

**HIGH ALTITUDE MEDICATION** – None Used.

**Acetazolamide (Diamox) 250mg Tablets (10)** – None taken. Dose: one tablet twice daily from 3000m until descent begins. Diamox stimulates breathing and helps acclimatisation. It makes HAPE and HACE less likely.

**Dexamethasone 2mg Tablets (50)** – None taken. Dose: 8mg initially, then 4mg every six hours. Dexamethasone relieves inflammation - swelling, heat, redness, and pain. Its main use in the wilderness is to reduce fluid in the tissues associated with cerebral oedema (HACE).

**Nifedipine 20mg Tablets (12)** – None taken. Dose: One tablet four times daily. Nifedipine is normally used to treat angina. It is valuable in treating pulmonary oedema because it lowers the pressure in the arteries to the lungs.

**PAINKILLERS** – No painkillers were taken on a regular basis.

**Aspirin 300mg Caplets (16)** – Also an anti-inflammatory and has a blood thinning effect. None taken.

**Co-Proxamol Tablets 250mg (90)** – Stronger painkiller. No one took any. Maybe we didn't need to take this many but they came in a box of 100. Dose two tablets three to four times daily.

**Ibuprofen 200mg (24)** – Also has an anti-inflammatory component. Supplementary to personal kits

**Paracetamol 500mg Tablets (32)** – Not needed to supplement personal first aid kits.

**OTHER MEDICATION** – Personal preference.

**Dioralyte Sachets (10)** – Not used. Expensive so only a few taken for real emergencies. In less serious cases a rehydration drink can be made with sugar and salts.

**Imodium (18 Capsules)** – Most used medicine in our first aid kit. Only used when essential i.e. while travelling. All other times use reserved for all but the most severe cases.

**PERSONAL FIRST AID KIT (4)** – Each team member carried one of these, and their exact contents varied slightly according to each team members personal needs. However the recommended minimum contents are as follows:

**Adhesive Plasters (10)** – For minor cuts, grazes and to prevent blisters.

**Antiseptic Wipes (6)** – A few used on blisters and cuts and scrapes.

**Blister Kit (1/2)** – Used on peoples heels and toes though not as much as anticipated though.

**Crepe Bandage** – Not used. Vital though.

**Dressing Large & Sterile No.9** – Not used. Recommended though.

**Ibuprofen 200mg (24)** – Taken by individuals when suffering minor pain on one or two occasions.

**Latex Gloves** – Not used.

**Melolin Dressing, Adhesive (2)** – Good for blisters and thus handy to have in personal kit.

**Paracetamol 500mg (12)** – Not used, Ibuprofen was preferred.

**Triangular Bandage** – Not used. A couple amongst the group are essential.

**Safety Pins (6)** – Whole range of uses, not just for first aid.

**Survival Blanket** – Can be a lifesaver. Multitude of uses. Small and compact. Not used.

**Zinc Oxide Tape 25mm x 5m** – Used to tape up feet to prevent blisters. The wider the tape is the better. 40mm is great if you can find it!

## APPENDIX D – Food

*Written and compiled by Daniel Carrivick*

Table D1 shows the quantity and calorific value of the twenty mountain day's worth of food taken. Most food was purchased in the UK and supplemented with readily available bulky items which don't travel as well. Both chocolate and pasta were purchased in Kathmandu however we wished we'd taken these from England as they weren't cheap and their quality wasn't that good either. The amount of food was over-estimated as their is nothing worse than being short of food or being unable to climb because you've run out of supplies. As it turned out, bad weather coupled with running out of fresh supplies at base camp meant only twelve days worth of mountain food was consumed. The remainder was either eaten over the rest of the expedition or split between our Nepalese base camp team.

The total weight of mountain food taken is estimated at just less than 14kg per person, which seems about right considering the bag containing all our UK food weighed about 30kg on check-in. The estimated calorific value of our mountain diet works out on average at about 2600 calories per person per day. This is the average daily recommended amount for a UK male and hence is perhaps a little low for strenuous exercise at altitude. However everyone had sufficient reserves that this wasn't a problem and any weight lost (either due to this diet or getting diarrhoea) was soon replaced.





Below & insert: Joe, Ben and Naomi all dig in to the couscous using various different implements at Advance Base Camp.



Table D1 Details of the expedition food bags and quantities with which we set off with.

| FOOD BAGS  | Unit        |          | Per Bag      |          | Total   |          | Calories per 100g | Calories Per Unit Weight | Total Calories | Bought where? |
|--|-------------|----------|--------------|----------|---|----------|-------------------|--------------------------|----------------|---------------|
|  | Weight (kg) | Quantity | Weight (kg)  | Quantity | Weight (kg)   | Quantity |                   |                          |                |               |
| <b>MEAL BAG ONE (10 bags) - one per pair per day</b>                     |             |          | <b>0.877</b> |          | <b>8.769</b>  |          |                   |                          | <b>37395</b>   |               |
| Instant Hot Oat Cereal   | 0.100       | 1        | 0.100        | 10       | 1.000   | 356      | 356               | 3560                     | UK             |               |
| Instant Cup-a-Soup   | 0.021       | 2        | 0.042        | 10       | 0.420   | 333      | 70                | 1399                     | UK             |               |
| Instant Mash   | 0.100       | 2        | 0.200        | 10       | 2.000   | 346      | 346               | 6920                     | UK             |               |
| Stock Cube   | 0.006       | 1        | 0.006        | 10       | 0.059   | 265      | 16                | 157                      | UK             |               |
| Spaghetti Bolognese Sauce Mix  | 0.040       | 1        | 0.040        | 10       | 0.400   | 257      | 103               | 1028                     | UK             |               |
| Whip Strawberry / Chocolate  | 0.069       | 1        | 0.069        | 10       | 0.690   | 339      | 234               | 2339                     | UK             |               |
| Chocolate  | 0.100       | 1        | 0.100        | 10       | 1.000   | 505      | 505               | 5050                     | UK & N         |               |
| Chocolate Bars   | 0.055       | 2        | 0.110        | 10       | 1.100   | 508      | 279               | 5588                     | Nepal          |               |
| Chocolate Wafers   | 0.010       | 2        | 0.020        | 10       | 0.200   | 495      | 50                | 990                      | Nepal          |               |
| Peanuts  | 0.050       | 2        | 0.100        | 10       | 1.000   | 600      | 300               | 6000                     | UK             |               |
| Biscuits   | 0.090       | 1        | 0.090        | 10       | 0.900   | 485      | 437               | 4365                     | Nepal          |               |
| <b>MEAL BAG TWO (10 bags) - one per pair per day</b>                     |             |          | <b>1.098</b> |          | <b>10.979</b>   |          |                   | <b>39045</b>             |                |               |
| Instant Hot Oat Cereal   | 0.100       | 1        | 0.100        | 10       | 1.000   | 356      | 356               | 3560                     | UK             |               |
| Instant Cup-a-Soup   | 0.021       | 2        | 0.042        | 10       | 0.420   | 333      | 70                | 1399                     | UK             |               |
| Couscous   | 0.250       | 1        | 0.250        | 10       | 2.500   | 236      | 590               | 5900                     | UK             |               |
| Instant Soup   | 0.060       | 1        | 0.060        | 10       | 0.600   | 300      | 180               | 1800                     | UK             |               |
| Tuna   | 0.185       | 1        | 0.185        | 10       | 1.850   | 149      | 276               | 2757                     | UK             |               |
| Stock Cube   | 0.006       | 1        | 0.006        | 10       | 0.059   | 253      | 15                | 150                      | UK             |               |
| Custard Powder   | 0.035       | 1        | 0.035        | 10       | 0.350   | 425      | 149               | 1488                     | UK             |               |
| Chocolate  | 0.100       | 1        | 0.100        | 10       | 1.000   | 505      | 505               | 5050                     | UK & N         |               |
| Chocolate Bars   | 0.055       | 2        | 0.110        | 10       | 1.100   | 508      | 279               | 5588                     | Nepal          |               |
| Chocolate Wafers   | 0.010       | 2        | 0.020        | 10       | 0.200   | 495      | 50                | 990                      | Nepal          |               |
| Peanuts  | 0.050       | 2        | 0.100        | 10       | 1.000   | 600      | 300               | 6000                     | UK             |               |
| Biscuits   | 0.090       | 1        | 0.090        | 10       | 0.900   | 485      | 437               | 4365                     | Nepal          |               |
| <b>MEAL BAG THREE (10 bags) - one per pair per day</b>                   |             |          | <b>0.884</b> |          | <b>8.839</b>  |          |                   | <b>37105</b>             |                |               |
| Cereal / Granola Bars  | 0.034       | 4        | 0.134        | 10       | 1.340   | 395      | 132               | 5293                     | UK & N         |               |
| Instant Cup-a-Soup   | 0.021       | 2        | 0.042        | 10       | 0.420   | 333      | 70                | 1399                     | UK             |               |
| Instant Noodles  | 0.240       | 1        | 0.240        | 10       | 2.400   | 343      | 823               | 8232                     | Nepal          |               |
| Stock Cube   | 0.006       | 1        | 0.006        | 10       | 0.059   | 234      | 14                | 138                      | UK             |               |
| Blancmange Powder  | 0.042       | 1        | 0.042        | 10       | 0.420   | 12       | 5                 | 50                       | UK             |               |
| Chocolate  | 0.100       | 1        | 0.100        | 10       | 1.000   | 505      | 505               | 5050                     | UK & N         |               |
| Chocolate Bars   | 0.055       | 2        | 0.110        | 10       | 1.100   | 508      | 279               | 5588                     | Nepal          |               |
| Chocolate Wafers   | 0.010       | 2        | 0.020        | 10       | 0.200   | 495      | 50                | 990                      | Nepal          |               |
| Peanuts  | 0.050       | 2        | 0.100        | 10       | 1.000   | 600      | 300               | 6000                     | UK             |               |
| Biscuits   | 0.090       | 1        | 0.090        | 10       | 0.900   | 485      | 437               | 4365                     | Nepal          |               |
| <b>MEAL BAG FOUR (10 bags) - one per pair per day</b>                    |             |          | <b>0.898</b> |          | <b>8.975</b>  |          |                   | <b>39568</b>             |                |               |
| Cereal / Granola Bars  | 0.034       | 4        | 0.134        | 10       | 1.340   | 395      | 132               | 5293                     | UK & N         |               |
| Instant Cup-a-Soup   | 0.021       | 2        | 0.042        | 10       | 0.420   | 333      | 70                | 1399                     | UK             |               |
| Pasta - Shells   | 0.250       | 1        | 0.250        | 10       | 2.500   | 357      | 893               | 8925                     | Nepal          |               |
| Cheese Sauce Mix   | 0.040       | 1        | 0.040        | 10       | 0.400   | 402      | 161               | 1608                     | UK             |               |
| Instant Jelly  | 0.012       | 1        | 0.012        | 10       | 0.115   | 305      | 35                | 351                      | UK             |               |
| Chocolate  | 0.100       | 1        | 0.100        | 10       | 1.000   | 505      | 505               | 5050                     | UK & N         |               |
| Chocolate Bars   | 0.055       | 2        | 0.110        | 10       | 1.100   | 508      | 279               | 5588                     | Nepal          |               |
| Chocolate Wafers   | 0.010       | 2        | 0.020        | 10       | 0.200   | 495      | 50                | 990                      | Nepal          |               |
| Peanuts  | 0.050       | 2        | 0.100        | 10       | 1.000   | 600      | 300               | 6000                     | UK             |               |
| Biscuits   | 0.090       | 1        | 0.090        | 10       | 0.900   | 485      | 437               | 4365                     | Nepal          |               |
| <b>SUPPLEMENTS (4 bags) - one per person</b>                             |             |          | <b>2.201</b> |          | <b>8.804</b>  |          |                   | <b>30012</b>             |                |               |
| Chewing Gum  | 0.016       | 2        | 0.032        | 4        | 0.128   | 155      | 25                | 198                      | UK             |               |
| Condensed Milk Toffee  | 0.250       | 1        | 0.250        | 4        | 1.000   | 280      | 700               | 2800                     | UK             |               |
| Dextrose Tablets   | 0.047       | 2        | 0.094        | 4        | 0.376   | 367      | 172               | 1380                     | UK             |               |
| Kendal Mint Cake   | 0.055       | 4        | 0.220        | 4        | 0.880   | 396      | 218               | 3485                     | UK             |               |
| Mixed / Cashew Nuts  | 0.200       | 1        | 0.200        | 4        | 0.800   | 605      | 1210              | 4840                     | Nepal          |               |
| Mixed Dried Fruit  | 0.500       | 1        | 0.500        | 4        | 2.000   | 284      | 1420              | 5680                     | UK             |               |
| Sweets   | 0.250       | 2        | 0.500        | 4        | 2.000   | 353      | 883               | 7060                     | UK             |               |
| Whole Jelly  | 0.135       | 3        | 0.405        | 4        | 1.620   | 282      | 381               | 4568                     | UK             |               |
| <b>WEEKLY TENT BAG (6 bags) - one per pair every six days</b>            |             |          | <b>0.930</b> |          | <b>5.580</b>  |          |                   | <b>24071</b>             |                |               |
| Flour  | 0.100       | 1        | 0.100        | 6        | 0.600   | 335      | 335               | 2010                     | Nepal          |               |
| Instant Milk Powder  | 0.500       | 1        | 0.500        | 6        | 3.000   | 474      | 2370              | 14220                    | UK             |               |
| Sugar  | 0.330       | 1        | 0.330        | 6        | 1.980   | 396      | 1307              | 7841                     | Nepal          |               |
| <b>TENT BAG (2 bags) - one per tent per expedition</b>                   |             |          | <b>1.623</b> |          | <b>3.247</b>  |          |                   | <b>1476</b>              |                |               |
| Black Pepper   | 0.022       | 1        | 0.022        | 2        | 0.044   | 0        | 0                 | 0                        | UK             |               |
| Hot Chilli Powder  | 0.017       | 1        | 0.017        | 2        | 0.034   | 0        | 0                 | 0                        | UK             |               |
| Lighters   | 0.020       | 2        | 0.040        | 2        | 0.080   | 0        | 0                 | 0                        | UK             |               |
| Matches (boxes)  | 0.010       | 2        | 0.020        | 2        | 0.040   | 0        | 0                 | 0                        | UK             |               |
| Mixed Herbs  | 0.014       | 1        | 0.014        | 2        | 0.028   | 0        | 0                 | 0                        | UK             |               |
| Salt   | 0.075       | 1        | 0.075        | 2        | 0.150   | 0        | 0                 | 0                        | UK             |               |
| Scourers   | 0.025       | 1        | 0.025        | 2        | 0.050   | 0        | 0                 | 0                        | UK             |               |
| Spare food bags  | 0.002       | 5        | 0.010        | 2        | 0.020   | 0        | 0                 | 0                        | UK             |               |
| Tea Bags   | 0.001       | 40       | 0.040        | 2        | 0.080   | 0        | 0                 | 0                        | UK             |               |
| Toilet Paper (88 sheets)   | 0.076       | 4        | 0.304        | 2        | 0.608   | 0        | 0                 | 0                        | Nepal          |               |
| Tomato Puree   | 0.900       | 1        | 0.900        | 2        | 1.800   | 82       | 738               | 1476                     | UK             |               |
| Vitamin Supplements  | 0.150       | 1        | 0.150        | 2        | 0.300   | 0        | 0                 | 0                        | UK             |               |
| <b>TOTAL</b>   |             |          |              |          | <b>55.19</b>  |          |                   | <b>208673</b>            |                |               |
| <b>Total Weight of Food Per Person was 13.80 kg for 20 mountain days</b> |             |          |              |          | <b>Average Daily Calorie Intake was 2608 Calories</b> |          |                   |                          |                |               |





**Below & insert:** Monks debating in the courtyard of the Sera Monastery.

**Bottom Right:** The jeep and truck arrive at Base Camp.

## APPENDIX E – Finances

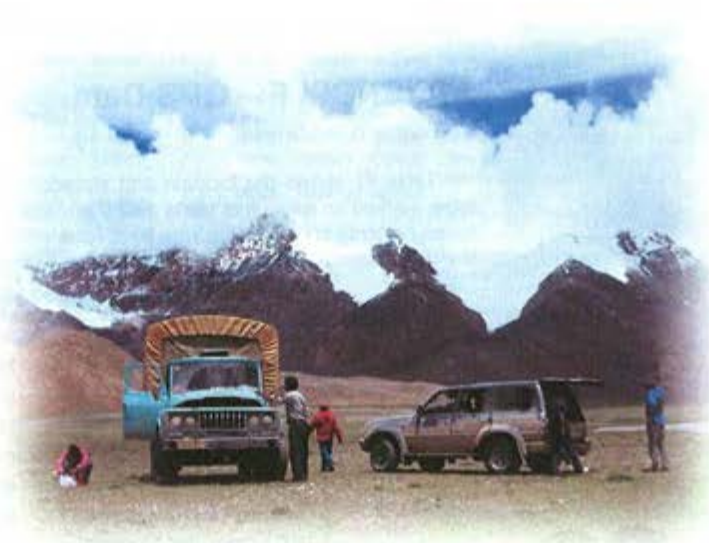
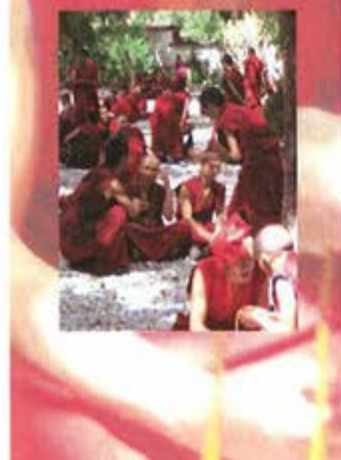
Compiled by Chris Green and Daniel Carrivick

Table E1 shows all the transactions from our expedition accounts up until 1<sup>st</sup> January 2006. The accounts were managed by Imperial College Finance Division and each transaction was overseen by the Imperial College Exploration Board Honorary Treasurer. All figures are in UK pounds.

**Table E1** Income and expenditure from the expedition account. Income is listed under contributions and expenditure under payments. All figures are in UK pounds (£). A top-up grant was received from Imperial College Exploration Board to cover the £462.98 deficit. This deficit was largely due to a sudden drop in exchange rate of the pound against the dollar as a direct result of the London bombings on July 7<sup>th</sup> 2005, which occurred just a few days before the bulk of our agents fees was paid.

| PAYMENTS & RECEIPTS FOR SHARKANGSHAN, TIBET 2005 EXPEDITION (ICIS ACCOUNT HQEX.0.867124) |  |                  |
|--|--|------------------|
| Transaction Date   | Description  | Amount           |
| <b>Personal Contributions</b>  |  |                  |
| 03-May-05  | Personal contribution Mr Dan M Carrivick   | 500.00           |
| 03-May-05  | Personal contribution Ms Naomi Bessey  | 500.00           |
| 03-May-05  | Personal contribution Mr Ben Greedy  | 500.00           |
| 03-May-05  | Personal contribution Mr Joe Johnstone   | 500.00           |
|  |  | 2,000.00         |
| <b>Other Contributions</b>   |  |                  |
| 26-May-05  | Contribution from University of London Convocation   | 2,500.00         |
| 24-Jun-05  | Contribution from the Gordon Foundation  | 2,500.00         |
| 08-Sep-05  | Contribution from the British Mountaineering Council   | 700.00           |
| 07-Oct-05  | Contribution from the Mount Everest Foundation   | 600.00           |
|  |  | 6,300.00         |
|  | Imperial College Exploration Board contribution  | 3,000.00         |
|  | Imperial College insurance contribution  | 2,022.00         |
|  | Imperial College Exploration Board equipment contribution  | 955.00           |
|  | <b>Total Contributions</b>   | <b>14,277.00</b> |
| <b>Payments</b>  |  |                  |
| 17-Apr-05  | Carrivick Mr Daniel Martin - 4 flights London to Kathmandu, Nepal return   | 1,722.80         |
| 22-Apr-05  | Mohan Lamsal - Expedition's agents fees  | 687.11           |
| 05-Jun-05  | Exploration Board Equipment – Tents & Stoves   | 955.00           |
| 18-Jun-05  | BMC Insurance  | 2,022.00         |
| 27-Jul-05  | Carrivick Mr Daniel Martin - ADVANCE   | 2,005.48         |
| 27-Jul-05  | Adventure Nepal Makalu Trekking Pvt Ltd - Agents fees  | 5,882.03         |
| 18-Sep-05  | Carrivick Mr Daniel Martin - Equipment and food  | 1,453.81         |
| 04-Oct-05  | Carrivick Mr Daniel Martin - Food, medicine, camera accessories and travel   | 123.76           |
| 12-Oct-05  | Carrivick Mr Daniel Martin - Balance of agents fee in cash, food and subsistence during expedition, less advance of £2,005.48. | -112.01          |
|  | <b>Total Payments</b>  | <b>14,739.98</b> |
|  | <b>BALANCE AT 1st DEC 2005</b>   | <b>-462.98</b>   |
| <b>Additional Contributions to Balance Accounts</b>                                      |  |                  |
| Jun-06   | Imperial College Exploration Board top-up contribution   | 462.98           |
|  | <b>CURRENT BALANCE</b>   | <b>0.000</b>     |

NOTE: A breakdown of how the advance was spent has been submitted to Imperial College Finance Division, together with receipts.





**Table E2** Grouped expenditure summary detailing exactly what the money was spent on.

| EXPEDITION EXPENDITURE     |           |                          |  |
|----------------------------|-----------|--------------------------|--|
| Description                | Amount    | Total                    | Notes  |
| <b>ACCOMMODATION</b>       |           |                          |  |
| Hostels & Hotels           | £73.78    |                          | Additional accommodation not covered in Agents Fee                   |
| <b>Total Accommodation</b> |           | <b>£73.78</b>            |  |
| <b>EQUIPMENT</b>           |           |                          |  |
| Tents & Stoves             | £955.00   |                          | Two Mt Hardware Annapurna tents and two Primus Omnifuel stoves       |
| Down Products              | £813.28   |                          | Down clothing and sleeping bags                                      |
| General UK equip           | £258.71   |                          | Rucksacks & bivvy bags   |
| Storage & transport        | £108.98   |                          | Purchased in Kathmandu Kit bags, storage barrel drums etc.           |
| General UK clothing        | £105.74   |                          | Underwear, thermal clothes, socks etc.                               |
| Books & Maps               | £73.68    |                          | Maps, travel guides, first aid text book                             |
| Misc. Clothing             | £54.77    |                          | Purchased in Kathmandu Trekking trousers, liner gloves, sandals etc. |
| First Aid Supplies         | £45.70    |                          | Medication and high altitude drugs                                   |
| Mt Equipment               | £25.62    |                          | Purchased in Kathmandu e.g. Snow stakes, spare cord and rope etc     |
| Gas Canisters              | £14.13    |                          | Four large second hand ones  |
| Repairs                    | £3.36     |                          | Repairs to equipment and shoes                                       |
| Liquid Fuel                | £3.32     |                          | Petrol for stoves  |
| Other                      | £14.23    |                          | Misc. equip e.g. Umbrellas, batteries etc                            |
| <b>Total Equipment</b>     |           | <b>£2476.52</b>          |  |
| <b>FOOD</b>                |           |                          |  |
| UK Mountain Food           | £40.83    |                          | Food purchased in the UK and taken out with us.                      |
| Nepalese Mt Food           | £47.39    |                          | Purchased in Kathmandu – mainly chocolate and cereal bars            |
| Other Food                 | £304.53   |                          | Amount spent on meals and supermarket food in Iceland.               |
| Tips                       | £19.75    |                          | Nepalese restaurant tips   |
| <b>Total Food</b>          |           | <b>£412.50</b>           |  |
| <b>INSURANCE</b>           |           |                          |  |
| Insurance                  | £1,960.00 |                          | 31 days plus 2 weeks cover purchased for four people.                |
| BMC Membership             | £62.00    |                          | Compulsory before insurance can be purchased.                        |
| <b>Total Insurance</b>     |           | <b>£2,022.00</b>         |  |
| <b>AGENTS FEE</b>          |           |                          |  |
| Deposit                    | £687.11   |                          | \$12,720 (actual total equals \$12,732 as inc. bank transfer fees)   |
| Cash in hand               | £895.02   |                          | 10% of total fee transferred electronically (\$1272)                 |
| Balance                    | £5882.03  |                          | \$1500 paid on arrival   |
| <b>Total Agents Fee</b>    |           | <b>£7464.16</b>          | \$9960 transferred electronically                                    |
| <b>TRAVEL</b>              |           |                          |  |
| Local travel               | £28.42    |                          | Taxi and bus fares   |
| Airport taxes              | £121.98   |                          | Additional airport taxes and charges                                 |
| Flights (4)                | £1772.80  |                          | London Heathrow to Kathmandu return                                  |
| UK travel                  | £57.50    |                          | To and from the airport, shopping etc.                               |
| <b>Total Travel</b>        |           | <b>£1980.70</b>          |  |
| <b>OTHER</b>               |           |                          |  |
| Tips                       | £97.28    |                          | Tips for our drivers and base camp staff                             |
| Nepalese Visas             | £80.00    |                          | Purchased in the UK  |
| Entrance Fees              | £31.82    |                          | To tourist sites not covered in our Agents Fee                       |
| Miscellaneous              | £36.84    |                          | Photo fees, music for jeep, stationary, postage & packaging etc      |
| Communications             | £13.87    |                          | Phone calls & internet   |
| Photography                | £46.98    |                          | Card reader, memory card & batteries                                 |
| Foreign Currency           | £3.53     |                          | Exchange rate fees and charges                                       |
| <b>Total Other</b>         |           | <b>£310.32</b>           |  |
|                            |           | <b>TOTAL EXPENDITURE</b> | <b>£14,739.98</b>  |

## APPENDIX F – GPS Data

Compiled by Daniel Carrivick

Table F1 shows the location and elevation of specific places visited by this expedition. These points were marked as waypoints using a GPS and the measurements are presented here. Longitude and latitude measurements are fairly accurate to at least within plus or minus one second. The accuracy of elevation on the other hand is a lot less well known. Some points may be overestimated by as much as 100m.

| Waypoint Name            | Elevation (m) | Latitude      | Longitude      |
|--------------------------|---------------|---------------|----------------|
| Base Camp                | 5051m         | 31° 36' 45.4" | 085° 03' 26.0" |
| Intermediate ABC         | 5692m         | 31° 39' 01.7" | 085° 04' 11.4" |
| Advance Base Camp        | 5646m         | 31° 39' 45.5" | 085° 04' 06.8" |
| Camp One                 | 5802m         | 31° 40' 01.1" | 085° 04' 26.1" |
| Load Dump                | 5470m         | 31° 38' 40.2" | 085° 04' 05.9" |
| Alpha Bivi Site          | 6078m         | 31° 40' 20.2" | 085° 04' 25.5" |
| Jemakari Thobo SW Summit | 6603m         | 31° 40' 58.6" | 085° 03' 56.8" |
| High Camp (Shar Kangsum) | 5851m         | 31° 41' 00.7" | 085° 03' 12.7" |

**Table F1** Data from waypoints marked by GPS.



Above & insert: Pilgrims praying outside the entrance to the Jokhang Temple in Lhasa.



Below & insert: The beginnings of the storm at Camp One.



## APPENDIX G – Meteorological Data

Compiled by Daniel Carrivick

Table G1 contains the amateur meteorological data collected during the expedition. This is not intended for scientific use it is merely presented to show what the weather was like during the expedition. The elevation shown is that measured using an altimeter watch calibrated at a high pass before any measurements were recorded. The watch was not subsequently recalibrated so all readings are relative to the initial recording and barometric pressure changes associated with high and low pressure weather systems. The column labelled elevation (am) shows the altitude where that night was spent measured the following morning. Meanwhile the altitude measured in the evening of where the night was going to be spent is shown in the elevation (pm) column. Hence differences between the evening recording of one day and the morning recording of the subsequent day are due to changes in the pressure at sea level. The high point reached has been included where known to give an idea of our acclimatisation profile. The air temp column lists the temperature in °C and the adjacent columns show the time this was recorded, whether it was recorded using a watch or a thermometer and whether this was recorded inside or outside.

The thermometer used was a small key ring mercury thermometer which had markings every 5°C, while the altimeter watch provided a digital display to the nearest 1°C. Readings were never taken on the altimeter watch while it was being worn, and plenty of time was allowed for both the watch and the thermometer to reach the ambient temperature. Readings taken outside were in the shade, while those taken in the tent were inside the inner of the tent – these have been included to give you an idea of what living conditions were like inside the tent.

**Table G1** Meteorological measurements made during the expedition.

| Date       | Elevation (am) | Elevation (pm) | High Point Reached | Air Temp. (°C) | Time  | Watch or Thermometer | Inside or Outside | Other Observations  |
|------------|----------------|----------------|--------------------|----------------|-------|----------------------|-------------------|---|
| 21/07/2005 | 4370m          |                |                    |                |       |                      |                   |   |
| 22/07/2005 | 4700m          |                | 5350m              |                |       |                      |                   |   |
| 23/07/2005 | 4530m          |                |                    | 8              | 08:00 | Watch                | Outside           |   |
| 24/07/2005 | 5050m          |                |                    | 9              | 08:00 | Watch                | Outside           |   |
| 25/07/2005 | 5050m          |                |                    | 7              | 09:00 | Watch                | Outside           |   |
| 26/07/2005 | 5025m          |                |                    | 3              | 09:00 | Watch                | Outside           |   |
| 27/07/2005 | 5030m          |                |                    | 6              | 08:00 | Watch                | Outside           |   |
| 28/07/2005 | 5450m          |                |                    | 6              | 08:00 | Watch                | Outside           |   |
| 29/07/2005 | 5455m          |                |                    | 6              | 08:00 | Watch                | Outside           | Snow turned to rain later. Cleared up Midday. Thunderstorms later.  |
| 30/07/2005 | 5425m          |                |                    | 5              | 09:00 | Thermo               | Outside           | Light Snow, Zero viz. Rain if afternoon.  |
|            |                |                |                    | 6              | 08:00 | Watch                | Outside           |   |
| 31/07/2005 | 5435m          |                |                    | 8              | 08:00 | Watch                | Outside           | Thunder & Lightening around midday. Intense hail storm passed over to give warm and sunny afternoon.  |
|            |                |                |                    | 5              | 08:00 | Thermo               | In Tent           |   |
|            |                |                | 5650m              | 3              | 11:00 | Thermo               | Outside           |   |
| 01/08/2005 | 5395m          | 5625m          |                    | 18             | 10:30 | Watch                | In Tent           | Intermittent light showers with isolated sunny spells. Heavy thundry showers in the evening with sleet and hail mixed in.                               |
|            |                |                |                    | 8              | 11:00 | Thermo               | Outside           |   |
| 02/08/2005 | 5655m          | 5635m          |                    | 7              | 09:00 | Watch                | In Tent           | Thick cloud and rain – heavy at times. Turned to light snow by mid-morning. Brief appearance by sun in afternoon before more rain and sleet in evening. |
| 03/08/2005 | 5660m          | 5410m          |                    | 18             | 12:00 | Watch                | In Tent           | Light snow becomes heavier mid morning before easing off soon after midday. Cloud lifts and breaks. Heavy short sharp showers throughout the afternoon. |
| 04/08/2005 | 5425m          | 5045m          |                    | 7              | 09:00 | Watch                | In Tent           | Light snow and windy. Few brief sunny spells. Thunder and heavy showers in the evening.   |
|            |                |                |                    | 13             | 13:30 | Thermo               | Outside           |   |
| 05/08/2005 | 5065m          | 5050m          |                    | 6              | 08:00 | Watch                | In Tent           |   |
| 06/08/2005 | 5050m          | 5475m          |                    | 6              | 08:00 | Watch                | In Tent           | Light snow showers give way to sun and scattered cloud. Late afternoon short sharp showers return.  |
| 07/08/2005 | 5495m          | 5685m          |                    |                |       |                      |                   | Light hail soon passed and brightened up. Isolated rumble of thunder threaten in afternoon  |
| 08/08/2005 | 5690m          | 5070m          | 6010m              | 6              | 05:30 | Watch                | In Tent           | Below zero overnight – frozen water on tent. Sunshine and cloud – lifts throughout the morning.   |
|            |                |                |                    | 4              | 11:00 | Thermo               | Outside           |   |
| 09/08/2005 | 5050m          | 5835m          |                    |                |       |                      |                   | Clear sky – clouds build throughout the day   |
| 10/08/2005 | 5840m          | 4610m          | 6190m              | -9             | 07:00 | Thermo               | Outside           | Clear sky – cloud builds over peaks throughout the day  |
| 11/08/2005 | 4595m          | 4945m          | 5350m              | 7              | 08:00 | Watch                | Outside           | Clear sky – cloud build throughout the day. Warm in sun, chilly in shade. Light short showers by evening.   |
|            |                |                |                    | 7              | 08:00 | Thermo               | Outside           |   |
| 12/08/2005 | 4940m          | 3925m          |                    |                |       |                      |                   | Cloudy and overcast. Showers in afternoon.  |
| 13/08/2005 | 3915m          | 3785m          |                    |                |       |                      |                   | Sunshine and cloud. Thunder in late evening.  |
| 14/08/2005 | 3765m          | 3930m          | 3965m              |                |       |                      |                   | Sunshine and cloud gives way to overcast skies and a few spots of rain accompanied by rumbles of thunder.   |
| 15/08/2005 | 3925m          | 3610m          | 5045m              |                |       |                      |                   | Cloudy with rain around midday.   |
| 16/08/2005 | 3560m          | 3585m          | 3590m              |                |       |                      |                   | Early rain gave way to brighter skies later. Heavy rain at times in late afternoon.   |
| 17/08/2005 | 3580m          | 3605m          |                    |                |       |                      |                   | Early cloud cleared to give way to sunshine.  |
| 18/08/2005 | 3585m          | 3575m          | 3660m              |                |       |                      |                   | Overcast. Showers early on. In evening showers turn to more persistent rain.  |
| 19/08/2005 |                | 3780m          |                    |                |       |                      |                   | Clouds clear a bit towards mid afternoon.   |
| 20/08/2005 | 3770m          | 4215m          | 5200m              |                |       |                      |                   | Sunshine and showers, heavy in the afternoon.   |
| 21/08/2005 | 4210m          |                | 5124m              |                |       |                      |                   | Clear and sunny start. Rain by lunch and showers throughout the afternoon.  |
| 22/08/2005 |                | 1365m          |                    |                |       |                      |                   | Overcast, hot and humid. Spits and spots of rain, nothing more.   |
| 23/08/2005 | 1350m          |                |                    | 26             | 12:00 | Watch                | In Hotel Rm       | Overcast, showers from midday onwards.  |





## APPENDIX H – Risk Assessment

Compiled by Daniel Carrivick

Table H1 shows the full evaluation of risks associated with an expedition such as this one. Compiling this risk assessment helped us to prepare fully for the expedition not only by minimising the risks but also by making sure we could cope as and when certain hazards arose.

**Table K1** Risk assessment detailing risks, their consequences and how they are controlled

| Hazard and Risk  | What are the consequences of the hazard occurring?   | How is the risk controlled?   | Further action required to control the risk  |
|--|--|---|--|
| <b>GENERAL</b>   |  |   |  |
| Disorientation and loss of direction                                   | <ul style="list-style-type: none"> <li>• Longer exposure to the elements</li> <li>• Pressure on food and fuel supplies</li> </ul>  | <ul style="list-style-type: none"> <li>• Frequent reference to compass and GPS units</li> </ul>   | <ul style="list-style-type: none"> <li>• Ensure navigation is shared amongst group and plans are known by people at base camp.</li> <li>• Ensure that group stays together</li> </ul>  |
| Exhaustion, fatigue, dizziness   | <ul style="list-style-type: none"> <li>• Lowered core body temperature</li> <li>• Irritable and irrational behaviour</li> <li>• Possible stumbling or falling</li> </ul>                     | <ul style="list-style-type: none"> <li>• Frequent and adequate rests</li> <li>• Party moves at the slowest persons pace</li> </ul>  | <ul style="list-style-type: none"> <li>• Agree flexible schedule</li> <li>• Over-compensate on food and fuel supplies</li> <li>• Plan diet to minimise weight and maximise calorific value</li> </ul>  |
| Dehydration  | <ul style="list-style-type: none"> <li>• Headaches, dizziness and stumbling</li> </ul>   | <ul style="list-style-type: none"> <li>• Regularly and frequently take in liquid</li> <li>• Replace lost supplies each evening</li> </ul>   | <ul style="list-style-type: none"> <li>• Fill thermos every morning</li> <li>• Ensure team members regularly drink.</li> <li>• Plan diet to include lots of watery foods e.g. at least one mug of soup a day.</li> </ul>   |
| Sun/snow/wind burn and blindness                                       | <ul style="list-style-type: none"> <li>• Sores, scars, blisters, open wounds and blindness</li> </ul>  | <ul style="list-style-type: none"> <li>• Always wear sun cream, sun bloc, lip salve, sunglasses, sunhat and keep limbs covered</li> </ul>   | <ul style="list-style-type: none"> <li>• Even in cloudy conditions, precautions must be taken</li> <li>• Team members to check each other</li> </ul>   |
| Tent loss / breakage   | <ul style="list-style-type: none"> <li>• Repair</li> <li>• Loss of tent (all persons in one shelter)</li> </ul>  | <ul style="list-style-type: none"> <li>• All persons to assist with erecting tents in bad weather</li> <li>• Appropriate spare and repair kits to be carried</li> </ul>                             | <ul style="list-style-type: none"> <li>• Consider use of bivi bag / snow hole to prevent tent being permanently damaged</li> <li>• Check in good order before departure</li> </ul>   |
| Tent fire  | <ul style="list-style-type: none"> <li>• Loss of tent (all persons in one shelter)</li> <li>• Potential burns to persons</li> </ul>  | <ul style="list-style-type: none"> <li>• Never cook inside tent</li> <li>• Refill fuel bottles well away from the tents and other equipment</li> </ul>  | <ul style="list-style-type: none"> <li>• Make sure the tents are sufficiently separated</li> <li>• Never leave stove unattended</li> <li>• Know correct method of lighting stove</li> </ul>  |
| Asphyxiation / suffocation   | <ul style="list-style-type: none"> <li>• Feeling ill, possible death</li> <li>• Carbon monoxide poisoning</li> </ul>   | <ul style="list-style-type: none"> <li>• Ensure tent is well ventilated.</li> <li>• No cooking in closed snow holes</li> </ul>  | <ul style="list-style-type: none"> <li>• Never do zips up fully – leave a small gap to allow air to circulate</li> <li>• Open zips on fly when cooking in porch to allow fumes out the tent</li> <li>• Clear snow from tent regularly – do not allow it to build up and block air gaps.</li> </ul> |
| Hypothermia and exposure   | <ul style="list-style-type: none"> <li>• Erratic and irrational behaviour, uncontrollable shivering, pale and blue extremities, lowered core body temperature, possible death</li> </ul>     | <ul style="list-style-type: none"> <li>• Wear sufficient warm and waterproof clothing. Always carry spare clothing. Change out of wet clothes. Get out of wind. Insulate affected person</li> </ul> | <ul style="list-style-type: none"> <li>• Carry plenty of spare clothes amongst the group</li> <li>• Always be prepared for the weather to deteriorate rapidly into the harshest imaginable conditions</li> </ul>   |
| Fuel loss / leakage  | <ul style="list-style-type: none"> <li>• Inadequate fuel supply</li> <li>• Potential fire / explosion (serious injury to persons)</li> </ul>   | <ul style="list-style-type: none"> <li>• Visual and frequent checks,</li> <li>• Use multiple fuel containers, not just one</li> </ul>   | <ul style="list-style-type: none"> <li>• Use a funnel to fill stove fuel bottles</li> <li>• Use fuel from fuel bottles equally, don't empty one and then use the next</li> </ul>   |
| Bad Weather  | <ul style="list-style-type: none"> <li>• Difficult navigation</li> <li>• Become tent-bound</li> </ul>  | <ul style="list-style-type: none"> <li>• Frequent reference to compass and GPS units</li> <li>• Plan for contingency days and take food and fuel for these</li> </ul>                               | <ul style="list-style-type: none"> <li>• Share navigation between group</li> <li>• Take plenty of GPS batteries</li> <li>• Carry emergency communication equipment</li> </ul>  |
| Avalanche / Serac fall   | <ul style="list-style-type: none"> <li>• Destruction of camps</li> <li>• Burial and possible death</li> </ul>  | <ul style="list-style-type: none"> <li>• Constant awareness of weather conditions and snow stability, avoid stopping / crossing under seracs</li> <li>• Choose site for camp carefully</li> </ul>   | <ul style="list-style-type: none"> <li>• Be prepared to abort an ascent if hazardous snow conditions are experienced or route too dangerous.</li> </ul>  |
| Unable to adapt to high altitude physical demands                      | <ul style="list-style-type: none"> <li>• Impact on climbing schedule</li> </ul>  | <ul style="list-style-type: none"> <li>• Train fully prior to expedition</li> <li>• Allow plenty of time for acclimatisation and be aware other people may take longer to acclimatise</li> </ul>    | <ul style="list-style-type: none"> <li>• Preparedness to adjust altitude gain and if necessary descend before going higher</li> </ul>  |
| Slipping / falling on ice<br>Tripping over guy lines and/or equipment  | <ul style="list-style-type: none"> <li>• Small graze or ice cut</li> <li>• Sprained, twisted, fractured or broken ankle or knee</li> <li>• Inability to walk or climb effectively</li> </ul> | <ul style="list-style-type: none"> <li>• Always wear gloves on snow / ice</li> <li>• Wear stout waterproof boots. Use crampons and axes.</li> <li>• Be observant!</li> </ul>                        | <ul style="list-style-type: none"> <li>• Wear long sleeved tops</li> <li>• Never venture out alone</li> <li>• Use protection where ever there is a risk from climbing</li> </ul>   |
| Frost bite   | <ul style="list-style-type: none"> <li>• Pale, blue, purple or black and swollen extremities.</li> <li>• Potential loss of affected extremity</li> </ul>                                     | <ul style="list-style-type: none"> <li>• Wear sufficient warm and waterproof clothing on extremities.</li> </ul>  | <ul style="list-style-type: none"> <li>• Change out of wet clothes. Get out of wind.</li> <li>• Maintain blood supply to extremities.</li> </ul>   |
| Falling in a crevasse  | <ul style="list-style-type: none"> <li>• Becoming cold, hyperthermia, shock, cuts &amp; grazes, fractures, unconsciousness, death</li> <li>• Inability to rescue ones self</li> </ul>        | <ul style="list-style-type: none"> <li>• Rope up on snow and ice</li> <li>• Always keep the rope taught</li> <li>• Careful route choice across and around crevasse fields and ice falls</li> </ul>  | <ul style="list-style-type: none"> <li>• Everyone to be competent in crevasse rescue techniques</li> </ul>   |
| Stove breakage   | <ul style="list-style-type: none"> <li>• Inability to cook / melt water</li> </ul>   | <ul style="list-style-type: none"> <li>• Take maintenance and repair kit for stove, including spare parts</li> </ul>  | <ul style="list-style-type: none"> <li>• Take two identical stoves, so parts can be exchanged between them if necessary</li> <li>• Check in good working order before departure</li> </ul>   |
| Injury sustained by lifting heavy packs                                | <ul style="list-style-type: none"> <li>• Strain and or muscular damage</li> <li>• Inability to complete daily tasks</li> </ul>   | <ul style="list-style-type: none"> <li>• Distribute load between group based on personal abilities</li> </ul>   | <ul style="list-style-type: none"> <li>• Be prepared to ferry or shuttle loads rather than carry in one go</li> <li>• Use porters / yaks to get things to base camp</li> </ul>   |
| <b>FIRST AID CONSIDERATIONS</b>  |  |   |  |
| Small accidents or incidents involving cuts, sprains, etc.             | <ul style="list-style-type: none"> <li>• Inability to use affected part of body</li> </ul>   | <ul style="list-style-type: none"> <li>• Caution drawn to every operation</li> <li>• Familiarity with equipment</li> <li>• First aid techniques</li> </ul>  | <ul style="list-style-type: none"> <li>• Person restricted to nearest camp or descends until better</li> </ul>   |
| Large injuries or incidents, including severe bleeding, fractures etc. | <ul style="list-style-type: none"> <li>• Inability to complete expedition</li> <li>• Possible serious and permanent injury if not attended</li> </ul>  | <ul style="list-style-type: none"> <li>• Caution drawn to every operation</li> <li>• Never working alone</li> <li>• Familiarity with equipment</li> <li>• First aid techniques</li> </ul>           | <ul style="list-style-type: none"> <li>• Emergency assistance available via contact with liaison officer at base camp</li> <li>• Insurance taken out will cover rescue and repatriation</li> </ul>   |



Above & insert: Naomi eating hot soup having cooked in the porch of the tent as the storm rages outside at Camp One.





Above & insert: Pilgrims on the Barkhor Kora circuit around the Jokhang Temple in Lhasa with Joe in the background.

| Hazard and Risk                        | What are the consequences of the hazard occurring?  | How is the risk controlled?  | Further action required to control the risk   |
|--|---|--|---|
| <b>ALTITUDE SICKNESS</b>               |   |  |   |
| Altitude Sickness                      | <ul style="list-style-type: none"> <li>• Headache, nauseous &amp; weak</li> <li>• Difficulty walking</li> <li>• Fluid in lungs / on brain</li> <li>• Possible coma and death</li> </ul>   | <ul style="list-style-type: none"> <li>• Proper acclimatisation and use of preventative medicine</li> <li>• Start low and walk up increasing net height gain by 1000ft (305m) a day and for every 3000ft (915m) gained a rest day should be taken</li> </ul>   | <ul style="list-style-type: none"> <li>• Descend to lower altitude</li> <li>• Ibuprofen effective for headache induced by altitude</li> <li>• Give Diamox (Acetazolamide) 125mg twice a day</li> <li>• Give Dexamethasone to decrease brain swelling and reverse effects of AMS. Dosage is typically 4mg twice a day. Can be taken with Diamox.</li> </ul>  |
| Mild AMS (Acute Mountain Sickness)     | <ul style="list-style-type: none"> <li>• Headache, dizziness, fatigue, shortness of breath</li> <li>• Loss of appetite, nausea, disturbed sleep</li> <li>• A general feeling of malaise</li> </ul>  | <ul style="list-style-type: none"> <li>• Let others know your symptoms immediately</li> <li>• Consider descent to lower altitude even if only temporarily</li> <li>• Medication if appropriate</li> </ul>  | <ul style="list-style-type: none"> <li>• Descend to lower altitude</li> </ul>   |
| Moderate AMS (Acute Mountain Sickness) | <ul style="list-style-type: none"> <li>• Severe headache which is not relieved by medication</li> <li>• Nausea and vomiting, increasing weakness and fatigue, shortness of breath, and decreased coordination (ataxia).</li> <li>• Normal activity is difficult.</li> </ul>   | <ul style="list-style-type: none"> <li>• Descend immediately. A few hundred feet (70-100m) may help - definite improvements seen in descents of 1000-2000ft (305-610m)</li> <li>• Improvements should be seen after 24hrs at lower altitude</li> <li>• Remain there until symptoms have subsided (up to 3 days)</li> </ul>                                 | <ul style="list-style-type: none"> <li>• Descend immediately before ataxia reaches the point where the person cannot walk on their own</li> </ul>   |
| Severe AMS (Acute Mountain Sickness)   | <ul style="list-style-type: none"> <li>• Increase in the severity of the aforementioned symptoms</li> <li>• This includes shortness of breath at rest, inability to walk, decreasing mental status, and fluid build-up in the lungs.</li> </ul>   | <ul style="list-style-type: none"> <li>• Immediate descent necessary</li> <li>• Descend some 2000-4000ft (610-1220m) to lower altitude</li> </ul>  | <ul style="list-style-type: none"> <li>• Consider taking a hyperbaric chamber to put casualty in, in such circumstances</li> <li>• In ten minutes the chamber can create an atmosphere which corresponds to that 3000-5000ft (915-1525m) lower</li> <li>• After 1-2hrs in the bag the persons body chemistry will have reset to the lower altitude</li> <li>• Evacuate by helicopter if possible</li> </ul> |
| High Altitude Pulmonary Oedema (HAPE)  | <ul style="list-style-type: none"> <li>• Fluid build up in the lungs</li> <li>• Worsening shortness of breath proceeding to shortness of breath at rest</li> <li>• Tightening of the chest</li> <li>• Dry cough which may become frothy, pink phlegm</li> <li>• Weakness, confusion and irrational behaviour</li> </ul> | <ul style="list-style-type: none"> <li>• Immediate descent without delay of 2000-4000ft (610-1220m) is essential</li> <li>• Give Nifedipine (Coracten) orally 10mg, then 20mg four times daily. Nifedipine works by lowering the pressure on the arteries to the lungs. It is no substitute for descent. Only to be used as a temporary measure</li> </ul> | <ul style="list-style-type: none"> <li>• Administer oxygen and use a hyperbaric chamber if available</li> <li>• Evacuate by helicopter if possible</li> <li>• Casualty must visit medical facility for proper follow-up treatment</li> </ul>  |
| High Altitude Cerebral Oedema (HACE)   | <ul style="list-style-type: none"> <li>• Caused by fluid accumulating on brain tissue</li> <li>• Severe headache, vomiting, poor co-ordination (ataxia), weakness and dizziness</li> <li>• Loss of memory, psychotic behaviour and hallucinations</li> <li>• Coma if left untreated</li> </ul>                          | <ul style="list-style-type: none"> <li>• Descend without delay. Descent of 2000-4000ft (610-1220m) is an essential lifesaving measure</li> <li>• Give Dexamethasone by mouth 8mg, then 4mg every 6 hours.</li> </ul>   | <ul style="list-style-type: none"> <li>• Administer oxygen and use a hyperbaric chamber if available</li> <li>• Evacuate by helicopter if possible</li> <li>• Casualty must visit medical facility for proper follow-up treatment</li> </ul>  |
| Cheyne-Stokes Respirations             | <ul style="list-style-type: none"> <li>• Periodic breathing during sleep. The pattern begins with a few shallow breaths and increases to deep sighing respirations then falls off rapidly.</li> </ul>   | <ul style="list-style-type: none"> <li>• This type of breathing is not considered abnormal at high altitudes.</li> </ul>   | <ul style="list-style-type: none"> <li>• If it occurs first during an illness (other than altitude illnesses) or after an injury (particularly a head injury) it may be a sign of a serious disorder.</li> </ul>  |

## ADDRESS LIST

Compiled by Daniel Carrivick

Below is a list of names and addresses we found useful when organising our expedition.

**ACCOMMODATION** – Kathmandu Prince Hotel; Budget hotel that we stayed in. Conveniently located in the heart of Kathmandu – everything we wanted was within walking distance.

### Kathmandu Prince Hotel

G.P.O. Box: 8974 CPC 005, Dhobichour, Chhetrapati, Thamel, Kathmandu, Nepal.  
Tel: +977-1-4255961 / 4255282 Fax: +977-1-4255282 E-mail: ktphotel@wlink.com.np  
www.kathmanduprincehotel.com

**ACCOMMODATION & LOGISTICS** – Oh Dan Guest House; home to expedition / tour operator in Lhasa contracted by our agents, Makalu Adventure, to help organise this expedition. Also run a nice, conveniently located guest house in Lhasa.

### Oh Dan Guest House

No 15 Ramoche Road, Lhasa, Tibet, China 850000  
Tel: (0086-891) 6344999 / 63444888 Fax: (0086-891) 6363992 E-mail: ohdan\_guesthouse@yahoo.com

**CLOTHING & EQUIPMENT** – Peter Hutchinson Designs is one of the world's premier designers and manufacturers of mountain software.

### Peter Hutchinson Designs (PHD mountain software).

Cheethams Mill, Park Street, Stalybridge, SK15 2BT  
Tel: 01613 030895 Fax: 01613 032224 E-mail: contact@phdesigns.co.uk  
www.phdesigns.co.uk







**FLIGHTS** – The cheapest flights to Kathmandu were found online at this site. No name changes were subsequently allowed. Thus when one of our original team members was forced to drop out we had to cancel his ticket (cancellation fee cost £130) and book another one which cost £120 more than the original flight.

**Airline Network**

The Trident Centre, Port Way, Ribble Docklands, Preston PR2 2QA  
 Bookings: 08717 001777 Tel: 01772 251133 Fax: 01772 835264  
 www.airline-network.co.uk

**LOGISTICS (TOURING/EXPEDITION)** – Makalu Adventure; our agents who organised our expedition and tailor-made it to suit our needs.

**Makalu Adventure**

Post Box 20144, Thamel, Kathmandu, Nepal  
 Tel: +977-1-4417522 Fax: +977-1-4417524 E-mail: advmakalu@wlink.com.np  
 www.nepalmakalu.com

**MAPS & GUIDES** – If Stanford's aren't able to get it then neither will you! They stock the largest range of maps and guides we know of. Maps can be purchased in store or online.

**Stanfords**

12-14 Long Acre, London, WC2E 9LP  
 Tel: +44 (0)20 7836 1321 Fax: +44 (0)20 7836 0189 E-mail: sales@stanfords.co.uk  
 www.stanfords.co.uk

## BIBLIOGRAPHY

### BOOKS

Mayhew, B., Brown, L., Vivequin, W. & Finlay, H., 2003. *Lonely Planet - Nepal*. Lonely Planet Publications Ltd., Australia. (6<sup>th</sup> edition).

Mayhew, B., Choy, M., Vincent Bellezza, J. & Wheeler, T., 2002. *Lonely Planet - Tibet*. Lonely Planet Publications Ltd., Australia. (5<sup>th</sup> edition).

### MAPS

**Nepal** - Scale: 1:750,000, Series: World Map, Format: Folded Map, Size: 138x72cm. Published by GeoCenter, Germany. Stanfords Catalogue No. 115214. – Road map which names the main massifs and clearly shows relief by shading. The area covered includes southern Tibet as far east as Shigatse but it does not quite extend far north enough to cover the Shar Kangsum mountain range.

**Russian Topographic Map** - Scale: 1:1,000,000, Format: Sheet Map, Size: Not Known. Held at the Royal Geographical Society in London, RGS Catalogue No. World Series 766, 145. – Contoured map includes the Shar Kangsum mountain range.

**Tibet Autonomous Region** - Scale: 1:2,000,000, Series: GiziMap, Format: Folded Map, Size: 123x85cm. Published by GiziMap, H-1279 Budapest 25 P.O. Box 29, Hungary. Stanfords Catalogue No. 103365. – Road map providing excellent physical detail with colour shading and the highest peaks marked. Covers all of Nepal and northern India as well.



## DISTRIBUTION LIST

As well as being sent to our supporters, copies of this report will be lodged with the following:

Alpine Club Library, London  
 Alan Rouse Memorial Collection  
 British Mountaineering Council  
 Imperial College, London  
 Royal Geographical Society, London

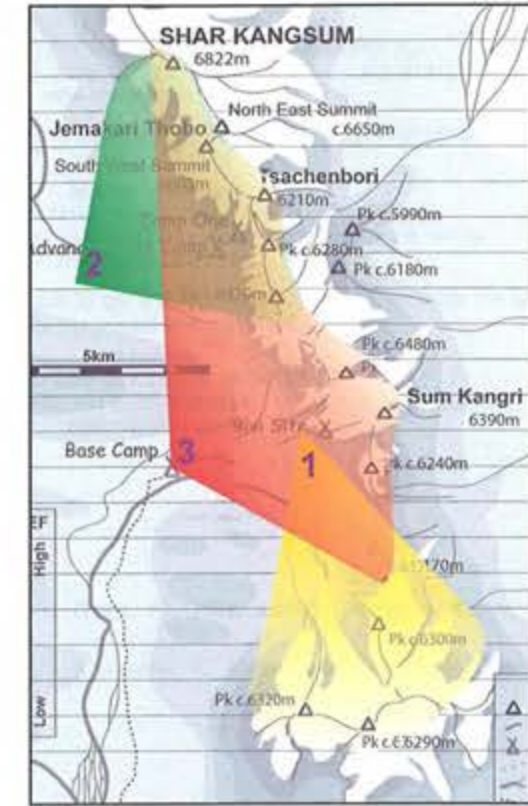
Please contact the editor to purchase a paper and/or electronic copy of this report.



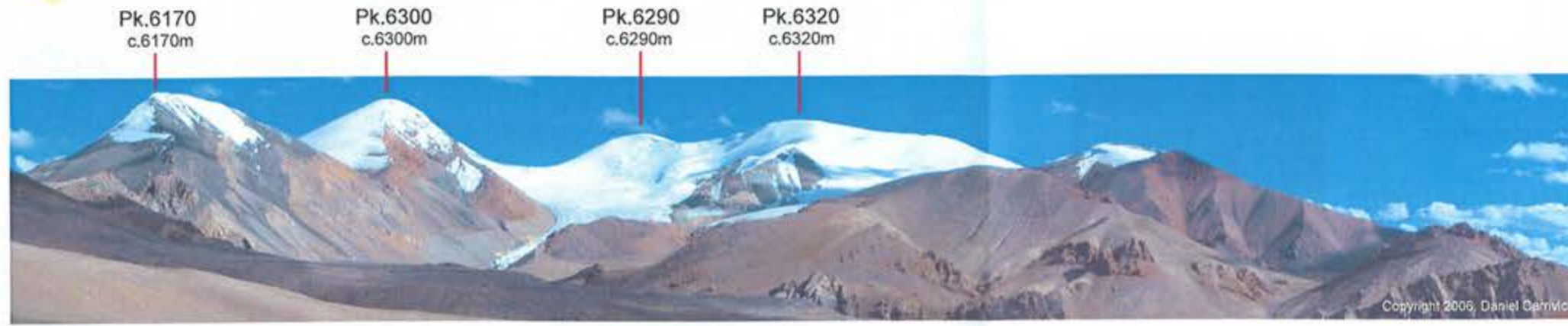
**Above & insert:** The Potala Palace, Lhasa.  
**Middle right:** Playing cards on our travels to Base Camp

PANORAMA PHOTOS SHOWING THE RELATIVE POSITION OF PEAKS IN THE SHAR KANGSUM RANGE

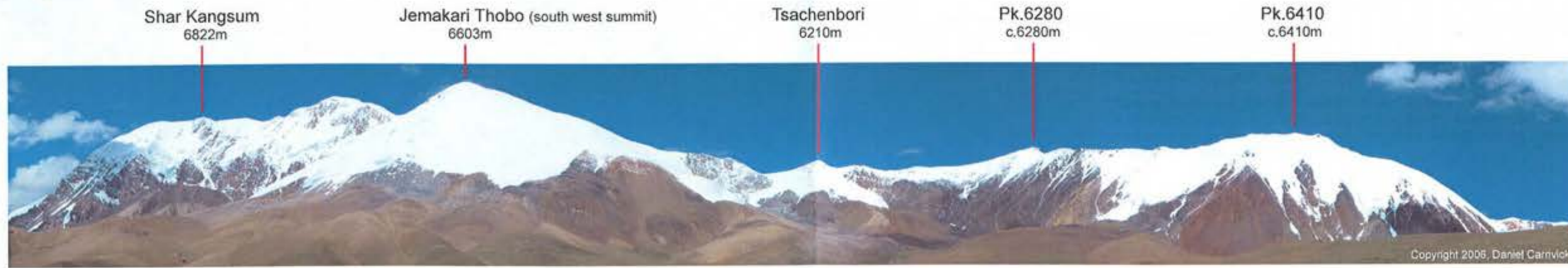
Sketch map showing where and which direction panoramas were taken, along with the area encompassed by each.



Panorama 1. View to the south of Sum Kangri. Taken from the screens on the lower part of the mountain.



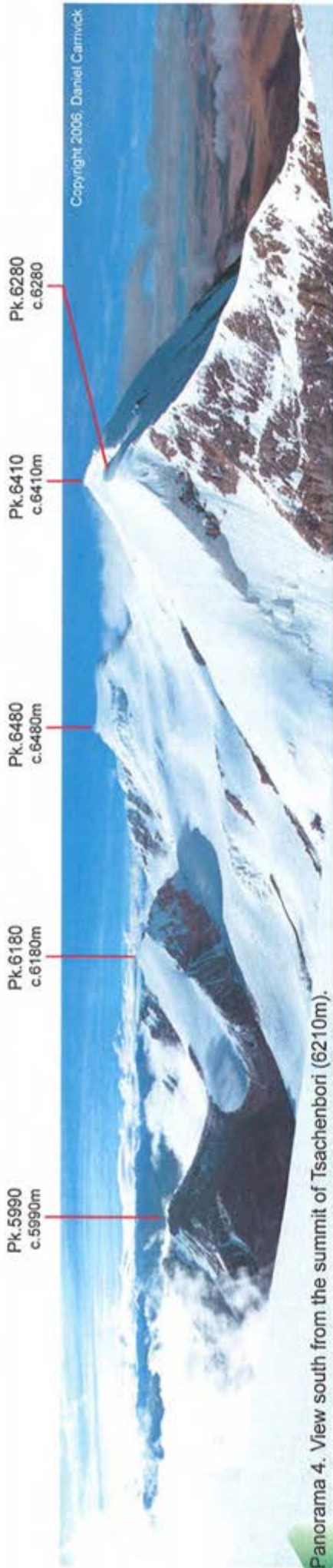
Panorama 2. Looking east from the approach to Advanced Base Camp.



Panorama 3. View east from base camp. The top of Shar Kangsum can be seen on the far left of the panorama, just above a hill in the foreground, through the clouds.



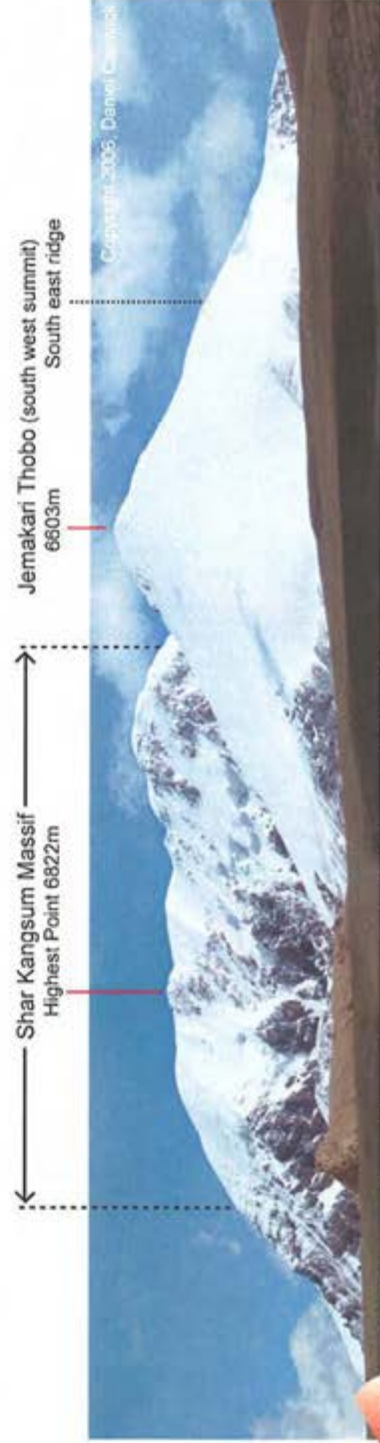
PANORAMA PHOTOS SHOWING THE VIEWS FROM MOUNTAINS CLIMBED AND THE SHAR KANGSUM MASSIF IN DETAIL



Panorama 4. View south from the summit of Tsachenbori (6210m).

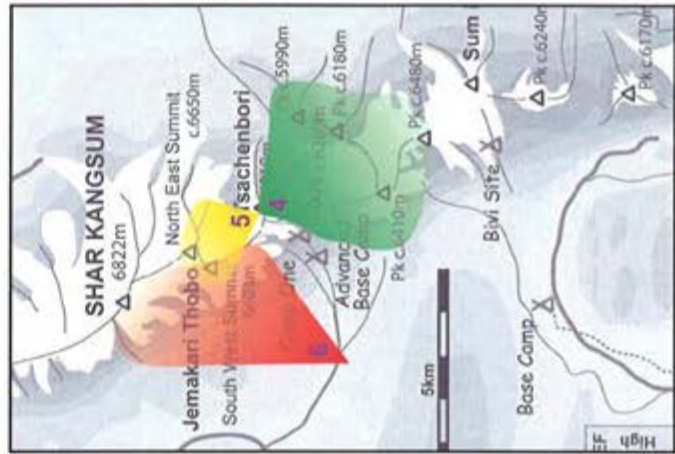


Panorama 5. View north from the top of Tsachenbori (6210m).



Panorama 6. View north east from the approach to Advanced Base Camp.

Sketch map showing where and which direction panoramas were taken, along with the area encompassed by each.



# MAP OF THE SHAR KANGSUM RANGE

Showing the part of the range visited by the Imperial College 2005 expedition

This map has been drawn from satellite data. All information has been drawn as accurately as was possible. Topographic shading is not related to elevation or height above sea level - it has been included to differentiate between relative high and low ground. Grid lines showing longitude and latitude are shown as a guide only. The scale bar is an estimate only and is therefore less accurate.

## KEY

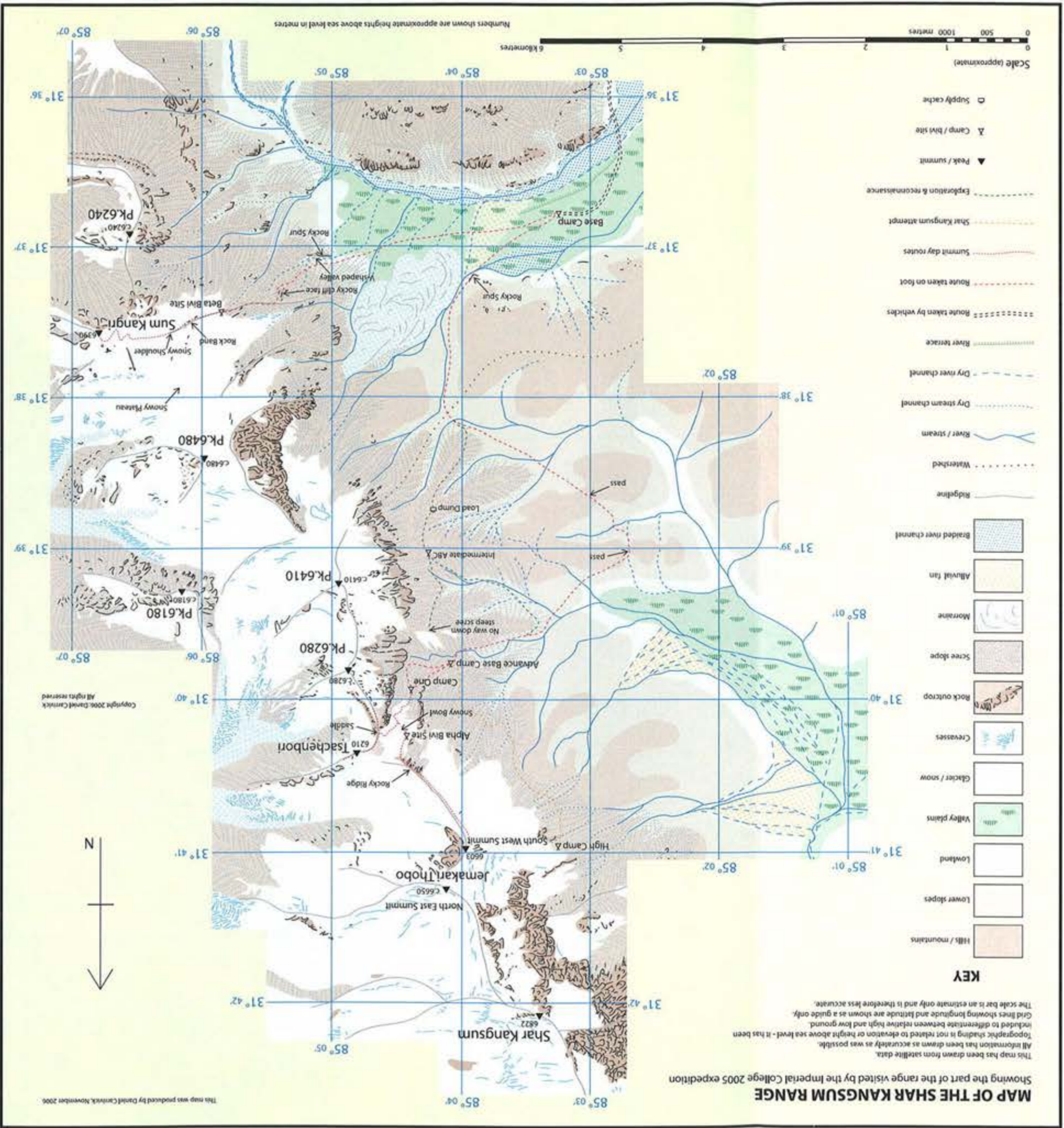
- Hills / mountains
- Lower slopes
- Lowland
- Valley plains
- Glacier / snow
- Crevasse
- Rock outcrop
- Scree slope
- Moraine
- Alluvial fan
- Braided river channel

- Ridge line
- Watershed
- River / stream
- Dry stream channel
- Dry river channel
- River terrace
- Route taken by vehicles
- Route taken on foot
- Summit day routes
- Shar Kangsum attempt
- Exploration & reconnaissance
- Peak / summit
- Camp / bivouac site
- Supply cache

Scale (approximate)

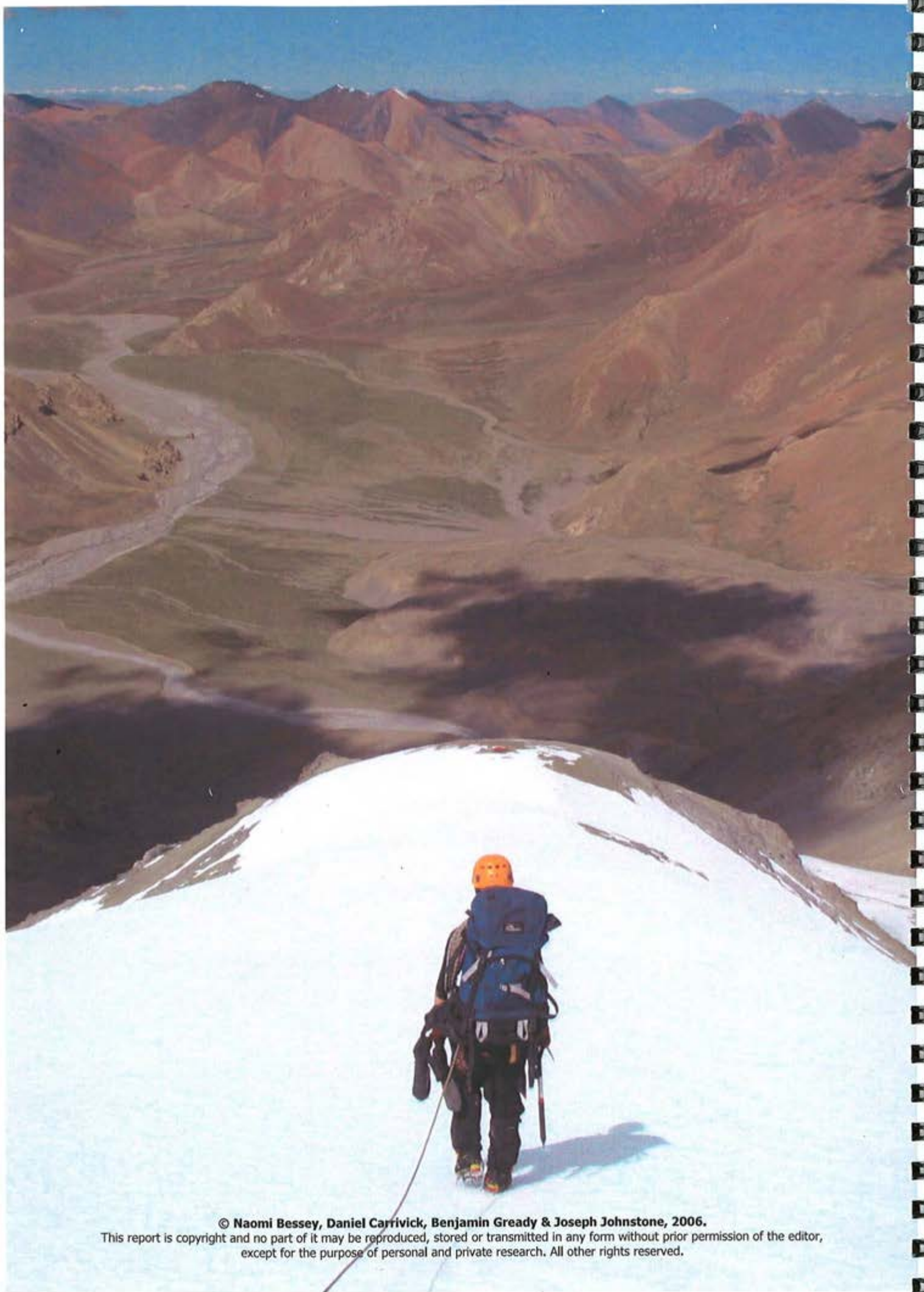


Numbers shown are approximate heights above sea level in metres



This map was produced by Daniel Carrivick, November 2006.

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