"Wings Over the Andes"

Joint Services Expedition to the Andes Bolivian Cordillera Real April - June 1995

Patron : HRH The Duke of Edinburgh KG, KT.

On 31 May 1995
two hang-gliders, piloted
by WO2 John Mitchell RM and
Charles Sermanni of the Joint Services
Hang-gliding Centre
launched from the 6427m summit
of Ancohuma, Bolivia.

This was only possible due to the
efforts of the twenty members
of Exercise Sheer Hypoxia
and the support given by many
other individuals and
organisations.

This report aims to
acknowledge this support
and also to recount the
development of JSE Andes 95
in its entirety, to assist others
who may be planning
a similar venture in the future.

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CTC 08/02/032 30 January 1995

Joint Services Expedition to the Andes 1995
(Exercise SHEER HYPOXIA)
Post Exercise Report

Patron: HRH The Duke of Edinburgh KG KT

1. The Joint Services Expedition to the Andes (JSE Andes 95) took place in Bolivia from 25 Apr to 14 Jun 95. The expedition combined mountaineering in the Cordillera Real with physiological research and hang-gliding. Twenty tri-service personnel attended, led by Lt AJ Dinmore RM and WO2 JM Mitchell RM.

Planning and preparation

EXERCISE AIMS

2. JSE Andes had three exercise aims:

a. to ascend the peak of Ancohuma (6427m) in the Cordillera Real of Bolivia,

b. to conduct research studies into weight loss and nutrition at altitude,

c. to launch two hang-gliders from the summit of Ancohuma.

3. All the exercise aims were achieved, with every climbing member of the expedition reaching the summit of Ancohuma, research studies completed in full, and the hang-gliders being launched on 31 May 95.

PERSONNEL

4. The following personnel attended JSE Andes 95 with positions of responsibility shown:

Lt Alistair Dinmore RM	CTCRM	Exercise Joint Leader
WO2 John Mitchell RM	RM Poole	Exercise Joint Leader
Surg Lt Cdr Simon Travis DPhil MRCP RNR		Researcher
Flt Sgt Bill Batson	RAF Leuchars	Mountain Leader
LPT Al Sneddon	NACMC	Mountain Leader
Cpl Larry Foden	CTCRM	Mountain Leader
Capt Louise Woolrich RAMC	RMAS	Expedition Doctor
Mr Chick Sermanni		Hang-glider Pilot
Lt Mike Fawcett RN	HMS Collingwood	
Mne Bryan Taylor	RM Poole	
Mne Dave Smith	RM Poole	
Lt Sean Scullion RE(V)	73 Eng Regt	Interpreter
2Lt Paul Blakesley KORBR	1 KORBR	
SSgt Huw Evans	R Signals	Photographer
Sgt Chas Colley	RMP	Food procurement
Spr Dave Sheridan	21 Eng Regt	
Flt Lt Liz Rowland RAF	RAF Brize Norton	
Flt Lt Richard Painter RAF	RAF Scampton	
Fg Off Paul Feasey RAF	RAF Valley	
CTech Bob Sayer	RAF Swanton Morley	

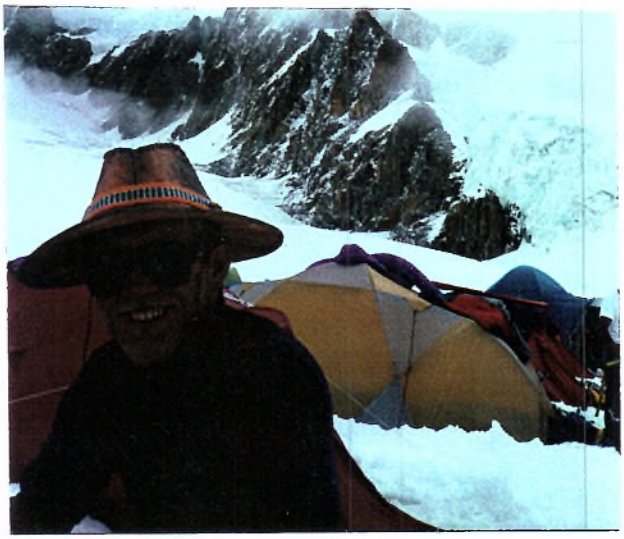
5. Lt Alistair Dinmore conceived and jointly led the expedition starting in July 1992. Over 2.5 years of spare-time planning were required before his full-time appointment to the expedition from Nov 94 to Jun 95. His previous experience includes JSMEL (W) and leading two expeditions to the Nepalese Himalayas in 1990 and 1991. He is currently serving at the Commando Training Centre Royal Marines.

Lt Alistair Dinmore RM

WO2 John Mitchell RM

Mr Charles Sermanni

Flt Sgt Bill Batson



Cpl Larry Foden

Mne Bryan Taylor

Flt Lt Liz Rowland RAF

6. WO2 John Mitchell came from Royal Marines Poole to be joint leader of the expedition. As a RM Mountain Leader and previous Chief Instructor of the RM Mountain and Arctic Warfare Cadre, his specific responsibility was for the mountaineering safety of the expedition. He is also a keen Club Hang-gliding Pilot and came up with the original idea to launch the hang-gliders from the summit of the mountain.

7. Dr Simon Travis was one of the original instigators of the expedition and played a crucial part in its success. A Consultant Gastroenterologist at the Derriford Hospital and experienced RN reservist, he took over responsibility for running the research project in addition to his many civilian commitments. Although he could only accompany the expedition for three weeks, he devoted an enormous amount of enthusiasm and skill in organising the expedition logistics with Bill Batson. He was a tireless worker and example to the rest of the expedition.

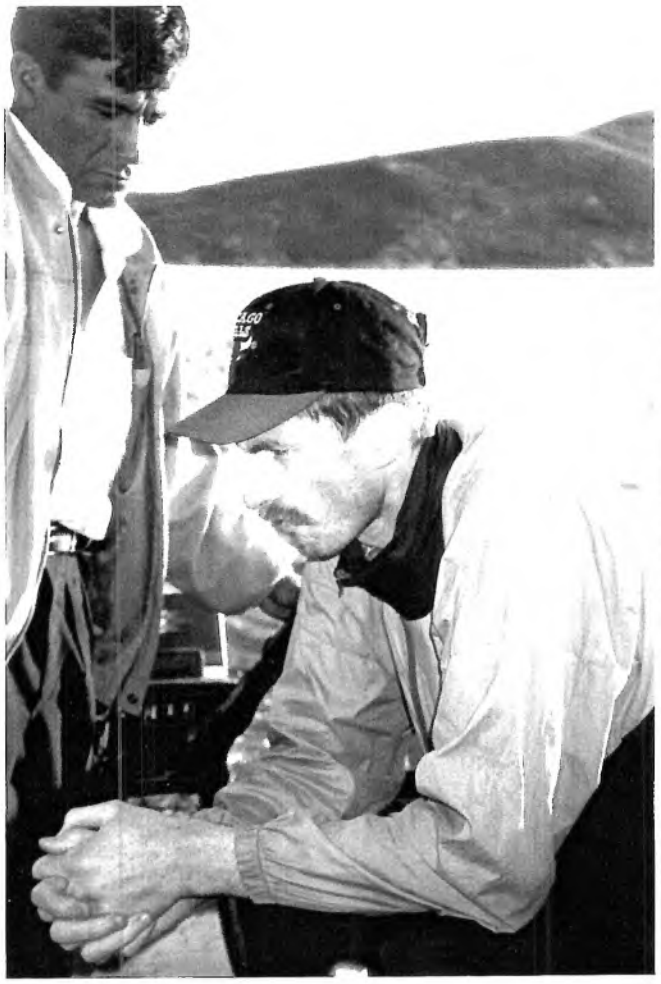
8. Flt Sgt Bill Batson joined the expedition at a late stage as a replacement for another RAF mountain leader. Working from RAF Leuchars as a Mountain Rescue Team Leader, he came highly recommended. As a leader of his own expeditions, he was well acquainted with the difficulties and was a backbone of the team, working hard in the background to remedy any potential problems he saw. On the mountain his climbing workload and ability were an inspiration for the remainder. He summitted 5 times on Ancohuma, including two new routes.

9. LPT Al Sneddon also joined the team relatively late, to fill a vacancy left by another RN PTI. A keen mountaineer and climber working at the Naval Air Command Mountaineering Centre at Tai Newyddon, he was eager to broaden his experience at altitude. He will be remembered most as half of the comic duo with Cpl Larry Foden, constantly ready with his sense of humour whenever the going was tough.

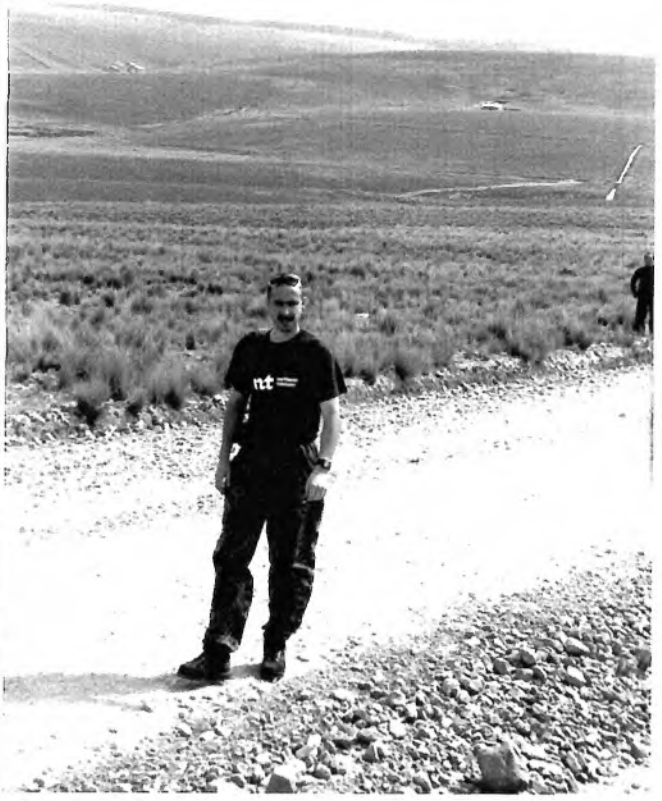
10. Cpl Larry Foden joined the expedition from CTCRM as a RM Mountain Leader. He was a very strong and able climber with many years of experience in Scotland, Norway and the Alps. His light-hearted contributions were appreciated by most of the team most of the time. A purist climber, he was able to indulge his passion climbing new routes on the mountain and "hot rock" in La Paz and Rio.

11. Capt Louise Woolrich was the expedition doctor. She put up well with the constant requests for treatment by those suffering from the perennial South American afflictions. It was also interesting to see how she coped as a vegetarian on the expedition. At first it was appreciated by the remainder who did not have to share an extra portion of chicken or mutton around, but later on the glacier many covetous glances were cast at her cache of Pasta Choice.

12. Chick Sermanni was the hang-gliding expert and senior pilot for the expedition. A very quiet slightly-built Scotsman who instructed at the Joint Services Hang-Gliding Centre, he had little experience of the military and less of mountaineering. He seemed to take well to both, fortunately, fitting in very well with the team and making a total of 4 ascents of the mountain, waiting for that elusive launch day. He was also the undisputed chess champion whilst recuperating in camp.

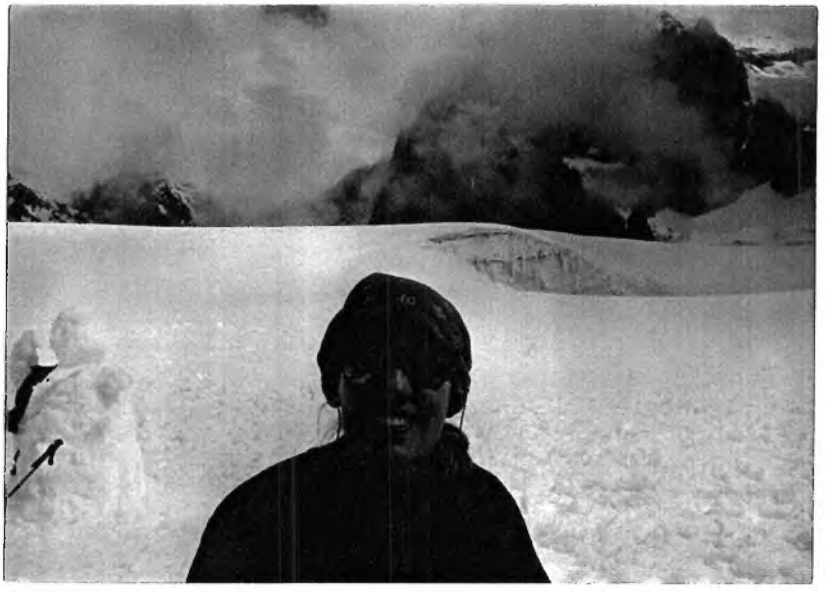


Flt Lt Richard Painter RAF



SSgt Huw Evans

Capt Louise Woolrich RAMC



13. Lt Mike Fawcett quickly became valued as the back-up Spanish interpreter, as one of the very few members who had devoted time to learning the language. His engaging personality and helpful nature made him a valued team member and he also became very popular with the local ladies.

14. Mnes Bryan Taylor and Dave Smith were stalwarts of the expedition, having been selected at an early stage, and taken over the significant responsibilities of receiving and mustering all expedition stores at RM Poole. They also broadened their experience as RM signallers by taking over the running of all the radios, generator and satcom equipment. Both were prodigious carriers of kit on the mountain and through their attendance on every climb going, became very competent mountaineers.

15. Lt Sean Scullion came to the expedition from the TA, having the civilian occupation of a Spanish teacher. He was an enormous asset, his total fluency critical in all the in-country

Sgt Chas Colley

negotiations and helping to build good relations with all with whom we dealt. A veteran of his own expeditions to the Pyrenees, he climbed very well at altitude (when not negotiating with the locals) and put up a respectable new route. His knowledge of the local culture also added a great deal to our enjoyment of Bolivia.

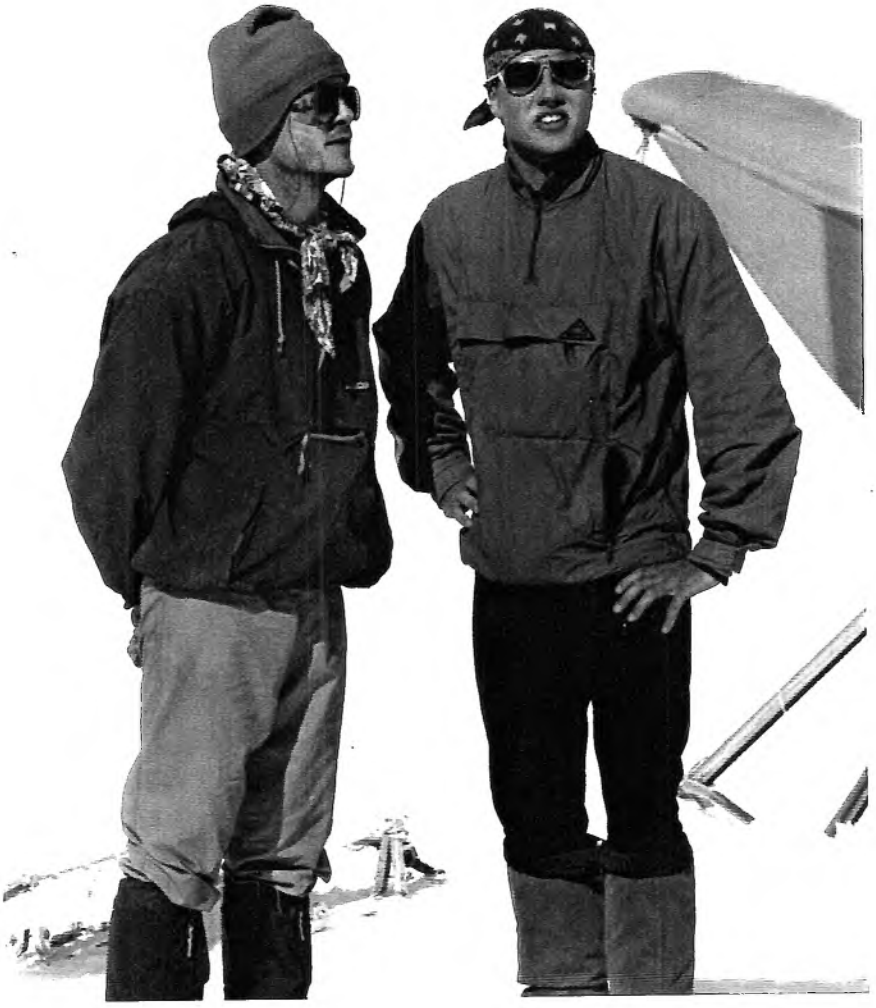
16. 2Lt Paul Blakesley managed to negotiate time off from platoon commanding with the KORBR to attend every team selection and training event. With previous experience of two Himalayan expeditions he had a good knowledge of working in a team and put in a lot of effort in the background. With his extrovert nature and sense of humour he also became very popular with the female population of La Paz.

17. SSgt Huw Evans volunteered as the expedition photographer and did a creditable job of recording the exploits on film. An enthusiastic paraglider, he was determined to jump from as high as possible in the Andes and was frustrated by the unsuitability of the Ancohuma summit and lack of logistic capability for the expedition to support both hang-glider and

paraglider launches. His late night "discussions" with John Mitchell and Chick Sermanni on the merits of hang- versus para-gliding will be long remembered by the rest of the team.

18. Sgt Chas Colley volunteered for the thankless task of planning and procuring the expedition food. His qualification as a previous member of the Army Catering Corps seemed to suit him to the task and he devoted a lot of time and effort both in the UK and in La Paz. It will never be easy feeding nearly 30 people at 18500 ft on a glacier with all supplies man-packed in, and his tireless efforts and fortitude were well appreciated. In between he also managed to fit in many respectable climbs, including a new route.

19. Spr Dave Sheridan - the original "adrenaline junkie". In between his exploits attempting base jumps off the Eiffel Tower, Spr Sheridan decided that high altitude climbing had something to offer and signed up for the expedition. A real character, he won the offensive beard competition hands down and was responsible for base camp entertainment with his portable speakers and collection of classic rock. He also insisted on climbing to the accompaniment of heavy rock music on his earphones.



Lt Sean Scullion RE and Lt Paul Blakesley KORBR

20. Flt Lt Liz Rowland will be remembered most for a constant enthusiasm and her favourite phrase, "I can't believe this is happening". One of the only two female members of the expedition she earned her place with her fearless climbing performances and excellent sense of humour. She also put in a lot of background work fundraising and was responsible for the dreaded expedition T-shirt.

21. Flt Lt Richard Painter joined the expedition from RAF Scampton. An Instructor Officer by trade, he was relatively new to mountaineering. With dogged determination he developed his climbing ability and gave much needed support to the later hang-glider launch attempts. He was also probably the most controversial contributor to the late-night discussions held in the mess tent at Advance Base Camp.

22. Fg Off Paul Feasey was also a relative newcomer to mountaineering when he attended the expedition selection meets. His enthusiasm and good humour won him a place and he showed his commitment by attending all the training meets and also joining the RAF Valley Mountain Rescue Team. By the time the expedition departed for Bolivia he was one of the keenest climbers and took every opportunity presented on the mountain.

23. CTech Bob Sayer was the oldest member of the expedition and constantly striving to prove he could keep up with the best of us. Whilst the rest of us were acclimatising (resting) in La Paz, he decided to run up and down some of the local hills. Whether this helped or hindered is unknown, but he certainly put in a good performance on the hill.

CTech Bob Sayer

Mne Dave Smith

BACKGROUND

24. The initial concept for JSE Andes 95 followed the 1991 Oxford University Officers' Training Corps expedition to the Rolwaling Himal, led by Lt Dinmore. This was a 14-strong climbing and physiological research expedition that climbed three 6000m peaks and investigated intestinal function at high altitude. The results of the investigation were published in Clinical Science and the Journal of Applied Physiology.

25. As an after effect of the study, contact was made via Lt Col JSE Edwards PhD ACC, with the United States Army Research Institute for Environmental Medicine (USARIEM). Representatives of USARIEM expressed an interest in further studies to support their environmental hazards research programme and suggested that funding may be available to support projects.

26. Lt Dinmore made a liaison visit to USARIEM in August 1992 with a proposal for a climbing and research expedition to the Andes. The research proposals were well received and an application for funding was invited. On return to the UK this application was submitted and planning for the expedition commenced.

EXPEDITION ORGANISATION

27. The expedition was conceived and jointly led by:

Lieutenant Alistair J Dinmore BA Royal Marines, with overall responsibility for administration and conduct of the expedition.

Warrant Officer 2 John M Mitchell Royal Marines, with responsibility for mountaineering safety and the hang-gliding project.

La Paz with Mt Illimani in background

28. In addition,

Lt Col John SE Edwards PhD ACC Retd acted as the Principal Investigator, covering the nutritional study,

Surgeon-Lieutenant Commander Simon PL Travis DPhil MRCP Royal Naval Reserve conceived the physiological study and conducted the in-country research.

RESEARCH STUDIES

29. Weight loss has always been a feature of high altitude mountaineering and operations, but there is conflicting evidence as to why this occurs. Part of the reason is the difficulties in providing palatable food in a mountain environment, and also a reduction in appetite. However other factors, such as reduced absorption from the small intestine may play a part. This was shown as a result of the study on the 1991 expedition.

30. Andes aimed to conduct a controlled study into food consumption and preferences at high altitude. Using the entire team as subjects, the expedition would consume a standardised identical diet (service arctic rations) for a period at sea-level then at high altitude. With exactly the same food availability, the individual and group consumption would be compared, and the effects of environment and mood status upon preferences documented. Anecdotal evidence exists as to appetite and taste changes at altitude, but a controlled study to quantify these changes had never before been attempted.

31. The physiological study examined whether changes in digestion and absorption were occurring at high altitude. A solution of non-metabolisable carbohydrates was ingested and their excretion measured in a 5-hour urine collection. The ratio of carbohydrate in the urine could then be used to determine intestinal dissacharidase activity and monosaccharide absorption. In addition 3-day faecal collections were made to quantify energy wastage and compare with energy intake.

DIPLOMATIC CLEARANCE

32. The expedition submitted an Adventurous Training Application via normal channels in November 1992 requesting diplomatic clearance to enter South America.

33. Obtaining political and diplomatic clearance for this part of the world proved to be a lengthly process. The expedition's first three choices of country were refused, and it was not until October 1994 that clearance was obtained to climb Ancohuma in Bolivia.

34. Bolivia had been considered as a contingency since Jan 94 but the change of locations also necessitated rescheduling the expedition. The climbing season differed by 4 months along the Andes so permission was sought to reschedule to Apr - Jun 95. Fortunately this was well supported by the Royal Marine Headquarters and parent units, but necessitated some selected members withdrawing.

Dr Simon Travis DPhil, MRCP, RNR processing his "samples"

35. Fortunately, the expedition was able to conduct the remainder of the planning concurrently, including fundraising, equipment procurement and team selections. This allowed sufficiently flexibility to change destinations at short notice.

36. The support of all those who helped in this process is greatly appreciated, especially the British Embassy in La Paz. Without the assistance of the Embassy, it would have been impossible to complete the arrangements in the short time available.

HANG-GLIDING OBJECTIVES

37. The concept of combining a mountaineering expedition with a high altitude hang-glider launch was first suggested by WO2 Mitchell. Apart from the challenge of the project, the rationale was that it would raise the profile of the expedition sufficiently to attract national publicity and major commercial sponsorship.

38. The idea was presented to the OC of the Joint Services Hang-Gliding Centre WO1 (Retd) D Fenwick 2PARA and received his enthusiastic support. Planning for this aspect of the expedition therefore started in earnest.

39. The requirements for the launch to take place could be broken down into three areas; putting the hang-gliders onto the summit of the mountain, predicting safe conditions for the launch, and recovery from the landing site. In outline this would be achieved by using fixed ropes and jhelper sledges to haul the gliders to the summit and having two cross-country capable vehicles to affect recovery. A radio net would be required for communications between the mountain, the gliders and the vehicles, and satellite communications were also used for meteorological reports from the UK.

JOINT SERVICES EXPEDITION TRUST AND MOUNT EVEREST FOUNDATION SPONSORSHIP

40. One of the most important criteria for gaining widespread recognition and support for the expedition, was gaining the backing of the Joint Services Expeditions Trust. This is a tri-service committee that judges expeditions for worthwhile scientific aims and integrity of planning, and can sponsor up to £15 000.

41. Following a presentation of the expedition aims and organisation, the committee agreed to endorse the expedition. Full sponsorship was offered after selection of a balanced tri-service team and once diplomatic clearance had been granted.

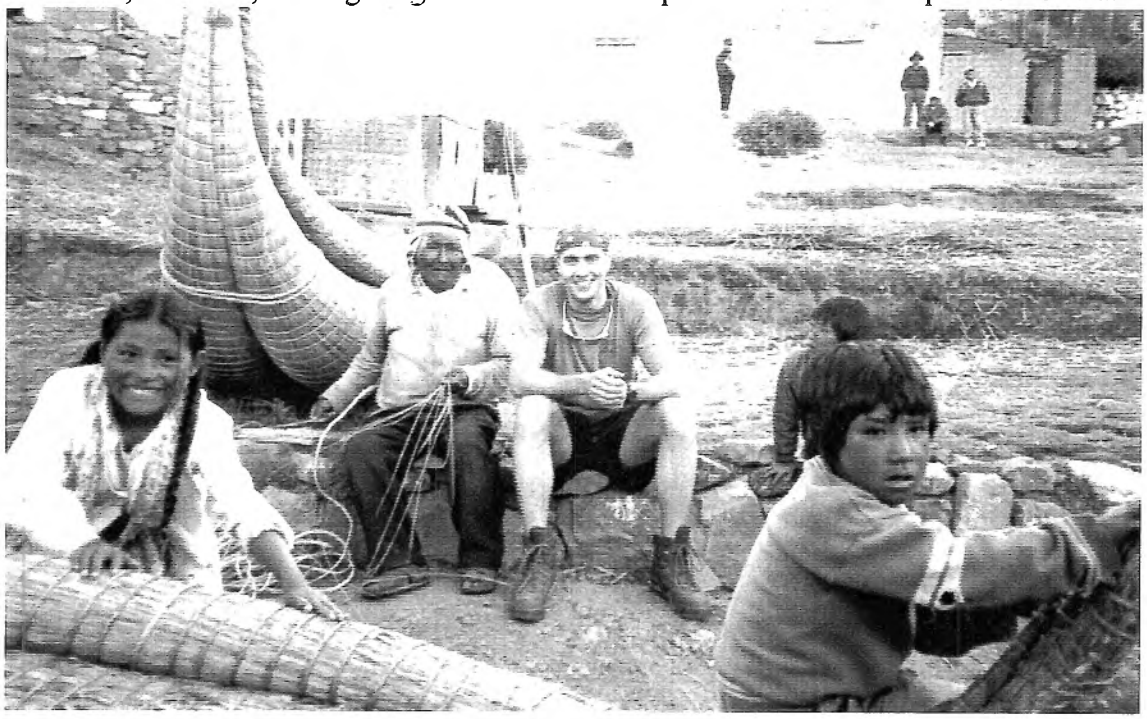
42. Recognition of the expedition by the premier British mountaineering body, the Mount Everest Foundation (MEF), was also gained. A grant of £500 was given towards the research expenses.

43. Once the endorsement of these major bodies was gained, a letter was sent via service channels to HRH The Duke of Edinburgh KG KT. In his capacity as the Captain General Royal Marines and as a supporter of adventurous training through his own Award Scheme, he agreed to become the expedition patron.

FUNDRAISING AND PUBLICITY

44. The main fundraising effort of the expedition was decided to be in gaining commercial sponsorship. To this end a colour brochure was produced (after delays caused by three changes of destination) with the assistance of the Illustrators at RM Poole and graphics department of RNAD Coulport. This described the aims and organisation of the expedition and invited sponsorship in return for publicity associated with the hang-glider launch. 500 copies were sent out to large companies who may have had interests in this area of marketing.

45. The response was almost nil. Several pharmaceutical and medical companies donated funds for the research and some food producers offered their products. These were of limited use, however, as freighting costs would have precluded their transport to Bolivia.



Lt Paul Blakesley with traditional reed boat builder on Lake Titicaca

The only satisfactory outcome of the exercise was in gaining some of the technical equipment (primarily satcom and portable computers) from their manufacturers. Arguably this could have been achieved by direct contact without a brochure. It must be recommended that future expeditions use specific contacts for particular items of equipment only, or restrict appeals to companies to which they have access at a high level already. General canvassing is a waste of time and resources.

46. The response in publicity was also disappointing. Most interest was generated at a local level by individuals from their home area. In addition to sending out brochures, a press conference was held at the London Regent Hotel. This involved displaying the hang-gliders and aerial rope ascension to demonstrate the techniques to get the gliders up the mountain. It took considerable effort on behalf of the expedition to organise, and the sponsorship of one of the most prestigious London hotels, but was only attended by representatives from four minor journals. The lesson learnt from this was that publicity must be organised at a

higher level within the armed forces if it is to have any chance of success.

47. In the end, the majority of expedition funds were raised from Service (primarily Naval) charities. The Sailors' and Fleet Amenities Funds, and Sports Lotteries were particularly generous. In combination with the grant from JSET, they were the main financial backers of the expedition. The fact that most expedition funds came from Naval sources reflects the fact that the expedition was being organised (and grants applied for) by Royal Marines. For future tri-service expeditions, representatives need to be appointed to apply for funds more evenly. This may require representation of the expedition at a higher tri-service level.

TEAM SELECTIONS AND TRAINING

48. In selecting a team, the guiding principles were to take equal numbers from each Service, and to balance the mixture of experienced climbers with relative novices. Both of these were thought to be important aspects of adventurous training. Within these parameters the primary factor in selecting individuals was their ability to act together in support of a team.

49. The expedition was advertised via DCIs and Service mountaineering clubs. Selections were held in the New Year and Easter 1994 at the RM hostel in Kinlochleven, with the support and resources of Comacchio Group RM. The format was similar to mountaineering club meets, with small groups being taken out by qualified personnel. Climbing was conducted on the north face of Ben Nevis, the Aonach Eagagh, Stob Coire nan Lochan and the Buichaille Etive Mor. Final team selections took place on completion of the second meet.

50. The expedition was extremely fortunate in that the support of Royal Marines Poole was provided to mount a training exercise to the Bernese Oberland. Two weeks in the Alps allowed considerable training and experience of moderate altitudes. Ten peaks over 4000m were climbed. The safety of the expedition was greatly enhanced along with the quality of mountaineering achievable in Bolivia. A full report of this exercise (Ex PRE-HYPOXIA) has been submitted previously.

Wings Over The Andes

British Joint Services Expedition Bolivian Andes 1995

JSE Andes 95 aims to research why weight is lost at altitude then to launch two hang-gliders from a 21000ft peak.

In April 1995, a team of 20 British Service men and women are planning to take part in an expedition to the peak of Ancohuma in Bolivia. At 6427m, Ancohuma is the third highest mountain in Bolivia and technically more demanding than Sajama (the highest). The expedition aims to ascend the mountain, research why weight is lost at high altitude, and conclude with a high profile launch of two hang-gliders from the summit.

The expedition will be led by Lieutenant Alistair Dinmore BA Royal Marines and Warrant Officer John Mitchell Royal Marines. The scientific investigation will be conducted by Professor John Edwards PhD of Bournemouth University and Dr Simon Travis DPhil, a Consultant Gastroenterologist from the Derriford Hospital, Plymouth.

Departing the UK on 26 April 1995 the expedition plans to fly direct to La Paz. After acclimatisation an attempt will be made on Illimani (6490m). The expedition will then move to Ancohuma, at the northern end of the Cordillera Real. Using a small team of mules and manpacking by members, an Advance Base Camp will be set up at an altitude of about 5500m on the mountain. This will be used as the base for the research studies and an exploration of the surrounding area, which contains a number of 6000m peaks.

The research studies will be looking at weight-loss at altitude from two standpoints. Nutritionally, half the team members will be consuming a high carbohydrate supplement in addition to their normal diet, and comparisons made between the two groups for susceptibility to Acute Mountain Sickness, weight loss, and performance. Physiologically, studies will be made on intestinal function and carbohydrate absorption. The work follows on from previous studies by our group in the Himalayas, recently published in the Journal of Applied Physiology.

After about four weeks at altitude, arrangements will be made for the hang-glider launch. Two cross-country vehicles will be brought to the roadhead and radio communications established between each hang-glider and the vehicles. Launch will be timed to coincide with the best local weather conditions and a meteorological forecast for the area, communicated to the Advance Base Camp via an INMARSAT satellite link.

If conditions for the hang-glider launch are perfect, it should be possible to achieve a new World Record distance flight, currently standing at 301 miles.

The hang-glider pilots will be Charles Sermanni (professional instructor from the Joint Services Hang-Gliding Centre), and John Mitchell. They will aim to launch and fly as far as possible before recovery by the vehicles.

The use of the INMARSAT link (provided by ABB Nera Ltd) allows direct communications back to the UK. The same link will also be used for fascimile messages using a computer provided by Hi-Grade Computers. This should allow the expedition to achieve a high level of UK publicity whilst in country.

With a total of two months spent in-country, there will be sufficient time to complete the research studies, climb Ancohuma and the surrounding peaks, and still allow a launch window of three weeks for the hang-gliders.

Upon return, a full report of the expeditions activities will be made, including submission of the research studies for publication.

The expedition is endorsed and sponsored by the Joint Services Expeditions Trust.

For further information please contact:
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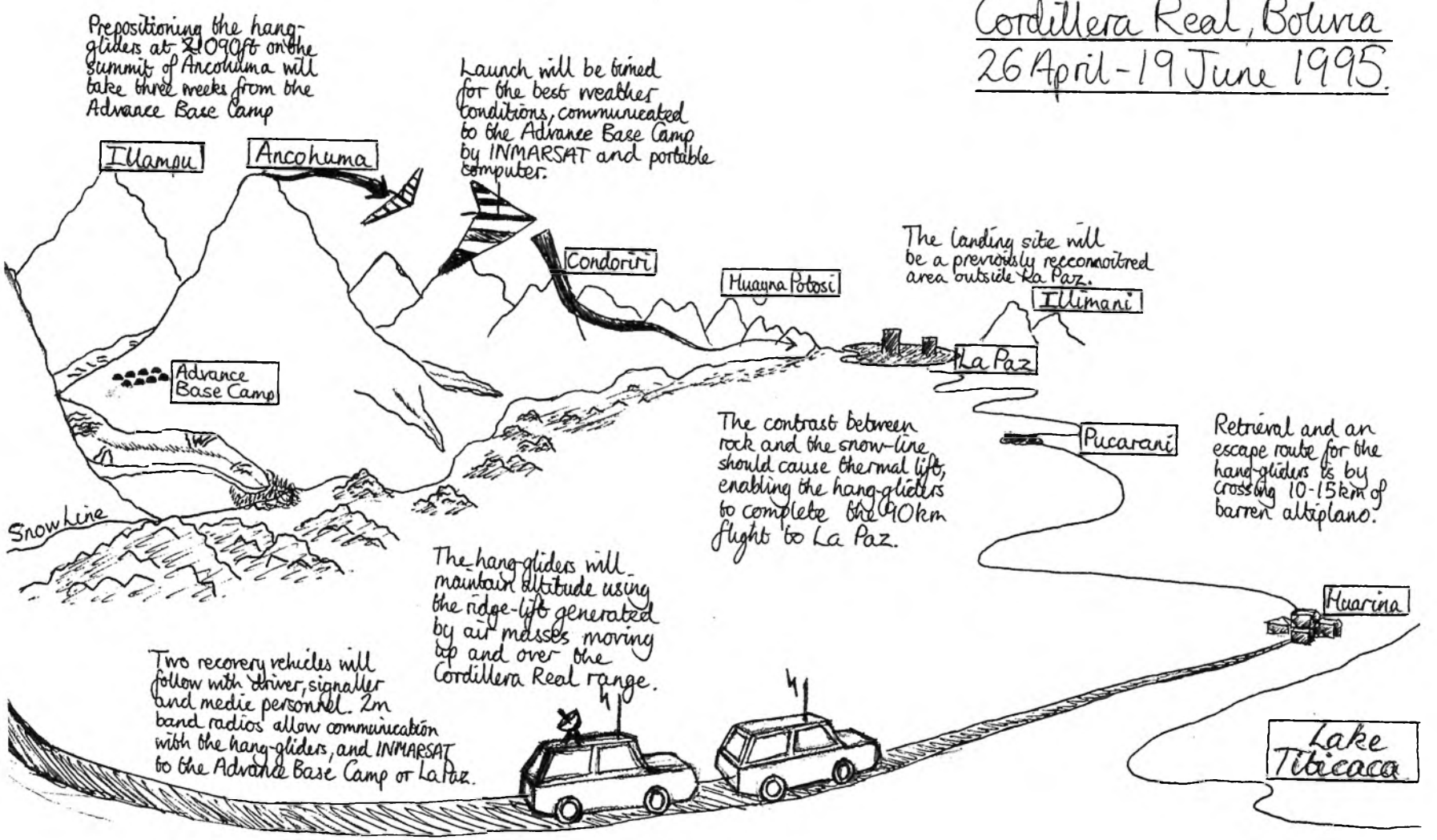
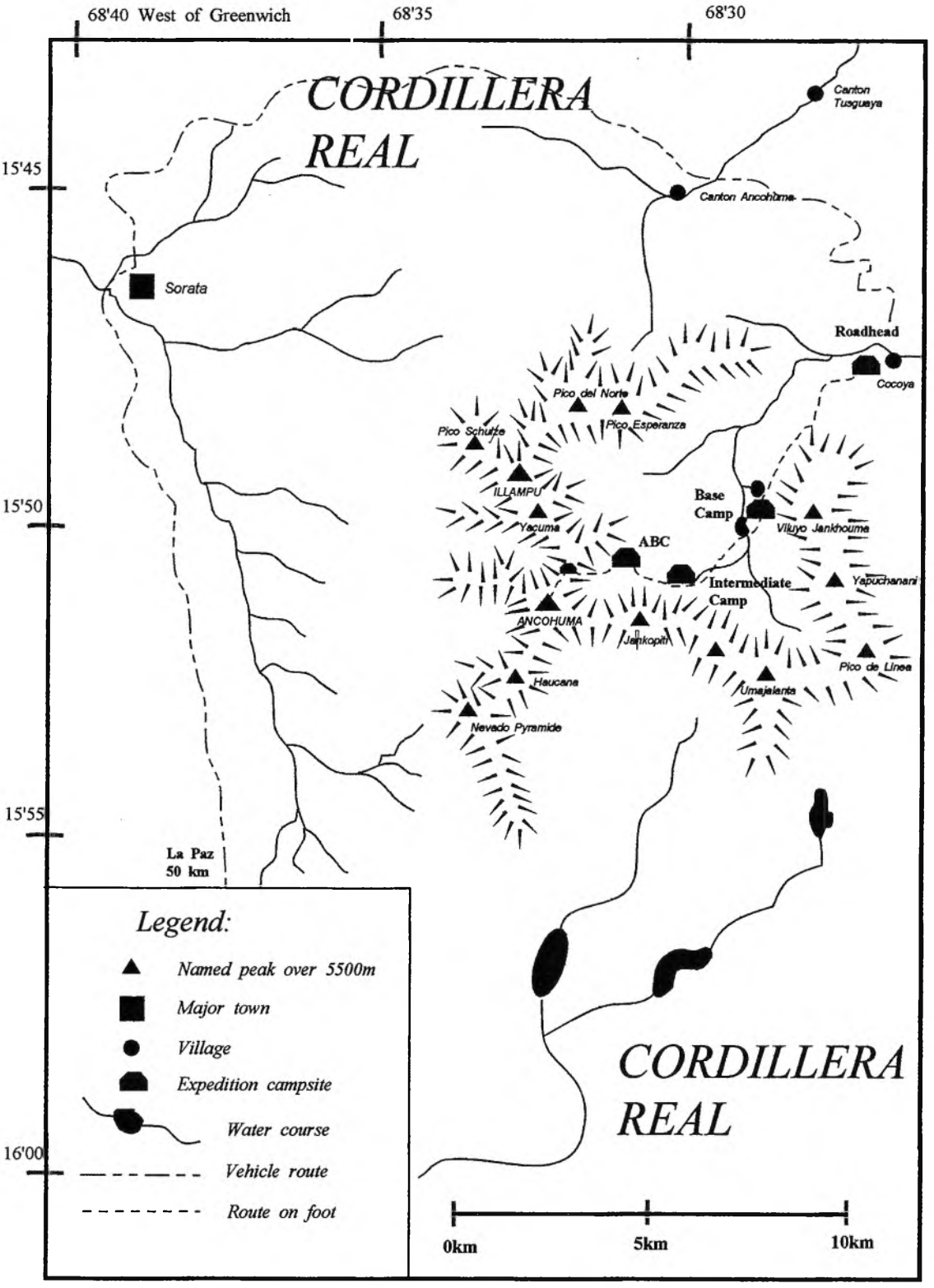
Joint Services Expedition JSE Andes 95

Cordillera Real, Bolivia
26 April - 19 June 1995



Lt Alistair Dinmore on summit of Ancohuma (6427m)



Map of Expedition Area

The Expedition

Phase 1 - Assembly and movement to Bolivia

51. The expedition assembled at RM Poole on 21 Apr 95 to carry out 5 days of the first phase of the scientific study, kit preparation and final training. After the years of planning and numerous delays there was a tangible air of excitement as the team finally assembled. The initial burst of enthusiasm was quickly capitalised upon by Dr Travis and Prof Edwards as they briefed the team on the requirements for the first few days. This was to be a diet of arctic rations, with no local supplements, meticulous recording of all food intake, with urine and faecal collections. The team took it all in very good humour and an excellent standard of data collection was achieved.

52. For the remainder of the time, preparations continued in the form of mountain safety lectures, Spanish lessons and kit packing. All the equipment required for a 8-week expedition had to be manifested and packed. This included research equipment, two hang-gliders, a generator, jhelper sledges, skis, tentage, radios and enough climbing equipment to equip a major outdoor pursuits centre. Somehow this all had to be reduced to a 900kg weight allowance. Even when hand baggage weighing up to 30 kg each had been separated, the total weight still came to over 1200kg.

53. On the final evening before departure a Farewell Dinner was held in the Officers' Mess at RM Poole, courtesy of the Commandant. This was an opportunity to invite key personnel who had helped the expedition over the years, and also long-suffering wives and girlfriends. It was a great success, helped by the fact that the flight was not due to depart until 2200 the following day.

54. Transit to Heathrow was achieved without incident in a RM Poole coach and the luggage checked in. We were assisted in this by a representative from the AT Leisure travel agent, which helped in our negotiations with the airline over the excess weight. The flight to La Paz was via Rio Janeiro and Santa Cruz.

55. On arrival everything proceeded extremely smoothly as we were met by a member of the British Embassy staff and a previously appointed customs agent. Vehicles were on hand to take the equipment and personnel to our chosen hotel, the aptly named Hotel Andes in Manco Kapac. This was ideally suited to requirements, clean and well-run, although basic.

Phase 2 - Preparations in La Paz

56. The first priority on arrival in La Paz was to visit the British Embassy to confirm various arrangements. Due to the short notice transferral of the expedition to Bolivia, accommodation, vehicles, customs clearance and guides had to be booked on our behalf by the staff of the Embassy. We were enormously fortunate that the hard-worked staff were prepared to help us in this respect. It is not part of their normal responsibility and the expedition would have been severely handicapped if it had not been for their efforts on our behalf.

57. The meeting at the Embassy clarified the arrangements and left us in a position to continue with the more detailed planning. In addition, we requested a letter of introduction in Spanish, explaining who we were and what we were doing. These were copied and carried by members of the expedition at all times in case of misunderstandings with the authorities. Very few people in Bolivia speak any English at all and only three members of the expedition had any proficiency in Spanish. The difficulties in communication, coupled with the exertion required at the La Paz altitude of 4200 m made the first few days very disorientating.

SSgt Huw Evans and Lt Paul Blakesley in their hotel room

58. The next priority was to meet with the executives of the Club Andino, the Bolivian national climbing association. Negotiations were made to hire two Bolivian guides, Gregorio and Eduardo Manami and four porters. They would accompany the expedition for the duration to provide local knowledge, negotiate with llama herders and assist in load-carrying. The Manami brothers were very experienced and strong climbers and were a great asset to the expedition.

59. Various Government departments had to be visited to confirm clearance for the satcom, radios and flight plans. Travellers' cheques had to be cashed and negotiations concluded for the hire of the 4wd vehicles. Whilst all this was in progress the rest of the team undertook the mammoth tasks of food purchase and repacking. Sgt Colley supervised the purchase of all local food supplies and cooking equipment - an onerous task for which he was the only volunteer. The breaking down of all the supplies and equipment into llama or manpack loads was carried out by Dr Travis and Flt Sgt Batson, often working long into the night.

Another obstacle for our tired but intrepid truck

One of our 4wd vehicles on the road to the high altitude ski-slope of Chacaltaya. The peak of Huayana Potosi can be made out in the background

60.Once all the preparations had been completed there was time to arrange an excursion to the nearby "ski-slope" of Chacaltaya. This hut and ski-tow on a perma-snow slope was within 2 hours drive of La Paz. It was an ideal opportunity to acclimatise at over 5000 m and the intention was to launch the hang-gliders and experience the flying conditions at altitude. Unfortunately the wind conditions prevented the hang-gliders from launching but SSgt Evans was successful with his paraglider and enjoyed a short flight.

61. Finally on the morning of 2 May, the vehicles were loaded and the expedition set off in convoy for the mountains. Lts Dinmore and Scullion came on behind after picking up the fuel and oxygen cylinders which had only that morning cleared customs.

Phase 3 - Move to Base Camp

62. The road to Sorata was a mostly flat dirt track stretching for 50 km across the altoplano. Once we neared the town, however, the route became increasingly steep and precipitous. Beyond Sorata, it was strictly the province of 4wd vehicles and skilled drivers. Although it was only 30 km from Sorata to Cocoya the journey took approximately 7 hours.

63. WO2 Mitchell writes: *" As we progressed over more difficult terrain the state of the track began to raise alarming comments. Many team members were beginning to experience " white knuckle syndrome" and their grip on interior fittings tightened with every breath-catching hairpin bend. I think it was fortunate that darkness fell before we were completely psyched out of our wits by the exposure and the thought of the consequences of one of the vehicles leaving the road. It was to the great credit of our drivers that we all arrived safely at a little mining outpost called Cocoya. From here it would be llamas and load-carrying to base camp. We circled the wagons in the pitch dark and set camp in the glare of the vehicles' headlights. Despite the apparent remoteness of our position the place became alive with excited children and curious adults appearing out of the gloom. Chaos was about to ensue when our stalwarts of administration, Bill and Simon, took charge of the situation and we quickly had the tents up and a meal on the go."*

64. The next morning our pre-prepared loads were quickly and efficiently loaded onto llamas under the expert supervision of the village headman. Porters arrived and shouldered loads that made expedition members cringe with embarrassment. All this occurred with very little direction from ourselves under the supervision of our guides. They were already justifying their inclusion in the team.

65. We were now at an altitude of 3500 m and planned to make it to our proposed Base Camp location at 4660 m in one day. Fortunately we had some measure of acclimatisation already from La Paz as height gains of this order are normally inconceivable. It was nonetheless an extremely long and hard climb (over a narrow pass at 4850 m) and the team became very spread out over the route. Everyone managed to make it to the camp eventually, to be welcomed by erected tents and hot soup prepared by those at the forefront.

Phase 4 - At High Altitude

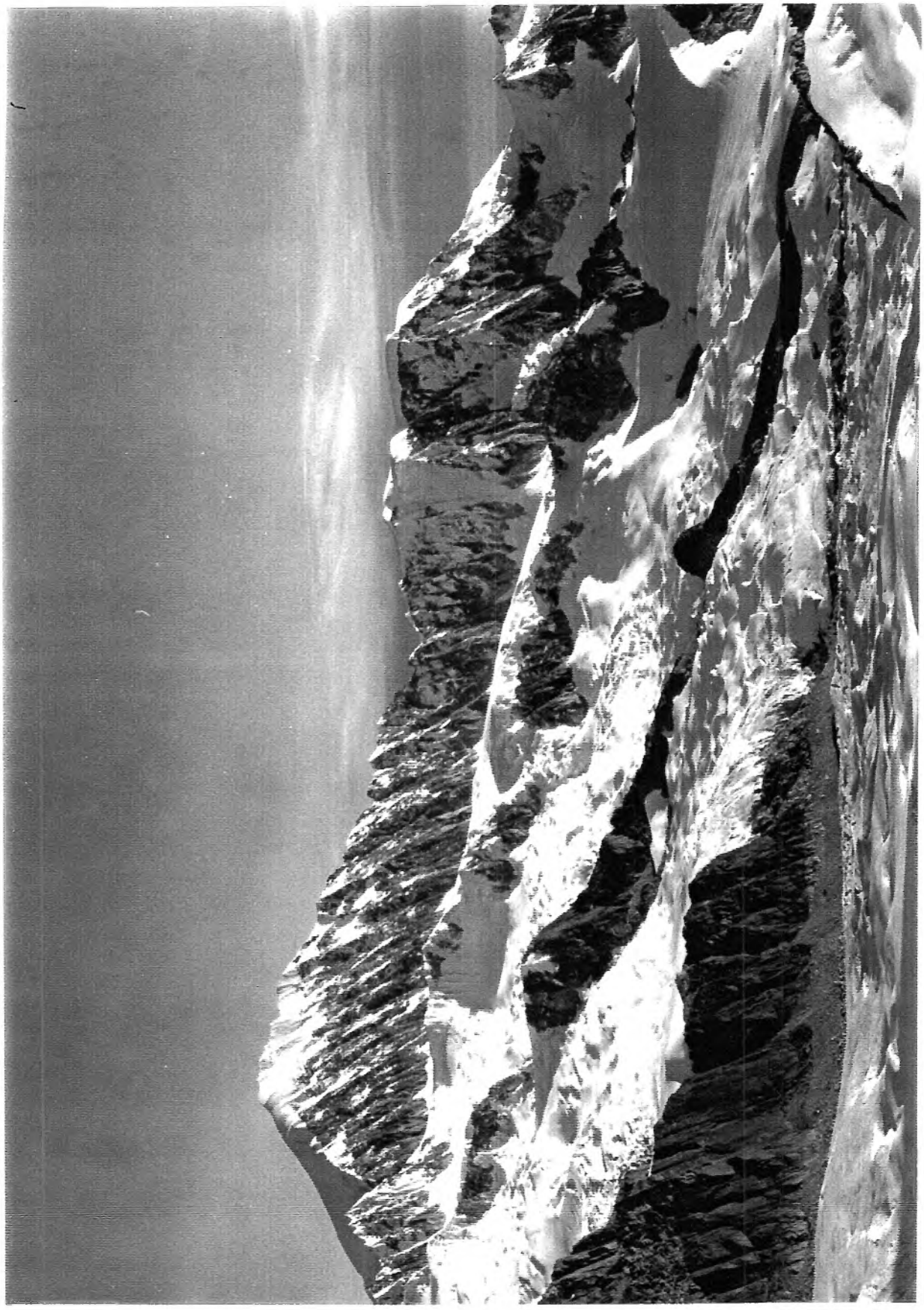
66. Once Base Camp had been established, the aim was to move the entire team as soon as possible up to an Advance Base Camp and start the main research programme. The pressure to move on had to be balanced with the requirement for each individual to acclimatise at his own rate. An initial recce of the route was carried out by our guides and they dumped kit to establish a intermediate camp on small scarp a few hundred metres below the glacier snout. The next day the remainder of the team load-carried to this camp, and after a very long day sited the camp at the glacier snout. A team of porters who had come up from Cocoya made two trips each to the kit dump, but refused to come as high as where we had decided to fix camp. Some expedition members also decided to remain at the lower camp.

67. Two full days of load carrying between Base Camp and Intermediate Camp were required to stock the camp to a reasonable level. On the third day an advance party led by WO2 Mitchell moved up the glacier and established Advance Base Camp (ABC). Once tents, cookers and food were in position the hard work of moving stores between the camps could continue. The effort put in by the team and porters at this stage was tremendous. Still acclimatising, members were carrying 20 kg loads up steep sections of the glacier before returning to sleep at lower altitudes. On the final move from Intermediate camp, a 6 man team pulled a 120 kg sledge up the glacier in addition to carrying rucksacks containing their personal kit. It took 8 hours to move just under 3km, arriving just in time to start the research period at 1700 on 11 May 95.

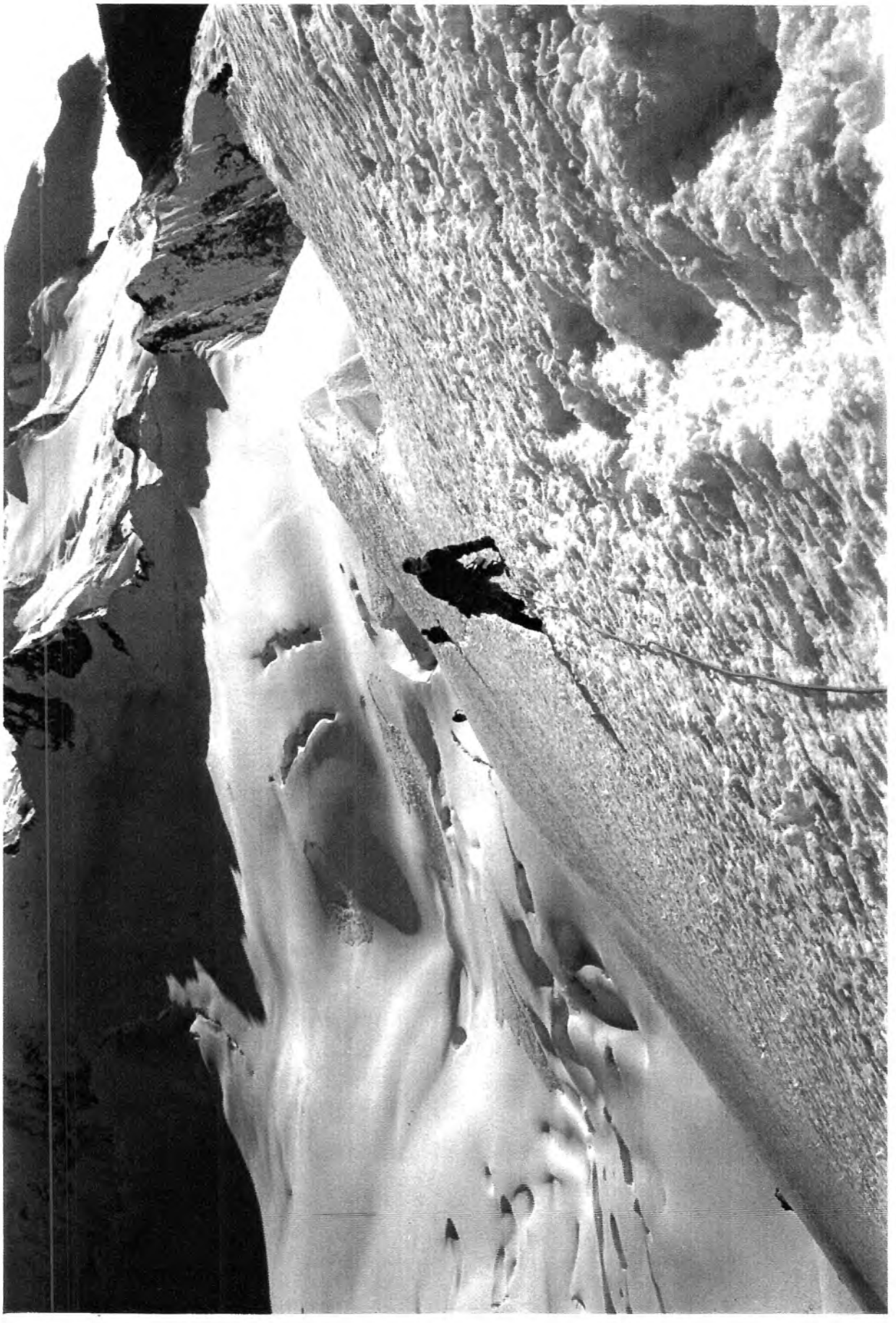
68. During this period Flt Sgt Batson and Dr Travis pushed ahead to make an attempt on the summit before Dr Travis had to run the research project and then return to the UK. This was quite an undertaking as the attempt was at an early stage of acclimatisation and without the support of the rest of the team. Flt Sgt Batson achieved the summit but unfortunately, Dr Travis had to turn back on the narrow ridge approximately 250m below the summit. Even so, this was an excellent success at such an early stage of the expedition.

69. From 11 to 14 May the research studies took precedence, with the entire team congregated at ABC. This was an excellent time to recuperate after the stresses of the

The glacier between Illampu and Ancohuma
as seen from Ancohuma summit ridge



Steep snow on Ancohuma summit ridge



previous week and to gain valuable acclimatisation at the camp altitude of 5650m. In many ways the success of all members in gaining the summit and operating well on the mountain can be attributed to these critical periods of rest at altitude. The research studies involved an initial fast and intestinal absorption test (drinking a carbohydrate solution with a 5-hour urine collection) followed by 72 hours on a controlled diet. After the dubious culinary delights of the last two weeks, it was a pleasure to be eating arctic rations again. All food consumption had to recorded on dietary logs and a detailed questionnaire filled out on mood and symptoms of Acute Mountain Sickness. In addition faecal collections were made - an unpleasant task but nothing compared to Dr Travis' work in processing nearly 100 samples!

70. On completion of the research studies, Dr Travis left the expedition to return to the UK. In this and in several other ways the satcom set and computer proved their worth. We were able to ring up the vehicle hire company directly to confirm timings and arrangements for Dr Travis' extraction. By now we were also receiving meteorological forecasts on a daily basis from RAF High Wycombe. These would arrive on a prearranged schedule by fax using the satcom, modem and the computer.

71. ABC was a stunning setting in which to spend time. Situated on the glacier, at the foot of one of the ridges running down from Ancohuma, it commanded incredible views. All around was a vast circe of peaks running from Pico del Norte through Illampu and Ancohuma in the west to Jankopiti in the south. Out to the east the mountains and foothills tumbled away to the vast expanse of the Amazon basin. This vast arena was to become our mountaineering playground for the next three weeks.

72. The weather was absolutely perfect for climbing. Each day would dawn clear and bright with light winds, but no precipitation. In the entire time on the mountain, only one day was lost with a light snowfall of about 6 inches. Movement of the glacier and avalanche danger was therefore fairly minimal. The clear skies and extreme altitude meant that there was an enormous diurnal temperature variation. In practical terms, it was hot enough during the

Hauling the hang-glider on a jhelper sledge across the glacier

day to lie around in only a pair of shorts (20 to 25 'C) but the moment the sun dropped below the horizon the temperature could plummet down to -30 'C. Movement was then only possible in a thick duvet jacket and salopettes and the only practical place to be was the sleeping bag. The freeze-thaw process also led to some danger from rock and ice fall on the mountain.

73. We now had plenty of time at altitude in which to achieve our remaining objectives; putting the rest of the team and the hang-gliders on the summit of Ancohuma, followed by the successful launch and recovery. Various groupings of team members climbed on the surrounding peaks for acclimatisation at the same time as groups led by WO2 Mitchell, Flt Sgt Batson and Lt Dinmore fixed sections of rope all the way to the summit of Ancohuma. Notable new routes achieved during this period were:

LPT Sneddon, Sgt Colley, Lt Scullion	Pinball Gully	II/III	Unnamed 5895 m peak
Cpl Foden, Mne Taylor	Mad Dogs and Englishmen	TD	Unnamed 6044 m peak
Lt Scullion, Sgt Colley	Scully's Gully	II/III	Ancohuma ridge
Flt Sgt Batson	Bill's Back Passage	TD	Ancohuma summit

Full details of these climbs are recorded in the Club Andino logbook.

Flt Sgt Bill Batson leading on steep terrain

Hauling a hang-glider onto the NE ridge

74. Once rope had been fixed over the steep sections of the route and a high camp established on the ridge, the mammoth task of getting the hang-gliders to the summit could begin in earnest. The majority of this work was carried out by our team of guides and porters who demonstrated a phenomenal capacity to climb and haul loads at altitude. The gliders were fixed to jhelper sledges and hauled by main force up the slope, using ropes and occasionally the fixed belay points. It took a whole day to haul both gliders to the high camp, then two additional days to take them individually up the summit ridge. At one stage, disaster was narrowly averted when one of the deadmen pulled out and the roped party and glider slid down the slope. (The belay probably failed as a combination of freeze-thaw settling and being loaded in the wrong direction). Fortunately the remaining points held.

75. On 21 May the hang-glider recovery team of Lts Fawcett and Blakesley and Mnes Taylor and Smith left to return to La Paz and pick up the 4wd vehicles. They would move to Huarata (on the shore of Lake Titicaca) and select a suitable landing site, marking it out with bright marker panels. The original intention had been to launch and fly the maximum distance possible in the direction of La Paz, using ridge and thermal lift generated along the mountain range. In the opinion of Chic Sermanni and WO2 Mitchell this was now infeasible due to the altitude of launch and landing, therefore a fixed landing site was selected. The recovery team were sorry to be missing the excitement on the mountain, but accepted their task with good grace.

76. All expedition members achieved the summit on various occasions. A total of 64 individual ascents of Ancohuma were made by the team over this period, with the individual record of 5 ascents being held by Flt Sgt Batson. With the hang-gliders and recovery team in position we were now ready to attempt the launch. This was dependent, however, on the weather conditions....

WO2 John Mitchell's hang-glider erected on the summit of Ancohuma

Mne Bryan Taylor arranging transmission of meteorological fax on Nera Communications satcom and HiGrade notebook computer (ABC,5600m)

77. WO2 Mitchell writes: *" On the 28th May we headed off once more for the summit. The labour was beginning to take its toll as we plodded and gasped our way up the seemingly interminable fixed ropes. One by one we dragged ourselves up to and across the wide expanse of the summit. The wind was blowing ever so lightly, but from the east, completely the wrong direction for our purposes. Our proposed landing site was near Lake Titicaca directly to our west. Launch in the direction of the Amazon jungle was completely out of the question as far as I was concerned, but Chic, who is a far more experienced flyer than me, had to my consternation not completely ruled it out. ' If the wind were blowing hard enough we may be able to take-off to the east then backtrack and overfly the mountain in a westerly direction' he postulated. The wind never increased and the day passed with mounting frustration. By late afternoon team members were drifting back down the hill biting their lips and no doubt cursing our luck. Chic and I packed the gliders away once again and prepared to descend."*

78. It was to take a total of 5 attempt before the conditions were good enough to launch the hang-gliders. Each time the pilots and a support party had to climb up and spend an entire day on the summit. Owing to the nature of the terrain and altitude, the launch could not be considered until the wind was blowing from the SW quadrant and ideally with about 20 knots. The increasing delays had also led to severe shortages of fuel at ABC. Resupplies had been ordered but had not arrived and we were now desperately short of fuel to even cook food. It was at this point that it would have been useful to have more immediately edible items such as biscuits, rather than constantly preparing pasta and oats. Morale was still robust enough, but the demands being placed on the team coupled with the poor conditions that we were enduring were beginning to fray the edges.

79. In consultation with the team, it was decided that we had sufficient resources left for one final attempt at launch. The party would move up early on 31 May and remain at high camp for 48 hrs. If this was not successful we would have to admit defeat. In consolation, at least we would have achieved 2 out 3 aims, and managed the logistic task of preparing for the hang-glider launch.

Phase 5 - The Hang-glider Launch

80. WO2 Mitchell writes: *" The rough night had left us virtually sleepless, but nevertheless we headed for the summit not long after first light. Bill joined us just as we were leaving high camp. I seemed to move surprising well and pushed on up the fixed ropes to meet Larry and Al near the summit. Bill accompanied Chic not far behind me. The wind on the summit was blowing freshly from the South. Not ideal, but I busied myself getting rigged in the hope that it would do. I checked my hang-glider and completed my pre-flight checks while Chic finished putting his craft together.*

81. The radio crackled into life and Bryan's welcome voice came over with a comms check. I reported that we would get back to him and that it was looking possible if the wind changed to a more westerly direction. Bob arrived on the summit along with Paul Feasey and Eduardo Manami who brought the oxygen. We felt that a good drag of oxygen just prior to take-off would give us the best chance of running with a hang-glider at altitude. Chic, though happier than before, was still apprehensive about the wind direction, as

taking-off to the south would mean making an immediate bank to the west in the hope of retaining enough height to clear a 19 000 ft hump between us and the flat terrain of the altoplano. We discussed flight plans and areas of possible lift at great length and were locked in doubt when the radio burst in again.

82. "Conditions on the ground are southwest about 5 knots" came Bryan's voice clearly over the wind. Chic's attitude suddenly changed. "That's it. We're going for it" he murmured and headed of towards his kite. I nervously radioed to the ground team that we were going for a launch and to standby.

83. Chic clipped into his glider with a clear determination. He called Eduardo for the oxygen and began to breathe deeply. Bill fired up the camera and took aim. We all stood with bated breath wondering what was going to happen next. Suddenly he flicked up the red wind indicator streamer on his rigging wire, dispensed with the oxygen and picked up his glider. Larry was holding the nose. Chic called for him to release. Larry dived to the left. Chic paused for a moment, leaned forward and started to bound towards the precipice. He stumbled after about six paces and was almost down, but he held the bar and drove on for the vital airspeed he knew he needed. "Yeees" came the exultant cry as Chic dived through the triangle and soared into the air. Everyone on the summit was now cheering crazily as if they had backed a 100/1 shot on the Grand National and all the opposition had fallen at the last fence. Chic flew out, banked right and headed straight towards the 19 000 ft obstacle. He cleared it with no problem and flew out over the altoplano towards our prearranged landing site while we whooped and cheered him on.

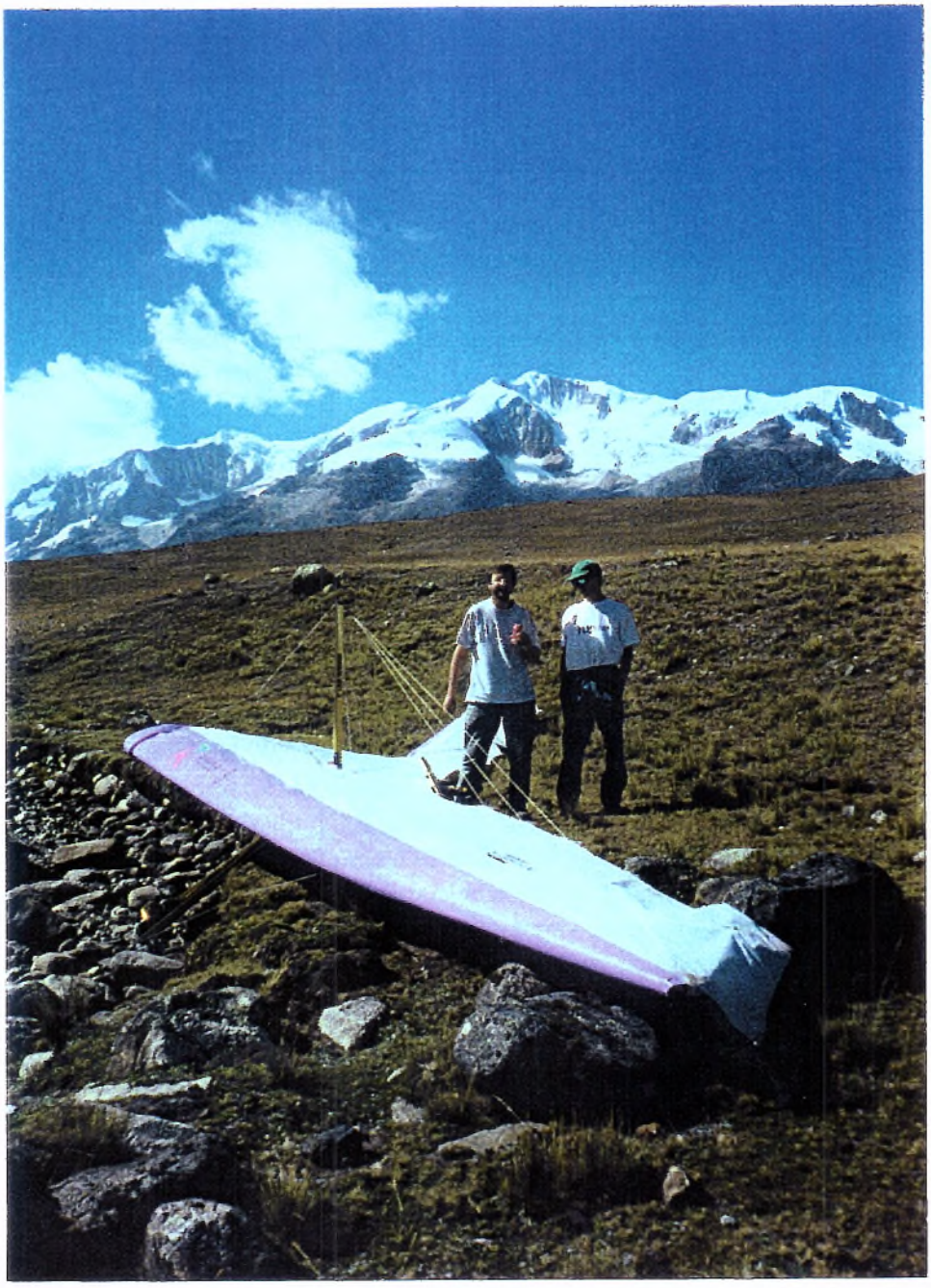
84. It was now my turn. I rushed into the saddle with the confidence of Chic's success in my mind. The difference of course was three stone in weight and this was to prove quite significant in the thin air. I sucked in some gas and rushed off the hill in pursuit of my mate. I immediately became aware of the height loss as I banked to the right after take-off. The flight of my life was beginning to appear to me to be the flight for my life. I headed straight towards the obstacle hill and could not decide from my flight angle if I was going to clear it or not.

85. As I closed on the hill at considerable speed it did not look too good from my perspective. I fumbled round to check where my parachute release handle was. My brain was rushing with a myriad of hypothetical consequences to what I saw as three course of action: head on regardless, bank away to fly down to the glacier, or pull my 'chute and abort.

86. Suddenly I saw a shallow pass just at the top and a little to the right hand side of the fast-closing obstacle. I banked slightly right and then headed straight for it. If I was too low to clear the summit proper perhaps I could sneak through the narrow pass. By the time I had thought more on it I was skimming through the top of the pass with the snow uncomfortably close to my wing-tips. With a whoosh like a champagne cork out of a bottle I was out and clear over the altoplano. I was panting like a puppy dog and was concerned by this time only in finding a flat place to land.

87. It was clear that I did not have enough altitude to make our planned landing field, therefore the nearest flattish alternative would do for me. I was amazed at the speed of my

approach to landing. There was no way I was going to be able to run at 30 miles an hour. I held on to the speed to what I considered to be the very last minute and then forced the nose up hard to induce a stall. Unfortunately I pushed the nose up so hard that the tail clipped a rock on the ground and snapped off. With absolutely no control now, I belly flopped onto the ground and was dragged along for about 30 yards before coming to a grinding halt. To my amazement I was unhurt. I frantically grabbed my radio and called to Bryan and Dave. I was down but not out!"



WO2 John Mitchell and Chic Sermanni at WO2 Mitchell's choice of landing site

Phase 6 - Recovery to La Paz

88. After WO2 Mitchell and Chic Sermanni had flown off the mountain. It was left to the supporting party to recover the remainder of the equipment and make their way down the mountain. Cpl Foden and LPT Sneddon went with Eduardo down the Sorata side and it was left to the remaining 12 members to backload all the kit. Fortunately this process had already started and after spending the final night of 31 May at ABC, we shouldered loads and moved to Intermediate camp. It took 2 days of carrying between Intermediate and Base Camp (with some of our porters making 3 x 45 kg carries a day). On 3 Jun the llama party arrived and we moved in one day back down to Cocoya.

89. That night there was a religious festival in the town and we joined in the celebration, challenging the local side to a game of football. We were comprehensively defeated, but it was enjoyed by all. We settled in for a final night hoping to see our vehicles arrive the next morning. They came as planned and it took a very short time to load up and head off.

90. It was an enormous relief to be extracting the party from the mountains without any major accidents or incidents. We stopped in Sorata and ordered two meals each from an hotel. It was so good to be able to eat again after all the shortages of the last few weeks. On arrival at La Paz we reunited with the rest of the team. Stories were exchanged over more pizza in a downtown restaurant.

91. In the time that we had remaining, a small team led by Flt Sgt Batson, did a fast ascent of Illimani. All members made the summit and it was a most satisfying conclusion to the expedition, especially for Lt Fawcett and Mnes Taylor and Smith, who had formed the hang-glider recovery party and missed out on some of the climbing on Ancohuma. On their return we packaged the kit, arranged air freight back to the UK and starting making our farewells. The Embassy held an excellent party on our behalf and after much entertaining and embellishment of stories it was finally time for us to leave Bolivia.

Phase 7 - The Return Home

92. Our return flight left La Paz at 1430 on 9 Jun 95. We flew to Rio de Janeiro for 4 days of rest and recuperation. This was a superb way to end the expedition and added very little more to the cost. We flew back to Heathrow at 2030 on 13 Jun, arriving 1320 on 14 Jun. We were met once again by a coach from RM Poole. It would be quite a while until we saw our freight again, but for now it was sufficient just to be back in the UK with everyone safe and sound.

Administration

INTERNATIONAL TRANSPORT AND FREIGHTING

93. Transport of the expedition to Bolivia was accomplished using civilian air flights. These were arranged by At Leisure travel services on the Varig Brazilian airline. Tickets were a competitive £680 each with a special negotiated rate of £5 per kg of accompanied baggage. Nearly 500 kg of excess baggage was carried above the weight allowance of 20 kg per person.

94. The only freighted cargo was 2 charged oxygen cylinders and burning paste for the stoves. These needed to be packed as special cargo and taken to the airport in advance. Despite assurances that they would be on the same flight, they were in fact delayed by 4 days, not including the time required for customs clearance.

95. The delays and expenses incurred in clearing customs were considerable. Despite the fact that the material was being only temporarily imported, and as part of an officially-sanctioned expedition, payment of nearly $300 was required. It also took an entire morning (filling 15 separate forms) to free two boxes from customs.

96. Overall, the difficulties and expense involved in transporting equipment to and from Bolivia were very substantial. This was partly caused by the fact that JSE Andes was not able to freight out bulk stores in advance, and partly the limitations of the South American system. There is no real substitute for allowing several months lead-in time for planning, packaging, manifesting and transporting equipment. This also needs to be overseen by reputable civilian customs clearance agents.

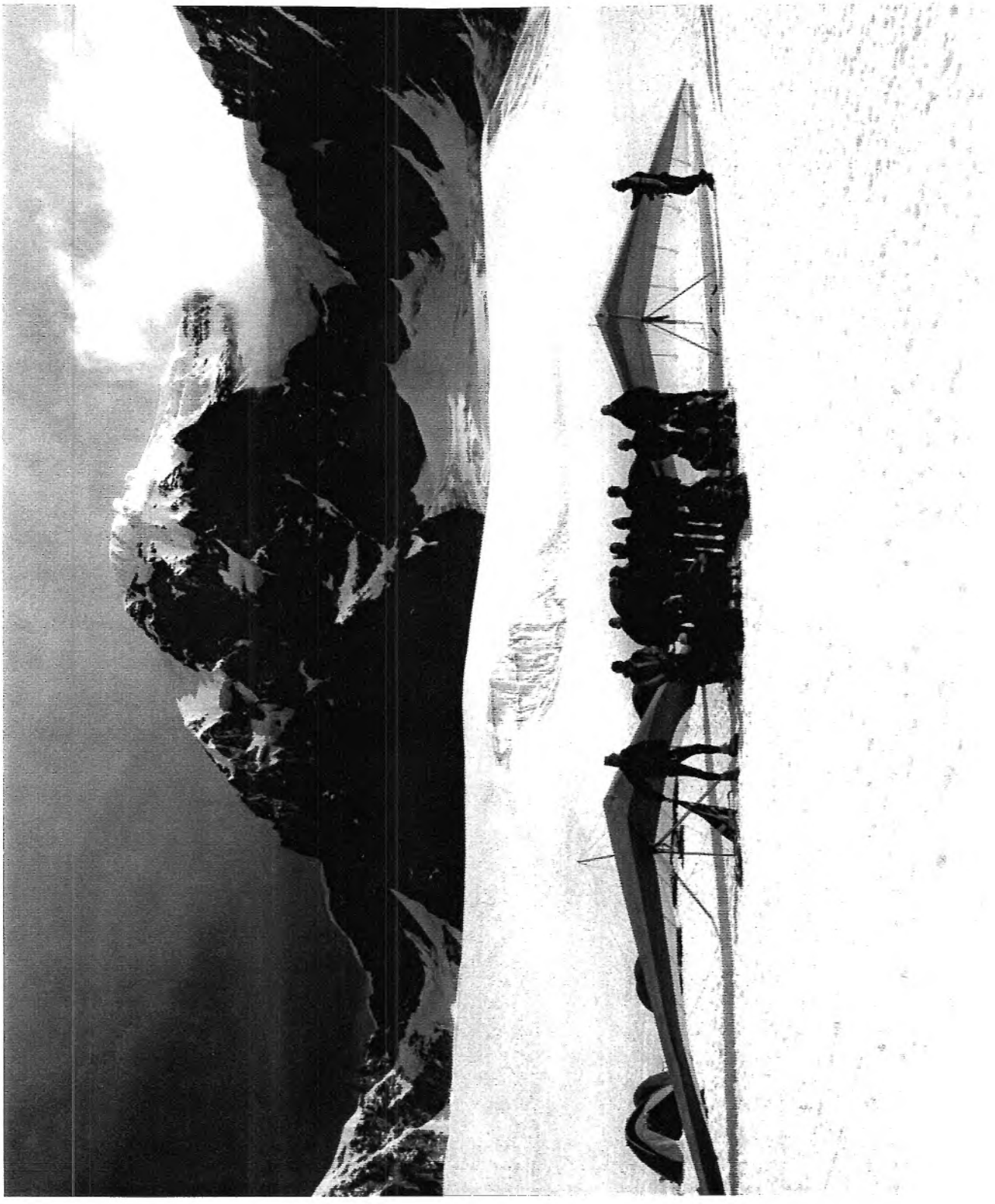
IN-COUNTRY TRANSPORT

97. All expedition transport was hired from Kolla Motors in La Paz. Due to the inaccessibility of the access route, vehicles had to be four wheel drive and cross-country capable. The vehicle provided were mostly Toyota Landcruisers, and were of an extremely high standard. Seven vehicles were required for the expedition moves, however, and at $50 or $60 per vehicle per day (plus mileage) this became prohibitively expensive. There was no real alternative available which could have negotiated the intended route.

98. For future expeditions to the area, the option of approaching the mountains from the Sorata (east) side would be far more economical. Public transport is available to this town or the hire of a lorry and coach. Porterage is easy to hire on arrival, and the route to the Laguna Negra location accessible with only two days march.

99. This would also avoid the problems which JSE Andes encountered in the hire of local porters and llamas in Cocoya. Their isolated position gives them a monopoly, and the expedition was forced to pay twice the standard rate for the hire of nearly 300 llamas. No alternative existed at the time but future expeditions would again do well to consider a different route.

Team members at Advance Base Camp with
main face of Ancohuma in background



HIRE OF PORTERAGE AND GUIDES

100. Before arrival in Bolivia, negotiations had started with the Club Andino, the country's national climbing body, to arrange the hire of local porterage and guides. They were extremely keen to assist, but initially attempted to suggest an alternative itinerary, including the hire of 6 of their guides at $80 per day (a total of $15 500 to be paid for the club's services). From this negotiating position eventually the hire of two guides and six porters (at $40 and $15 each per day respectively was agreed).

101. The two guides, Gregorio and Eduardo Manami, were of great service. They helped to organise food and catering equipment purchase in La Paz and internal transport. On the mountain itself they proved to be excellent climbers and were instrumental in getting the hang-gliders to the summit.

ACCOMMODATION

102. Whilst staying in La Paz members were accommodated at the Hotel Andes in the Manco Kapac area. This provided a basic but comfortable setting at a reasonable price of around $8 per head. The rooms were spartan but clean and hot showers were available. It was very popular with other climbers also.

EXPEDITION EQUIPMENT

103. One of the aspects of having an expedition comprising many relative novices was that there was a lot of personal equipment required. It was relatively straightforward to arrange direct purchase at favourable prices direct from the manufacturers.

104. The vast majority of group stores were obtained on loan from the Adventurous Training Stores Depot at Thatcham. These were of a very high standard and there were no problems experienced in arranging the loan for the duration of the selection, training and expedition periods.

105. The hang-gliding accessories were provided by JSHGC, the signals equipment from RM Poole, jhelper sledges from RM Coypool MAW Stores and the generator from 3 Cdo Bde Comms Tp. Our thanks is extended to all these organisations.

106. The expedition was also extremely fortunate in obtaining the sponsorship of Nera Communications Ltd and HiGrade Computers PLC. These companies provided two INMARSAT satellite communications sets and two notebook computers respectively. The satcom was used for rear-link communications, including transmission of meteorological data. The computers were used for all the expedition administration and planning, and to provide a fax link with the satcom. Both functioned extremely well and were important to the success and safety of the expedition.

EMERGENCY KIT REPLACEMENT

107. As a precaution against the loss or theft of equipment, the expedition set up a facility for emergency kit replacement. By opening an account with a major equipment supplier (Cotswold Camping) and an international courier (DHL Ltd) any losses in transit could be quickly recovered. By a single phonecall or fax, specific kit could be ordered and delivered to La Paz within four days. In the event, this facility was not used, but it was an useful standby, especially in Bolivia where climbing equipment is nearly impossible to obtain. It would have been very annoying to have an item of personal equipment such as plastic boots stolen, and be unable to climb after coming so far.

EXPEDITION FEEDING

108. As previously mentioned, the cost of freighting large amounts of food to Bolivia would have been prohibitively expensive. It was therefore decided that, apart from the arctic rations required for the study, the remainder of food would be purchased in La Paz. This was the correct course of action.

109. All food and cooking equipment was freely available in La Paz at extremely cheap prices. Two heavy duty kerosene burners were purchased with all the cooking utensils required for about $50. With the assistance of the hired porters, sufficient food was bought for the duration, principally in pasta, dried meat, potatoes, biscuits and soups. This was overseen by Sgt C Colley RMP, lately of the Army Catering Corps.

110. The requirement for fuel was greatly underestimated at this stage. Whilst on the glacier, kerosene usage to prepare porridge for breakfast, soup for lunch and a cooked evening meal, was in the order of 7-8 litres every day. We had estimated a maximum consumption of 5 litres per day and this imbalance had to be corrected by resupply. It could have been made easier by having more ready-to-eat foods available, such as biscuits.

RESUPPLY

111. Fuel and food resupply was available on the mountain from Cocoyo, but at higher prices than in Sorata. Not only were the basic commodities expensive, but llama transportation to base camp had to be paid on top. It was undoubtedly useful to have this facility available, and it alleviated a pressing fuel problem, but it would best be used exclusively for the purchase of fresh vegetable and meat. Again, future expeditions to this area would be advised to arrange resupply more cheaply and easily direct from Sorata.

MEDICAL

112. The expedition doctor was Capt L Woolrich RAMC. Bulk medical supplies for the expedition were obtained by Lt Dinmore from the RNH Haslar with shortfalls made up from the sickbays of RM Poole and RMA Sandhurst.

113. No major medical incidents or injuries occurred on the expedition.

INSURANCE

114. Additional insurance was required for the participation of the civilian hang-glider pilot, Mr Sermanni, to cover medical expenses, indemnity and repatriation. Civilian equipment on loan to the expedition was covered for loss or accidental damage. All individual members were also advised to take out personal kit insurance and to inform any life assurance companies of their participation in a mountaineering expedition. All policies were commercial standard policies arranged through an insurance broker.

METEOROLOGICAL REPORTS

115. These were kindly provided by the meteorological office at RAF Strike Command, High Wycombe. Data was requested on wind-speed and direction at different levels for the hang-glider launch, temperature, precipitation and general outlook. This was faxed to CTCRM for onward transmission to the satcom and computer fax at scheduled times. This functioned well, although all the weather forecasts had to be adjusted for the effects of the mountain on their overall pattern.

Conclusions

RECOMMENDATIONS FOR FUTURE EXPEDITIONS

116. Overall, JSE Andes 95 can be judged a successful expedition in that all the aims were achieved and the entire party returned without loss or injury. An element of risk is inherent in (and intrinsic to) all adventurous training, but it is in the detailed planning and training to minimise these dangers, that the participants learn lessons.

117. Various minor points and local knowledge are included in the main text, and can be found under the relevant headings. The following major planning points were high-lighted as a result of the experiences of this expedition:

a. The expedition attained a 100% safety record. This was partly good fortune, but the safety of the expedition was considerably enhanced by running 5 selection and training meets prior to the main mountaineering, giving all members a total 27 days instruction / experience on the hill.

b. Considerable difficulties were experienced and the expedition almost cancelled because of delays in obtaining diplomatic clearance. With hindsight, any logistically-complicated undertaking should only be considered in the most politically-stable countries.

c. The importance of a thorough reconaissance visit cannot be over emphasised. Circumstances precluded JSE Andes from mounting a recce and additional difficulties and expense resulted, not least for the British Embassy staff.

d. The workload involved in mounting an expedition of any size and complexity has been hinted at in this report. Demise of the expedition almost occurred several times due to professional conflicting demands on the leadership. If adventurous training is still to be recognised as a highly effective and cost-efficient form of peace-time training, then priority must continue to be given to releasing the organisers for extended periods. The professional experience gained should justify the investment.

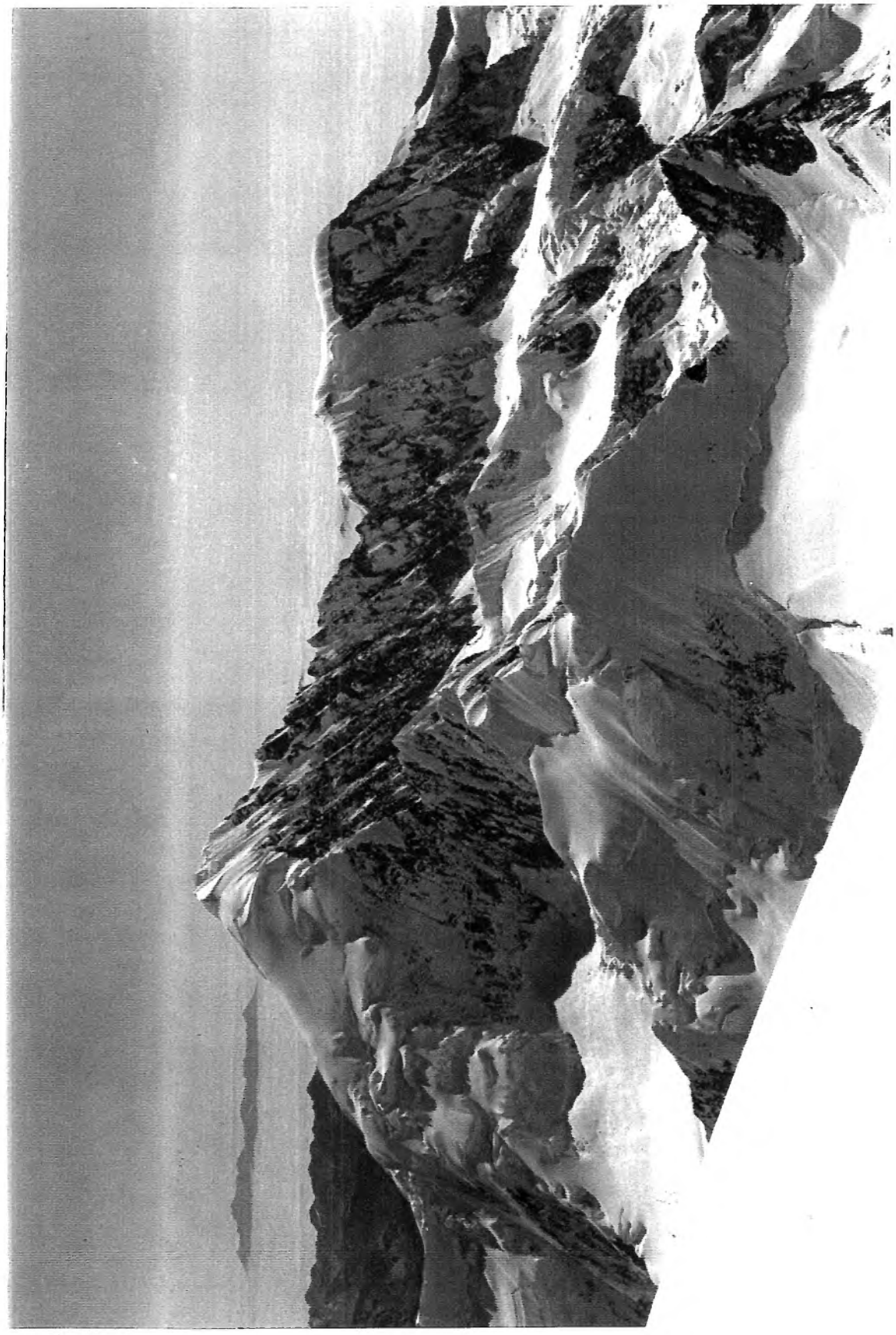
Alistair Dinmore

AJ DINMORE
Lieutenant Royal Marines
Expedition Joint Leader

Annexes:

A. Acknowledgments
B. Expedition budget

Mt Illampu and Pico del Norte seen from Ancohuma summit



Annex A to
CTC 08/02/032
dated 30Jan 96

The Expedition would like to thank the following major financial backers:

The Joint Services Expeditions Trust
The Sailors and Fleet Amenities Funds
The Naval and RAF Sports Lotteries
Bournemouth University
The Mount Everest Foundation
RM and RAF Adventurous Training Grants
Strategy International
The Trent Memorial Fund
RM Corps Funds

We would also like to thank the following individuals and organisations for their efforts on our behalf:

The Directorate of Naval Physical Training and Sport
The British Embassy in Bolivia
The British Defence Staff Washington
Sir Brian McGrath KCVO
The Secretaries to the Naval Secretariat
The Commandant General Royal Marines
The Commandant of the Commando Training Centre Royal Marines
The Commandant Royal Marines Poole
The Commanding Officer Comacchio Group Royal Marines
The Joint Services Hang-Gliding Centre
Meteorological Forecasts Office, RAF Northolt
Adventurous Training Stores, Thatcham Sub Depot
Inspector of Physical Training Royal Marines
Reprographics Department RNAD Coulport
Royal Marine Video Production Unit
London Regent Hotel
Club Andino Boliviano
Sir HY de la R Beverley KCB OBE
Dr JS Milledge MD FRCP

And the major equipment sponsors of the Expedition:

HiGrade Computers PLC
Nera Communications
Rab Down Ltd
Greenhills of Arbroath

Annex B to
CTC 08/02/032
dated 30 Jan 96

Summary of Expedition Income and Expenditure

INCOME

CILOR	4 855.80
Civilian Grants	2 500.00
Eqpt repayment	3 711.23
Investment Income	318.38
Raffle	774.00
Sales of T-shirts	1 917.00
Selection fees	315.04
Service grants	23 606.70
Sponsorship	1 495.00
Subscriptions	16 972.24
TOTAL INCOME	56 465.39

EXPENSES

Accommodation	2 978.06
Alps trip	3 352.14
Bank charges	43.27
Computer expenses	510.07
Cooking Fuel	98.91
Customs	302.67
Equipment	7 608.71
Farewell Dinner	507.85
Feeding	2 823.57
Films	1 708.17
Flights	14 495.64
Freight	4 019.46
Hang-glider repair	653.47
Hire of Guides	1 846.33
Hire of Llamas	1 163.19
Hire of Porters	2 795.88
Insurance premiums	363.80
Post-exped admin expenses	729.66
Pre-exped admin expenses	1 607.82
Refund of subscriptions	811.09
Satcom call charges	657.45
Selection expenses	158.58
T-shirt purchase	2 091.52
Vehicle hire	5 138.08
TOTAL EXPENSES	56 465.39
INCOME LESS EXPENSES	0.00

From L to R, Lt Mike Fawcett, Spr Dave Sheridan,
Lts Paul Blakesley and Alistair Dinmore on Ancohuma summit