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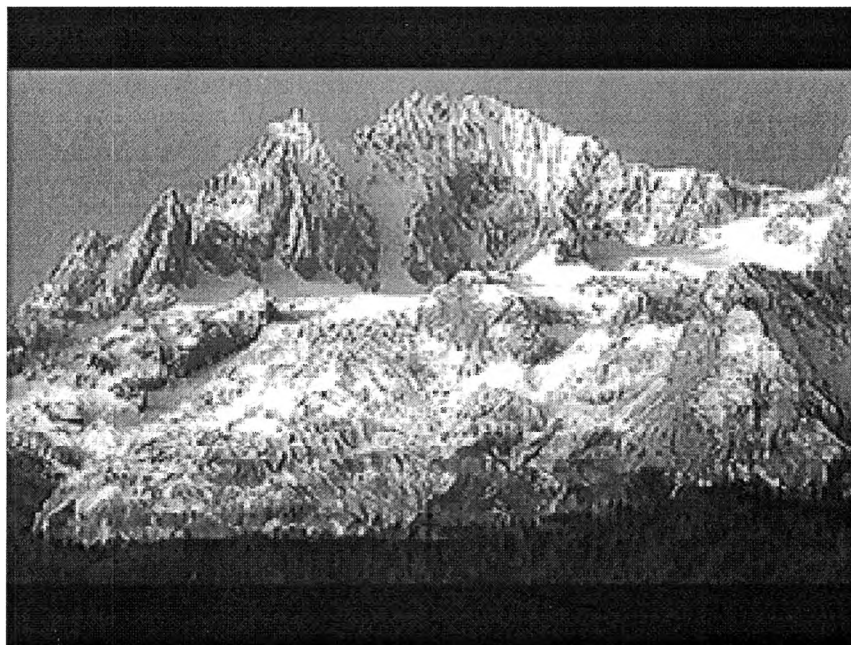
British Yulong Shan Expedition

Supported by the B.M.C. and Mount Everest Foundation

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Final Report



Yulong Shan: Satseto

Summary

The Expedition visited the Yulong Shan massif in the Lijiang region of Yunnan Province, SW China between September 11th and October 3rd 1995. The mountain was first approached from the SW via the village of Wen Hai but torrential rain and the presence of intervening peaks meant that little progress was made. Members surveyed the village and lake and conducted a pre-feasibility study for a micro-hydroelectric scheme. The party then moved to Yu Hu village, to the SE of the massif, reaching a height of c4000m before retreating due to constant bad weather. The exact location of the high camp remains unclear due to zero visibility throughout the time on the mountain.

Objective

Yulong Xue Shan (Jade Dragon Mountain), N Yunnan Province, China

First ascent of highest peak, Satseto (5730m)

Yulong Xue Shan (Jade Dragon Snow Mountain) looks down on the town of Lijiang. The 30 mile long massif lies in a huge hairpin bend of the Yangtse river, above which it rises c14,000 feet. Though this glaciated range is a major geographical feature, the most southerly of the snow mountains of Yunnan, by Chinese/Tibetan standards this is not a remote area. Lijiang is reachable in a long day from Kunming, the province capital, and has been open to Westerners since the early 1980s. The area has been much visited, though not by climbers, and was a centre of operations for both Joseph Rock and Frank Kingdon-Ward in their pre-war botanical and ethnological explorations. The mountains acted as a stunning backdrop for the recent Channel 4 documentary 'Beyond the Clouds', which followed the lives of some of the people of Lijiang.

Given their beauty and accessibility it is something of a mystery why so few expeditions have visited the massif and the highest peak should remain unclimbed. The only British expedition (Dora de Beer) was in the 1930s. Since the war there have been one Japanese expedition in 1985, and two hurried American expeditions, in 1985 and 1986, both defeated by bad weather.

Members

John Town (42), English, Academic Secretary, University of Bradford.

Alpine Club. Climbing experience in the Alps; Himalayas; Caucasus; USA; Bolivia; Siberian Altai - first Brit. ascent. highest peak., Bielukha 4506m; Tibet - led first British Expedition to Amne Machin which made first ascent of Amne Machin IX, 5690m; Mongolia - first Western ascent of Munkhairkhan 4204m; Kamchatka - first Brit. ascent of the highest peak, Kliuchevskaya 4800m. Represented BMC on International Meet, Ararat, Winter 86.

Huw Davies (29), English, FE Lecturer, Oxford College of FE.

Climbing experience in Alps - 3 Seasons - examples: D. du Geant, Cosmique Arete; Lofoten - new routes - VS; Norway - Spiedestuhlen; Ladakh - Stok Kangri 6120m; British Columbia, Coast Range - first British ascent of NE Face of Slalok; Kamchatka - first British ascent of the highest peak, Kliuchevskaya 4800m.

Steph D'Anger (32), English, Pattern Maker.

Climbing experience in Alps - 4 Seasons - examples: D. du Geant, Cosmique Arete; Lofoten - new routes - VS; Norway - Spiedestuhlen; Ladakh - Stok Kangri 6120m; British Columbia, Coast Range - first British ascent of NE Face of Slalok.

Yang Binhua (Adam), Chinese, Interpreter & Local Liaison, Lijiang County Foreign Affairs Office

Note on Heights and Locations

The area is doubtless mapped in considerable detail by both the Chinese and American military, but any such maps are not available. The only map available is the 1:500 000, 8 miles to an inch US Defence Mapping Agency TPC Air Chart series (Sheet H-10C) which is of limited accuracy, particularly regarding roads, tracks and local place-names. Altitude data on the TPC map appears broadly correct but the map's scale is far too small to represent the complex ridge lines and features of the Yulong massif.

We used a hand-held Global Positioning System (GPS) to survey the Wen Hai area and to register the location of other key points such as Lijiang, Baisha, Yu Hu and our high camp. This is accurate to about 40 feet. Our Garmin GPS 45 unit was a pleasure to use, being both completely waterproof and running for several days on a set of batteries when used carefully. GPS systems of this type do not provide usable altitude data and heights quoted are either from our Avocet wrist altimeter, using Lijiang as a known datum point, or the TPC map. The GPS has difficulty functioning in forests - continuous automatic route tracking is difficult, though it is possible to ascertain one's location given patience. The unit proved very impressive for route finding over unknown ground, allowing one to home in at speed on a hidden but defined location several miles away. It is less useful on very steep ground - points on a hillside are often fairly close on a horizontal plane but a long way apart vertically. A steep mountainside considerably reduces one's freedom and ability to walk or climb accurately in a particular horizontal direction. A final difficulty is that the GPS does not provide accurate information on positioning in the vertical plain (altitude) and very steep ground cuts out its view of a large part of the sky, hindering its operation.

Expedition Diary

Day 1: 11th Sept	Team assembles in Oxford
Day 2: 12th Sept	Flight London- Kuwait - Bangkok
Day 3: 13th Sept	Flight Bangkok to Kunming

The cheapest and probably fastest route to Kunming in SW China is via one of the many airlines flying from London to Bangkok, and then by one of Thai's regular flights to Kunming.

We wish to thank Kuwait Airways and Thai international for the double baggage allowance and to Kuwait in particular for returning a lost wallet in record time after it flew back to Kuwait.

Day 4: 14th Sept	Kunming:
Day 5: 15th Sept	Kunming
Day 6: 16th Sept	Kunming

The permit situation for our mountain was an absolute nightmare. Our first contacts from England were with the CMA, who appeared to have very little interest. Efforts to make arrangements through an agency in Yunnan resulted in silly prices and a feeling that 'official' permits might or might not result. Jack Ives (UC Davis) and Yang Fuquan (Yunnan Academy of Social Sciences) were very helpful but could not ultimately make any progress with the Yunnan Foreign Affairs Office or the Yunnan Mountaineering Association in Kunming, who evidently issue the permits. Contacts were also made on our behalf with the Governor of Lijiang County, who felt he could not act independently of the Kunming authorities. We got the feeling that 'the rules' rather depended on who you talked to; that Kunming was a long way from Beijing these days; and that not many foreigners had so far asked to climb in Yunnan.

Once we found him (Kunming street names and numbers are also a nightmare), Yang Fuquan entertained us royally and provided us with letters of introduction to contacts in Lijiang. He also pointed us in the direction of the Yunnan Mountaineering Association at the City Stadium. We suspected, however, that a personal application at this stage might result in us spending most of the next few weeks in Kunming. We therefore got on the plane to Lijiang instead.

The new airport at Lijiang had opened just a few weeks before our arrival in Kunming, with 2 or 3 flights a week. This makes it possible to reach Lijiang from London in 2 to 3 days given the right timing, although we had to wait 3 days for the next flight. On our return we made the whole trip in less than 48 hours.

Day 7: 17th Sept	Flight Kunming - Lijiang
Day 8: 18th Sept	Lijiang
Day 9: 19th Sept	Lijiang

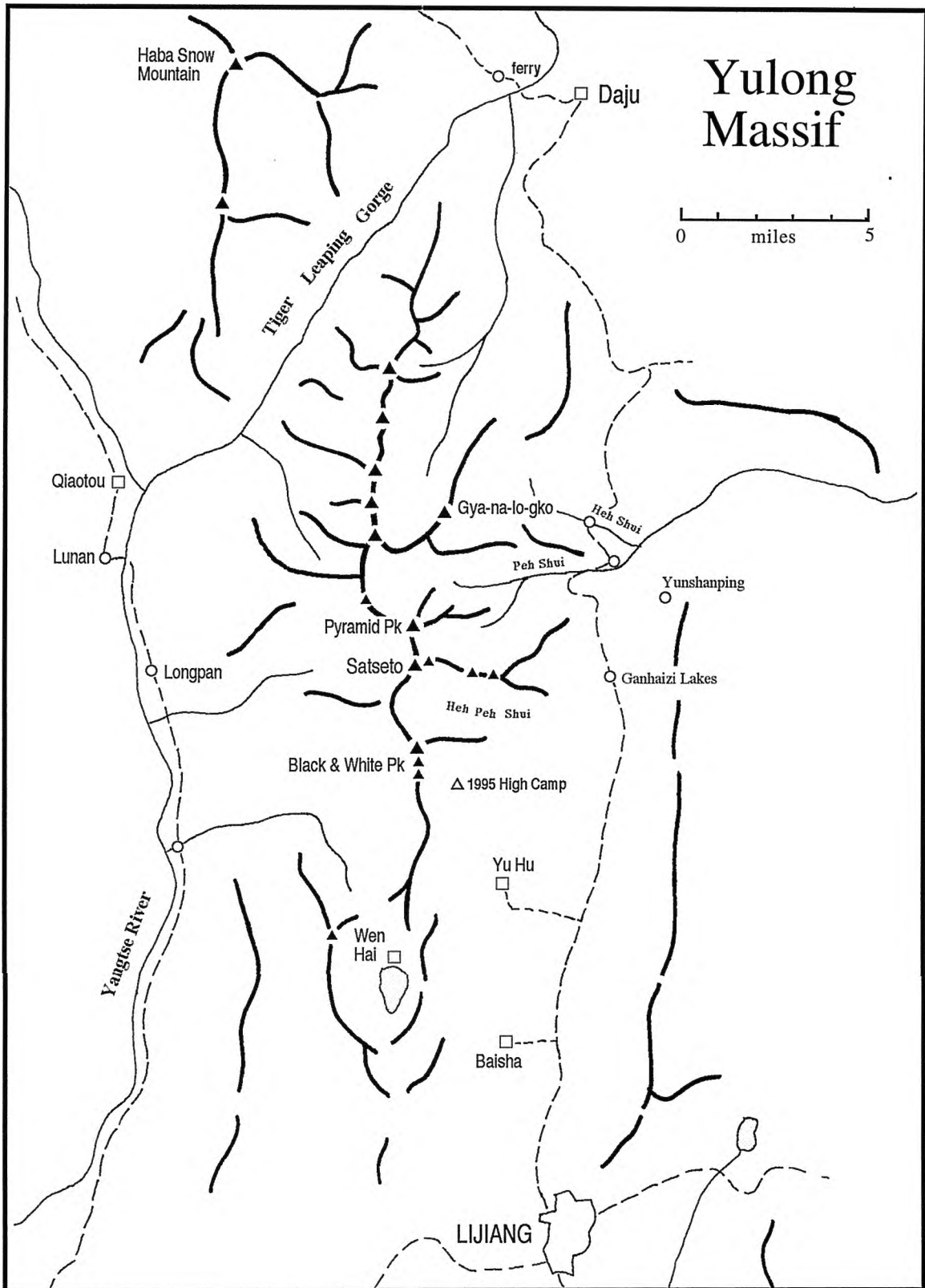
The new airport is 15-20 miles from the town, in a neighbouring valley to the east, but the journey is worth it. The town and surroundings are every bit as captivating as the literature suggests, with Yulong Shan dominating the middle distance. The town sits on a spacious plain, from whose northern edge the mountain rises dramatically. Lijiang itself (8,500ft) is full of life, with many of the local Naxi people in their characteristic blue national dress.

After getting our bearings we made contact with Yang Bin Hua (Adam), who had been recommended to us by Yang Fuquan and Jack Ives. On the 20th September we drove to Baisha, the largest and finest of the villages to the north of Lijiang, where we had a meal cooked for us by the local (female) Party Secretary and loaded our gear onto 4 mules.

Day 10: 20th Sept	Walk-in to Wen Hai
Day 11: 21st Sept	Wen Hai
Day 12: 22nd Sept	Wen Hai
Day 13: 23rd Sept	Wen Hai
Day 14: 24th Sept	Wen Hai
Day 15: 25th Sept	Lijiang

The track to Wen Hai crosses fields to the base of the hills and then climbs steeply upwards through pine forests. It rained heavily and the track is made interesting by gullies and mud-wallows resulting from logging activity. After a climb of about 2,000ft, the track levels off, meandering through woodland at 10,600ft before descending gradually to the NW and into the Wen Hai basin. The extended village (10,300ft) stretches round the NE and NW margins of the basin, a few hundred yards above the lake edge. The basin itself is surrounded on all sides by hills, which rise between 500 ft and 2,000ft and are well wooded up to the 11,000ft contour.

We arrived at the local council building, next to the large school, in mid-afternoon after a walk-in of 3 to 4 hours and about 6 miles. Our aim was to reconnoitre possible approaches to Satseto from the SW and to conduct a pre-feasibility study for a micro-hydroelectric scheme for the village which has no electricity. We were fairly successful in our latter aim (see attached



Study) but it rained almost continuously for the five days. We were unable to see the main peaks for all but a few minutes on the last evening and walk-out, and the lower slopes were collecting large amounts of fresh snow each day. It appears, on the basis of what little we could see, that there was a good deal of complex mountain ground between the village and Satseto. The lower, multi-summit peak of 'Black & White Snow Mountain' intervenes and a traverse of its western flank would be precipitous and awkward. "Black & White" peak, by contrast, looks reasonably accessible from the village and may be easier from Wen Hai than from the Yu Hu area to the east, with better ground and 2,000 feet less to climb. There appears to be a fairly low col between 'Black & White' and Satseto making a direct traverse very

difficult. In any case, the south ridge of Satseto looks formidable and would not be a route of choice.

We were very hospitably entertained by the Party Chairman and Secretary. Few Westerners get to the village, despite the popularity of Lijiang amongst travellers. At over 10,000 ft it gets very cold at night, even in September, and the rain can be soul-destroying. The people are very shy of foreigners but friendly. It has neither road, nor TV, nor electricity and only one phone, yet it is only four hours walk from 'civilisation'.

Day 16: 26th Sept	Yu Hu
Day 17: 27th Sept	Yu Hu
Day 18: 28th Sept	4000m camp

After a night in Lijiang we drove to Yu Hu, the most northerly village of the Lijiang plain and the closest to mountains. This is a much larger, richer village than Wen Hai, with a road, electricity and TVs. The people are more cosmopolitan and more streetwise and are in no need of micro-hydro schemes. After a day without rain, but with the mountain smothered in cloud, we set off onto the mountain, accompanied by Adam and a number of mules and horses with their owners. On the first steep section, one of the horses slipped backwards and fell about 50 feet off the side of the track, breaking its back. The ensuing rescue and re-organisation did nothing to raise spirits - the owner of the horse was absolutely desolate and his companions very upset.

We continued upwards into the mist where it started to rain. As the day progressed we had no idea where we were, but at least we were making a considerable amount of height and the vegetation showed us reaching the alpine zone for the first time on the trip. Our companions called a halt in mid-afternoon at about 13,000 feet. The steepness of the ground and the nature of the tree-line vegetation made it very difficult to find any flat ground for the tent. The locals recommended a cave, sitting above a steep gully. We eventually managed to get two tents onto the platform at the back of the shallow cave, having first to excavate considerable amounts of wet and rotting brown matter. The place was far from waterproof, with water permeating the limestone and a fine mizzling drizzle constantly drifting in from outside. This is the only place we had seen two types of rain at once. The constant fine drizzle was joined from time to time by heavy monsoon rain, which also blew into the cave. To our amazement, the locals managed to start a fire to keep warm. The smoke from the fire completely filled the cave, making it impossible to see and difficult to breathe. We resorted to ski goggles.

After 24 hours in this hell-hole, with constant rain and zero visibility, soaked through and with no prospect of a let-up, we descended. We had no real idea of where we had got to in relation to our mountain. Our enjoyable stay in Yu Hu ended with protracted negotiations over the price of the horse, which had ended its days on a butcher's slab in Lijiang. Honour was eventually satisfied on both sides.

Day 19: 29th Sept	Yu Hu
Day 20: 30th Sept	Lijiang
Day 21: 1st Oct	Overnight Bus Lijiang - Kunming
Day 22: 2nd Oct	Flight Kunming - Bangkok, Overnight Bangkok - Rome/Kuwait - London
Day 23: 3rd Oct	Arrive - London Heathrow

Huw now had to return. Since John and Steph had at most two or three more days and the weather appeared set in, we all decided to go. Huw had a flight booked to Kunming on the Sunday morning and John and Steph booked on the overnight bus on Sunday evening. Adam treated to us to a marvellous meal at his home on our last night in Lijiang, which may have had something to do with Huw missing his plane next morning. We all took the sleeper bus together - a crowded and uncomfortable experience - and flew out of Kunming the same day. Seats were available out of Bangkok that night and we all reached home within 48 hours of leaving Lijiang.

Conclusions

In retrospect we had attempted the mountain too early. Mid-October is probably the earliest, though even then there are no guarantees about the weather (see De Beer account and those of Kingdon Ward). The area provides a tough mixture of cold and wet, as some earlier expeditions have found. China will always be a difficult place to climb - the bureaucracy is a nightmare and much depends on getting to know the people and the area, for which there are

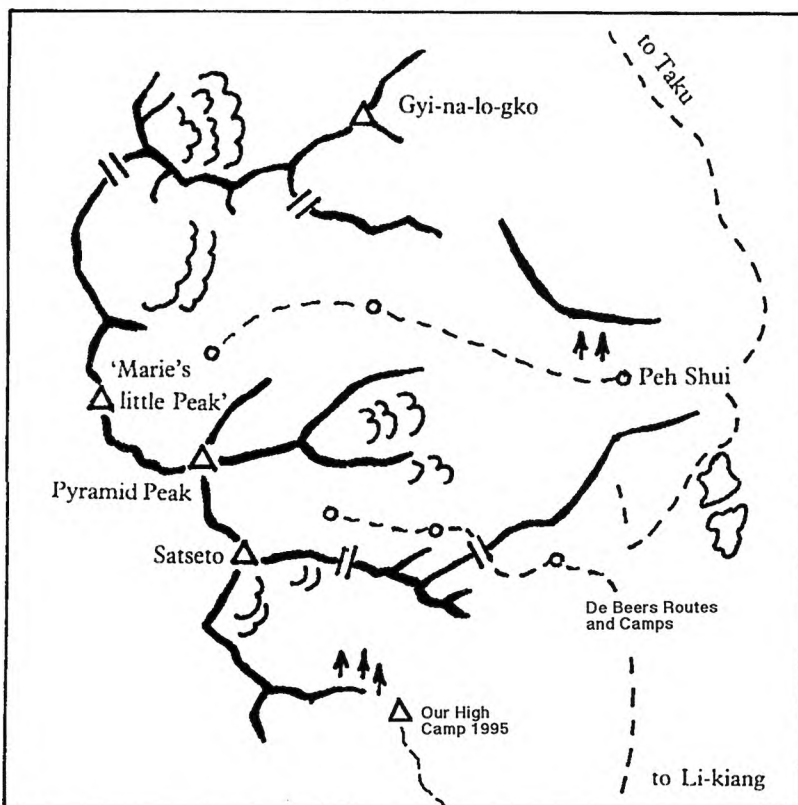
no shortcuts. In this respect we laid much valuable groundwork. The lack of any real tradition of mountaineering and of visiting mountaineers means that people have very little comprehension of what a climbing expedition actually involves. The mountains are terrific, when you can see them.

The Topography of Yulong Shan

Yulong Shan (Jade Dragon Mountain), contrary to first appearances, is not one or two isolated peaks, but a spectacular massif stretching for a total of 30 miles and containing at least 20 peaks. Its topography is complex and difficult, with a multiplicity of sharp ridges and deep inaccessible gorges. The western side of the massif drops precipitously into the biggest gorge of them all - Tiger Leaping Gorge - where the Yangtse River has carved its way between Yulong Shan and Haba Shan.

Although we made little impression on the mountain and saw even less of it, we have subsequently been able to piece together a little more coherent picture than has so far been published. This has been achieved through a careful examination of Dora De Beer's map (below), blow-ups of the TPC chart and Chinese tourist maps and books collected in Lijiang. The massif is shown in the large map and an analysis of the peaks and access valleys is given below.

Dora De Beer's Map (1938)



(After a Sketch Map by Kurt Suter.)

Access Routes

Heh Peh Shui (Kan Ho)	Black & White River	see big map	explored by De Beer
Peh Shui	White River	see big map	explored by De Beer
Heh Shui	Black River	see big map	N of Peh Shui

Peaks

name	alternative	height	location	ascents
Satseto		5730m	see map	unclimbed
'Pyramid Peak'	('Tent Peak')	c5600m ?	see map	?
Gyi-na-lo-gko			see map	f.a. D.Richards 1936
'Black & White Snow Peak'			see map	
'Marie's Little Peak'			see DDB map	De Beer Expedition
'Great Snow Mountain Bhudda'			unclear	known by photo
'Aged Man Peak'			'Silver Valley'	known by photo

the above two are big impressive peaks, one of which may be co-incident with Gyi-na-lo-gko, or both may be the big peaks mentioned by De Beer which lie to its NW

Dragon Tail 1	
Dragon Tail 2	there at least ten steep limestone peaks
Dragon Tail 3	visible in a panoramic view of the northern
Dragon Tail 4	half of the massif, many visible from Yat
Dragon Tail 5	meadow (photos in 'Lijiang Scenery')
Dragon Tail 6	this accords broadly with the TPC chart
Dragon Tail 7	and our map, where 5 groups stand out.
Dragon Tail 8	The title Dragon Tail is probably not a local
Dragon Tail 9	usage and has been adopted here for
Dragon Tail 10	convenience

The heights in the De Beer account are probably in considerable error and are not quoted here, since Satseto is estimated at 6400m rather than the modern figure of 5730m.

References

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Jack Ives (University of California, Davis)	Chris Smith MP
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Patrick Fagan	Phil Agland
	Charlotte Ashby
	The American Alpine Club

Yang Binhua and
The Foreign Affairs Office of Lijiang county

The Village Secretaries and Councils of Wen Hai, Baisha and Yu Hu villages, Lijiang County

Kodak Limited
Terra Nova

Final Account

Expenditure

Flights & Transport	£2,223
Hotels	£261
Local Services & Subsistence	£557
Film	£110
Equipment & Supplies	£1,246
Insurance	£253
Misc. & contingency	£188

£4,838

Income

Members	£2,913
Mount Everest Foundation	£700
B.M.C.	£700
Foundation for Sport & Arts	£525

£4,838

Mini Hydro Electric Power Scheme for Wen Hai

General information on Wen Hai

Wen Hai is a small village in the Baisha district of Lijiang County. The village is reached by an approximate half day walk from the road head at Baisha. The route climbs about a 1000m up through pine forests on numerous mud tracks; these tracks are suitable for pack animals.

The village is situated in a small cirque of wooded hills with the impressive backdrop of Yulong Shan at one end. There are a number of small limestone outcrops overlooking the village.

Wen Hai is populated by Naxi tribes people with a small number of Yi people settling in the village over recent years. The village is a self supporting farming community growing a variety of crops along with a selection of livestock ranging from poultry, pigs and dairy cows through to oxen. The village also has several purpose built fish pools where fish are bred and kept for domestic use and resale in Lijiang market. The team could only guess the fish were some variety of carp.

The village has a small school with approximately 70 pupils between the ages of 7 and 12 years. From the age of 12 they attend the school in Lijiang on a termly basis.

There is a small shop in the village with a small selection of tinned and bottled goods with several items of clothing on sale, all of which would have been bought in from outside.

Forestation

The surrounding hills are small brush and stunted fir trees. Deforestation was reported as first becoming a problem in 1979, the cause being local use for fuel and small scale building materials. There has now been a notable increase in outsiders coming in to use timber for commercial purposes. At present timber is taken out via ponies to the roadhead at Baisha. The road system around Lijiang is under continuing improvement. While no slopes have as yet been totally denuded, the effects of logging are apparent both in reduction in the density of the forest cover and in heavy erosion of the tracks.

The seasonal lake has been showing signs of silting up since c1980.

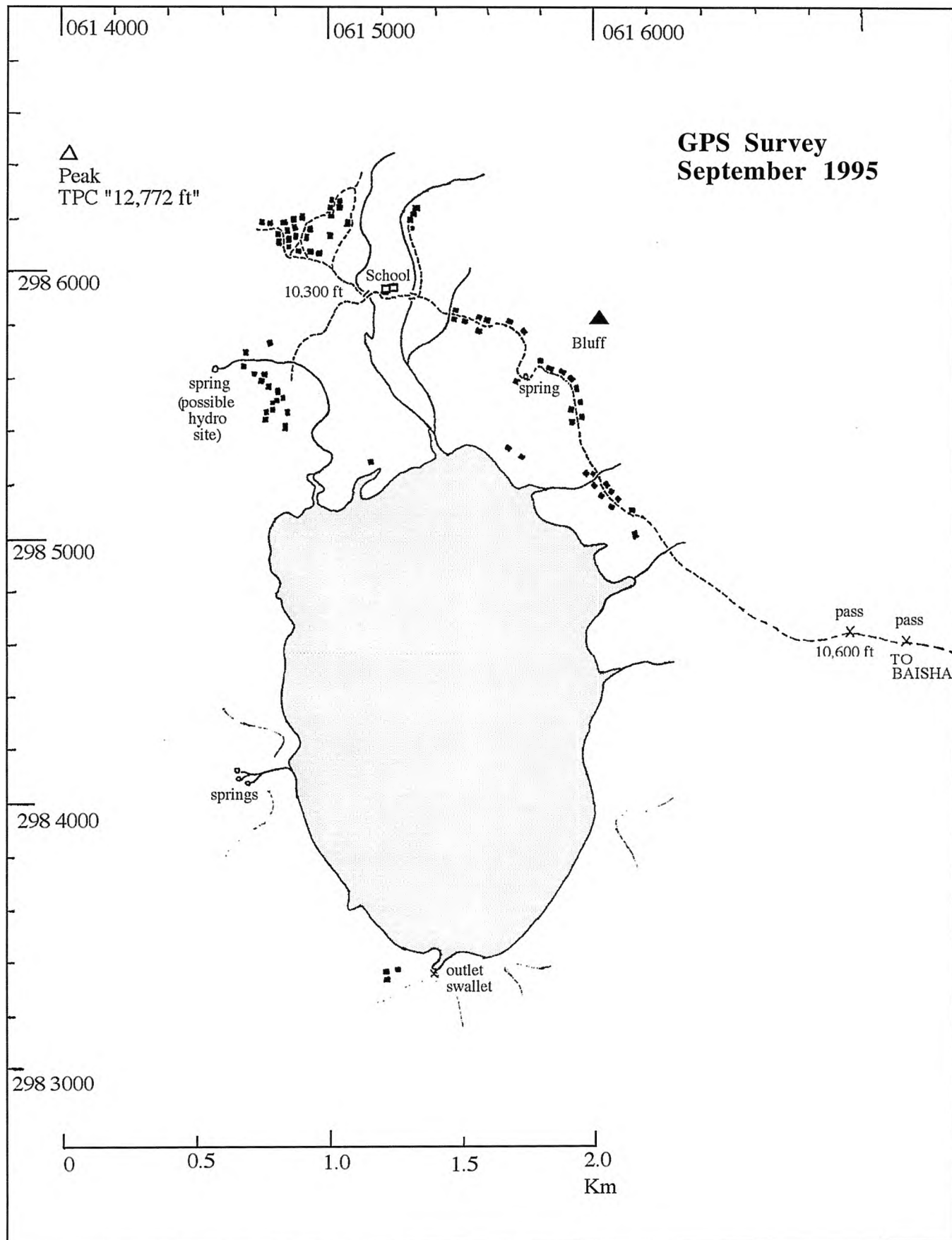
Demographic Information

Statistics supplied by Village Secretary, 21st September 1995

1975	Number of Dwellings	145
	Population	825
	Average of population per dwelling	5.7
1985	Number of Dwellings	154
	Population	782
	Average of population per dwelling	5.1
1995	Number of Dwellings	197
	Population	804
	Average of population per dwelling	4.1

NB - Rural families are allowed 2 children per family

Wen Hai Village



Hydrology

The area has a monsoon season between June and September during which time a seasonal lake forms in the basin in which the village is situated. The lake is reportedly full by June and then dry by December, after which time it provides lush grazing for the village cattle.

The depth of the lake is supposed to be in the region of 5m although this could only be estimated. The team had doubts as to our hosts ability to do this with reasonable accuracy. The lake drains off via a swallet at the far end of the lake situated in a limestone outcrop. The depth at the outcrop was reckoned to be approximately 10m. This is probably the only point of escape apart from natural seepage. Upon investigation at the outcrop there was noticeable movement in the water and a significant collection of debris to confirm this to be the case.

During the rainy season a great deal of rain water comes off the surrounding hillsides and the villagers have constructed small scale canals to channel the water away from buildings and fields.

The team were shown three natural springs but would guess there to be more. On the west side of the village there was the only possible water course that might have sufficient volume and head to supply energy for a small scale micro-hydro scheme. Chinese engineers from Lijiang County had also identified this as a possible site, though no subsequent action had ensued. We did not have the opportunity to make contact with them.

Site

The spring in question rose just above the highest houses on the western slope, and flowed steeply down the hill to the flat plain at its base. The total head was c47m, assessed by altimeter readings taken at the spring and at the foot of the slope. The spring rose in a 3m diameter bowl, which would be suitable for excavation to form a forebay tank, and the base of the slope was ideally sited for a turbine hut. The slope itself is straightforward and accessible, falling 22m to a small terrace and a further 25m to the plain. The horizontal displacement between spring and base of slope is 140m + or - 15m. Three families take water from the stream for irrigation and drinking at various points on the slope

We did not have the equipment or time to measure the flow rate, though an inexperienced estimate would be a minimum of 0.5 cubic meter per second. The stream itself is about 1m wide, 0.15 to 0.25m deep and very fast flowing. This was at a wet period of the wet season and we could obtain no information on the seasonal variation in flow. The hydrology of the area is complex and this was the most powerful spring we found. It is difficult to predict whether or not an adequate flow would be available year round.

The facility would have to provide supply to between 150 and 200 dwellings, spread over an extended village stretching up to 2km distant from the turbine house. A more accurate survey is now required of the head and flow rate, together with measurements of the seasonal variation.

Any equipment and materials would either have to be brought in by mule or possibly helicopter (though the latter are rare in China and may not be available).