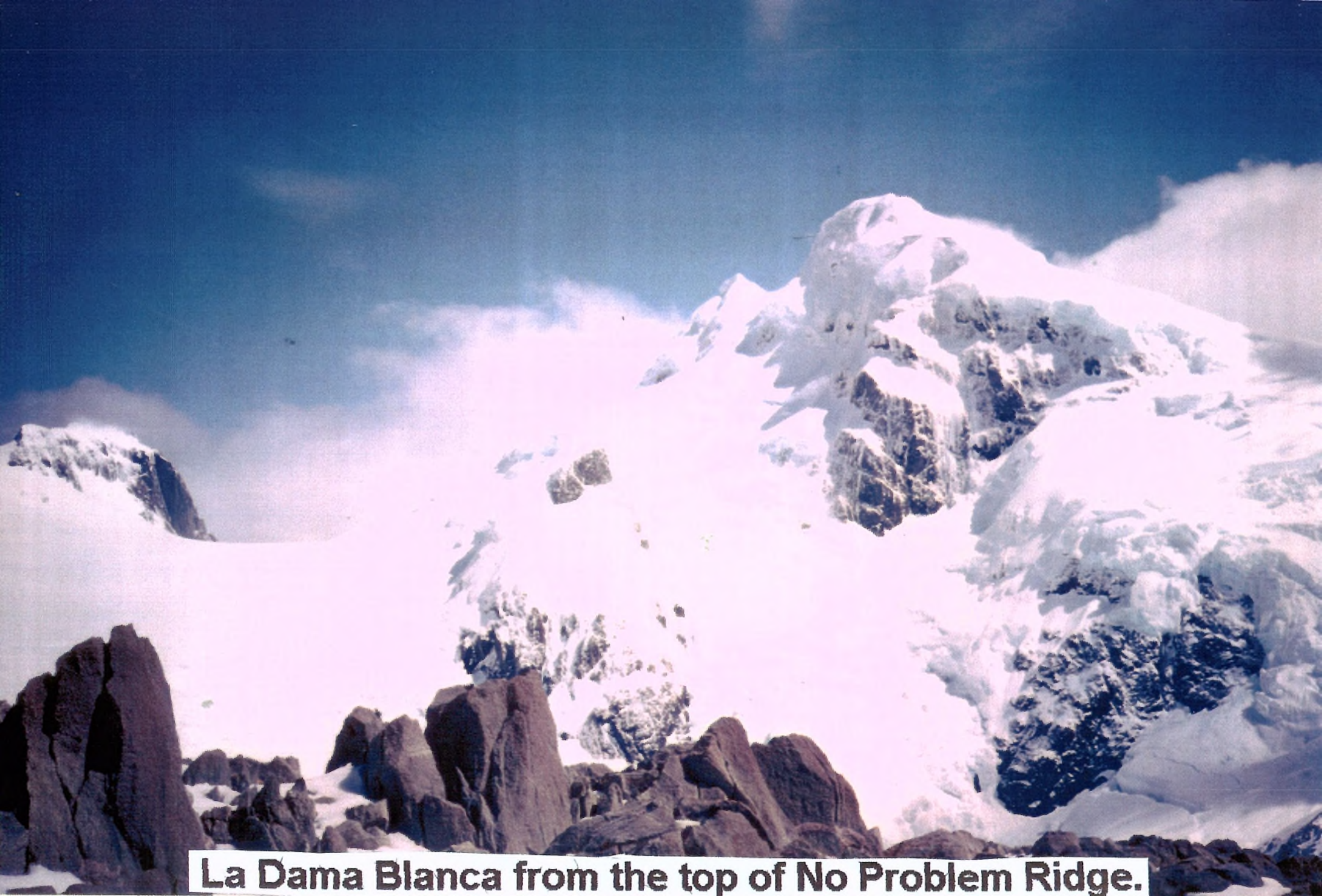


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MEF 98/2

**1998 BRITISH
CORDILLERA
SARMIENTO
EXPEDITION**

+ 523



La Dama Blanca from the top of No Problem Ridge.

KEY WORDS:

Cordillera Sarmiento.
Patagonia.
Chile.
La Dama Blanca.

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D. Hillebrandt.

MEMBERS:

Dr. David Hillebrandt,
General Medical Practitioner,
Derriton House,
Derriton,
HOLSWORTHY,
Devon,
EX22 6JX.
England.
Tel: 01409 253814.

Mr. Nick Banks,
UIAGM Mountain Guide,
Green Bank,
Betwys y Coed,
Conwy,
LL24 OAW
Wales, U.K.
Tel:01690 710288

Mr. Chris Smith,
Freelance Mountain Instructor,
Ty Capel Dinas
Roman Bridge,
Dolwyddelan,
Gwynedd,
LL25 OJQ
Wales, U.K.
Tel: 01690 750337

Mr. Nigel Washington- Jones,
Headmaster,
Spring Grove School,
Wye,
Ashford,
Kent.
TN25 5EX
England.
Tel:01233 812337

INTRODUCTION

At 52 degrees south and about 50 miles west of Puerto Natales in Chilean Patagonia is the 40 mile long peninsula of the Cordillera Sarmiento *. The Cordillera Sarmiento runs from one of the southern tips of the Patagonian icecap in the north to Cado Ernest in the south. It has a vast array of alpine scale peaks rising out of the Fjord of the Mountains on the east and Taraba Sound to the west. In 1990, whilst returning from a trip to the Cordillera Darwin, I was fortunate enough to meet the Colorado based American climber Jack Miller in Punta Arenas, who for over 30 years has explored the mountains of southern Chile. He mentioned this unexplored range and research since showed that only one expedition had been active in the area and that was led by Jack in the winter of 1992. In 1976 he had also made a foray across the Fjord of the Mountains when climbing the highest of the elegant rock towers known as the Three Furies, located on Peninsular Roca which forms the eastern side of the Fjord of the Mountains.

In 1995 I visited the range with Keith Atkinson and Robin Earle and despite poor weather we made the first ascent of Pico Anwa. We attempted to climb La Dama Blanca, the highest peak in the range, from the west but failed due to bad weather, an extended and remote route and an unexpected and unmapped valley with high avalanche risk.

After two visits to the Cordillera the reason that it is so unexplored and unmapped slowly becomes apparent. It makes it's own very wet microclimate within Patagonia, already known for it's prolonged storms. We thought that the 1995 weather was bad. The 1998 weather was much worse ! It has almost permanent cloud cover although on rare clear evenings one can see the distant lights of Puerto Natales from a high camp, I suspect this only happens on a dozen days in the year, and then may only last for a few hours before the next storm arrives. One nearby station reports over 8 metres of rain per year and I now know that the Cordillera Sarmiento well exceeds this estimate.

* Not to be confused with Monte Sarmiento on Tierra del Fuego.

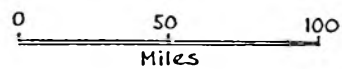


A R G E N T I N A

ATLANTIC OCEAN

PACIFIC OCEAN

SOUTHERN PATAGONIA AND TIERRA DEL FUEGO



Glaciers and Icefields



76°W 74°W 72°W 70°W 68°W 66°W

48°S 50°S 52°S 54°S 56°S

Gulf of Peñas

Baker Channel
WELLINGTON ISLAND

P.O. Baker

R. Deseado

Puerto Deseado

Lago San Martín

Río Chico

San Julián

Mr. Fitzroy

Lago Viedma

Río Santa Cruz

Santa Cruz

Lago Argentino

Paine

Río Gallegos

Cordillera Sarmiento

Puerto Natales

Road

Cape Virgins
Strait of Magellan

Strait of Magellan
Cape Pillar

Punta Arenas

TIERRA DEL FUEGO

CORDILLERA
Mr. Darwin
DARWIN

Beagle Channel

Cape Horn

GETTING THERE.

Reaching Puerto Natales is depressingly easy since it is the Gateway to the Paine National Park and acts as a conveyor belt for gringos following the South American Trail.

We flew from London direct to Santiago with British Airways. This was organised by the excellent specialist Travel Agency "Journey Latin America", 14/16 Devonshire Road, Chiswick, London, W4 2HD, Tel: 081 747 3108, Fax: 081 742 1312. British Airways excelled in coping with our excess baggage and even gave us a much appreciated upgrade on the return trip. Fly the Flag !

This was the Fourth Patagonian Expedition where I had relied on the services of J.L.A. They have a personal knowledge of their specialist country and offer a bilingual service. Their knowledge of the variety of fares on offer was impressive and they also had a good grasp of the baggage needs of climbers. They did not rush us for payment and remained flexible about ticketing and late changes. Financially they sponsored us by giving reduced cost tickets.

We were booked to Punta Arenas with Lan Chile but previous experience shows no difference between the prices and internal service of both Lan Chile and Ladeco. Both have a basic luggage allowance of 30kgms per person and seem flexible about this. A chat with the Captain of the plane resulted in us banking several times over the Cordillera Sarmiento to try and give us a view of our objective. Unfortunately it was cloud-covered. Some of the other passengers were amused by this, others slightly confused.

From Punta Arenas to Punta Natales (200kms, 3 to 3.5 hours) there is a surfaced road with several bus companies offering an almost two hourly service with apparently unlimited baggage for 2,500 pesos per person. For a large group a booking 24 hours in advance may be worth while.

SANTIAGO.

Santiago Airport has an International Terminal with all the expected facilities including left luggage (expensive), located a short walk from the Internal Flight Terminal. Buses at 800 pesos offer the cheapest way direct to the centre of the City. Hotel Touts offer genuine good deals at the Airport and do not expect payment until you reach your Hotel. We paid U.S. \$42. for a two bedded room with private bathroom in a two star Hotel in the centre of the City.

Santiago is like any other South American Capital City with all the products and services one would expect. It is a pleasant city to wander around, or to use their cheap and efficient Metro. Maps of the country can be purchased from the Instituto Geografico Militaire, Diecieocho 369, near Los Heros metro station.

PUNTA ARENAS.

Punta Arenas is the capital of Southern Chile. The airport is located 20kms from the City and a bus costs 1,000 pesos. From the centre of Town one of the many taxis will take you with your baggage almost anywhere within the City for less than 1,500 pesos. For unladen journeys collectives are cheaper.

The Town is full of Residencias offering clean, comfortable and secure accommodation. We again used the Residencia Nena, 366 Boliviana, Casilla 91, Punta Arenas (Tel: Punta Arenas 242411) run by Maria, who has built up an excellent reputation with British Climbers over the last ten years. We wrote to her before leaving the U.K. enclosing a U.S. \$20 cash deposit and booking our room. She charges 3000 pesos per person per night, including a good breakfast.

Shopping in Punta Arenas is easy. Supermarkets are well-stocked with food suitable for climbers and sailors. Gas is available, Kerosene can be purchased from Hardware Shops (Ferraterias) which also sell pots and pans, stoves, fuel containers, welly boots, axes, shovels etc. Nick was in his element in the Ferreteria Marsan, Magallanes 774, (Tel Punta Arenas 226511) and felt the expense of the whole trip was justified simply to experience this Aladins cave of equipment that lines the floor, is stacked on shelves and hangs from the ceiling. Prices are a bit less than the U.K. so with baggage limits it is best not to take these basic items with you.

We purchased food for 30 days in one massive Supermarket session. Despite arriving between Christmas and the Chilean New Year Holiday, we did all our shopping in two days.

All one's requirements can be purchased in the centre of the Town or one can get the same things at the same prices in the small area known as the Zona Franca, located 3kms from the Town opposite the Instituto de Patagonia.

The Institute and Museum are worth a visit. "Agostini" Museum next to a Church near the cemetery gives an insight into the Mountain exploration of the area, and is almost a "Museum of Museums" with its stuffed and pickled animal specimens and a curator who exudes the smell of mothballs.

With good restaurants and bars (3 course evening meal 3000 pesos), impending obesity is a major risk.

PUERTO NATALES.

Puerto Natales cannot be faulted in terms of friendliness and help from the locals but it's main industry is "Gringo Processing". Every street has several Residencias and Werner and Cecilia, the english speaking owners of Casa Cecilia at Tomas Rogers 60, (Tel: Puerto Natales 061 411 797) were exceptionally helpful. Places can be booked in advance. There are Supermarkets and Ferraterias but prices are higher than in Punta Arenas and the selection much smaller. One can quickly tire of Salmon or Steak and chips in the numerous Tourist Restaurants. The Hamburger Completo at Nerio's 24hour cafe near the harbour has to be seen to be believed and makes the average McDonalds plastic experience look like a synthetic snackette. Smithy thinks he speaks highly of the delights of the Disco Mathedon but he is not quite sure. It is easy to arrange side trips to Paine from here at the end of an expedition if one tires of the mountains of food whilst waiting for a bus home.

BOAT "CHARTER".

Costs for transport for the sea section of the journey to the mountains vary according to the budget, degree of comfort and sense of adventure or impending death.

In 1995 personal approaches to local Fishermen resulted in us travelling in on the Soberania 2. This is a 45 ft. fishing vessel with a crew of 3. They charged a total of U.S. \$350 for the trip to the mountains and were due to pick us up five weeks later for the same fee. The Soberania 2 was equipped with a G.P.S., Radio and Echo sounder. It also had a life raft.

We eventually travelled back to Puerto Natales on the 30ft. fishing boat Deysi. It had a crew of 4 but one member was left behind with a thin sleeping bag, tarpaulin, gun, axe and bag of flour to chop wood for five days before his companions returned. This was a hitched lift and we were fed and hosted well with seats next to the wood burning stove in the cramped cabin with no mention of cost. When we gave them our battered pots and pans and U.S. \$100 on arrival in Puerto Natales, they were thrilled, but I suspect they had been well entertained by the terror of the two non-nautical Expedition Members. We had been hit by a storm, the cargo shifted and we hopped from island shelter to island shelter making good use of a primitive bilge pump for the last four hours of the 12 hour journey. The boat was underpowered, overloaded, had a radio and one half inflated but patched car inner tube painted red and white as a safety aid. The boat seemed to cope with a 45 degree list!

In 1998 we were treated to the full hospitality of the Chilean Coastguard (Gobernacion Maritima). Teniente De la Fuente and the crew of the Villarrica transported us to our ridge and picked us up a month later with a fantastic welcoming bottle of Whisky. The comfortable journey lasted five hours and it was a treat to watch these professional sailors in these complex channels. I just wish that there was some way we could repay the hospitality that the Chilean

authorities in Punta Arenas, Puerto Natales and Puerto Williams have shown us on so many mountianeering trips.

BUREAUCRACY.

On previous expeditions to Patagonia no official permission has been needed. We were aware that a scale of Peak Fees had recently been imposed within the Paine National Park, and, correctly, hoped that they would not be imposed in our area. Before leaving the U.K. the Chilean Embassy in London kindly provided us with a letter of introduction that eased our way with the Naval authorities in Punta Arenas who. It is good to see that the traditional links between our two navies are still so strong.

THE MOUNTAINS.

A Poem by "W-J"

The Lady in White

The finger fiord points north.
Mapped coast contours yield to
Terra Incognita.

Our visit irrelevant as snowflakes.....
This landscape wind-scoured
By Millenia.

Rain comes and goes, with the
Sleet and the snow, but only the wind
Is never-ending.

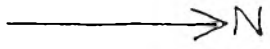
And above it all, the Lady in White,
Her seracs gathered tightly to the
Folds of her dress, severe, virginal.....
La Dama Blanca.

24.1.98.

The Alpine Club arranged a symposium on South American Climbing at Plas y Brenin in 1997 and at one stage there was a group of Britain's most experienced Patagonian exploratory mountaineers and sailors sitting in the bar. The whole conversation was dominated by the weather and technical difficulties were never mentioned. This sums up this type of expedition where wellies and dry socks are more important than bolts and hero loops.

There are very few ranges in the world where base camp can be four feet above sea level, supper can consist of fresh mussel stew but there is a constant sound of crashing glaciers. The first section of the route involves low tide rock moves on a small sea cliff, then bog, magnificent lush moss covered forest, open hillside, small lakes and a grade two scottish ice pitch onto a glacier.

Our route description is simple. Start at the bottom of the next ridge south of Jack Miller's "No Problem Ridge". Follow this ridge passing a bleak and exposed camp site at 808m just below the glacier snout. Climb onto the glacier and walk south west to a rocky shoulder on a ridge. Cross this ridge and descend on a traversing line into the upper glacial bowl. Cross this second glacier to the south west and then swing west towards the serac band that guards the south ridge approach to La Dama Blanca. We got to within three hundred meters of the top of the peak on 19th January 1998 and turned round in failing weather finally battling our way out of the "lobster pot" trap of the upper glacier bowl.



Serac
La Dama Blanca
High Point 1998

Grenlins Cap
Pico Anwa (1995)

Camp Snowbowl

Ice Fall

3900 ft.

Snow Hole

Snow Field

1998 Route

1995 Route

Hangina Valley

Rock Buttriss

Ice Fall

Steep Gully

808m Camp

stream

Very Steep

Small Lakes

Lake Base Camp

No Problem Bay

Lake Miller B.C.

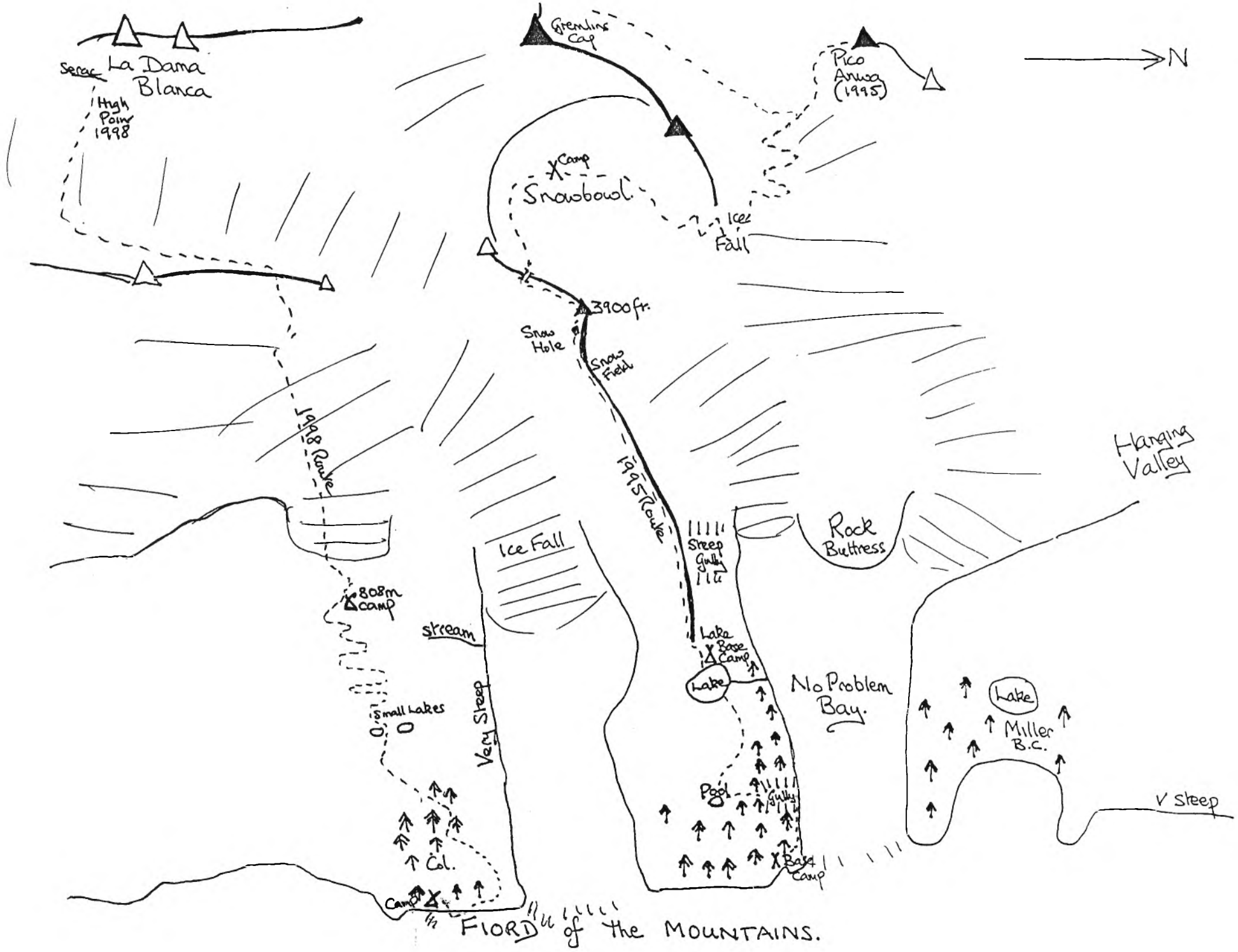
Col.

Pool

Gully

Very Steep

FIORD of the MOUNTAINS.



Some bare facts may give some insight into the reasons for our "failure":-

28.12.97 Arrive Punta Arenas.

2.1.98 Arrive base of ridge. Spend 5 hours constructing a platform in woods at sea level big enough for one Terra Firma tent. Cooking area under tarpaulin is constantly in 10cms of water.

3.1.98 to 6.1.98. Spent finding route and carrying load to a potential campsite at 800m. Rain and sleet every day. One day stormbound even at sea level. Decide that with this weather pattern only hope is to sleep as high as possible and make full use of any and every break in the weather.

7.1.98 to 9.1.98 Stormbound at 800m camp. Two gaps in weather one of one hour and one of one and a half hours. Fix 50m of rope on glacier snout.

10.1.98 Five hour gap in weather. Find route onto shoulder above upper glacier bowl. Nick and Chris do a supply run to sea level and back (soaked).

11.1.98 Stormbound.

12.1.98 Six and a half hours of "good" weather. Force route on into snow bowl before storm returns and forces a retreat.

13.1.98 to 15.1.98 Stormbound except for one half hour gap that enabled us to reach the glacier snout (15 mins) and retreat in the next storm.

16.1.98 Five hours of passable weather. Good enough to be able to stand up when on glacier. Push route out a bit further.

17 & 18 .1.98 Worst storm. Wind begins to destroy tents. Battle for seven hours to make new platform 5m lower down in small sheltered bay created by snow that has melted since our arrival. Lot of shovelling and tent repair work.

19.1.98 Four and half hour gap in storm. Reach our high point. For the first time the return of the bad weather comes slowly (normally reaches full ferocity within 15 mins). This makes the decision to retreat harder, but by the time we crawl back to the tents we knew it was the correct decision.

20.1.98 to 24.1.98 Stormbound ! There was one 30 minute and one 45 minute letup in the wind, sleet, snow and rain.

25 & 26.1.98 Both days had several gaps of two hours in the weather pattern. Each time we started out again but failed to get high before the next belt of wind and rain.

27.1.98 Stormbound.

28.1.98 Retreat in high winds and rain.

29.& 30.1.98 Storm at sea level.

31.1.98 Puerto Natales. We love the Chilean Navy!

Weather Data: In 28 days on the ridge we had four significant breaks in the weather. One for six and a half hours, two for five hours and one of four and a half hours. These times are from the moment of the last strong gust of wind to the moment when retreat was the only option.

"Stormbound" means that the weather was so bad that it would be impossible to stand outside the tents without bracing one self and crouching. There would be a very severe risk of being blown off the glacier snout. The rain or sleet were so heavy that soaking to the underwear within an hour was inevitable. There was normally at least one ten minute let up in the weather every 24 hours which meant that we could get out for a crap, check the tents and collect snow or water.

In this type of environment it is vital not to lose one's momentum. We kept our hill sacs packed and made weather checks every few hours during the night. We could leave the 800m camp within 20 minutes of a weather break. Operating like this we left for eleven attempts on the mountain. Some finished within an hour as the weather broke.

Quotes from the trip:-

"La Dama Blanca..... The Reluctant Virgin."

"The mountain that plays with us"

"This is not life on the edge, it is life beyond the edge"

"I have now worn the same clothes for 28 days"

"After a week the smell of crutch and sweat reach an equilibrium"

"Lunch is TWO anchovies on broken crackers"

"This is the hardest mountain climate in the world" from a New Zealander who has camped on the South Col of Everest.

"Good sleep, despite the fact that I am having a close relationship with a boulder"

"All we need is that gap in the weather....."

"Without you I would have gone mad but with you I am crazy"

"Psychologically I could never face another trip to this area....."

And then the boat came to take us away and after a few Whiskies and a meal we started to plan a return trip.....

Five months later I pitched my tent at the Glastonbury Festival. It rained and blew and rained and I lay there with the light inner fabric just in front of my face and the sound of the weather and it reminded me of a recurrent nightmare that haunts me.

EQUIPMENT.

Since equipment is needed for wet/cold conditions, British designs seem to work well.

We climbed in light plastic double boots and with Yeti-type gaiters, and these performed well, but in the forest nothing rivals wellies, purchased in Chile and often worn without socks, since we all found that punctures developed within hours of landing.

The breathability of Gore-tex in these conditions is a myth. It is possible that Triplepoint Ceramic fabric worked better but even this "failed". We used a mixture of light Karrimor Goretex, more robust and efficient Berghaus Goretex and the Lowe Triplepoint ceramic for shell clothing. One member swore by a Buffalo Suit but despite all the advice from the makers, found it only stood up to this type of climate when backed up with thermal underwear and a Gore-tex shell. It's windproof and quick-drying properties were excellent. On any future trip I would consider a pertex and fibrepile base suit and Paramo shell with the logic that in some climates it is impossible to keep water out so it is best accepted and then quickly dried.

All mittens leaked and dampness pervaded everything so plenty of spare inner gloves and socks are essential.

Down sleepingbags would be useless so we all used synthetic bags. A North Face Snowshoe excelled. We all constantly used Gore Tex or Terra Nova bivi bags on our sleeping bags.

For storage Ortlieb dry bags were brilliant but most of us relied on packing things in plastic bags, in plastic bags in ortlieb bags!

Our three Wild Country/ Terra Nova Tents were simply described as brilliant. On the company's advice, we took double sets of poles for the extreme winds and extra ground sheets to protect them on the boggy stubble and rocks that cover the ground at lower camps. They coped well with all the wind and rain and with our abuse. Long SOS Terra Nova pegs helped and are designed to be used as conventional pegs or buried or wedged sideways. At our sea level base camp we used one Terra Firma tent which was comfortable for all four of us. Higher up we used two older Super Nova Tents. These took an amazing hammering in constant winds and at times were bent to the most bizarre shapes but always kept us safe even when guys tore on rough boulders. The oldest was a veteran of three previous expeditions, including one to the Cordillera Sarmiento, and by the end of this trip wear to the edge of the flysheet caused by rocks meant that it was sold for \$100 in Puerto Natales.

It was well worth having the extra space of a Super Nova for two people in view of the long periods spent trapped in storms. For future trips I would certainly take Terra Nova tents but possibly consider having a Snow valance fitted and a heavier duty ground sheet.

Two simple Tarpaulins were invaluable for wind and rain protection of stoves and a cooking area in the woods.

The two adjustable plastic Ortovox shovels coped with the large and heavy amounts of glacial rubble that had to be moved to make tent platforms.

We all used Karrimat and/or Thermarests and these kept us comfortable during the prolonged storms.

Glacial route finding in a storm would have been a nightmare and we took regular compass bearings and marked the trail with pieces of coloured material anchored to snow cairns. These were removed on descent.

Unlike other areas of Patagonia, the wood here is too wet to be used for reliable cooking fuel, so we cooked on MSR Stoves. Nick prepared two small, light plywood boards to protect the groundsheets when cooking in the tents. These were worth their weight in gold but should have been slightly bigger to act as card tables for our small sets of patience cards.

Propane and Butane fuels are available in Punta Arenas. We purchased 20 litres of Kerosene in two strong and leakproof plastic containers in Punta Arenas. Extra plastic containers were also purchased to act as personal piss pots. This caused some laughter in Punta Arenas but made life much more comfortable on the Hill especially since some of the team are reaching the golden age of the prostate.

Karrimor, Berghaus and an old expedition Lowe rucsac performed well. The complexities of the new Lowe Crossbow sac used by one member baffled all of us and was useless in these harsh climates where simplicity is essential.

We took but did not need rock pegs and a set of nuts. All members carried two ice screws. Snow stake were more reliable. We mainly climbed together on a 60m rope but did fix two 50m single 9mm. ropes on the initial glacier snout which facilitated retreat in bad weather. Long shafted (60cm.+) ice axes and hammers were reassuring on the coarse snow and some of us liked ski sticks on the glaciers.

MAPS.

The best map of the area is the 1:100,000 Cordillera Sarmiento de Gamboa sheet, number 5130-7245 Seccion K No28 sheet produced in 1988 by the Instituto Geografico Militar. On this sheet the height of La Dama Blanca is shown as being 1925m. The immediate approaches to the peak are shown as being inaccurately mapped due to persistent cloud cover. Aerial photographs have been taken by Jack Miller but copies were not traceable at the Instituto Geografico Militar in Santiago or available from Jack.

The sketch map in the National Geographic magazine Vol:185 No:4 April 1994 showing Jack Miller's route is purely an artist's impression and gives no real idea of the terrain.

BIRD SPECIES

This is a record of all the bird species seen during our 28 day stay in the Cordillera Sarmiento in January 1998. The whole expedition was spent on one ridge between sea level and 1650m.

The base camp was directly beside the sea water fiord. The ridge was glacier scoured rocky terrain with small patches of Southern Beech (*Nortofagus*) forest up to 300m. Above this alpine grassland extended to 400m and then bare rock to the snowline at 800m.

Black Browed Albatross (*Diomedea melaophris*).

Seen in the Kirk Channel on the boat trip to and from the Base Camp but not present in the Fiord of the Mountains.

Imperial Cormorant (*Phalacrocorax atriceps*)

Regular flights of five or six Imperial cormorants were seen passing base camp.

Olivaceous Cormorant (*Phalacrocorax olivaceous*)

Less common at base camp than *atriciceps* but seen regularly, usually alone.

Flightless Steamer Duck (*Tachyeres pteneres*)

One breeding pair on the fiord at base camp with three young, seen throughout our stay.

Kelp Goose (*Chloephaga hybrida*)

One pair resident throughout our stay at base camp.

Andean Condor (*Vultur gryphus*)

One pair and one juvenile seen soaring throughout our stay whenever the windspeed allowed them to be aloft.

Turkey Vulture (*Cathartes aura*)

One bird seen on three occasions soaring over the top of the forest on the ridge at 300m.

Rufous Chested Dotterel (*Zonibyx modestus*)

One pair seen regularly at 300m on terrace just above the forest line.

White Bellied Seedsnipe (*Attagis malouinus*)

Single birds and pairs seen on three occasions on ridge near to vegetation limit at 600m.

Chilean Skua (*Catharacta chilensis*)

Single birds seen over islets in fiord predated over nesting sites of *Larus dominicanus*.

Southern Black Backed Gull (*Larus dominicanus*)

Common on fiord nesting on islets near the terminal glacier.

Spine Tailed Rayadito (*Aphrastura spinicauda*)

Present at base camp and in forest near tree limit. At least two pairs, very noisy.

Dark Bellied Cinclodes (*Cinclodes patagonicus*)

One bird seen regularly at base camp and another regularly at camp at 800m.

MEDICAL.

If an accident were to occur in the Cordillera Sarmiento the main problem would not be medical but logistical in terms of initially obtaining any help and organising evacuation. We took a satellite phone with us and would only have used it in emergency to call for help. We had the contact numbers for the, ever helpful, Chilean Navy. Since the phone only had battery power for two hours use we only turned it on to test it on two occasions. At sea level in the steep sided fiords it did not work.

From the medical point of view our Expedition was a major success since the Expedition Medical Kit remained unopened. The total kit weighed less than 1.5kgms and would have helped me deal with most emergencies. It contained courses of Ciprofloxacin and Metronidazole as antibiotics. Our strong analgesic was injectable Nalbuphine since it is not controlled under International Regulation. We also carried Slow Release Diclofenac as a anti-inflammatory analgesic and Codeine Phosphate since it can be used for pain and to constipate. A small surgical kit was carried together with suture materials, 2% Lignocaine local anaesthesia and Ketamine as a general anaesthetic, to enable us to scrub and set anything as serious as a compound fracture. Diazepam was carried to cover any Ketamine recovery reaction. On the logic that needles and syringes can be re-used on the same patient, only a few were carried. I.V. cannulae were carried, although no fluids. The needles could be used if the patient needed further aid at a local hospital, but I have also used them in remote areas to improvise bladder and chest drainage. A urinary catheter was carried and this can also be used to give rectal fluids to an unconscious patient.

The kit contained Cavit temporary dental filling but far more important was a pre-trip visit to the Dentist. Prior to departure, members were encouraged to ensure that their Tetanus, Polio, Typhoid and Hepatitis A injections were up-to-date. Drugs for personal minor medical problems such as athletes foot were obtained in the UK and given to the relevant person prior to departure.

On the hill, each member carried a small personal First Aid Kit weighing only a few ounces containing an elastoplast strapping, sterile pad, whistle, strong analgesic and 48 hour antibiotics supply. The theory is that these can be used in the event of an accident until the base kit can be collected.

Patagonian Peaks are so low that altitude problems are not relevant, but there are three problems specific to the region. One is sea-sickness on the approach that can make death feel like an easy option. I have personally tried preparations taken orally, rectally and by injection in the past, but on this trip I used a Scopolamine patch stuck behind the ear at least five hours before sailing. It worked well. The biggest hole in the ozone layer is above Patagonia and sunburn and glare are more vicious than at altitudes normally associated with the European Alps or Himalayas. The risk of long-term cataract and skin cancer must be theoretically increased, and money is well spent on good quality mountaineering sunglasses and layers of high factor suncream. The final potential risk of the prolonged Patagonian storms is bedsores and I recommend moving regularly on one's Thermarest to play patience or Five Hundred from varying positions as a preventive measure.

PUBLIC HEALTH

We carried Iodine crystals with us in small bottles for water purification, using 10mls of saturated solution in a litre of suspect water if indicated. This was not used since the water in the towns seems to be of good quality and at other times we were well away from potential pollutants (except ourselves). Some method should be used if operating in the much more populated Paine region.

All rubbish was carried out with us but Human waste disposal is a more serious problem especially in such a wet a boggy environment with dense cloud cover. After a careful study of all the medical literature on this subject we accepted the impossibility of air drying and later incineration (used on Everest recently), rock smearing away from a water source is impossible (How to Shit in the Wilderness by K Meyer) and the rocky terrain makes burial impossible.

At sea level we found a rocky promontary with a constant swift deep current and defaecated direct into the sea. We were aware of the risk to the mussel beds but with this massive dilution factor and current direction thought this the most acceptable method. At the 800m camp we simply defaecated on the rocky ground downhill from our camp and water sources. Flies are not a problem here. Over the next three weeks this gave me an excellent opportunity to make a photographic study the degradation of human faecal material in this wet cold environment. By the end of our stay the early turds had virtually disappeared but we observed the phenomenon of "Secondary Faecal Pollution". This has not yet been written up in any medical texts but was seen when foods such as salami were eaten without removing the skin from each slice. Eventually this non biodegradable product was all that remained to mark the site of defaecation. We obviously have no data on bacterial contamination of the area and this whole subject needs much more study. It is especially relevant to mountaineering practice in remote areas that are becoming more and more used for recreation. It is our duty to protect ranges such as the Cordillera Sarmiento for future

generations but, as yet, we do not have accurate and well researched data to advise on the best method of faecal disposal.

At the start of the trip we decided not to take any potentially pollutant toilet rolls with us. In this climate they would almost certainly get soggy before use. In common with many of the worlds cultures we adopted a washing system using water or snow and rocks and ensured that we had soap available for careful post defaecation hand washing. This seemed to work well with no episodes of Travellers Diarrhoea.

ACCOUNTS.

IN	Mount Everest Foundation	£900.00
	British Mountaineering Council	£800.00
	Welsh Sports Council	£1,000
	Personal Contributions 4x	£1080.50p

OUT Travel.

London to Santiago B.A. Closed Return	
Santiago to Punta Arenas (Chile Airpass)	£3176
Boat Fund donation	£65
Petrol	£80
Excess Baggage (internal)	£95
Taxi fares, Airport Buses, Internal Buses:	£120
U.K. Minibus to airport	£120
Airport Taxes (internal and external)	£80
Leg Luggage at Airport, tips,	
Baggage trolleys,	£40
Insurance BMC x 3 and proportion of all year cover with mountaineering extension	£600
Accommodation (Hotels and Residencias).	£340
Hardward, (pots and pans, kerosene, wellies, Mugs etc.	£160
Food and drinks in Restaurants.	£490
Food in mountains.	£400
Film	£556
Expedition climbing Hardwear	£240
Satellite telephone expenses	£180
Report Costs, interview expenses, postage and telephone.	£280

Since the U.S. Dollar is the usual currency in South America all our funds were taken out in either cash or dollar Traveller's Cheques. The above accounts are calculated on money changing via U.S. Dollars at a rate of £1.00 = U.S.\$1.61, one U.S. \$1. = 420 pesos, therefore £1.00 = 676 pesos.

Changing dollars as Traveller's Cheques or cash, is easy throughout America at Banks or Cambios. It is certainly worth carrying a fairly large sum of cash and for security I favoured the design of money belt that looks like a standard trouser belt made out of webbing. Several hundred dollars can easily be carried in one of these, but remember to put the rolls in plastic bags to avoid sweat damage.

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THANKS.

Sally, Jenny and Tom Hillebrandt.

Lindsay, Rebecca and Jackie Banks.

"M" Smith.

Carole Washington-Jones.

Ian, Alan, Richard, Ros, Rob and Gretel - the other Holsworthy Doctors.

The Mount Everest Foundation.

The British Mountaineering Council and Sports Council.

The Welsh Sports Council.

Ray Hockin - Lloyds Bank, Holsworthy.

Paul Davies - Journey Latin America,

Mr. Pablo Petit-Breailh, Lan Chile.

Lionel, Moorland Rambler, Exeter.

Nick Hando and Lillian Sullivan, Terra Nova.

Jacqueline Tichauer, Chilean Embassy,

Capitan Victor Ruiz, Capitan Perez and Capitan Silva, Gobernacion Maritima.

Teniente Chavez.

Teniente De la Fuente and Crew of the Villarrica,

Martin Doyle,

Derek Walker,

Helen Dewhurst,

Jack Miller,

Keith and Robin.

Martyn Squire.