

Hong Meigui Yunnan Resurgences 2004 Expedition

15th January to 9th February 2004

and

Hong Meigui Yunnan 2004 Expedition

5th July to 24th August 2004



Cave expeditions to Yunnan Province, China

Joint Expedition Report



Hong Meigui Yunnan Resurgences 2004 & Yunnan 2004 Joint Expedition
Report

Edited by Hilary Greaves

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Abstract

This report documents exploration carried out by two Hong Meigui cave exploration expeditions to Yunnan Province, China during 2004. Following up the work of the Yunnan 2003 expedition, the expeditions returned to the Zhongdian region to continue exploration in a promising mountain range that has a 2,300m depth potential.

Yunnan Resurgences 2004 was a 25-day, 4-person winter expedition (January-February), to explore resurgences in the Yangtze valley during the dry season. The expedition explored one known resurgence cave (C3-1, Shui Lian Dong) for 1.3km to sumps. Following geological predictions, they also found a second large resurgence (C3-96/97, Lucky Benevolent Water) up a nearby tributary.

Yunnan 2004 was a 7-week, 17-person summer caving expedition (July-August) to explore known entrances and to search for new entrances on the mountain tops 2,300m higher, between the Yangtze valley and the town of Zhongdian. The expedition covered a large area and logged 240 new entrances. The deepest, C3-294 (Dawa Dong), was explored to a depth of 130m. Exploration at the limit was slowed significantly by a tight rift requiring hammering, but no termination was reached.

这份报告是纪录两个“红玫瑰洞穴探险俱乐部”2004年在中国云南的探险。为了深入“云南2003年”的工作，这些探险队返回中甸地区，在一个有希望的山区继续向前探险，那里的洞穴有2300米的潜在深度。

“云南地下河出口洞穴2004”是一个为期25天，4人参加的冬季探险（一月至二月），在金沙江山谷冬天不下雨的期间进行。这个探险探索了一个已知山洞（C3-1,水帘洞），1.3公里，直到尽头时；按照地质预测，他们又找到了一个次大的地下河出口洞穴(C3-96/97)，沿着不远的支流。

“云南2004”是一个为期7周，17人参加的夏季探险（七月至八月），在中甸城和金沙江山谷中间，比山谷高2300米的山顶上，探索已知的山洞入口和寻找新的山洞入口。这个探险覆盖较大的面积，也记录了240个新的山洞入口。最深的山洞，C3-294 (月洞)，被探知有130米深；在界线，由于狭窄的通道需要用榔头，所以探索明显减速，但是探索工作并没有完成。

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1 Overview

Hilary Greaves

This report documents exploration carried out by two Hong Meigui cave exploration expeditions to Yunnan Province, China during 2004. Yunnan Resurgences 2004 was a 25-day, 4-person winter expedition (January-February) to explore resurgences in the Jinsha Jiang (Yangtze) valley west of the town of Zhongdian (Zhōngdiàn; 中甸). Yunnan 2004 was a 7-week, 17-person summer caving expedition (July-August) to explore known entrances and to search for new entrances on the mountain tops between Zhongdian and the Jinsha Jiang valley.

These 2004 expeditions built on the work carried out by the HMG Yunnan 2002 [HMG02] and Yunnan 2003 [HMG03] expeditions. Following extensive reconnaissance work in 2002, we had identified a certain mountain range, just west of the town of Zhongdian, as particularly promising in terms of undiscovered caves. Our particular excitement with this area is due to its depth potential: rainfall on mountains of up to 4,500m altitude appears to drain underground and reappear at known resurgences in and near the Jinsha Jiang valley at 2000–2200m altitude, making for a depth potential of 2–2.5km.

The 2003 expedition had camped at several locations in these mountains, searching for entrances, often with the assistance of the local seasonal yak farmers. While we had no deep going caves at the end of the 2003 expedition, many undescended shafts had been logged on an especially good-looking limestone plateau in the vicinity of Ye Kang village (see map on page 4), and many areas of the mountain remained still to be investigated. In addition, we had attempted to explore a major resurgence cave (C3-1; Shuǐ Lián Dòng; 水帘洞) down by the Jinsha Jiang (Jīn Shā Jiāng; 金沙江), adjacent to the mountain plateaux we were exploring, but exploration had been stopped after only 200m by dangerously high water conditions.

This left two tasks for 2004. The winter expedition in January-February would continue exploration of C3-1 during the winter dry season, when water levels were expected to be significantly lower. The summer expedition in July-August would return to the high plateaux, and try once more to find ways into the top ends of the undiscovered cave systems that must drain the majority of the mountains' rainfall.

The winter expedition, then, returned to Shui Lian Dong (C3-1). In the much drier winter conditions, the team was able to explore about 600m of streamway before meeting , with other extensions bringing the cave to almost 1200m in length including the 200m of dry passage explored in 2003.

The summer expedition, focussing on the high entrances, began in its first week by following our usual tactic of splitting up into small teams, so that we could investigate several areas of the large mountain range simultaneously, and then regrouping at our base in Zhongdian to compare notes and decide where next to focus effort. The areas investigated during this initial week (i.e. the areas around C3-81 in the south, C3-4 in the centre and C3-102 in the north) all showed limited promise (see pages 64 to 70). So, our second move was to send

nearly the entire expedition to Ye Kang, a promising area left partially explored at the end of the 2003 expedition. Ye Kang revealed scores of shafts, several of which led to further pitches and/or horizontal passage, but no depth in excess of 115m (pages 70 to 73). After ten days we were getting a bit tired of our lack of success in finding genuine depth in this area and, besides, we had reports of an enormous undescended shaft in a nearby area: a splinter group had made a four-day trip south from Ye Kang to do some prospecting and talk to locals at a nearby village, and they been shown a shaft where rocks freefell for five seconds and rattled for several more. After a quick trip back to Zhongdian for cake, beer and more rope, the expedition set up camp at this next village, and spent two weeks exploring the shaft, Dawa Dong, to a depth of 131m (pages 73 to 79) and investigating the surrounding area. Dawa Dong proved to be the expedition's biggest find, and was left 'still going', but progress is not easy... Finally, in its last week, the expedition moved further west (to the Little House camp) to investigate a new area. One significant cave (C3-268; Cold Cave) was explored here, but little else of interest was found.

2 Summary

Hilary Greaves, Duncan Collis & Pete Talling

Aims

Yunnan Resurgences 2004

- To continue exploration of the resurgence cave C3-1, in the winter dry season.
- To search for additional resurgences along the west edge of the Zhongdian mountains, close to the Jinsha Jiang river, paying particular attention to a known boundary between limestone and metamorphic rocks.

Yunnan 2004

Primary aim To continue the search for high-altitude entrances in the mountain range west of Zhongdian, with a particular focus on caves whose depth potential exceeds 1500m.

In relation to this aim, the following specific objectives were identified in advance of the expedition:

- To continue exploration of C3-81. C3-81 is a stream cave that was explored for 100m at the end of the 2003 expedition; it had been left at a 5m undescended pitch.
- To explore logged caves around the Ye Kang area, and to search for additional entrances.
- To continue exploration of C3-4. C3-4 is a tight cave explored in 2002, and had been left at 37m depth at a calcite squeeze.

- To return to the area surrounding C3-4 during yak farming season, and collect location information about other caves in the vicinity from local farming families. Our visit to this area in 2002 had been outside the farming season, so we had not been able to ask the local farmers whether they knew of nearby caves.
- To carry out a plateau crossing from UTM 47R 0555700 3081700 to UTM 0548100 3075445, north of the main areas investigated by previous expeditions. A long straight valley provides an ideal route, and passes across geological boundaries where caves are reported to be located.
- To search for and explore further high-altitude entrances throughout the mountains, especially along geological boundaries and in geological block types found in 2003 to contain many entrances.

Secondary aim: Dye trace experiment If feasible, to carry out a dye trace experiment, from C3-81 to (a) C3-1, and (b) various locations in the Jinsha Jiang and its tributaries.

Secondary aim: Adventure film To produce an adventure film.

Secondary aim: Cave biology To assist the Yunnan University Department of Zoology, by collecting, preserving and submitting samples of high altitude cave life.

Secondary aim: Local caving To encourage caving for sport and exploration among interested Chinese.

The expedition area

General

Yunnan province is located in southwest China. It shares borders with Vietnam (to the south), Burma (to the west), Tibet and Sichuan (to the north), and Guizhou and Guangxi (to the east). The expedition's main focus was in the north of the province. Here, the close parallel valleys of the Nu Jiang (Nù Jiāng; 怒江; Salween river), Lancang Jiang (Láncāng Jiāng; 澜沧江; Mekong river) and Jinsha Jiang (金沙江; Yangtze river) run north-south, cutting deep gorges between mountain ranges whose summits are typically 4000m and higher. This provides the steep relief that is (among numerous other factors) conducive to deep cave formation, and that partially underpins our high hopes for the area's cave depth potential.

The expeditions focussed on the mountain range that runs north-south between the valley containing the town of Zhongdian (Zhōngdiàn; 中甸), and that of the Jinsha Jiang (Figure 1). The winter expedition stayed at a guesthouse in the Jinsha Jiang valley, close to the cave C3-1, at the western edge of this mountain range; the summer expedition was based at the Milk River Guesthouse in Zhongdian, to the east of the mountains. The summer expedition

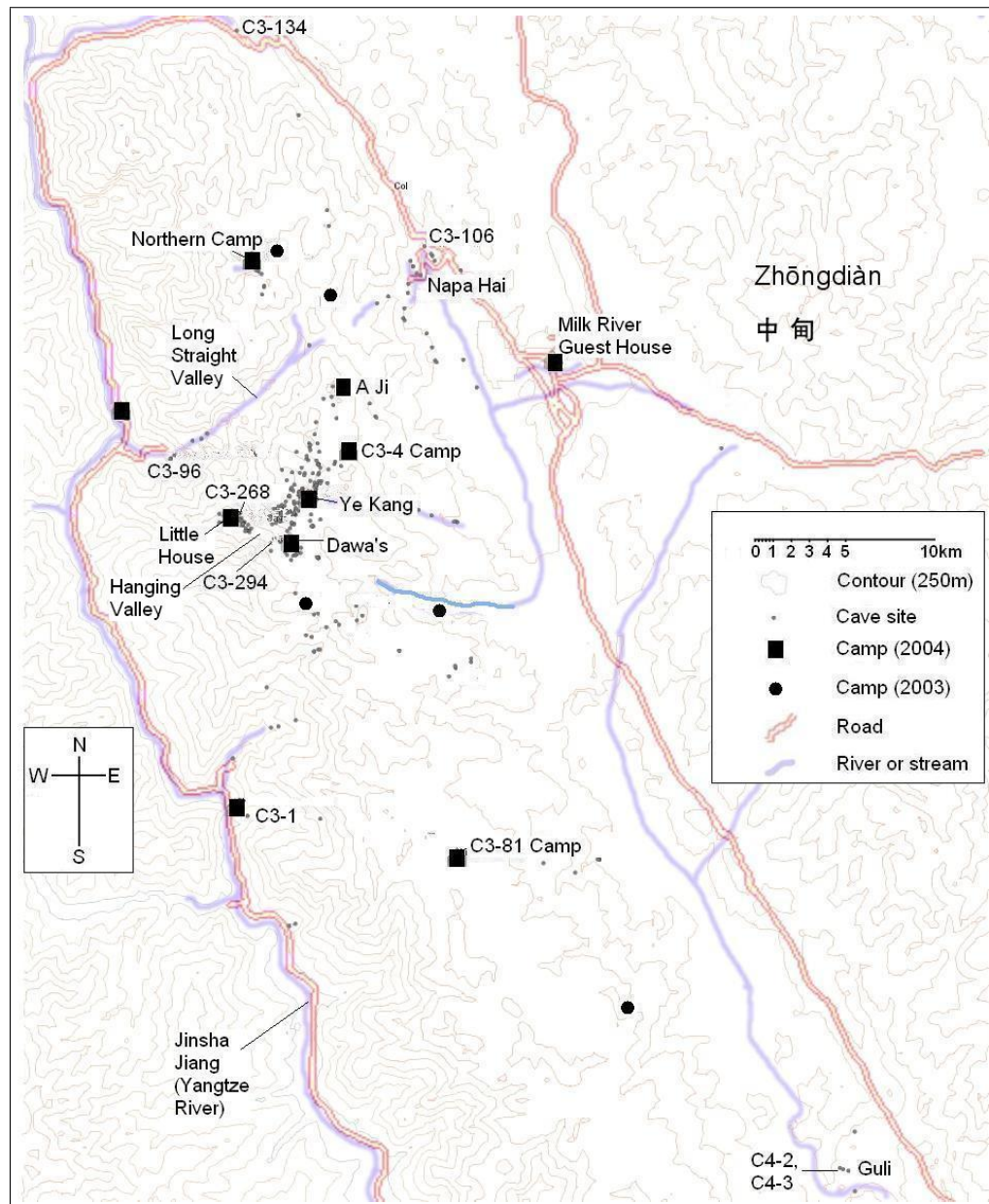


Figure 1: Map of Zhongdian area, showing 2004 exploration sites.

set up temporary camps at a number of locations in the mountains (Northern Camp, Long Straight Valley, A Ji, C3-4 Camp, Ye Kang, Little House, Dawa's, C3-81 camp), close to caves of interest.

Access to the mountain tops is easiest from the east. Relief at the west edge of the plateau is extreme, with a drop of over 2,000 metres from the mountain tops (4,000m to 4,500m altitude) down to the Jinsha Jiang (2,000m altitude) in a horizontal distance of 5–10km. (The drop to Zhongdian (3200m altitude) at the east edge is more gentle: a mere 800m drop for 5km horizontal.)

From Zhongdian, access to the mountains typically involved a taxi ride for the first 5km west (across the plain south of Napa Hai), and ascending the 800m on foot to reach the target campsite.

Geology

As the Indian Plate pushes northwards into the Asian Plate, continental crust escapes sideways from the area of collision. This has created large fault systems that run south-eastwards from the Tibetan Plateau into Western China and Burma. Motion on these fault systems is predominantly by horizontal (strike slip) rather than vertical displacement. Numerous slivers of crust have been shunted past each other, with displacements of many tens of kilometres. The area visited by the Yunnan expeditions is caught up within these major faults: specifically, the Red River and Dali fault systems.

An offshoot of the Dali fault system forms the valley occupied by Zhongdian, the expedition's base. In a big-picture view, faulting makes for a relatively complex collage of rock types, juxtaposed across the faults, rather than the spatially very extensive limestone platforms found in the classical karst areas of central China.

The expedition plateau comprises both Paleozoic (i.e. 543 to 248 million year old) and Mesozoic (248 to 65 million year old) rocks, which outcrop in a north-south band which is 20–40km wide [WBR⁺98]. The Mesozoic rocks are dominated by impermeable mudstones. However, the Paleozoic sequence contains thick intervals of limestone. In many places limestone intervals have been tilted so that their bedding is now nearly vertical.

Summary of findings

The main achievements of the 2004 expeditions can be summarised as follows:

C3-1: Shui Lian Dong resurgence. (Shǔi Lián Dòng; 水帘洞). Exploration of Shui Lian Dong was completed by the Yunnan 2004 Resurgences expedition. An upstream confluence was reached after 500m. The right-hand tributary sumped after 75m; the left-hand one was followed through a wet crawl for 60m to a larger passage which immediately choked. The choke was passed, but no large continuation was discovered, and the continuation of the inlet stream was found to emerge from a deep sump. As there seemed to be a draught, it was concluded that the way on must be up one of the avens at the end of the cave. Two of these were climbed, one to a huge pile of guano and a short

blind rift, the other to a point where loose rock made further ascent impossible. It was noted that the cave runs directly in-line with a surface stream which enters the Jinsha Jiang just to the south. We hypothesised that the resurgence water might simply be sinking in the streambed, and a recce up the course of the surface stream was undertaken. As the surface stream and the resurgence were both discharging similar volumes of water, it ought to have been easy to determine where the cave water sank, provided it didn't do so gradually over a long distance. However, although the valley was followed for about 2km, no sign of a change in flow was discerned, and it was not possible to prove that the surface stream was the source of the water in C3-1.

C3-96: Lucky Benevolent Water resurgence. (Jí Rén Shuǐ; 吉仁水.) The Yunnan 2004 Resurgences expedition also searched for additional resurgences along the Jinsha Jiang Valley and in its immediate tributaries. In particular, the team had been directed to one particular spot by Yunnan 2003's geologist, Pete Talling. Pete had picked out a spot where the base of the limestone intersected a suspected fault, and advertised it as a likely place for a resurgence. The team found three new resurgences, two at Pete's predicted location: C3-90, C3-96 and C3-97. From the speleological point of view, C3-96 seems particularly significant. This resurgence has a very large volume flow rate — estimated at 7 cubic metres per second in the dry season, and approximately 20 cubic metres per second in the summer. As noted below, it is conjectured that the lake water from Napa Hai (near Zhongdian) does not drain to C3-96. If correct, this conjecture raises the question of where the water resurging at C3-96 *does* come from. The magnitude of that resurgence suggests a large drainage area extending well beyond the adjacent Ye Kang—Dawa Dong area of the mountains, sustaining hopes of significant undiscovered cave development. The Long Straight Valley area (investigated only briefly to date) and the plateau north of that valley (barely investigated to date) may well drain into C3-96; these possibilities should be borne in mind and used to guide future high-altitude exploration.

It may be possible to dive into C3-96 and/or pass one or more of the C3-1 sumps during winter; we are investigating the possibility of a winter diving expedition.

C3-81: Yi Ye Qin Dong area. (Yī Yè Qīn Dòng; 一夜亲洞) The cave C3-81 was fully explored during the first week of the summer expedition. Exploration was blocked by a sump at a depth of 94m; the survey length totalled 316m. The expedition geologists judged the surrounding area unpromising for further exploration.

C3-4: Gavin's Dong area. Gavin's Dong was left at a calcite squeeze in 2002, by two cold, tired cavers who thought that the cave may go further if some less cold and tired cavers gave it some more effort. At the start of the 2004 expedition two warm, fresh cavers returned, assessed the available leads and judged them all genuinely hopeless. The cave was declared bottomed at

the 2002 limit.

A Ji area. (Ā Jí; 阿极.) The A Ji area lies just to the north of Gavin's Dong. A small amount of prospecting (with and without local assistance) was carried out. Nothing of major significance was found. Locals report a few more caves that we did not have time to visit.

Ye Kang area. (Yě Kāng; 也扛.) The expedition spent 7 days with up to 11 people camped at the village of Ye Kang. This village lies on a boundary between Triassic limestone (to the northeast) and a Carboniferous/Devonian limestone sequence (to the west). The latter is continuous down to the largest known resurgence (C3-96) 2,200m lower.

Shafts that had been logged but not descended in 2003 were explored. The deepest of these, C3-69 (Subvertical Pot), attained a depth of 113m before choking. Due to communication errors in the field, some windows higher up remain uninvestigated, and would be worth a return. A few other caves were explored to depths of up to 50m, but also choked. A significant amount of prospecting work was carried out in the area: many more shafts, rifts and draughting digs were found, but nothing we have explored to date goes.

The Carboniferous limestone units outcropping northwest of the Ye Kang camp are particularly massive (little obvious bedding) and pure (few mudstone interbeds). Frustratingly few entrances were seen in this unit (Subvertical Pot (C3-69) being an honourable exception). The expedition geologist's hunch is that this unit may contain few but large passages.

The Triassic limestone units to the northeast of the Ye Kang camp were darker in colour, less massive and contained more impurities. A series of small caves were observed extending along strike from near the camp.

A distinctive long straight valley (see below) separates the Ye Kang plateau from another significant area of similarly aged limestone located further to the north.

After one week at Ye Kang, time constraints induced us to move camp elsewhere in search of more fruitful terrain.

C3-294: Dawa's area and Dawa Dong. While the main expedition was based at Ye Kang, a splinter group (SFl, RGe, LH, FL, PT) went to talk with locals at a neighbouring village, 45 minutes walk to the south. Here they were shown a large shaft with a 5-second freefall followed by several further seconds of rattle. Camp and additional rope were moved to the new area (Dawa's). The shaft, C3-294 (Dawa Dong), dropped 100m in two pitches. A third pitch gained a rift, initially choked. Digging this rift quickly uncovered a squeeze, originally too tight. The squeeze was hammered, and after two hammering trips it was passable by the smaller expedition members. Beyond the squeeze was a tight meandering rift with a noticeable draught. Again, the rift was too tight until hammered (because of numerous projections obstructing the way on). Ten trips hammered the rift (and widened the squeeze some more, allowing passage by the medium-sized expedition members), and gained a magnificent 5m of

horizontal progress along the top of the rift. The limit of exploration is a sharp right-hand corner that will require significant work; an equally sharp left-hand corner is visible 2m further on. There is a real possibility of breaking into further significant cave here, but it will not come easily.

Aside from exploration of Dawa Dong itself, the expedition carried out fairly thorough prospecting in the surrounding area during 10 days camped at Dawa's village. Several small caves were logged, but nothing of significant speleological interest. A sequence of limestones similar to that observed just northeast of Ye Kang (viz. darker in colour, less massive and containing more impurities) outcropped on the northeastern side of Dawa's valley. The more massive and pure Carboniferous limestone reappears in the hanging valley beyond Dawa Dong.

Little House area. In the final week of the expedition, the 5 expedition members who then remained (SFr, HG, MH, MLi, AS) moved camp to a small hut 2 hours walk west of Dawa's. One more significant cave (C3-268; Cold Cave) was explored. This cave is of approximately 50m length, and phreatic. The draught is noticeable, but eventually all ways on (two freeclimbs, one aidclimb and three digs) all either closed down or became too dangerous. Prospecting revealed nothing else of significant interest, except a village close to our camp; this village had just been deserted for the winter when we arrived, but may be a useful source of cave information if visited during the yak season.

Plateau traverse: Long Straight Valley. A long straight valley runs from a col at UTM 47R 0555700 3081700 down to the large resurgence (C3-96) at UTM 47R 0548100 3075445, a total of 10km horizontally. It is conjectured that the line of this valley corresponds to faulting, and may be of speleological interest. Three members of the Yunnan 2004 expedition (MLa, LS, PT) attempted to cross the mountains along this valley from the Zhongdian side, to inspect the valley's geology and look for caves, but found that the path rapidly degenerated. Two others (RGa, GL) approached the valley from the C3-96 end, concluding that there is probably a collector underneath the valley but that entrances are unlikely to be found in the valley itself. It may be worth investigating the tops of the cliffs bounding the valley for entrances.

Area north of Long Straight Valley. An area just to the north of the Long Straight Valley contains Carboniferous/Devonian limestone that is similar (on paper) to that found in the Ye Kang area, where it bears some significant cave development. Thus, this northern area may well be worth a visit. Time constraints, however, have prevented us from exploring this area to date.

Napa Hai area and Mint Cave. Napa Hai is a large lake at the north end of the Zhongdian plain, 5km from Zhongdian, at 3300m altitude (i.e. the same altitude as Zhongdian town). Napa Hai, Zhongdian town and the plain all lie in a large valley just to the east of our mountain range. The lake receives drainage from the plain to its south and from the eastern parts of the mountains to its

west, but has no surface outflow. This latter fact has intrigued us for some 2 years, and has been the source of much speculation — we are interested in the possibility that the lake drains underneath our mountains to resurge in the Jinsha Jiang river 1300m lower, which would suggest a further possibility that higher-altitude caves connecting to this drain will form the deep system we are looking for. This was not entirely wild speculation — the Long Straight Valley (mentioned above) suggests major faulting whose location and direction would provide a line of weakness favouring underground drainage from the Napa Hai area towards C3-96. However, we did not seriously investigate the Napa Hai area until 2004.

Several days near the start of the Yunnan 2004 expedition were spent investigating the perimeter of the lake for features of interest. The water was found to drain into a series of sinks at the northern end of the lake. Only one of these sinks, C3-106 (Nai Gan Dòng; 乃干洞) was enterable. C3-106 was explored early in the expedition to a depth of 35m and length of 94m, after which a sump was met. A downward slot at floor level just upstream of the sump might have afforded further exploration if suitably dammed off from the streamway. However, a trip later in the expedition, following a period of relatively dry weather, found the cave (surprisingly) flooded to the entrance.

In total, the Napa Hai sinks were estimated to drain over 8 cubic metres per second. It is conjectured that this water travels north and resurges at C3-134, a resurgence pool next to the main road from Zhongdian to the Jinsha Jiang. This conjecture is made for the following reasons:

- The general strike of the geological strata trends from the sinks at the northern end of Napa Hai to C3-134. Water tends to favour flow along strike, as this is often (but not always) the trend of weaknesses.
- The conglomerate that we saw in Nai Gan Dong appears to extend along northwards to C3-134, without any interruption by impermeable rocks. We have seen that water can flow through this conglomerate unit.
- C3-134 is lower than the sink of lake water.
- The volume of water sinking at the north end of Napa Hai is estimated to be similar to the rate of resurgence at C3-134.

In view of the above, it is judged unlikely that the lake water drains to the major resurgence on the opposite side of the mountain range (C3-96).

Water tracing. Water tracing experiments can be of great assistance in cave exploration, because knowing hydrological connections between known sinks and resurgences enables explorers to make better-informed speculations about likely cave locations, and thus better decisions about where to focus exploration effort.

The Yunnan 2004 expedition considered conducting a dye trace experiment from C3-81 and up to two other surface sinks to C3-1 and C3-96/97, using three non-interfering dyes concurrently. However, calculations estimated that

the amount of dye we would have to inject in order to guarantee a positive trace over the vertical and horizontal distances involved (2km and 15km respectively) would be extremely large: perhaps 5 to 25kg. Dye injections of this magnitude carry a risk of polluting local water resources with unacceptable concentrations of dye, should the water resurge higher than expected. Largely in response to these concerns, we decided to postpone dye trace plans until more background hydrological information was available and, ideally, until a hydrologist had visited the site in person to carry out an initial assessment.

In the light of findings from the two 2004 expeditions, the following dye traces are suggested as feasible, with minimal pollution risk, and may confirm existing suspicions of hydrological connections: (i) a trace from Napa Hai (various sinks, but especially C3-106) to C3-134; (ii) a trace from the tributary valley just upstream of C3-1 to the streamway inside that cave.

Guli area. The Guli area is disconnected from the main Zhongdian project, but is an interesting exploration area in its own right. Carrying out exploration in this area also provides a useful opportunity to acclimatise to altitude at 3000m before moving on to Zhongdian, where most exploration takes place at 4000m and above.

The expedition's advance party spent three days in Guli at the start of the summer expedition. Two caves left partially explored in 2003, C4-2 and C4-3, were explored to their respective conclusions. C4-2 terminated at a sump at 103m depth (survey length 262m). C4-3 terminated at a chamber at a depth of 46m and a survey length of 144m. The locals report that there are many more caves in the area, but that the village is too busy in summer to show us their locations; we were invited to return, or to send our friends, around April or May, when business is slacker. (July–August is the height of the season for picking the wild mushrooms that provide a significant proportion of the community's income.)

General geological comments A number of isolated features, such as a 50 metre diameter rock arch near the Little House camp, Dawa Dong (C3-294), and the 'railway tunnel' cave (C3-67) adjacent to the Ye Kang camp indicate development of large fossil passages. There may well be major cave development extending upwards from the main resurgence C3-96, but higher entrances in the Ye Kang area and thereabouts appear to be very well hidden. It is also possible that rapid tectonic uplift of the area, related to major strike slip faulting, has produced immature systems in recent times.

Localised areas of Triassic limestone outcrop on the western side of the Zhongdian basin. Cave systems in the Triassic limestone units are likely to be less extensive than those in the Carboniferous–Devonian limestone sequence. However, they contain small systems such as C3-81.

Cave biology

The expedition carried sample bottles provided by Yunnan University. The idea was routinely to take these bottles on underground trips, and to collect

and preserve any cave spiders, etc., that were found in the course of exploration, for analysis by parties at the University. The bottles did make it underground, and we did see the odd spider, but unfortunately not at the same time.

Adventure film

Rich Gerrish took video footage of both expeditions, and Pete Talling also took footage of the Yunnan 2004 expedition. Rich has made a short film, ‘Shui Lian Dong’, from the winter footage, and a promotional video from the summer footage. Both movies are available from the Hong Meigui website.

Tim Guilford had been planning to come on the Yunnan 2004 expedition with the sole purpose of making a film about the search for the world’s deepest cave. In the event, other commitments unfortunately prevented Tim from joining us.

Involvement of local academics and cavers

The Yunnan project continues to enjoy a strong working relationship with the Geography Department of Yunnan University (formerly the Yunnan Institute of Geography), based in Kunming. Our main contact in that department, Liu Hong, once more joined the summer expedition for part of its time in the field.

Caving as a sport is in the very early stages of its development in China. The Hong Meigui Yunnan project is committed to encouraging local Yunnanese and other Chinese who express an interest to become involved in caving and cave exploration, and to assist by providing training and caving opportunities where this is both reasonable and necessary. However, we are struggling to find interested Chinese: either there aren’t any, or we are looking in the wrong places. The 2004 expeditions involved far fewer Chinese (namely, one) than we would have liked.

Expedition timing

As in 2003, the summer expedition (Yunnan 2004) coincided with the mountain yak farming season in the Zhongdian area; yak farming families live in the mountains during most of July and August, and move close to Zhongdian for the remainder of the year. This timing was deliberate. The majority of the expedition’s significant caves were shown to us by local farmers, and, as expected, we found it difficult to find such entrances on our own. (This time of year is also convenient for us, as it coincides with available holiday time for the several expedition members whose occupations are in school or higher education.)

The winter expedition (Yunnan Resurgences 2004) was held in late January during the dry season. It was imperative to hold this expedition during the driest time of year, as water levels in Shui Lian Dong were expected to block exploration at any other time. The weather in the Jinsha Jiang valley at this time was surprisingly temperate, although there was snow cover above 3000m. Water flow in Shui Lian Dong was one-tenth of that measured in the summer, and the C3-45 resurgence was free of silt that had been noted in the summer,

making it a good time for upstream exploration and potentially for future diving expeditions.

The winter expedition also, however, coincided with the two-week Chinese New Year holiday. This caused some travel inconveniences. It may be best to avoid the holiday in the future, or at least plan to be in the expedition area well in advance of its start.

Suggestions for future work

Taking the efforts of our previous expeditions to this mountain range (i.e. the Yunnan 2002 and 2003 expeditions) and the 2004 summer expedition together, we have now prospected extensively for cave entrances across a wide area of the mountain range. Although the several large resurgences in the Jinsha Jiang valley (C3-1, C3-45, C3-46, C3-96, C3-97) and the almost total lack of surface drainage in the high-altitude limestone regions convince us that the mountain range contains large undiscovered cave development, high-altitude entrances to these systems appear very difficult to find; at any rate, they have so far eluded us. The most fruitful next step may involve a change of approach from that of the summer expeditions we have undertaken to date. Specifically, three promising directions for future work suggest themselves:

1. An expedition to search for fossil resurgences, both along the Jinsha Jiang valley and at intermediate altitudes on the (steep!) western slopes of the mountains. Fossil resurgences may provide a dry route into collectors and hopefully into the lower end of a deep cave system. It may then be possible to explore the system from the bottom up, aid-climbing pitches when required.

(Timing would presumably be very flexible for an expedition with this as sole aim, although an expedition planning on climbing to altitudes higher than 3000m would want to avoid snow.)

2. A diving expedition, aiming to pass one or more of the known resurgences (especially, C3-96 and/or some of the sumps upstream inside C3-1, both identified as potential diving projects by the original explorers) and explore any passage beyond.
3. An expedition to the plateau during the early or late snow season (roughly: October/November or spring), to look for the meltholes in light snow cover that betray entrances to caves of significant volume.

Possible objectives for a future high-altitude summer expedition that can be identified at this point include the following:

- Return to the area surrounding the final Yunnan 2004 camp (the Little House camp — see map in section 2 above), and check settlements further west during yak farming season, to see whether there are any farmers who may know the locations of significant caves.

- Return to C3-294 (Dawa Dong), to widen the rift at the current limit of exploration.
- Return to C3-69 (Subvertical Pot), and check the windows in shafts that were not checked during derigging in 2004, to see whether any such windows afford a route through into parallel shafts that are not choked at the bottom.
- Dye-trace experiments between various known surface sinks and underground streams on the one hand, and the several known resurgences on the other. Our contact at Yunnan University has indicated interest in assisting us with such experiments.

3 Expedition members

Yunnan Resurgences 2004 expedition

DC Duncan Collis
 CD Chris “Might come up your valley” Densham
 RGe Richard “I hope I’ve greased my ring well enough” Gerrish
 EL Erin Lynch

Yunnan 2004 expedition

AA	Andrew Atkinson	Surveys
RB	Rich “Eeeeeeeeeee” Bayfield	
DC	Duncan Collis	
SFl	Si “No Problem” Flower	Medical
SFr	Simon “Vomit King” Froude	Computers
RGa	Rob Garrett	Treasurer
RGe	Rich “Monkey King” Gerrish	Deputy Leader, Film, Gear
HG	Hilary “Not big boned, just fat” Greaves	Leader, Grants, Website
MH	Martin Hicks	Photographer
LH	Liu Hong	Field Agent
CJ	Chris “Little Boy” Jewell	
MLa	Martin Lavery	Cave database, Maps
MLi	Martell “Vomit Queen” Linsdell	
FL	Fleur Loveridge	Geologist, Pissup
GL	Gavin Lowe	Rescue
LS	Lenik amak Saymo	
AS	Andy Sewell	
PT	Pete “Petros Petros Gali” Talling	Gear, Geologist

Guests

HW Heather Work

4 Expedition diaries

Yunnan Resurgences 2004 Diary

Date	Summary
17.01	EL bus Shenzhen to Guilin; CD leaves the UK
18.01	EL arrives in Guilin; CD arrives in HK
19.01	CD applies for China visa
20.01	DC, EL take train to Kunming; CD gets China visa
21.01	DC, EL arrive in Kunming; RGe, CD fly to Kunming; dinner with Liu Hong; buy tickets to Lijiang
22.01	All bus to Lijiang; no buses to Zhongdian; night in Lijiang
23.01	Bus to Judian, breadvan to Shui Lian Dong; whiskey & cookies for DC's birthday; night club; drunken & naked caving
24.01	Survey into Shui Lian Dong – Disco Fever to Writing on the Ceiling
25.01	Survey Talisker Trail to the Still. Freeclimbed above the Distillery
26.01	Survey into Deep Shit
27.01	DC, RGe, CD walk up N tributary to sumped resurgence, see another entrance; EL walks N along road
28.01	CD, RGe kill all leads in Shui Lian Dong; EL walks S along road
29.01	EL, CD walk up valley near Qizong; RGe, DC walk up S tributary and fail to find sink
30.01	DC, RGe, CD go to Straight Valley, find 2 huge resurgences at Ji Ren Shui; Pissup
31.01	Hangovers; RGe traces contours all day
01.02	RGe, CD walk up to Yao Dong, spend night in village
02.02	EL, DC survey wet entrance; RGe, CD return from village and go on pointless random recce
03.02	EL, RGe wash gear; CD, DC check out southern valley
04.02	All take van to Zhongdian, then sleeper bus to Kunming
05.02	EL, DC take train to Guilin; all fester in French Cafe
06.02	EL, DC arrive in Guilin
07.02	RGe, CD fly to Shenzhen and cross border to Hong Kong
08.02	CD flies to the UK
09.02	CD arrives in the UK

Yunnan 2004 Diary

Camp	Date	Who	What
Guli	7.07	SFl, HG	Zhongdian to Guli
-	8.07	-	C4-2: Rig, push, survey
-	9.07	-	C4-2: Survey, derig. C4-3: Rig, push, survey
-	10.07	-	C4-3: Survey, derig. Guli to Zhongdian
North	11.07	SFl, HG	Zhongdian to Camp 3. Log C3-100. Chance meeting with photographer and guides at hut

North	12.07	-	Prospecting with guides. Log C3-101, C3-102. Camp 3 to Zhongdian
-	13.07	Lots	Arrive in Zhongdian
-	13.07	All	Organise equipment. Acclimatisation time. Expedition Dinner
-	14.07	RB, CJ	Daytrip north to investigate caves marked on map
-	14.07	FL, PT	Investigate sinks around Napa Hai
-	14.07	Others	Acclimatisation time at base. Shopping. Organise tacklestore
-	15.07	SFl, HG, MH, MLa, LS	Zhongdian to Northern Camp
-	16.07	SFl, MH	Recce north of camp
-	16.07	HG	Recce south of camp. Log C3-328 to 333
-	16.07	MLa, LS	Investigate area immediately around camp
-	17.07	SFl, HG, MH	Recce north of camp. Log C3-112 to 116
-	18.07	SFl, HG, MH, MLa, LS	Northern Camp to Zhongdian
South	15.07	RGa, FL, CJ, PT	Zhongdian to Southern Camp
-	16.07	RGa, FL, CJ, PT	C3-81: Push, rig, bottom, survey, derig. Move camp down valley
-	17.07	RGa, FL, CJ, PT	Return to Zhongdian
Base	18.07	RGa, FL, CJ, PT	Recce sinks and resurgences around Napa Hai
Gavin's Dong	15.07	RB, DC, RGe, GL	Zhongdian to Gavin's Dong Camp
-	16.07	RB, RGe	C3-4: Declare bottomed at 2002 limit
-	16.07	DC, GL	Prospecting north of C3-4: find C3-135 to 138
-	17.07	RB, RGe	Prospecting north of C3-4: Find C3-127 to 129
-	17.07	DC, GL	Push C3-135, 137, 138. More prospecting — find nothing. Get wet
-	18.07	RB, DC, RGe, GL	Gavin's Dong Camp to Zhongdian
Base	19.07	HG, RGe, RB, AA, SFl, DC	C3-106 (Naigan Dong): Push, bottom, survey
-	20.07	RGa, HG	Go off to find horses
-	20.07	RB, DC, SFl, RGe	Spend day throwing up
-	20.07	Others	Shopping & preparation for Ye Kang camp

Base	19.07	Others	Rest day in Zhongdian
-	21.07	RB, DC, SFl, RGe	Spend day throwing up
LSV	21.07	MLa, LS, PT	Zhongdian to Long Straight Valley (LSV). Investigate top of LSV — path becomes terrible
-	22.07	MLa, LS, PT	LSV to Zhongdian
A Ji	21.07	GL	Zhongdian to A Ji
-	22.07	GL	Prospecting north of A Ji. Log C3-139 to 142
-	23.07	GL	Prospecting near A Ji. Log C3-143 and 144
-	24.07	GL	A Ji to Zhongdian
Base	24.07	PT, SFr, LH, MLa, LS	Daytrip to C3-96
Ye Kang	21.07	AA, RGe, HG, MH, CJ, FL	Zhongdian to Ye Kang, with horses. Get dropped off at lake
-	21.07	HG, MH	C3-67: Rig, bottom, survey, derig
-	22.07	RGe, FL	Prospecting near Ye Kang.
-	22.07	RB, DC, SFl, RGe	Zhongdian to Ye Kang, with horses. Get dropped off at lake
-	22.07	AA, HG	Prospect along geological boundary north from Ye Kang. Log C3-145 to 151, 154, 155. Visit Gavin at A Ji. Overnight in hut
-	23.07	AA	Return to Ye Kang, prospecting west of geological boundary en route. Log C3-152, 153
-	23.07	HG	Return to Ye Kang, lying down for 10min sleeps en route.
-	23.07	DC, SFl	Prospect on cliffs above Ye Kang
-	23.07	RB, RGe	C3-68: Bottom. C3-69: Rig, push.
-	23.07	RGe, FL	Check shakeholes at camp and holes in cliff
-	23.07	AA, FL	Re-check C3-67
-	23.07	RGe, FL	Recce holes in cliff above camp
-	24.07	RB, RGe	C3-69: Push
-	24.07	DC, SFl	Prospecting. Find C3-189
-	24.07	HG, CJ, FL	Ye Kang to Zhongdian. Food shopping
-	24.07	RGe, AA	Recce further north & west of camp
-	25.07	SFr, FL, LH, PT	Zhongdian to Ye Kang (with horses)

-	25.07	RB, RGe, MH	Look at entrances with locals. Check southern area
-	25.07	DC, SFl	C3-69: Survey, check eyehole (blind)
-	26.07	RGe, MH, FL, LH, PT	Drop shafts in triassic limestone east of camp
-	26.07	AA, HG, CJ, MLa, LS	Zhongdian to Ye Kang
-	26.07	DC, SFl	C3-189: descend to choke
-	26.07	RB, SFr	C3-69: Check window, derig. Prospect
-	27.07	RB, HG	C3-195: Rig, push, dig
-	27.07	AA, DC	Prospecting within 700m west of C3-69. Find C3-205
-	27.07	SFr	Prospect along mudstone sliver south of camp. Find C3-180
-	28.07	AA, DC	Walk along treeline north of C3-205. Drop C3-205 and C3-204. Walk as far north as C3-216, then back 100m above treeline.
-	28.07	RB, HG	C3-195: Survey, derig
-	28.07	RB, SFr, HG	C3-180: Rig, push, bottom, survey, derig
Dawa's	27.07	SFl, RGe, FL, LH, PT	Splinter group makes foray from Ye Kang to Dawa's. Shown 3 entrances by Dawa, including Dawa Dong. Drop stones and giggle a lot
-	28.07	SFl, RGe, FL, LH, PT	Tour of carboniferous and permian limestone blocks in southwest area by local farmers: find lots of holes in cliffs and massive rock arch.
-	29.07	SFl, RGe, FL, PT	Dawa's to Ye Kang, via edge of plateau overlooking short steep valley. Find Si's rift.
Ye Kang	29.07	AA, DC	Find and descend 'Fuck Me, A Bear' cave. Finish C3-215. Push C3-248 further. Find more holes on way back to camp
-	29.07	RB, CJ	Prospecting in Cavedale. Log C3-301 to 303
-	29.07	MH	Prospecting E of camp. Log C3-239 to 241
-	29.07	HG, LH, SFr	Ye Kang to Zhongdian
-	30.07	Lots	Ye Kang to Zhongdian
Base	30.07	HG, LH	Meeting with local government
-	31.07	All	Rest day in Zhongdian

Jinsha	27.07	RGa, GL	Daytrip to C3-96; check out nearby holes
-	28.07	RGa, GL	Long walk up Long Straight Valley
-	29.07	RGa, GL	C3-96 to Zhongdian, via C3-134 to collect water sample
-	1.08	AA, MH, LH	Daytrip to C3-96
Dawa's	1.08	RB, SFr, RGe, HG, FL, GL, CJ, PT	Zhongdian to Dawa's
-	2.08	CJ, RGe	C3-294: rig
-	2.08	FL, PT	C3-294: shiver in rain by entrance
-	2.08	RB, HG	C3-339: Rig, bottom, grade 2 survey. Prospect in U-shaped col and hanging valley
-	2.08	AA, MH, LH	Zhongdian to Ye Kang
-	3.08	AA, MH, LH	Ye Kang to Dawa's
-	3.08	RB, HG, GL, PT	C3-294: Dig, survey. Identify way on: squeeze needing hammering.
-	3.08	AA	Prospect cliff and basin on right hand side of U-shaped valley
-	4.08	SFr, HG	Prospect in Ye Kang valley and on hills NE of camp
-	4.08	AA, GL	C3-294: hammer squeeze
-	5.08	SFr	Prospect
-	4.08	RB, CJ	Bottom C3-304, 305, 306. Log C3-307, 308
-	4.08	MH, LH	Prospecting with Dawa — log C3-242 to 247
-	5.08	AA, HG	C3-294: break through squeeze to find a rift that needs hammering
-	5.08	MH	Bottom C3-244
-	5.08	RB, CJ	Camp 15 to Zhongdian
-	6.08	HG, GL	C3-294: hammer rift
-	7.08	HG, PT	Prospect on peak north of hanging valley. Find C3-258 to 267
-	7.08	RGe, GL	C3-294: hammer rift
-	7.08	SFr	Dawa's to Zhongdian
-	8.08	HG, MH	C3-294: hammer rift
-	8.08	RGe, PT	Bottom C3-260, 263, 265
Base	8.08	AA, RGa, MLi, AS, HW, SFr	C3-334 (Da Heise Dong)
Dawa's	9.08	HG, GL	C3-294: hammer rift

Dawa's	9.08	RGe, PT	Prospect on peak north of hanging valley, then along ridge to north
-	10.08	RGe, PT	C3-268 (Cold Cave): Rig, survey
-	10.08	HG	Prospect on peak north of hanging valley, then along ridge to north
-	10.08	SFr, MLi, AS	Zhongdian to Dawa's
-	11.08	RGa, GL	C3-294: hammer rift
-	11.08	SFr, MLi, AS	Prospecting at GR 565715
-	11.08	RGe, PT	Dawa's to Zhongdian
-	12.08	RGa	Revisit C3-307
A Ji	11.08	HG, MH, HW	Dawa's to A Ji, logging caves with locals met en route.
-	12.08	HG, MH, HW	Morning trip down valley with local guide. A Ji to Dawa's.
Dawa's	13.08	HG	C3-294: hammer rift. Abandon ship
-	13.08	MLi	Head of the Valley walk
-	14.08	SFr	Head of the Valley walk
-	14.08	HG	Dawa's to Zhongdian. Food shopping
-	14.08	RGa, HW	Dawa's to Zhongdian. Leave expedition
Base	15.08	RGa, HW	C3-1 & C3-45: Collect water samples
Little House	14.08	SFr, MH, MLi, AS	Move camp to Little House
-	15.08	HG	Zhongdian to Little House
-	16.08	HG, MH	C3-268 (Cold Cave): search for leads, start bolt climbing aven
-	16.08	AS	Prospect in valley northeast of camp
-	16.08	SFr, MLi	MLi suffers altitude sickness. Return to Zhongdian
-	17.08	HG	Prospect along ridge west of camp
-	17.08	MH, AS	Prospect from camp in direction of Cold Cave
-	17.08	SFr	Zhongdian to Little House
-	18.08	HG, MH	C3-268: finish bolt climb. No way on!
-	18.08	SFr, AS	Trip over col SE from camp, to look at triangular hole
-	19.08	HG, MH	C3-268: dig uphill boulder choke until judged too dangerous
-	19.08	SFr, HG, MH, AS	Little House to Dawa's; baijiu with Dawa
Dawa's	20.08	HG	C3-294: morning derig trip
-	20.08	MH	Morning trip to collect kit from Little House
-	20.08	SFr	Morning trip to collect kit from Little House, with horrific hangover

-	20.08	SFr, HG, MH, AS	Dawa's to Zhongdian, with horses and large pile of gear. Hitch lift home with 4-star police general
Base	21.08	All	Wash and pack gear. End of expedition dinner
-	22.08	All	Finish packing and ship gear. Night bus to Kunming
-	23.08	All	Meeting with Liu Hong in Kunming; end of expedition dinner #2; fruity baijiu with Liu Hong

5 Administration and logistics

Hilary Greaves & Erin Lynch

Travel and equipment transport

Individual expedition members were responsible for arranging their own transport to Kunming. Most flew to Kunming on international flights. A few took the marginally cheaper, but slower, option of flying into Hong Kong, crossing the border from Hong Kong to Shenzhen by bus, and taking a domestic flight from Shenzhen to Kunming. (Tickets can be purchased at Shenzhen airport immediately before travel, although we purchased ours in advance through a travel agent in Hong Kong.) Those living in mainland China travelled overland, by train, to Kunming.

Transport between Kunming and Zhongdian was by overnight sleeper bus (approximately 14 hours).

From Zhongdian, the winter expedition caught a local bus round the north of the mountain range and disembarked at C3-1 (Shui Lian Dong).

The summer expedition accessed the mountains from the east (i.e. from Zhongdian); this requires crossing a 6km wide plain between Zhongdian and the start of the ascent. Roads criss-cross this plain, serving local villages. On outward trips (i.e. from Zhongdian to the mountains), we used taxis/minivans (easily hired on the streets of Zhongdian) for transport across the plain. On return trips, we hitched.

Equipment from the UK was carried to China with expedition members. This stretched our standard international personal baggage allowances to, but not quite beyond, their limits. This was possible only because the expedition had access to the existing Hong Meigui tackle stores based in Guilin, Guangxi province. At the start of the expedition, a vast quantity of equipment was transferred between Yangshuo and Zhongdian on trains and buses accompanied by expedition members. At the end of the expedition, group equipment was shipped from Zhongdian to Wulong, Chongqing (the location of the next Hong Meigui expedition); 1400 RMB for 22 boxes.

When transporting large amounts of equipment between Zhongdian and the mountain camps, the expedition hired horses from villages on the Napa

Hai plain or (for downhill trips) from mountain farming settlements. We paid RMB100 per horse for a full hire day.

Money

Chinese currency is Renminbi (RMB), also known as ‘yuan’. At the time of the expedition, the exchange rate was approximately RMB14 to GBP1.

Food and accommodation

In Zhongdian, the summer expedition set up a base at the Milk River Guesthouse (Náizi Hé Mǎ Diàn; 奶子河马店), a Tibetan-run guesthouse in the north of the town. Here we paid RMB20 per person per night spent at base; the expedition had free use of a small room for equipment storage for the duration of the expedition. When in town, the expedition ate traditional Chinese or Tibetan food at local street cafes: typically RMB4 per person for breakfast, RMB7 per person for a full meal. Both cheap accommodation and cheap food are abundant in the town.

In the mountains, the expedition carried 2-man tents and, for the most part, camped, eating standard camping food (supplemented by a few fresh vegetables) bought in Zhongdian. On occasion we ate and (once or twice) slept in wooden huts at the invitation of the local yak herding families.

The winter expedition set up base at a small guesthouse directly across the road from C3-1.

Permission and permits

Travel in China requires a tourist visa. This is obtainable (in the UK) from the Chinese Embassy in London, or Consulate in Manchester, for a GBP30 fee.

The summer expedition carried an official letter of invitation from Yunnan University. While in Zhongdian, the expedition leader and field agent paid a visit to the offices of the local government and also obtained a letter from a local government official.

Insurance

Finding appropriate insurance for the Yunnan 2004 expedition proved to be the usual nightmare, with very few insurance companies offering cover appropriate to our needs and even fewer being sufficiently clear about what they would and would not cover. Since we spent some time investigating insurance, we elaborate here at tedious length. We considered insurance for the following contingencies:

Medical.

In the event of a serious medical incident, related to caving or otherwise, it may be necessary to hospitalize the patient in Kunming and/or to arrange medical evacuation to the UK. We were unable to find any precise quotes for standard

charges, or any relevant information from official sources. Informal research suggested that medical costs for serious treatment in China would be significant but not astronomical (e.g. one anecdote reported the treatment charges for a serious head injury requiring, among other things, several MRI scans, to be around ukp400).

Many insurance policies proved inappropriate for our expedition, on the grounds that they would not cover medical costs relating to injuries or illnesses acquired during cave exploration. It should be noted that this is true even of some policies that profess to cover ‘caving’ and ‘expeditions’, and even when the exclusion is not explicitly stated in the policy wording (e.g. STA Travel confirm that their Premier travel insurance policy excludes injuries sustained during original exploration, on the grounds that carrying out such exploration is regarded as ‘taking unnecessary risks’, and their policy wording explicitly excludes injuries sustained while taking unnecessary risks).

Cave rescue.

Local rescue services in Yunnan are essentially limited to ambulance services; there is certainly no official cave rescue service. In addition, there are very few local cavers in China. As a result, in the event of a serious underground incident that required more rescue manpower than could be provided by the expedition itself, a large-scale rescue operation may well require calling in rescuers from overseas (e.g. from the UK and Europe). This, obviously, would be an expensive operation, as the cost of the rescue would include many international flights and probably also many bills for loss of earnings. (See the Rescue Report, section 9, for further details of our rescue plan.)

It is difficult to obtain insurance for rescue operations of this type. The stumbling block is normally that such operations are not carried out by any official rescue service; most insurance policies state only that they will cover rescues carried out by a ‘recognised rescue service’ (or some similar wording). Understandably, insurance companies often do not understand the DIY nature of the rescue operations cave expeditions must contemplate, and it proved very difficult to clarify (in telephone conversations and email/letter exchanges with insurance companies) whether or not a given policy would actually cover the costs of such an operation. When such clarification was possible, the answer was almost always negative. The only policies we could find that genuinely seem to cover the kind of ‘cave rescue’ we are talking about were those of the Austrian Alpine Club and Federation Francaise de Speleologie. Several expedition members insured themselves under one of these schemes. Following email discussion, the expedition members came to an informal “ladies’ and gentlemen’s agreement” that in the event that a serious rescue operation involving overseas assistance and/or helicopter evacuation was needed and was not adequately covered by insurance, the costs would be split to some significant extent among the expedition members, rather than being considered the sole responsibility of the injured party.

At the time when we were looking for insurance for this expedition, the British Cave Research Association (BCRA) Travel Insurance policy restricted

rescue cover to rescue operations provided by a ‘recognised rescue service’, with no definition of this phrase provided. Because of this, we did not believe that our rescue needs would be covered by this policy. Following negotiations with the BCRA, the insurers have now added the following definition to their policy wording: ‘“Recognised rescue service” shall [include] a self organised rescue capacity where the team/expedition is able to demonstrate that it has experienced cave rescuers within it, equipment in the field to effect rescue, and a pre-prepared rescue plan.’ This definition does seem to indicate a commitment to covering a rescue operation organised in the above way, and we consider this policy to be a suitable source of insurance cover for future cave exploration expeditions.

Public liability.

The biggest potential benefit of PL insurance for caving expeditions in China is in case of claims by expedition members against one another, where injuries caused by “negligence” of a team member result in costs and loss of earnings that are not covered by the injured party’s own insurance. However, all policies we looked at explicitly excluded claims brought by “travelling companions”, so using PL insurance in this way does not seem to be a live option.

Travel.

Other than the above, the expedition’s insurance needs were just the usual travel issues: baggage cover, cancellation insurance, hostage cover, etc. Regular travel insurance policies, with no special provisions for caving, suffice for these purposes.

Cover purchased.

Insurance was purchased on an individual basis — we could not find any group insurance plans that covered our needs at reasonable cost. The expedition strongly encouraged its members to obtain medical insurance that covered cave exploration if this was possible at reasonable cost. Owing to the doubtful appropriateness of most available cave rescue cover, the expedition did not insist that members obtain rescue cover if they judged it not worthwhile. The decision as to whether or not to obtain regular travel insurance was considered entirely a matter for individual decision. Those with more pro-insurance risk attitudes took out, e.g. AAC insurance to cover medical/rescue and a standard travel insurance to cover baggage etc.; others insured for medical only (1) or nothing at all (1).

Policies used included the following. (Numbers in brackets indicate the number of expedition members who purchased the policy in question.)

- Austrian Alpine Club (AAC): Leisure Accident Insurance (4). GBP40 annual premium. Medical and rescue cover.

- Federation Francaise de Speleologie (FFS): Personal Injury Insurance (1). GBP25 annual premium. Medical and rescue cover. (Obtained through Speleological Union of Ireland.)
- Endsleigh: Activity Travel (essential cover) (1). GBP59.28 single-trip premium. Medical cover, including caving-related injuries. Standard travel insurance benefits. Unclear whether or not self-organised rescue is covered.
- British Cave Research Association (BCRA) Travel Insurance (1). GBP80 single-trip premium. Medical cover, including caving-related injuries. Self-organised rescue covered (see above). Standard travel insurance benefits.
- MEGA Life & Health (1). USD414 annual premium. Regular annual health insurance for living in USA; includes medical cover during travel and caving. No rescue cover or standard travel insurance benefits.
- Standard travel insurance, e.g. STA Travel, Lloyds TSB (5). Annual or single-trip premiums typically in the range GBP40 – GBP80. Medical cover excluding caving/exploration injuries; no rescue cover; standard travel insurance benefits.

No claims were made.

Vertical caving

Exploration of vertical caves used single rope technique (SRT), usually on 9mm rope. All expedition members were experienced cavers already well versed in this technique. Details of both equipment and technique are given in, for example, *Caving Practice and Equipment* by David Judson [Jud84].

Documentation

Recording of entrance locations

Whenever possible, entrance locations were recorded by means of GPS (Global Positioning System). Readings were recorded as UTM grid coordinates, using the WGS84 datum parameters. The UTM zone is 47R.

Cave surveying

All significant finds were surveyed to the highest reasonable standard. Copies of the surveys are included in this report (section 14).

Photography

Both expeditions carried simple cave photography equipment (SLR, small flash-guns and slave units). Expedition photos (both surface and underground) have been collected and placed online: see <<http://www.hongmeigui.net>>.

Communications

Frequently, especially in its early weeks, the summer expedition split into smaller teams of one to five to simultaneously investigate different areas. The teams carried mobile phones (with UK SIM cards). The intention was to keep each other updated by means of text messages; this system had worked well for us in 2003. However, it turned out that in most of the areas we found ourselves working in this year, mobile reception was difficult or impossible to find, so the system was ineffective. One side-effect of this was that we chose to establish a main base in the mountains (at Ye Kang) relatively early in the expedition, with almost all our manpower operating from this mountain base. Small groups would then often make one- to four-night forays out into new areas and return to the main mountain camp, rather than operating parallel camps from Zhongdian, so that different parts of the expedition could share their findings with one another in time for appropriate decisions on where to go next to be made. Had electronic communications been better, we might have chosen to look at more widely separated areas.

The expedition had 2-way radios (KYD TK-8188). These were used on occasion for communicating between different surface teams operating from the same camp. Clear communication over a distance of 5km was achieved, on a clear day with a line of sight. Clear communication (i.e. words as opposed to static) in the absence of a line of sight could not be achieved. This was of limited use, but can be useful for one team located at a good viewpoint to direct another team to sighted entrances: for instance, using a line of sight from one side of a valley to another. Hong Meigui expeditions elsewhere in China have found these radios very useful for communication up and down pitches, where distance/sound of water prevents a clear connection by voice alone. These radios performed significantly better than those we tried to use last year (Binatone MR300).

Electricity

The electricity at the guesthouse used by the winter expedition was normally 170V, occasionally dropping to 0 or increasing to 220V. No problems were noted with battery chargers, but the expedition's printer (Canon BJ-30) would not work below 220V. A voltage regulator may be useful for future work in this area.

The summer expedition had no access to electricity in the mountains. We used mains electricity at the Milk River Guesthouse to power computers, scanner, printer and battery chargers. Solar panels may be useful for future mountain expeditions.

6 Cave locations and descriptions

Martin Laverty

⊗ **C3-1 Shui Lian Dong (Shǔi Lián Dòng; 水帘洞)**

Location: UTM 0551716 3056183 Alt. 1965m. The entrance is located ap-

proximately 30m above the road level, and is reached by a series of flights of steps to the right hand side of the water.

Description: From fossil entrance 200m of ascending dry walking passage leads to the stream at Naughty, Naughty. The stream can be reached by descending a rotten bamboo ladder or a traverse to the right. Downstream leads immediately to a 4m waterfall. Upstream in Disco Fever 40m of short cascades leads to a calcite blockage where the ceiling rises and the stream flows in a low oxbow on the left. The way on is up a ladder to the top of the flowstone and then down a mud bank. After a further 50m of 7m wide passage there is a 2m cascade, the top of which is reached via a sloping ladder wedged across the passage. From here the gradient decreases for 160m of spacious stream passage with a roof channel that sometimes splits from the main passage, followed by 50m of scrambling over boulders while the stream flows in a low, 10m wide undercut to the left. A mud bank on the right curves around and a stoop under gains a small chamber with two ways going off. High and to the right is a body sized tube which has not been pushed to conclusion. Straight ahead is a low, wide crawl in water. After 15m the crawl pops out into Famous Grouse Junction.

To the right The Writing's On The Ceiling is a 9m wide crawl in water with numerous stals on the ceiling. After 35m it enlarges slightly and it is possible to sit up at a calcited bank on the right. Beyond it resumes its previous dimensions for a further 20m of crawling to a junction. To the left goes immediately to sump which is the source of most of the flow in the cave. Passage continues underwater. To the right is unspeakably grim and low but still going, with minimal flow and no obvious draught.

To the left is a deep pool at the start of Talisker Trail. Here the stream flows in a low undercut on the right while to the left is pleasant walking over a guano bank. Crossing the stream the guano continues into a blind alcove on the right and the stream swings off to the left. High and to the left there is an aven which could be climbed using a rope. 2m of stooping gains 10m of walking passage followed by 50m of crawling in water past hibernating bats which ends in The Roost, a 5m wide muddy chamber with steeply ascending roof covered with roosting bats. On the left the water appears static, while to the right there is a low, tight crawl in flowing water. The way on is a thrutchy climb up at the far end of the chamber on the right side of a big boulder. Crossing the top of the boulder, a wriggle along its left side gains a thrutch down into guano-floored fossil passage. A rift doubling back has a vocal connection with The Roost. Ahead deep guano slopes up to the right and an unclimbed aven to the left. Up the guano slope a smattering of helictites dot the wall. A slide down and climb up guano gains The Distillery, a well decorated chamber with curtains, small stals with rings, and a climb up to an aven. The Distillery slopes down to The Still, a deep rising sump (open and diveable). Water from The Still flows down a too tight passage to the right to a presumed connection with The Roost. To the left of The Still, Bells is a 60m long low crawl over quickmud (with one possible rising sump) which ends with a too tight hole on the left. *PS, HG (2002); RGe, DC, LH, MLa, LS (2003); RGe, DC, EL, CD (2004)*

Rigging:	Pitch	Rope	Rigging
	Slippery Shit (P13)	17m	traverse (1 bolt); belay (1 bolt)
	Deep Shit	17m	handline; sling

⊗C3-4 Gavin's Dong

Location: UTM 0557135 3075135 Alt 4221m.

Description: Entrance is a (large-)body-sized tube that slopes downhill for 4m to a 1.5m climb down. [The obvious way on, continuing in the same direction as the entrance tube, is a 2m wide passage. This gradually widens to 3m wide, and terminates 10m from the climb.] The main way on is found by doubling back under the climb down and ducking through to the head of a 5m handline climb down into a chamber, 2m x 7m in floor dimensions. [At the near (east) end of the chamber, a small passage leads to a 4m free climb down into a second chamber, 3m across. A squeeze leads to a small boulder chamber, and from here a way down between boulders leads to a light connection with the second chamber.] At the far (west) end of the chamber, a short dug crawl leads to the top of a handline climb down of 3m, with a squeeze at the top. The climb drops onto a ledge at the head of a 10m pitch. The pitch drops into a 5m diameter chamber, from where a tall calcited rift leads off. After 10m, the only way on is a dug crawl at floor level, under a dribble of water. The rift continues with several constrictions, until after a further 50m it reaches a 3m climb down into a chamber. [The chamber extends to the right for 10m, to the base of an inlet.] A slot in the left hand chamber wall leads to a narrow low rift passage. After a few metres the rift hits breakdown but wriggling through an excavated hole at head height gains a small chamber. From here there are two hopeless prospects. The first is a climb up on the left to a draughting calcite blockage. The second follows the right hand wall over a boulder ledge to a second draughting calcite squeeze. It is (just) possible to insert one's chest into this squeeze far enough to peer round the corner and see that there is a choke immediately beyond. *GL, RGe, HG, PS (2002); RGe, RB (2004)*



Rigging:	Pitch	Rope	Rigging
	Climb	5m	handline
	Climb	3m	handline
	Pitch	10m	Bolt

⊗C3-66

Location: UTM 0555926 3072909 Alt. 4227m. In the vicinity of Yě Kāng village. Approximately 200m southeast of village, 20m left of the path.

Description: Entrance is 1m diameter hole on grassy slope. Tube descends at approx 60°. Chokes at 20m depth with no apparent draught. *HG, HB (2003); RGe, FL (2004)*

⊗C3-67 Railway Tunnel

Location: UTM 0555474 3073443 Alt. 4280m. In the vicinity of Yě Kāng village.

Description: 15m x 10m entrance on spur, approx 80m above village. Huge

tunnel-like entrance, but not particularly easy to see until you're standing right next to it. 8m wide passage with boulder floor (loose) descends steeply to the right for 20m. 10m pitch (rig from way back up boulder slope, as there are no belays near the lip) lands in large passage. Passage can be followed downhill for 20m to a rubble-floored chamber. A dig on the far wall looks fairly hopeless, and a climb up on the left doesn't go. *HG, RGe (2003); HG, MH, FL, AA (2004)*

⊗C3-68

Location: UTM 0554990 3072320 Alt. 4125m. In the vicinity of Yě Kāngvillage. 10m diameter doline with 4m diameter tube beginning 6m down.

Description: Steeply descending, 4m diameter tube, visible for approximately 10m, to snow. A short pitch drops down the Ice Sphincter where a small passage descends over the last ice to enter a 10m high aven with sand and pebble floor and slight possibility of high level outlet. *RGe, RB*

⊗C3-69 Subvertical Pot

Location: UTM 0554939 3072376 Alt. 4206m. In the vicinity of Yě Kāngvillage.

Description: 2m diameter vertical shaft. First pitch is a 33m free hang belayed to rhododendron with a rope protector or tacklesack over the lip. In total, the cave drops 113m in several pitches, to a choked floor. In several places, windows through to possible parallel shafts have not been explored. *RGe, RB, DC, SFl*

⊗C3-78

Location: UTM 0556129 3073756 Alt. 4283m. In the vicinity of Yě Kāngvillage.

Description: 4m diameter vertical shaft visible in 8m diameter doline. Rocks freefall for 2 seconds, followed by a 6 second stone rattle, but it was found to end in a snow choke. *RGe, PT, MH, CJ*



⊗C3-81 Yi Ye Qin Dong (One Night Stand Cave)

Location: UTM 0563797 3053446 Alt. 3902m. 1km from Gu Bo Niu Fang village. From the village, follow the main track, and the cave is 30m off on the right, at the base of a 5m high limestone outcrop.

Description: Small entrance leads down a steep boulder slope, underneath a showerbath, to walking sized passage with many small inlets. Active stream passage continues downstream for 100m, to the head of a 7m pitch. Below this a short climb, approximately 2m, requires a hand line. The next pitch is bypassed by climbing to the left away from the water and down (C6). When the passage rejoins the water two wet pots (P12, P6) are encountered. These were dealt with by traversing round to the left and placing a bolt. At the bottom of the second pot two more climbs are found before a long slope down to a rock floored chamber. Here the water disappears into the floor and the way on is a low crawl which heads off to the left. Following a short climb (C1) the water is met again and more cascades (C4) follow until arriving at an obvious pitch (P4) with an inlet opposite. The next wet pitch can be

free climbed (C4, C2) by traversing over the top. At the bottom there is a large pool which can be avoided by climbing through a window and just after this the final sump is reached. *RGe, HG (2003); FL, RGe, CJ, PT (2004)*

⊗C3-90

Location: UTM 0553636 3060590 Alt. 2427m. Upstream of C3-45 along tributary just north of C3-1.

Description: River appears from shingle in dry river bed. *RGe, DC, CD, EL*

⊗C3-91

Location: UTM 0554051 3060656 2460m. Up valley from C3-90, the presumed resurgence.

Description: River gradually sinks in gravel in riverbed. *RGe, DC, CD, EL*

○C3-92

Location: Up the tributary north of Shǔi Lián Dòng.

Description: Entrance spotted in cliffs. *DC*

⊗C3-93

Location: UTM 0554636 3049644 Alt. 1935m. 300m up valley on E bank of Jin Sha Jiang, just south of Z-bend in the river near Qi Zong.

Description: Seep-away in mud and cobbles in stream bed. Bedrock cliffs on both sides are limestone, but the sink itself is in alluvium. *CD*

⊗C3-94

Location: UTM 0554982 3049764 Alt. 2020m. Up valley from C3-93.

Description: Sink in stream bed. *CD*

⊗C3-95

Location: UTM 0552347 3055720 Alt. 2119m. One kilometre up the valley immediately south of C3-1. On a bearing of 314.5° from UTM 0552347 3055720 Alt. 2119 (epe 15).

Description: Small entrance (approx 1m x 2m) on a bedding plane on the N side of valley. *RGe, DC, CD*

⊗C3-96

Location: UTM 0548100 3075445 Alt. 2240m. 3-3.5km up the large tributary which enters the Jin Sha Jiang 2km north of Baka. Just before valley splits, on N side of valley. 20m from C3-97.

Description: Water emerges from boulders and tree-roots at a number of points spread over 15m. In the winter the combined flow from C3-96 and C3-97 was estimated at over $7\text{ m}^3\text{s}^{-1}$. Most of this comes from C3-96. *RGe, DC, CD*

⊗**C3-97 Lucky Benevolent Water (Jí Rén Shǔi;**
吉仁水)

Location: UTM 0548100 3075425 Alt. 2240m. 3-3.5km up the large tributary which enters the Jin Sha Jiang 2km north of Baka. Just before valley splits, on S side of valley. 20m from C3-96.



Description: Water wells up in an artificially dammed pool at the base of a large cliff. Unclear whether there is penetrable passage at the bottom of the pool. 10m downstream there is a second welling in gravel, and a bit further downstream more water comes out of the base of a large pile of boulders. *RGe, DC, CD*

⊗**C3-98 Xiān Rén Dòng**

Location: UTM 0548082 3075395 Alt. 2237m. 30m above sluice house at the head of the big aquaduct on the N side of the C3-96 valley.

Description: A gated entrance with prayer flags. Stoop to the left leads to a shrine with candles. Straight ahead there is a choice of 2 ways on. Up and to the left a hands and knees crawl/stoop leads to another small shrine. Right is a short stoop to walking passage which passes under 8m aven then past a 5m deep blind hole in the floor, ending after 20-30m in a blind pit with a traverse to the right which pinches out. The cave is decorated, but very sooty and smokey. Warm and no draught. *DC, GL*

⊗**C3-99 Yao Dong**

Location: UTM 0553400 3062811 Alt. 3377m. 1m diameter shaft in 45° rocky hillside.

Description: 5m of steep slope requiring aid precedes final vertical to probable earth floor. No draught. No prospects. Don't go there. *RGe, CD*

○**C3-100**

Location: UTM 0556833 3088265. 5 minute walk from the village known to the Yunnan 2002 expedition as HUTS1, which is at UTM 0556604 3088353 Alt. 4066m.

Description: 1m diameter vertical hole on slope in woodland. Estimated depth 15m max. No apparent draught. Undescended. *SFl, HG*

⊗**C3-101**

Location: UTM 0552780 3086026. On cliff, approx. 40m above valley floor. Steep approach.

Description: 8m long x 4m wide alcove on cliff. Used as a storage site by local guides. *SFl, HG*

⊗**C3-102**

Location: UTM 0552813 3086132. Located at edge of gully (left-hand edge when facing uphill).

Description: Vertical entrance is split by rock bridge, leaving 2 holes, 0.5m x 1.5m and 0.5m x 1m. Can be rigged from a spike in the left-hand hole (backup

reassuring) and rebelayed to the rock bridge. Pitch drops 20m to a large chamber (25m long x 5m wide) with sloping boulder floor. Space between boulders on wall opposite pitch could be pushed/dug, ideally with 2 or 3 people. *HG*

⊗C3-103

Location: UTM 0562667 3086350 Alt. 3271m.

Description: Undercut about 3m above lake level. Thin beds with calcite crystal veins dip $45^\circ\text{N} \rightarrow \text{S}$. *MLa, PT, FL*

⊗C3-104

Location: UTM 0562547 3086618 Alt. 3271m.

Description: Solution pockets about 10m above lake level. *MLa, PT, FL*

⊗C3-105

Location: UTM 0562472 3086735 Alt. 3260m.

Description: Phreatic remanants by road about 3m above lake level. *MLa, PT, FL*



○C3-106 Nai Gan Dòng; Mint/Conglomerate Cave; 乃干洞

Location: UTM 0562114 3087146 Alt. 3248m. Located at the north end of Napa Hai, close to the track that runs alongside the lake. The cave entrance is just downstream of a small lake outflow that runs under the track.

Description: Entrance is a large (10m high x 5m wide) downhill passage, taking a small stream. Climb down over boulders and down through small hole at front left of entrance chamber to enter the cave proper down steep slope. This gains a stream passage, with the water occupying most of the width of the passage. It is possible to traverse on the right-hand side for 8m, until a 4m free-climbable cascade is reached. 5m beyond this is a second cascade, which can be free-climbed (but a handline is useful!) by teetering down a steep conglomerate bank on the lefthand side of the passage. 10m of easy walking passage lead to a free-climbable cascade and then a further two cascades in close succession, which can be rigged from an enormous conglomerate feature that is part of the right-hand wall. [At the bottom of the final cascade, some of the water drains away through a steep descending body-width slot at floor level. This slot has been explored feet first to neck depth, but water began to back up around the caver's body. It may be possible safely to explore this slot by diverting the small proportion of water that usually flows through the slot along the main stream passage (using sandbags or similar), leaving the slot itself dry.] Downstream, the cave continues as easy meandering walking stream passage, gradually diminishing in height until a sump is reached after 20m. The entire cave is in conglomerate.

Note: On one visit to this cave (after a period of relatively dry weather), the water had backed up to the entrance. *AA, RB, DC, SFl, HG, RGe, FL, MLa, PT*



⊗C3-107 Tunnel Sink

Location: UTM 0561893 3085559 Alt. 3289m.

Description: Sink. Flow rate estimate: 2m wide by 2.5 x 1m per minute $\rightarrow .09 \text{ m}^3\text{s}^{-1}$. *MLa, PT, FL*



⊗C3-108 Undercut Sink

Location: UTM 0561684 3085659 Alt. 3220m.

Description: Sink. Flow rate estimate: 5m wide by (guess) 2m deep x 1m per minute $\rightarrow .17 \text{ m}^3\text{s}^{-1}$. *MLa, PT, FL*



⊗C3-109 Main Sink

Location: UTM 0561332 3086351 Alt. 3260m.

Description: Sink. Flow rate estimate: 10m wide by (guess) 2m deep x .2m per second $\rightarrow 4 \text{ m}^3\text{s}^{-1}$. *MLa, PT, FL*



⊗C3-110 Swim Sink - Dry entrance

Location: UTM 0561480 3086050 Alt. 3260m.

Description: Short wade/swim. *PT, FL*



⊗C3-111 Swim Sink - Wet entrance

Location: UTM 0561480 3086040 Alt. 3260m.

Description: Drop down into chamber where daylight can be seen from C3-110. Rift continues, unexplored, through a large bat roost. *PT, FL*

⊗C3-112 Big lake outlet

Location: UTM 0552310 3087438 Alt. 4332m.

Description: Lake empties into sumped pool. Flow rate guesstimate $.5 \text{ m}^3\text{s}^{-1}$. *SFl, MH*



⊗C3-113 Noisy rift

Location: UTM 0552310 3087433 Alt. 4332m. 5m to right of C3-112.

Description: A .3m wide rift, 2m deep, with impressive roar of running water. *SFl, MH*

⊗C3-114

Location: UTM 0552276 3087592 Alt. 4243m.

Description: Old phreatic tube, about 2m diameter. Blocked. *SFl, MH*

⊗C3-115

Location: UTM 0552267 3087607 Alt. 4244m.

Description: Small blocked cave. 1m high by 1.5m wide. *SFl, MH*

⊗C3-116

Location: UTM 0552265 3087616 Alt. 4239m.

Description: Shaft descending at 60° choked with snow. *SFl, MH*

⊗C3-117

Location: UTM 0561196 3084569 Alt. 3248m.

Description: Small resurgence. Not enterable. *PT, FL, RGe*



○C3-118 Na Pa

Location: UTM 0560996 3083721 Alt. 3288m.

Description: Waterfall spouting out of hole in cliff. It is possible to scramble up to one side and gain spray-lashed entrance. Passage with air space is visible above the water. (NB This resurgence is approx. 1.2km below C3-338, a sink in the hanging valley, to which it probably connects.) *PT, FL, RGe*



⊗C3-119

Location: UTM 0561008 3083072 Alt. 3294m.

Description: Resurgence. Unenterable. *PT, FL, RGe*

⊗C3-120

Location: UTM 0560935 3083191 Alt. 3329m.

Description: Resurgence. Unenterable. *PT, FL, RGe*

○C3-121

Location: UTM 0562231 3082346 Alt. 3299m.

Description: Resurgence. *PT, FL, RGe*

⊗C3-122

Location: UTM 0562528 3081570 Alt. 3306m.

Description: Alcove *PT, FL, RGe*

⊗C3-123

Location: UTM 0562691 3080848 Alt. 3305m.

Description: Alcove. *PT, FL, RGe*

⊗C3-124

Location: UTM 0562778 3080760 Alt. 3299m.

Description: Alcove.

○C3-127

Location: UTM 0556301 3075821 Alt. 4235m.

Description: Large, inaccessible sink in a pool. Many inlets to pool. *RB, RGe*

⊗C3-128

Location: UTM 0555748 3076271 Alt. 4376m.

Description: Pitch entrance above a large shakehole and with distinctive rock bridge. Rig 20m pitch from spike on lip, rebelay to rock bridge, and protect rub point 10m down. Pitch lands in a 15m long, 5m wide, 8m high chamber. There is a possible dig by a snowplug at the downhill side of the chamber. A tight rift at the uphill end feels draughty, and has not (quite) been pushed to a conclusion. *RB, RGe, HG, MH, HW*



○C3-129

Location: UTM 0555696 3075356 Alt. 4295m.

Description: Large stream flows into small lake/pool/puddle at base of 10m wide x 5m high outcrop. Excess water flows through crack (can be dug, loose stone blockage). Entrance is 2 small triangular holes at floor level, that meet up in a small chamber 1m in. Chamber appears to close down beyond, but has not been entered. *RB, RGe, HG, AA*



⊗C3-130

Location: UTM 0564110 3085826 Alt. 3298m. Small cave on east side of road, 30m up from road.

Description: Rocky tube, along which you can crawl for a couple of body lengths. *PT, FL, MLa, LS*



⊗C3-131

Location: UTM 0556204 3076274 Alt. 4258m.

Description: Entrance approx. 2m x 3m wide, leading steeply down a 7m handline climb (earth floor loose). At the bottom of the climb is a large chamber, with snow floor and possible signs of faulting on wall. A 2m wide passage heads off at 320° for 15m, decreasing in height to a choke. *MH*



⊗C3-132

Location: UTM 0555756 3081689. Below bamboo belt, beside path.

Description: Small rock shelter.

⊗C3-133

Location: UTM 0561225 3085078. Below track, in barley patch.

Description: Resurgence emitting muddy water into Napa Hai. *PT, MLa, LS*

⊗ **C3-134 Fisherman's Pool**

Location: UTM 0551746 3099062 Alt. 2734m. By N side of road from Nixi to the Jinsha Jiang, not far below village with abundant chorten groups.

Description: 40m diameter fish pond with plenty of reeds and weeds. Water is taken off for an HEP plant further down the valley. Locals believe it to be the Napa Hai water, which also seems likely on geological grounds. *SFr, LH, PT, MLa, LS*



⊗ **C3-135**

Location: UTM 0556257 3075132.

Description: Heads down at 60° past snow patches to a choke, which has been dug without success. *DC, GL*

⊗ **C3-136**

Location: UTM 0556267 3075132. 10m east of C3-135.

Description: Small outward-draughting hole. Could be dug open. *DC, GL*

⊗ **C3-137**

Location: UTM 0556239 3075102. Up and right from C3-136.

Description: 5m to outwards-draughting squeeze, could be dug open. *DC, GL*

⊗ **C3-138**

Location: UTM 0556230 3075101.

Description: 8m squeeze down 45° descending boulder slope to complete choke. Strenuous on the return. Slight draught? *DC, GL*

⊗ **C3-139**

Location: UTM 0557070 3078387 Alt. 4204m. Near path north from Aji.

Description: Occasional sink, looks very diggable. The amount of water dropped markedly between being found (after a night of heavy rain) and five hours later (after only showers). *GL*

⊗ **C3-140**

Location: UTM 0556979 3078838 Alt. 4276m. Shakehole at lowest point of big bowl 1.5km north of Aji.

Description: Shakehole. There might be a way past the boulders. *GL*

⊗ **C3-141**

Location: UTM 0556539 3078733 Alt. 4262m. At lowest point of next bowl (SW) from that containing C3-140.

Description: Shakehole. There might be a way past the boulders. *GL*

⊗ **C3-142**

Location: UTM 0557040 3079415 Alt. 4337m. Just above cliff.

Description: Very narrow rift, possibly too tight. This might just be part of the hillside that's about to fall off. *GL*

○C3-143

Location: UTM 0557248 3077658 Alt. 4192m. From Aji, follow path NW through rhododendron forest.

Description: 10m shaft, split by rock bridge at top. It doesn't look great, but may be worth checking. *GL*

⊗C3-144

Location: UTM 0556117 3077443 Alt. 4363m. 50m south of col to south of peak marked on map as 4432.

Description: Two entrances. Left entrance soon chokes. Right entrance enters chamber with skylight and signs of bivvy. A crawl, dug by persons unknown(!), continues for at least 10m, and has not been followed to the end. *GL*

⊗C3-145

Location: UTM 0555401 3073774 Alt. 4310m. On left-hand side of valley that leads NNW from Yē Kāng along Triassic/Carboniferous geological boundary at base of limestone outcrop. Approx. 200m from edge of bowl containing village. Bearings 136° to hut, 115° to triangular limestone outcrop approx. 100m away.



Description: Body sized hole with vegetated floor leads diagonally downwards for 2m then vertical. Apparent floor after 1m further drop. Unentered (wants oversuit). No apparent draught. *AA, HG*

⊗C3-146

Location: UTM 0555368 3073792 Alt. 4328m. At base of 10m wide x 3m high outcrop 20m up slope from valley floor (same valley as C3-145). 152° to hut, 116° to triangular outcrop, 169° to lone cairn on summit.



Description: Small horizontal hole. Too small unless floor dug out. No draught. *AA, HG*

⊗C3-151

Location: UTM 0555769 3076081 Alt. 4292m.

Description: Small alcove. *AA, HG*



⊗C3-152

Location: UTM 0556045 3076778 Alt. 4250m.

Description: 2m snow-plugged shaft with 4m free-climbable vertical tube off side, leading to boulders. Needs oversuit. *AA, HG*



⊗C3-153

Location: UTM 0555600 3075427 Alt. 4292m.

Description: 3m x 4m shaft. 8m to snowplug followed by 8m 45° rift between snow and wall. AA, HG



⊗C3-154

Location: UTM 0555816 3075912 Alt. 4326m.

Description: Twin vertical shafts. Smaller is blocked; NW-most shaft (5m) is snow-plugged with a rift at the bottom which leads down a 2m climb but chokes after 10m. AA, HG



⊗C3-155

Location: UTM 0555800 3076178 Alt. 4326m.

Description: Not even a shelter. AA



○C3-156

Location: UTM 0554240 3072786 Alt. 3540m.

Description: 8m shaft to snow. Looks choked. FL, RGa



○C3-157

Location: UTM 0554384 3072820 Alt. 3434m.

Description: Tight descending rift. Looks choked. FL, RGa

⊗C3-158

Location: UTM 0555597 3073028 Alt. 4368m. 50m south of hut (on limestone–mudstone boundary).

Description: Major sinkhole. Choked (not least with rubbish). FL, RGa

⊗C3-159

Location: UTM 0555329 3073656 Alt. 4430m.

Description: 6m flat-out crawl to choke. FL, RGa

⊗C3-160 (SPF02)

Location: UTM 0555476 3073510 Alt. 4418m. Left of path to Dawa's, just S of Yě Kāng.

Description: Shaft with rock bridge to rubble and snow: 8m deep shaft (rig from rhododendron, spike at lip of larger shaft, and then spike deviation 2m down) lands in 5m wide, 25 m long chamber. Half way along wriggle over boulders at floor level on left leads to a 15m long x 8m wide x 5m high

chamber. Several possible digs at floor level feel airy, but are not particularly promising. *RB, HG*

⊗C3-161

Location: UTM 0555512 3073399 Alt. 4395m.

Description: 4m blind pot (choked). *FL, RGa*

⊗C3-162

Location: UTM 0555169 3073596 Alt. 4298m.

Description: Significant rift development. Blocked by snow. *FL, RGa*



⊗C3-163

Location: UTM 0555326 3074927 Alt. 4331m.

Description: Dug squeeze through boulders leads to 3m x 5m room. Choked. *AA, RGa*



⊗C3-164

Location: UTM 0554806 3074679 Alt. 4288m.

Description: 8m deep shaft with boulder floor. No way on. *AA, RGa*



○C3-166

Location: UTM 0548300 3075625. In the Long Straight Valley, a few minutes up from the huts and the resurgence, about 20m up the cliff to the left. Looks like quite a difficult climb.

Description: *GL, RGa*

⊗C3-167

Location: UTM 0549300 3076425. In the Long Straight Valley, about 30 minutes from the bottom, on the right hand side, just after the path crosses to the left of the water course.

Description: Looks like a cave from the path, but is in fact just an alcove. *GL, RGa*

○C3-168

Location: UTM 0549800 3076525. In the Long Straight Valley, about 45 minutes from the bottom, halfway between pylons 22 and 23. A large entrance is visible in the left hand cliff, 15m up after a 25m thrash through undergrowth. From the path, the entrance looks 10m diameter, but from the bottom of the climb it looks about 4m. Climb is wet and overgrown, about v. diff standard, with a tree belay at about 8m height.

Description: *GL, RGa*

⊗C3-169

Location: UTM 0550100 3076825. In the Long Straight Valley, between pylons 28 and 29, just to the right of the path.

Description: Bivvy shelter under rocks is entrance to short cave with lots of calcite and with a couple of skylights. *GL, RGe*

⊗C3-170

Location: UTM 0555149 3072553 Alt. 4252m.

Description: 4m choked shaft. No draught. *RGe*

⊗C3-171

Location: UTM 0555414 3072986 Alt. 4212m. Small entrance at back of U-shaped cleft

Description: Short drop and way on choked. No draught. *RGe, ML, AA, DC*

⊗C3-172

Location: UTM 0556047 3072928 Alt. 4205m. Large doline entrance.

Description: Descending slope of choss leads to ice pinnacle overhang and ice slope to descend past rock bridge to ice plug. *RGe, FL*

○C3-173

Location: UTM 0555844 3072357 Alt. 4228m.

Description: 2.5m wide shaft; 3.5m deep. *RGe*

⊗C3-174

Location: UTM 0555494 3073165 Alt. 4223m. In cliffs 40m above Yě Kāng.

Description: 4m wide choked tunnel. *DC, SFl*

⊗C3-175

Location: UTM 0555476 3073194 Alt. 4247m. Small entrance in depression on terrace on cliffs above Yě Kāng.

Description: Small entrance immediately opens to 4m wide x 1.5m high walking size passage with small skylight but no way on. *DC, SFl*

⊗C3-176

Location: UTM 0555446 3073170 Alt. 4270m. Obvious alcove on right hand side of valley in cliff above Yě Kāng

Description: 5m rift to 5m wide drippy chamber with a couple of leads requiring oversuit; also an aven. *DC, SFl*

⊗C3-177

Location: UTM 0555441 3073092 Alt. 4222m.

Description: Large rock shelter and crawls. *DC, SFl*

○C3-178

Location: UTM 0555446 3073262 Alt. 4270m.

Description: Obvious entrance to rift crawl. *DC, SFl*

○C3-179

Location: UTM 0555181 3073594 Alt. 4364m.

Description: 10m long 2m wide rift to snowplug. *DC, SFl*

⊗C3-182

Location: UTM 0555517 3073361 Alt. 4208m.

Description: 3m wide 1.5m high choked entrance. *DC, SFl*

⊗C3-185

Location: UTM 0555046 3075813 Alt. 4265m.

Description: 1.5m diameter shaft 6m down to choke. *DC, SFl*

⊗C3-186

Location: UTM 0554241 3074809 Alt. 4294m.

Description: Entrance down to crawl and choke. *DC, SFl*

⊗C3-187

Location: UTM 0554510 3074238 Alt. 4246m.

Description: 3x1m shaft choked 4m down. *DC, SFl*

⊗C3-188

Location: UTM 0554728 3073742 Alt. 4270m.

Description: Short through trip. *DC, SFl*

⊗C3-189

Location: UTM 0554789 3073823 Alt. 4247m.

Description: 1m wide 2m high entrance with 3m slope to first pitch to large ledge followed by a further 10m pitch to a steep rubble slope. Downslope are two climbs down, about 4m and 2m. Beyond these the passage narrows slightly before ceiling lowers to cobble choke which draughts slightly. *DC, SFl*

⊗C3-190

Location: UTM 0555321 3073671 Alt. 4317m.

Description: 1m diameter entrance crawl to choke. Little or no draught. *DC, SFl*



⊗C3-191

Location: UTM 0555990 3072796 Alt. 4196m.

Description: 3 x 2m deep shafts: 1 blind, 2 interconnecting. *RGe*

⊗C3-192

Location: UTM 0556159 3073191 Alt. 4226m.

Description: 2 large rocky depressions separated by ridge of rock. *RGe*

○C3-193

Location: UTM 0556096 3073545 Alt. 4259m. In E side of valley.

Description: Entrance divided by rock bridge. *RGe*

⊗C3-194

Location: UTM 0556064 3073528 Alt. 4259m. In W side of valley.

Description: 5m deep shaft with two ways on at bottom, a vertical squeeze to 3m x 7m x 4m chamber, and short upward trending passage which chokes. *RGe, MH, CJ*

⊗C3-195 (A6)

Location: UTM 0556101 3073652 Alt. 4278m. 30m NE of C3-78. At edge of a small bowl among the undulating ground NE of Yě Kāng.

Description: Entrance is a 10m vertical shaft, 2m diameter at the top and belling out lower down, that lands in a horizontal passage. [The horizontal passage can be followed in either direction from the base of the entrance pitch. Following the passage in a south-east direction from the base of the pitch takes you along 3m wide descending passage for 15m, before the roof drops almost to meet the rocky floor; it is possible to crawl a further 5m before meeting a total choke. Following the passage north from the base of the entrance pitch takes you along easy, 4m wide walking passage, for 20m to a T-junction. Left at the T-junction is (immediately) a chamber with no ways on. Right at the T-junction is a passage which closes down after a further 15m.] 5m north of the base of the entrance pitch is the main way on: a small slot in the left-hand wall which gains a narrow, vertical rift section. The rift feels draughty, and can be descended for 30m (in several hangs, all of which can be rigged from naturals), but eventually lands on a choked floor. The floor at the downhill end of the passage has been dug for several hours; space between rocks was frequently encountered, but no breakthrough was made. A very small trickle of water trickles into the dig. *RB, HG*

⊗C3-196

Location: UTM 0556142 3073936 Alt. 4286m.

Description: Steep doline entrance with snowplug. *RGe*

⊗C3-197

Location: UTM 0556131 3073938 Alt. 4281m.

Description: Alternative entrance to C3-196. *RGe*

⊗C3-198

Location: UTM 0554867 3072375 Alt. 4218m.

Description: Tight squeeze to small chamber. *AA*

⊗C3-199

Location: UTM 0554918 3072455 Alt. 4244m.

Description: Draughts. *AA*

⊗C3-200

Location: UTM 0554543 3072434 Alt. 4268m.

Description: Boulder filled. AA

⊗C3-201

Location: UTM 0554670 3072482 Alt. 4244m. Under rock outcrop.

Description: [Unavailable.] AA

⊗C3-202

Location: UTM 0554184 3072482 Alt. 4251m.

Description: Boulder filled cave; draughts moderately. AA

⊗C3-203

Location: UTM 0554182 3072472 Alt. 4185m.

Description: 3m wide by 1m high; 3m to boulder choke. AA

⊗C3-204

Location: UTM 0554188 3072409 Alt. 4191m. Top of gully off side of plateau.

Description: 15m pitch to snow with no way on. AA, DC



⊗C3-205

Location: UTM 0554168 3072300 Alt. 4190m. Bottom of cleft on scree slope.

Description: 5m to a 4m pitch shortly after which is a bucket with a 20m pitch over a knife edge. Passage descends to a boulder choke with large gaps between huge rocks, but no way on despite a draught. AA, DC



○C3-207

Location: UTM 0555273 3073338 Alt. 4321m. Small entrance in rock face.

Description: 45° downward sloping tube without draught. Not explored. MH

⊗C3-208

Location: UTM 0555142 3073417 Alt. 4326m. Big hole on left of broad valley, just below steep slabs.

Description: First section of the large entrance shaft is 15m of free climbable 45° 6m x 3m passage followed by 17m vertical to snow plug. Shaft trends 160-340°. MH, CJ

⊗C3-209

Location: UTM 0554860 3073654 Alt. 4334m. Group of 5 shafts on top of bare hillock.

Description: 2 shafts obviously blocked. Another was climbed down and choked. No indication of depths of final two shafts explored on 22nd and 27th

July but one was surveyed, ending in 'Suicide Slide' becoming too tight. *MH, DC, CJ*

⊗ **C3-210**

Location: UTM 0555197 3073458 Alt. 4334m. In cliff face.

Description: 1x1x2m high chamber, with no draught. Chokes. *MH*

⊗ **C3-211**

Location: UTM 0556029 3073878 Alt. 4325m.

Description: 0.5m square hole drops to 2m high chamber with no draught and all possible ways blocked. *MH*

⊗ **C3-212**

Location: UTM 0555836 3073346 Alt. 4222m. Small shakehole.

Description: Rocky choke. *MLa*

○ **C3-215**

Location: UTM 0553806 3072659 Alt. 4167m. At bottom of broken rock slope on left, looking up, of gully.

Description: 8x4m rift pitch with snow at bottom; undescended. *AA*



⊗ **C3-216**

Location: UTM 0553582 3073317 Alt. 4264m. In well defined gully.

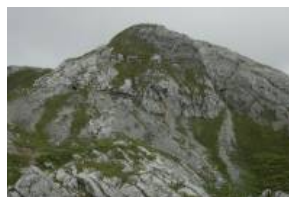
Description: Rift controlled cave traverse to 6m climb up. *AA*



⊗ **C3-217**

Location: UTM 0554048 3072792 Alt. 4251m. On side of ridge on left of gully going up.

Description: Small cave, 1.5m deep. *AA*



⊗ **C3-218**

Location: UTM 0554172 3072805 Alt. 4244m. Up side of gully on rhs of gully containing C3-217.

Description: Drop to dig with possible space beyond. *AA*



○ **C3-219**

Location: UTM 0556082 3074005 Alt. 4296m.

Description: Looks blocked with snow. *MH*

○ **C3-220**

Location: UTM 0556043 3074107 Alt. 4301m.

Description: 2m diameter shaft with apparent horizontal exit. *MH*

⊗**C3-221**

Location: UTM 0554790 3071835 Alt. 4134m.

Description: Small alcove. *PT*

⊗**C3-222**

Location: UTM 0554258 3072010 Alt. 4152m.

Description: 5m x 3m cave - choked. *PT*

⊙**C3-223**

Location: UTM 0554116 3071988 Alt. 4189m.

Description: 3m x 2m tube to 6m pitch, followed by 20m pitch which has not been descended. Promising. *PT, SFl*

⊗**C3-225**

Location: UTM 0554537 3071432 Alt. 4012m.

Description: Choked open hole. *PT, SFl*

⊗**C3-226**

Location: UTM 0554128 3071975 Alt. 4101m.

Description: Choked. *PT*

⊗**C3-227**

Location: UTM 0551467 3072296 Alt. 4052m.

Description: Choked. *PT*

⊗**C3-229 Fuck Me, A Bear**

Location: UTM 0554914 3072934 Alt. 4268m. 50m S of path.

Description: Sloping cave to 21m pitch (blocked) with eyehole 15m down (blind but with avens). *AA, DC*



⊗**C3-230**

Location: UTM 0554902 3073058 Alt. 4284m. At bottom of cliff.

Description: 1m wide, 30cm high alcove; 1m deep. *AA, DC*



⊙**C3-231**

Location: UTM 0554450 3073051 Alt. 4287m. In vague valley.

Description: 4m pot to squeeze/dig. *AA, DC*



○C3-232

Location: UTM 0554235 3072878 Alt. 4249m. In bowl with many grykes.

Description: 3m clamber down boulders to too tight rift. Possible crawl at base of rift could be gained by dig. *AA, DC*



⊗C3-233

Location: UTM 0554628 3073362 Alt. 4301m.

Description: *AA, DC*



⊗C3-234

Location: UTM 0554642 3073360 Alt. 4304m.

Description: 2m long; too tight at end. *AA, DC*



⊗C3-235

Location: UTM 0554644 3073379 Alt. 4311m.

Description: Tight entrance to possibly open space. *AA, DC*



○C3-237

Location: UTM 0555267 3073342 Alt. 4318m. Less than 1m diameter hole in cliff.

Description: Immediately inside is a constriction beyond which rocks tumble down a slope ... *AA, DC*



⊗C3-238

Location: UTM 0555280 3073350 Alt. 4321m.

Description: 3m deep pit with way on at bottom choked after 2m. *MH*



⊗C3-239

Location: UTM 0556274 3074189 Alt. 4270m.

Description: 45° entrance 2m x 1m, blocked after 3m. *MH*

○C3-240

Location: UTM 0556362 3074067 Alt. 4248m.

Description: 2m diameter shaft with snow 8m down. *MH*

○C3-241

Location: UTM 0556141 3073960 Alt. 4276m. Half way up bank.

Description: 1m diameter shaft 3m deep; not pushed. *MH, RB, CJ*

○C3-242

Location: UTM 0554590 3070608 Alt. 4099m.

Description: Sloping rift leading to 3m drop; undescended. *MH*

⊗C3-243

Location: UTM 0554493 3070562 Alt. 4099m.

Description: Small sink; no way on. *MH*

○C3-244

Location: UTM 0553630 3070346 Alt. 4163m. Rectangular cleft 30m below peak.

Description: 1.5m x 7m entrance is 3m drop to boulder slope; worth looking at. *MH*

○C3-245

Location: UTM 0554521 3070118 Alt. 4185m.

Description: Small sink; needs digging but limited prospects. *MH*

○C3-246

Location: UTM 0554874 3070084 Alt. 4110m. Under 10m wide cliff.

Description: 3m wide stream sink. *MH*

○C3-247

Location: UTM 0555871 3070938 Alt. 4102m. In woods.

Description: 1m diameter shaft with snow 5m down. *MH*

⊗C3-248

Location: UTM 0556360 3072078 Alt. 4056m.

Description: 3m wide, 1m high, 1m long alcove. *AA*

⊗C3-249

Location: UTM 0552371 3071782 Alt. 3995m.

Description: Triangular cave. *AA*



⊗C3-250

Location: UTM 0552174 3071929 Alt. 4212m. 3m from rock arete/cliff on steep grass slope.

Description: Small dug entrance leads to pitch. *AA*



⊗C3-251

Location: UTM 0551985 3072074 Alt. 4204m. Right hand side of gully at bottom of cliff 15m below col between two peaks W of C3-268.

Description: Twin body-sized entrances to 2m x 1m high chamber containing sediment. *HG*



⊗C3-252

Location: UTM 0551990 3072139 Alt. 4200m. Top of scree slope gully, 2m up cliff.

Description: Horizontal cave. *AA*



⊗C3-253

Location: UTM 0551946 3072066 Alt. 4146m. Grassy slope below small arete.

Description: 5m climb to open rift blocked both ends. Care on climb up - harder than down.



⊗C3-254

Location: UTM 0554403 3070282 Alt. 4120m. On wooded cliff.

Description: 2m long alcove. *AA*

○C3-255

Location: UTM 0554739 3069841 Alt. 4231m. In rockface above rhododendron field.

Description: Snow plug shaft with stal on back wall. *AA, SFr*

⊗C3-256

Location: UTM 0553703 3071809 Alt. 3937m.

Description: *MH, RGe*

⊗C3-257

Location: UTM 0552540 3071572 Alt. 4103m.

Description: *MH, RGe*

⊗C3-258

Location: UTM 0554162 3070870 Alt. 4097m. On small hill near camp, northeast of summit.

Description: Vertical 2.5m diameter tube choked with wood debris. *HG, PT*

⊗C3-259

Location: UTM 0554144 3070863 Alt. 4101m. 20m SW of C3-258, on small ridgelike feature 3m NE of a large tree.

Description: 6m handline climb. Looks choked at base. *HG, PT*

⊗C3-260

Location: UTM 0554147 3070905 Alt. 4096m. 20m NW of C3-258.

Description: 2m x 1m diameter hole. Leads down for 10-15m, belling out beyond constriction 2m down. Needs SRT kit. *HG, PT*

⊗**C3-261**

Location: UTM 0552442 3071382 Alt. 4194m. On south side of limestone outcrop at base of hanging valley.

Description: 2m alcove. *HG*

⊗**C3-262**

Location: UTM 0552377 3071468 Alt. 4245m. 10m up cliff on north side of hanging valley. Steep approach (climb).

Description: 5m high, 3m wide entrance leads to 5m long alcove. Rift at back narrows and chokes after 2-3m. *HG*

○**C3-263**

Location: UTM 0552330 3071460 Alt. 4370m. Up and left from C3-262. Approach from below is a climb (needs rope/helmet).

Description: Big hole near top of cliff. *HG*

⊗**C3-264**

Location: UTM 0552278 3071457 Alt. 4245m. At base of cliff, 20m left of climb up to C3-263.

Description: Alcove. 4m wide x 1m high entrance. *HG*

○**C3-265**

Location: UTM 0552268 3071467 Alt. 4166m. At base of cliff, 40m uphill and NW of C3-264.

Description: Vertical shaft, 3m x 2m. Stones rattle for 5 seconds. *HG*

⊗**C3-266**

Location: UTM 0552242 3071600 Alt. 4308m. SE of top of ridge.

Description: 5m high x 1.5m wide entrance leads down slope (walkable) and round left-hand bend. Rift passage continues down 8m handline climb for 10m. Choked. *HG, PT*

⊗**C3-267**

Location: UTM 0552209 3071420 Alt. 4180m. In outcrop in base of hanging valley, near top of valley. On bearing 200° from C3-265.

Description: 4m x 3m shaft. 5m handline climb to choke. *HG, PT*

⊗**C3-268 Cold Cave**

Location: UTM 0552123 3071854.

Description: Entrance had strong draught on first visit; less so on a second visit. A short climb down (5m handline useful) leads to a large chamber a few metres from the entrance. The way on is up an entertaining 5m free climb to a 10m pitch down, rigged



from a thread, into a second chamber which has a low crawl through to a third. From here several possible ways on were pushed to no avail. A dig under a very large boulder on the far wall became dangerously unstable; to the right of the dig a climb led to a solution pocket and too-narrow tube; to the left an 8m bolt climb led to phreas which all became too tight; and further left two upward sloping digs became too unstable to pursue. *RGe, PT, HG, MH*

⊗C3-269

Location: UTM 0552086 3071861. Walk-in rift entrance near ridge.

Description: Blocked after 15m. *RGe, PT, MH*

⊗C3-270

Location: UTM 0552051 3071740.

Description: *RGe, PT*

⊗C3-271

Location: UTM 0554915 3071839 Alt. 4130m. Hidden in rhododendrons.

Description: Broad but shallow 'shaft' with no way on.

⊗C3-272

Location: UTM 0554893 3071805 Alt. 4129m.

Description: Similar to C3-271.

⊗C3-273

Location: UTM 0554690 3071604 Alt. 4099m.

Description: Similar to C3-271 and C3-272.

○C3-274

Location: UTM 0553892 3071885 Alt. 3964m. In a mossy woodland near a fallen tree.

Description: A body sized hole opens out to a chamber about 6m below - needs a rope to descend ...

○C3-276

Location: UTM 0551935 3072064. On west side of ridge, just below large outcrop in col. Bearing 297° to centre of rock arch (Arsehole); 280° to col left of arch.

Description: 8m x 4m pit with small rock bridge at west end. Leads down for 6m (needs handline) to a snow and boulder floor. Passageway may continue at either or both of east and west ends, but probably chokes. *HG*

⊗C3-277

Location: UTM 0551692 3072113. In small depression near head of valley east of rock arch. 058° to pinnacle. 080° to summit.

Description: Body-sized triangular hole, probably choked. *HG*

⊗C3-278

Location: UTM 0551316 3072341. On south side of peak containing rock arch, at base of cliff. 157° to col.

Description: 4m high triangular alcove, 1.5m wide at base. 3m deep. *SFr*

⊗C3-279

Location: UTM 0553813 3071019 Alt. 4036m.

Description: Stream sinks into limestone blocks. Flow rate estimate 2-3 $l s^{-1}$.
MH

○C3-281

Location: UTM 0555603 3075583 Alt. 4290m. In rhododendrons.

Description: 1m diameter hole down which stones rattle for 3-4 seconds. *MH*

⊗C3-284

Location: UTM 0551553 3071996 Alt. 4037m.

Description: Small stream sink into 4m diameter pool. *MH*

⊗C3-285

Location: UTM 0551611 3072055 Alt. 4060m.

Description: 2 alcoves, blocked after 1-2m. *MH*

⊗C3-287

Location: UTM 0552075 3071828 Alt. 4166m.

Description: Body-sized tube descends at 70° to choke. No draught.

⊗C3-288

Location: UTM 0552080 3071831 Alt. 4164m.

Description: 1.5m x 1m crawl-in cave to choke. *MH*

⊗C3-289

Location: UTM 0551314 3072170. 10m SE of boulder shaped like a man kissing his hand. Boulder is on a small col in ridgeline up scree/grass slope, 200m NE from Little House.

Description: 5m high, 2m wide, 2m deep alcove. Choked at back. Small space visible between rocks at floor level also appears choked beyond. *HG*

⊗C3-290

Location: UTM 0551069 3071986. 10m west of ridge.

Description: Alcove, 3m high, 1.5m wide, 1.5m deep. Sloping floor.

○C3-291

Location: UTM 0551935 3072064 Alt. 4254m. On northwest side of first peak west of C3-268.

Description: Possible small entrance, which has not been visited. *HG*

⊗C3-293

Location: Approx. UTM 0554100 3072000. On south side of hanging valley.

Easily visible from the valley base as a horizontal slot halfway up to the ridge.

Description: 5m wide x 2m high x 1m deep alcove. *RB*

⊙C3-294 Dawa Dong

Location: UTM 0553609 3070771 Alt. 4165m. Above NW side of the distinctive U-shaped col that is 1km WSW from Dawa's village. Entrance is located at the top of the steep rise up from the col, just below a relatively flat section linking cave entrance to summit. The cave can be reached either by scrambling up from the U-shaped col (easiest on the north side, through light rhododendron bushes), or by following a machete trail through rhododendron bushes from the summit that is a few hundred metres SE of the cave.



Description: Entrance is a very impressive 10m diameter shaft. Traverse line recommended for approach. The shaft drops vertically for 70m to a large ledge covered in loose rocks. A second pitch (40m) follows immediately and lands in a large chamber. A short, high walking rift passage leads after 10m to the way on: a small passage at floor level. [Continuing in the rift passage, a blank wall is met after a further 15m.] Following the small floor-level passage, it is possible to wriggle through a catchy gap between boulders to gain the head of the third pitch (15m). This pitch lands in a rift passage with a choked trench running along the centre of the floor. The way on is at the downstream (= uphill) end of this rift. The end of the rift has been dug to reveal a 45 degree, 2m long descending squeeze, which has been hammered. This squeeze is most easily descended feet first and facing the right-hand wall. Below the squeeze is a small chamber, just big enough to turn around in. Ducking under a drop in ceiling height gains a narrow (body-width or less) horizontal rift, approximately 3m high. This rift has been hammered along its length to remove obstructive projections of rock. It is possible to follow the rift (initially close to the ceiling, and later at floor level) for 6m to a 90 degree right-hand corner. It is possible to see around this corner into a short further section of body-width rift passage, and a 90 degree left-hand corner is visible after a further 2m. Passage appears to continue beyond the second corner; however, the first (i.e. right-hand) corner has not been passed, and is at present too tight to pass. The rift carries a draught. *AA, CJ, RGe, HG, GL, MH, AS, RB, PT, RGa*

Rigging:	Pitch	Rope	Rigging
		15m	Traverse line (rig between rhododendrons)
	Entrance shaft (P70)	120m	Main belay from rhododendrons; bolt rebelay; piton deviation; spike rebelay (top of big hang); bolt rebelay (bottom of big hang)
	2nd (P40)		Bolt rebelay (rope continues from entrance shaft)
	3rd (P20)	30m	Naturals

⊗C3-295

Location: UTM 0554947 3071698 Alt. 4300m. At base of right hand end of a 20 x 20m high sloping limestone outcrop.

Description: 2m diameter solution pocket, sloping uphill. *SFr*

⊗C3-296

Location: UTM 0556120 3071587 Alt. 4287m. 0.7m diameter hole with small bush on grassy slope.

Description: 2m climb down bells out at bottom. No way on. *SFr, HG*

○C3-297

Location: UTM 0555946 3071704 Alt. 4216m. On SE side of 4308m peak, amongst rhododendrons.

Description: 4m x 6m shaft undescended but looks choked. *SFr, HG*

○C3-298

Location: UTM 0555947 3071705 Alt. 4216m. Adjacent to C3-297 (within 2m)

Description: 2m x 0.5m slot. Undescended but looks worth it. *SFr, HG*

⊗C3-299

Location: UTM 0555878 3071705 Alt. 4216m.

Description: [Unavailable.] *SFr*

⊗C3-300

Location: UTM 0555888 3071700. 10m above and to right of C3-299.

Description: 2m x 0.3m slot enters upward sloping passage to small chamber. *SFr*

⊗C3-302

Location: UTM 0556743 3074077. Small hole in floor of valley.

Description: Unvisited. *RB, CJ*

⊗C3-303

Location: UTM 0558398 3073308 Alt. 4276m. Big hole high up in cliffs of 'Cave Dale'.

Description: Unvisited. *RB, CJ*

⊗C3-304

Location: Approx. UTM 0555000 3070100.

Description: Big obvious entrance.

⊗C3-305

Location: UTM 0555055 3070180 Alt. 4043m. Base of cliff.

Description: Small hole.

⊗C3-306

Location: UTM 0555100 3070250.

Description: Small resurgence; sumps. *RB, CJ*

⊗**C3-307**

Location: UTM 0554779 3071889 Alt. 4161m.

Description: Small shaft. *RB, CJ*

⊗**C3-308**

Location: UTM 0554790 3071900 Alt. 4150m. 50m below C3-307.

Description: Small triangular slot. *RB, CJ*

⊗**C3-309**

Location: UTM 0559086 3078481. At base of cliff on NW side of valley; approached by good path from valley base.

Description: 20m wide by 15m high entrance. An artificially terraced boulder slope leads uphill to large chamber 10m from entrance. There is a small inlet in far right hand corner and several small ways on, all heading upwards. It is possible to climb up on the left to gain an oxbow and/or passage that appears to continue but gets smaller. Doesn't look at all promising. *HG, MH, HW*



⊗**C3-310**

Location: UTM 0559400 3077762. At base of NE facing cliff a few hundred m downhill from C3-309.

Description: 3m wide x 2m high entrance, with Tibetan writing above right, leads through sloping triangular section; follow water upstream in walking passage for 5m to impenetrable inlet. *HG, MH, HW*



⊗**C3-311**

Location: UTM 0559450 3077700. 50m down valley from C3-244. Prayer flags outside.

Description: Large alcove 20m wide by 6m high, 10m deep. *HG, MH, HW*



⊗**C3-312**

Location: UTM 0551894 3072389.

Description: *AS*

⊗**C3-313A**

Location: UTM 0556236 3069950 Alt. 4250m. Around next buttress to C3-313. Access by scrambling down slope across to group of trees and then climb up steep vegetated gully.

Description: 2m high slot entrance twists to right and gently rises to silt blockage.

⊗C3-313

Location: UTM 0556236 3069950 Alt. 4250m.

Description: 1.5m high x 5m wide entrance chamber leads over boulders to boulder strewn passage for 45m to chamber with choked aven beyond. *SFr*

⊗C3-314

Location: UTM 0556268 3069971 Alt. 4215m. At base of cliff.

Description: Rock shelter. *SFr*

⊗C3-317

Location: UTM 0551298 3072170 Alt. 4112m. 2m up cliff to left of red rock chute.

Description: 0.5m x 2m high rift. Choked with mud. *SFr*

⊗C3-318

Location: UTM 0551088 3072301 Alt. 4061m. 2m up cliff.

Description: 0.3m x 0.3m hole, choked. *SFr*

⊗C3-319

Location: UTM 0551031 3072285 Alt. 4061m. Rift at back of alcove at base of cliff.

Description: 0.2m x 0.2m entrance; choked. *SFr*

⊗C3-320

Location: UTM 0550771 3071908 Alt. 4061m. Entrance at base of cliff.

Description: 1m high by 0.5m wide to choke. *SFr*

⊗C3-321

Location: UTM 0550780 3072386 Alt. 4061m.

Description: [Unavailable.] *SFr*

⊗C3-322

Location: UTM 0551228 3072386 Alt. 4051m. On fault at top of grass bank at base of cliff.

Description: [Unavailable.] *SFr*

⊗C3-323

Location: UTM 0551260 3072464 Alt. 4081m. Half way up hill at top of steep grassy bank at base of cliff.

Description: 4m high by 15m wide passage formed on ascending bedding plane eroded by drips from roof.

⊗C3-324

Location: UTM 0551074 3072454 Alt. 4035m. 3 entrances at top of wooded slope in small cliff above a cliff but below main cliff.

Description: Middle is irregular hole 3m wide by 10m high which slopes up over moonmilk floor in 2m passage which gradually reduces; unentered upper

entrance joins. Lower entrance to left is 3m long. *SFr*

⊗**C3-326**

Location: UTM 0556192 3069984.

Description: [Unavailable.] *AS*

⊗**C3-327**

Location: UTM 0556193 3069986. At base of small cliff up gully.

Description: 1m diameter alcove. *AS*

⊗**C3-328**

Location: UTM 0553149 3084495. At top of a small gully, at right-hand edge of a wide scree slope.

Description: Small alcove. *HG*

○**C3-329**

Location: UTM 0553258 3084903. On left-hand side (facing uphill) of a wide gully. Entrance is located at the base of limestone spur, approx 15m downhill from a rock arch.

Description: 1.5m high triangular entrance leads to 10m of descending walking/stooping passage. A 3m climb down to a snowplug has not been descended; it is (just) possible that passage continues at the bottom of the climb. Traversing over the top of the climb gains 10m of ascending passage to a 2nd entrance on the far side of the spur. This 'cave' is probably just a bunch of spaces between surface rocks. *HG*

⊗**C3-330**

Location: UTM 0553258 3084974. On left-hand side (facing uphill) of gully, near gully base.

Description: 10m wide x 5m high x 3m deep alcove. *HG*

○**C3-331**

Location: UTM 0553111 3085628. Small hole visible on cliff. GPS point is near cliff base; cave is 15m up cliff WNW of GPS point. Climb or abseil required for access.

Description: Unvisited. *HG*

○**C3-332**

Location: UTM 0552945 3085764. On right-hand side of gully, at base of limestone spur.

Description: 2 alcoves in recess in cliff. Unexplored. *HG*

○**C3-333**

Location: UTM 0552842 3085808. On grassy slope.

Description: 1.5m diameter vertical hole, 1m deep. Bells out at bottom. Probably doesn't go, but hasn't had a caver inserted in it to check.

⊗**C3-334 Da Heise Dong (The Big Black Hole)**

Location: UTM 0555162 3094385 Alt. 3440m. Follow yak track up valley until level with hole when another 50m of steep scrambling to two entrances.

Description: At least 12 large bats occupy 15m high entrance and give bat/rat/v.tight bottomed goat shit floor. To left a 5m square passage with fluting on one wall and curtainettes/curtaininies. To the right a 20m diameter passage slopes up for 45m. *MLi, RGa, HW, SFr, AA, AS*



⊗**C3-335 Xiafei Hot Springs**

Location: UTM 0578500 3076000 Alt. 3400m. In a 50m deep winding river gorge about 11km SE of Zhongdian. 20 yuan gives access to steps to a rock bridge.

Description: [Unavailable.]

⊗**C3-336**

Location: UTM 0556737 3089149 Alt. 4067m. By path from col above Napa Hai to northern area, on the plateau just above steep climb from logging track.

Description: Shakehole with small rock outcrop and cracks at base. Nearby is another bigger, but unvisited, shakehole with a tree in it.

⊗**C3-337**

Location: UTM 0560106 3084391 Alt. 3481m. By logging track in hanging valley from col above Napa Hai to Long Straight Valley.

Description: Large wooded shakehole with small rock outcrop with cracks at base where stream sinks.

⊗**C3-338**

Location: UTM 0559500 3084000 Alt. 3460m. Below prominent cliff in Hanging Valley, to left (S) of logging track from col above Napa Hai to Long Straight Valley.

Description: Sink is unenterable in high water but may (?) be possible when low. Probably resurges in C3-118.



⊗**C3-339**

Location: UTM 0553600 3072200.

Description: Pitch to snowplug and choke.

⊗**C3-340**

Location: UTM 0556142 3075324.

Description: Two stream sinks, 2m apart.

⊗**C4-2 Guli 1**

Location: UTM 0585506 3036122 Alt. 3145m.

Description: A sporting pot. Entrance is a 15m pit, 5m diameter, where a small stream sinks. The stream approaches from the northeast side of the pit;

this side of the pit is an earth slope, too steep to climb. The 15m entrance pitch is rigged from a large tree on the northwest side of the pit, and lands on a ledge. The 10m second pitch follows immediately, and is rigged from a natural and bolt Y-hang, with a deviation 3m down. From the bottom of the second pitch, a short sloping passage drops down into a chamber where the stream sinks among boulders. An obscure tube bypasses the blockage, and gains the start of a rift, where the water reappears. The rift passage continues (quite narrow and awkward) for 75m to the head of the 6m third pitch, which can be rigged from a spike backup and spike belay, with a thread rebelay 2m down. This third pitch lands in a small chamber which leads immediately to the fourth (12m) and fifth (15m) pitches in quick succession, landing in a chamber. [From the chamber, a climb up on the left-hand side leads to an aven, beyond which the passage becomes too low.] 20m of narrow meandering rift passage leads to the sixth pitch (12m), followed by a further 10m of rift passage that leads round a 90° right-hand corner to the final pitch (6m). Two 2m climbs lead down to a final short section of passage which gradually lowers to a sump.

Rigging:	Pitch	Rope	Rigging
	Ent (P15)	25m	Tree
	2nd (P10)	15m	Natural & bolt Y-hang; deviation
	3rd (P6)	12m	Spike backup; spike belay; thread rebelay
	4th (P12)	15m	
	5th (P15)	20m	
	6th (P12)	15m	
	Last (P6)	10m	

⊗C4-3 Guli 2

Location: UTM 0585041 3036281 Alt. 3185m. Entrance is located in a vegetated doline.

Description: Two rock arches side by side each lead to a 4m climb down (the right hand climb is marginally easier) to a vegetated floor, with a chamber beyond the drip-line to the right. From the chamber, a sloping shaft drops 25m to a second chamber, 5m across with a sloping boulder floor. At the uphill end of the chamber, a rift/alcove appears to be choked. At the downhill end, a crawling passage leads round a 90° right hand bend to a squeeze where the passage is partially blocked by a boulder. Crawling over the boulder gains 5m of walking passage to a small chamber/widening. Stooping passage continues beyond the chamber, reaching a 2m climb down after 20m. Beyond the climb there is a blank wall ahead, but passage continues to the right, bending back round leftwards to two further small climbs (1m, 2m), followed initially by descending passage and later by horizontal crawlway until an obvious chamber is reached, 40m from the last 2m climb. From the chamber, there is an aven on the left and a rift passage on the right that rapidly becomes too tight.

7 Stories

The articles in this section were written by expedition members, and tell the expeditions' day-to-day story from personal points of view. Rich Gerrish's articles are extracts from his forthcoming book, 'Do I Smell Like A Tourist?'

Shui Lian Dong: 23rd – 28th January

Rich Gerrish



The Yangtze valley in the winter dry conditions. (CD)

and night-club complex on Duncan Collis' birthday. The river issuing from the cave high up the cliff face was much smaller than it had been in July the previous year. It was instantly apparent that progress within the cave would be safe. We measured the flow rate as best we could and determined it to be in the region of 0.3 cubic metres of water per second, ten times less than the flow we had estimated during the summer.

After ensconcing ourselves into simple but comfortable rooms and tucking into a fantastic bowl of noodles we set about celebrating Dunks' birthday by opening his present of Talisker whiskey. The night-club was decked out in red lights and large posters of scantily clad western girls with big boobs that you would normally expect to find on the wall of a teenager's bedroom. It was however packed with an extended Tibetan family of men, women and children who were enjoying a spring festival knees up. The entertainment consisted of the ubiquitous karaoke machine that belted out Chinese love songs at volumes the speakers could barely handle, this accompanied by the singing was pretty hard to bear. Not that the singing was bad, Tibetans in my experience seem quite capable of holding a tune but the karaoke maestro had the reverb cranked up on overdrive so as to distort everything out of reasonable proportion. In a bid to preserve our sanity we ordered in the beers and

After six months of wondering what the course of the Shui Lian Dong streamway would be, the time finally arrived when I would get my answers. This resurgence, at the base of the limestone, next to the Yangtze river and over 2000m lower than the caves on the plateau above, held my hopes of being the bottom of one of the deepest caves in the world. Only time and exploration would tell. We arrived at the showcave resurgence and its accompanying restaurant, guest house



Dunks cracks open the Talisker. (EL)

raised our glasses to a successful expedition.



Dunks crosses one of Shui Lian Dong's trusty in situ bridges. (EL)

The caving however started earlier than we expected. Later in the evening, one of us had the bright idea of checking the water levels within the cave. Like a shot we were charging up the steps to the entrance still clutching half full bottles of Dali Red Beer and accompanied by a random bloke who had adopted us in the club. After negotiating the 200m of fossil passage we climbed down to the river passage that now looked tame with a mere tenth of the water we had seen it carry previously. When we arrived here the plan changed and we decided we would explore the streamway as far as we could without having to get our feet wet. Skirting round the deep pools of water and sometimes hopping from one exposed rock to another we teetered our tipsy way up the river. In places where the going was too tricky there were wooden ladders that had been placed to ease progress. These were of indeterminable strength and as they flexed, balanced precariously over drops into white water, we couldn't help but notice the rotten remains of old broken ladders scattered about. After a couple of hundred metres more we came to a point where progressing with dry feet was going to be impossible. At this point in the trip those of us that had not drunk so much Talisker opted out, Dunks however wasted no time at all in flinging his dry clothing off and stripping down to his wedding tackle. Attired in nothing more than a pair of Texas and a Tikka he crawled off into the water logged low passage. The rest of us found comfortable spots to wait for his return and I passed out on a dry mud bank, totally comatose. When Duncan reappeared from his foray into the unknown he reported continuing wet crawls with the odd place large enough to stand up in. We returned the way we had come only to find that the night club had closed and everyone else had gone to bed.

[The expedition wakes up with hangovers and spends the next day exploring and surveying upstream Shui Lian Dong. Reaching a junction where the streamway splits, they explore the right-hand branch, which quickly degenerates into a series of low muddy crawls in water, with one way on swamped and another particularly miserable. The story continues the next day ... -ed]

The following day we were back in the cave, clad this time in neoprene. Instead of following the miserable lead we had left the previous day we turned our attention to the left hand branch of the first junction. The wet crawls continued on but this time were interspersed with the odd chamber and I felt my hopes returning. After negotiating a slalom of sleeping bats hanging from the low ceiling we emerged into a chamber larger than any we had come across previously.

Immediately obvious to us was the total lack of graffiti on the walls here and had it not been for the solitary size 11 Teva print in the mud floor we would have concluded we were the first visitors to this part of the cave. Duncan looked perplexed and swore blind that he couldn't remember getting this far on his birthday but there was no denying the smoking gun that lay in the sediment floor, there just isn't the market for size 11 Tevas in China.



The Shui Lian Dong streamway. (EL)

The roof of the chamber provided quarter for over a hundred bats and we tiptoed past trying not to disturb their slumber. The far end of the chamber was barred by a boulder choke and after several minutes a route was forced over the top and into a second chamber devoid of the stream. Now convinced we were treading the first path through this part of the cave the “fever” kicked in and I mentally crossed my fingers in the hope that the passage continued much further. Following the passage onwards over bat guano we passed some helictites that decorated the wall in clusters like crazy baubles. Up a short slippery slope we could see down into a rift that widened out into a black space where the sound of our voices lingered. I whooped into the dark and grinned as the cave preserved my cries and bore them back to me. We also



Duncan in Disco Fever, Shui Lian Dong. (EL)

detected a feeling of air movement here. It would have been bold to have called it a draught but it was definitely airy, a feeling we had come to miss in other parts of the cave. With hopes rising we dropped down the rift into a pleasant calcite floored chamber where sparkling formations were spotted like miniature Dalmatians with drops of bat shit. This descended to a fractured and chossy crawl which opened up to reveal a large passage descending steeply downwards. The illusion was almost perfect but the crystal clear waters were betrayed by tiny ripples that distorted the image. This large passage was out of our remit unless we sprouted gills. A low crawl off to the right carried a flow of water back in the direction of the stream we had lost at the boulder choke and the only option left for us was another low crawl on the left.

I had been getting in the way of the surveyors for some time with my filming. If I wasn't getting caught up in the tape measure or blocking the line of sight between survey stations then I was shining my light into their eyes preventing them from seeing anything at all. In the crawl it would def-



*Chris in Talisker Trail, Shui Lian Dong.
(EL)*



Things start to get a bit blurry. (CD)

initely be better for me to be out of their way and where better than at the front. Not that there was any real glory to be had pushing this lead. I dived into the crawl and sank into the thick mud that coated floor, walls, ceiling and now me. Grovelling onwards the water deepened and I turned around to record the progress of Chris as he struggled forwards clutching the reel of tape. Insane laughter carried down the crawlway as Duncan cracked up at Chris' complaints about not being informed of this in the expedition brochure. It was true, I looked around myself, here I was lying up to my armpits in a muddy, waterlogged crawl, clutching a video camera trying to capture the thrill of exploration. We didn't have a draught, stream or echo, it was all just one big joke. Despite the reality of it all I couldn't deny the fact that I

was having fun. Fortunately the squalor didn't last that long and we were soon put out of our misery a short distance on as the passage degenerated rapidly into impassable proportions.

Back at the well decorated chamber a climb was spotted and Duncan and Chris, eager for more, began the ascent. Myself and Erin waited below as a steady stream of debris crashed and scattered its way down onto the floor. When they returned from their explorations their spirits were very high. They had reached another chamber with a steep slope of bat guano heading on up for some distance which they hadn't explored. The real reason for their excited tones however was the climb itself, one wall had been slippery and overhanging the other had been made entirely of loose choss. It seemed the going had been quite hairy. We had no ropes or rigging gear with us that day but decided then to return to the continuation with the right kit the following day and headed out for some well earned beer and food.

Lucky Benevolent Water: 30th January

Rich Gerrish

After the summer expedition our geologist Pete Talling had spent a great deal of time poring over the geological maps we had obtained from Liu Hong. Shortly before the trip to the resurgence expedition he had e-mailed me copies of the maps with places of geological interest marked upon them. To me the maps look like just a bizarre mixture of colours marked with obscure alphanumeric combinations. To Pete however they were a visual representation of what

rocks the mountains were made from, how old they were, how thickly they were bedded, what angle they were inclined at and at what depths they occurred. From this he had given us a number of places that he believed were more likely to be of interest to us. Out of all of this information though there was one place he had deemed a must look location. Several kilometres up a large valley Pete had drawn a small pencil circle on Chris' map where the valley split into two almost equal tributaries: this he thought was of major significance.



Locals carrying their loads along the Yangtze road.CD

After several days of misery inside Shui Lian Dong we opted to go and look at this pencil circle on our map. Leaving the guest house we began walking up the road that followed the Yangtze north. It took us a long time to hitch a lift and we had already walked several kilometres by the time a bus finally pulled over and let us on. 25km north of Shui Lian Dong we asked to be dropped off. After the bus pulled away in a cloud of dust and diesel fumes we took stock of our surroundings. The tributary to the Yangtze was a deeply incised, steep sided valley with a respectable sized river tumbling along its rocky bed.



Two locals who guided Rich and Duncan to a cave, up the tributary valley.CD

The place seemed deserted and I failed to find anyone until as we left a gentleman and several small boys called out to us from the balcony one of the last houses in the village. I shouted up to them “Yǒu méi yǒu shān dòng zài nàr?” enunciating my Chinese tones as best I could. The gentleman replied with a surprising “Yǒu.” It worked, I asked him if there were any caves and he had said yes, wow. I decided to push my luck and tried to find out how far it was by calling out “yī gōnglǐ, liǎng gōnglǐ, sān gōnglǐ?” astounded he came back immediately with “Liǎng gōnglǐ” and pointed up the valley in the direction we were headed, my god, two kilometres, this whole speaking Chinese was starting to come together if only in a very basic way. I yelled up an emphatic “Xièxie nǐ!” before turning tail to catch up with the others. Dunks commented that he had probably just told me what I wanted to hear and would have said there were Elephants up the valley if I had asked him that, I however was beaming with my recent success feeling like I had just had a very profound conversation and replied with a smug “We shall see.”

I was very intrigued by Pete Talling's pencil circle on the map. It was only 6km horizontally from the caves Hills and I had recced in the final days of the 2003 summer expedition. This valley with its two widely forking tributaries

would be an obvious drainage route for water from those holes high on that karst plateau. As we wound our way along the banks of the river the two sides of the valley in front of us parted to reveal a glimpse of where I must have been some months previously. Framed by the steep sides of the valley a serrated set of needle like projections rose up in the distance etched by streaks of snow and ice that clung to the deformities in the vertical sides. Somewhere up there was the village of Ye Kang and not far from there were the mysterious potholes that we yet awaited to explore.

At the entrance to the valley we had noticed that there was a hydroelectric water channel cut high into the left hand slope. A narrow concrete path squeezed along the side of the right hand cliff between [the cliff] and the river. The true nature of the river was revealed at this point as the vast majority of water, that was diverted down the hydroelectric channel, had been hidden from us until now. Suddenly the babbling brook had become a raging cataract of white foam. As it forced its way between the natural funnel of rock the noisy rapids echoed back and forth off the walls, filling the air with the adrenaline thumping soundtrack of crashing water. On we pressed marvelling at the rushing torrent. As the path sloped up I began to see higher up the valley, at first I wasn't sure if I had seen the whole picture but my curiosity was gripped by what looked like a dry river bed. I increased speed, each step confirming my thoughts, until I was running flat out up the track towards a large pool where water surged up from the deep, beneath the base of the right hand cliff. I whooped and yelled at the top of my voice, praising Pete Talling. "That man is a bloody genius!" I promised myself there and then that I would treat Pete to a few beers on our next meeting, he really had come up with the goods, all inside a small pencil circle on the faded photocopied map.



Dunks looking at the resurgence pool of Lucky Benevolent Water (C3-96). The water rises at the base of the wall on the opposite side of the pool. (CD)

I looked into the deep pool. Through the gin clear waters I could easily see the bottom, which for the most part was covered in an impenetrable floor of boulders. Directly beneath the cliff however there appeared to be a small gap between the rocks; whether this was a clear route through the boulders that a diver might be able to follow or whether it was just an illusion I had no idea but felt that the latter was more likely.

The final thing we wanted to do before we left was to try and estimate the outflow of water from the resurgence. This is normally done by estimating the size of the stream in comparison to others of accurately known volume, as it is incredibly difficult to do it any other way in a natural river bed. We all stood and looked at the river then in turn gave our estimates getting values between 6 and 8 cubic metres of water per second.

As we wandered back down the path to the road I gave it more thought.

When we had visited Shui Lian Dong in the summer we had measured 3 cumecs of flow and found it unsafe to explore, now, during the winter however we had calculated it had a 0.3 cumec flow, 10 times smaller than 5 months ago. Although the direct mathematical comparison of the two resurgences is crude at best I revelled in the notion that it gave this resurgence a 70 cumec flow for the summer!!! Okay, I thought, that is so big it is just plain ridiculous but the volume would undoubtedly be bigger in the summer, that I could count on.

After returning from this trip I threw my energy into helping organise the 2004 expedition to the plateau.

The Gavin's Dong adventure: 15th – 18th July

A story of four days of exploration (pain, suffering and misery) in Yunnan Province, China

Rich Bayfield

It was the first week of the expedition. Everyone was keen and ready to go and discover the deepest cave in the world. A few beers later and plans were being made for the first mountain top camps of four days. There were three trips going, one to the Far Northern area and one to a wide open stream cave left at a pitch. The third choice was a trip to a horrendously tight miserable 35 metre deep excuse of a cave that ends in a dig with a slight draught.

For whatever reason, although I have a suspicion that BEER was involved, I chose the third trip, which I was to later regret and considering dieting.



Breakfast in Zhongdian (MH)

Arriving at Zhongdian we decided that before we attempt the epic mountain trek we needed some energy, so a slap up breakfast was ordered while Duncs hitched a lift for us. Dunc had found a guy with a breadvan who was not well versed in the fine art of driving but had an awesome taste in music. The tape was “Tangula Disco”, a mix of traditional Tibetan Techno with 21st Century trance and funky guitar breaks.



*Sorting kit at the Milk River Guesthouse.
(MH)*

When morning came I ignored the hangover and the feeling that maybe I made the wrong decision and instead helped in the huge team effort to get out of the Milk River Guest House by a reasonable time (i.e. before midday). We said our goodbyes (I am sure one of the Yunnan veterans was trying not to laugh), leaving myself, Rich Gerrish, Gavin Lowe and Duncan Collis to go push “Gavin's Dong”.

The breadvan man dropped us at the foot of a scarp slope at the edge of the Zhongdian plain and asked if we would like to purchase his tape for 5 Yuan (33p). Being stingy we settled for the tape cover so we could purchase the CD back in civilisation. Location wise we were at an altitude of 3,200 metres with the entrance to Gavins Dong about 1,000 metres higher at 4,200 metres. On paper this did not seem like too much of a problem. I had been marching around the British “Mountains” of Snowdonia, Lake District and the Beacons throughout the year to be prepared for this. However I was not climbing those hills with 20 kilos on my back, and I had no idea of how much difference climbing at altitude would make. The pain set in at 3,220 metres ASL, the three of us trying to set height targets for rest stops while Gavin raced ahead taunting us with words of encouragement. He was achieving his aim as we were desperately trying to catch him up to add a few more rocks to his rucksack.

By the end of the day we set up camp just below the tree line at 3,900 metres. This place was perfect with a small grassy area, a nearby fast flowing streamway and a view of the holy mountain as a backdrop (when it was not misty and raining). By 8pm I was in my sleeping bag suffering from altitude hangover and dreaming of the great discoveries that would be made tomorrow.

The next day we were up early and plans were quickly made for the day ahead. Rich Gerrish and myself were drawn to dig the bitter end of Gavin’s Dong while Gavin and Duncan were set to explore the surrounding area. Breakfast made and consumed we headed off up the final 300 metres to the bare limestone plateau and the entrance to the unknown.

Gavin’s Dong. The entrance to this cave consisted of a tube descending at 30 degrees and emitted a good strong draught. I crawled in first with the kit to rig the imminent pitch. The tube opened into a reasonably sized chamber which, after much searching, appeared to have no way on. I headed back to the entrance to ask for directions when I found the draught coming from a very tight section directly beneath the entrance tube. This was to prove horrendously tight with the tightest part directly above a 5 metre pitch involving many acrobatics to pass. This was to be merely a taster of what the cave had to offer. Immediately below this pitch another chamber was entered with a small dug-out crawl at the far end. Through this crawl was the head of the second pitch, another 5 metre drop. This pitch head made the pre-



Loading kit into a breadvan. (MH)



Rich G and Beardy at the entrance to Gavin’s Dong, shortly after it was found in 2002. (HG)

vious pitch look comparatively roomy. I rigged the pitch and tried desperately to fit my pelvis (ass) through the gap. In my defence I am not a particularly large person, I can usually get through some stupidly tight squeezes when the caving games begin but I had met my match with this one. In the end I gave the lead to Rich Gerrish who, with a few grimaces, pushed through the pitch head and on into the “huge void” beyond. Now that I had seen the squeeze being passed I tried again, while Rich Gerrish continued to film my increasingly futile attempts to pass the obstacle. Finally it was agreed that Rich would enlarge the squeeze by chiselling off a section of the rock, while I contemplated Slimfast or the Atkins Diet.

The cave enlarged briefly, indicating good things ahead with an excellent third pitch. The ambient temperature at this point of the cave was below 3 degrees centigrade and the draught was still strong, giving rise to the belief that more cave must lie beyond. Following the pitch a section of meandering passage was entered which proved to be very challenging caving. To pass through the meander involved continuing at different levels with both horizontal and vertical flat out squeezes. This section continued for approximately 100 metres involving much teamwork in trying to get the digging and video equipment through the sharp bends, drops and squeezes. Finally the meander ended in a 10 metre high, 10 metre long and 5 metre wide chamber. A small hole in the roof issued a streamway from the surface and dropped into the far end of the chamber. This looked very promising and I searched the chamber thoroughly but could not find a way on as the walls were solid and the floor was sand and rubble choked. After eating some melon “sweets” Rich indicated the way on, a continuation of the meander passage, but now even more tight and sinuous. This passage finally ended in the place where we were to dig to glory. The termination proved to be a high section of rift with several small chambers. Each of these chambers was blocked in some manner involving myself and Rich digging at different levels in an attempt to pass. After much playing we came to the conclusion that only one place could hold the key as the majority of the draught was appearing from that area. We moved many rocks and boulders to create a squeeze that could allow us to look around a sharp corner and into new territories beyond. Rich Gerrish was to lead while I watched and waited impatiently as Rich inched through the tight crawl to the corner. On reaching the corner, Rich confirmed that all the draught was emanating from this section; however this section was so tiny that Rich could barely get his fist into it. Digging was also not possible because the continuation was a solid vertical rift with a width of 4 inches and the corner was solidly calcified. This was the final straw: we left the cave as dejected and sorry individuals hoping that the other teams would have better luck than ourselves in finding the “world’s deepest cave.”

Misery Camping: 15th – 17th July

or, How the Southern Stream Cave got its name

Fleur Loveridge

I was gasping for breath, my rucksack heavy on my back, and the rain was

pouring down. We were probably only at 3700m, but then this was meant to be the nice acclimatisation trip. Lost on the mountain, I began to wonder what I was doing with my ‘summer holiday’.

The early signs had been good. I’d been more than happy to sign up for the Southern Stream Camp, with a promised jeep almost to the entrance, a going lead to push and some geology to recce. But as we snaked up the mountain logging tracks in the jeep, it became clear it would not be so simple. There were far more tracks on the ground than on the map, but navigation by Pete had us roughly in the right place. When the track we were driving up deteriorated, blocked by logs and full of mud, the jeep set us down conveniently close to a big cave entrance. The shaft looked and sounded like it choked at about 20m, so we logged it and moved on. But our presence had attracted the local attention and Rob tried unsuccessfully to ask a local woman about further entrances (below).



The Southern Stream Team, on a jeep track, near C3-81, somewhere. (FL)

So we shouldered our packs and trudged up the remains of the rapidly degenerating track. Then it started raining. Heavily. As we tried to navigate towards the Southern Stream Cave, a technology gap became clear. Pete, who had supposedly been here before, had a map and a compass. Chris had the GPS with coordinates for the cave. But we didn’t have the conversion between the map and GPS coordinates. As we emerged from a small valley, it was apparent that we didn’t exactly know where we were.



A Tibetan farmer’s summer residence. (AA)

As we walked past a village, lots of locals rushed out and tried to invite us in for (yak butter) tea. It seemed quite attractive, we were soaking wet, with low morale, but at the same time keen to get on to the destination. In the end we let an old-looking Tibetan woman direct us. I was never quite up on the logic of this. We didn’t know where we were, she didn’t know where we wanted to get to, but we followed anyway.

And so it was that we found ourselves flogging up a steep hillside path, struggling for breath, with no chance of keeping up with the Tibetan woman. All except the super-fit Rob that was. He was striding ahead and it transpired that this greatly impressed the apparently not-so-old woman. One task we’d been set for the camp was to find a proper name for the Southern Stream Cave, but I won’t embarrass Rob or the young lady of fine standing in the local community by explaining precisely how One Night Love Cave got its name.

At the top of the path the woman directed us to another big logging track. Taking a direction from the GPS, we set off. However, we still didn't know where we actually were on the map. But at least Rob's tale of his manhood impressing the local ladies had cheered us all up. It had also stopped raining too. Then after rounding a couple of bends on the track we could see a white minibus. We joked amongst ourselves that it might be a party of scouts. It turned out to be a party of English botanists from near Rob's home town in Worcestershire on exchange with the Kunming Botanical Society. It's a small world.



Rob waits for the rest of his party, with a young lady of fine standing in the local community. (FL)

The encounter with the botanists had at least helped us locate ourselves on the map, and this time we set out with more confidence. We were only a few kilometres from the cave, but it was a bit cross country. So finally we got to THE big track that led to the cave and that we had been searching for for the past three or four hours. We passed a village and lots of yaks coming in for the night on the way to the entrance. One passing farmer motioned for us to come and stay in his hut, be we first wanted to check out the entrance. I was pretty tired by this point and struggled to find the enthusiasm to stoop into the darkness. But the effort was repaid. After scurrying under some drips, the passage enlarged, several small inlets came in and the stream wound its way into the hillside. After a few hundred metres we found the small pitch that had stopped Rich and Hils last year. It all felt really good apart from one thing. The cave was in conglomerate. Again. That was two in two days now for me. Surely this was getting silly.

We decided go back to the village for the night, try to find the yak farmer and hopefully sleep on his floor. At this stage the thought of a warm hut with a fire to dry my gear seemed much more attractive than getting the tent out. The trouble was finding the right man. We wandered through the village trying to be as obvious as possible, waiting for an invite. Eventually when I was losing my patience with the whole thing, cold, wet and tired, we were invited in. The fire was indeed warm, but with a one room wooden hut with an open fire and no chimney the place was also very smoky. Rob tried to engage the host family in conversation, they seemed to be a father, daughter and grandchild, whilst our dinner was prepared. I was mostly pleased to consume the yak butter tea, it was warm



One of the local yak herders, making yak butter tea. (MH)

and full of fat, but if you let it get to cool it soon lost its appeal. During and after a meal of rice and some sort of meat (pig?) the local spirit came out. As it was my first night at altitude I took a cautious approach, but the clear spirit was a lot smoother than I expected and slipped down quite easily.

The next morning we gave up waiting for breakfast and left for the cave. I couldn't stand the smoke any longer and Chris and Pete were crotchety after a bad night's sleep. Even the mist and rain of the plateau seemed a preferable option. At the cave entrance we decided that Rob and Chris would go and push the lead, whilst Pete and I checked out the local geology. We would then come back and start the survey. Rob and Chris would aim to either use up all the gear and leave the cave going or conclusively kill it, so we could get back down the hill a day ahead of schedule.

It was hard to get a good feel of the area in the mist with low visibility. But we walked through several geological units and saw little outcrop, just forest. Although there were grassy shakeholes around, there were no signs of entrances and no evidence of vast expanses of massive limestone waiting to be explored. So we headed back to the cave and surveyed from the entrance to the head of the first pitch. Then on cue, Rob and Chris reappeared. They'd killed the cave. Unfortunately, as well as having not found the deepest cave in the world, this also meant we had to complete the survey before we could go down the hill.

Chris was clearly cold and knackered so I volunteered to go back down with Rob and polish off the survey. We only had two sets of incomplete gear for economy of weight so I pulled Chris's oversuit on over my thermals, borrowed his balaclava and adjusted his SRT kit so I wouldn't fall out of the harness. This was my first taste of other people's gear of the trip and on later camps I learnt to try and take my own.

Rob and I decided to survey out, and so I thoroughly enjoyed the caving trip in. About 100m deep the little pot cascaded down a number of small pitches and climbs, mainly in conglomerate and thin limestone beds. This was clearly not the right geology for caverns measureless to man, but a sporting trip nonetheless. Rob had been economical with the rigging, bypassing a few pitches with climbs in places, and here I longed for my trusty green wellies instead of my wet through walking boots. I scared myself somewhat by almost slipping off one. I think I scared Rob too. At one point it looked like the cave would end as the stream flowed into a small crack, but a crawling bypass existed before some final climbs took the passage to the terminal sump.

Surveying out was less fun. I was getting tired quickly with the altitude and the cold, and the slower pace of surveying meant I gradually got colder still. It took us about three hours to bottom, derig and complete the survey back to the first pitch. Here I sped off back to the near the cave entrance where Pete and Chris had been making themselves at home and cooking up for us. Chris had retreated to his sleeping bag and to me this seemed an excellent idea. A change of clothes and a plate of garlic and tomato rice hadn't quite restored my core temperature. But Rob was keen to get us all moving, lose some altitude and camp down the valley. It took a bit to persuade the rest of us, but in a very Rob-like fashion he put all the heavy gear in his rucksack to encourage us

to set off.

It was a struggle, but we made a couple of hours down the hill in the drizzle and camped in a narrow stream valley. Despite all the wet gear it was so nice to be in my tent after the yak farmer's hut. A bit of porridge as it went dark and we were soon all tucked up in bed. Rob had been keen for an early start the next day, but the rain just kept on falling. In the end I could wait no longer and had to get up to relieve myself. Putting on my wet socks and boots was miserable, but at least it was for the last time (of that camp). After more porridge we were away down the hill. The weather got less horrible as we lost more altitude and morale was rising at the thought of the beer awaiting us at the Milk River Guesthouse.



Rob guards the empties after a concerted MRG sesh. (SFI)

Subvertical Pot: 22nd – 26th July

Rich Gerrish

[After a daytrip exploring Naigan Dong down by the lake that takes all the effluent from Zhongdian, half the expedition was taken ill with gastroenteritis and had to stay at base while the rest of the expedition continued up to Ye Kang, a mountain village at 4200m altitude surrounded by kilometres of limestone and several known shafts left undescended in 2003. A couple of days later, the gastroenterites were well enough to join in, and made their way up the mountain to join the rest of the expedition. Rich takes up the story ... -ed]



Setting up camp at Ye Kang, in the disused hut we rented from the local villagers. (MH)

Eventually we crested the last summit to reach the plateau. From here a gently undulating and largely grand path lead directly to Ye Kang itself. We collapsed inside one of the yak herders huts that our group was now renting from one of the Tibetans looking extremely sorry for ourselves and soaked to the skin. Fortunately for us, friends of ours had already returned from a day's recce and they wasted no time putting a brew on and getting the fire going.

That evening with a large party gathered at the hut we discussed the plans for the following day. The previous year when myself and Hils had visited Ye Kang very briefly we had been shown a selection of scattered cave entrances and had seen huge vistas of exposed alpine karst that had haunted our daydreams for the past year. In terms of area to look at we were overwhelmed by the sheer

scale of it.

Unfortunately however the lead that Hils and I had been most positive about had crapped out immediately. The large 10m by 6m phreatic train tunnel high in the cliff above Ye Kang had been explored on the very first day in Ye Kang when Hils' enthusiasm could be tempered no longer and she had headed up there immediately after her arrival at the huts. My own personal hopes for this lead had diminished somewhat over the past year. In the thrill of



Chris shaftbashing on the undulating limestone plateau around Ye Kang. (MH) could already feel the creeping uncertainty returning to the pit of my stomach. Memories of the emotional roller-coaster I had endured the previous year invaded my consciousness. During that time I had swung rapidly from elation to despair every time a going hole was replaced by another dead end only to bounce back again after finding something else. The only thing I can compare that time to is the slow painful collapse of a long term relationship. Each break up more agonising than the last, each reconciliation more desperate and hopeful but all the while the depressing notion that no matter how hard you try it won't ever work. This year however I was determined not to get emotionally involved with the project and had psychologically shielded myself behind a pragmatic wall of unseen pessimism. There were still leads from the previous year though that I was determined to be in on the action with, my detachment from my emotions was not entirely complete.

Top of my personal hit list was a couple of potholes, one of which I vaguely remembered as being quite deep. ... This one had an entrance that looked much more inspiring. A flat area of ground below a low hill concealed the deep vertical entrance. From its appearance it looked unlikely that any frost shattered debris would fall into the entrance and this raised our hopes that maybe this one wouldn't be choked. Rich in his excitement had chosen to bring every last piece of rope and rigging gear not required elsewhere. Rightly so he was keen to push the cave until it either died or we ran out of equipment.

At the bottom of the entrance pitch Rich placed a bolt to provide a better hang for the next descent. This done I dropped down to film him exploring the next. It was a tedious process on this pitch and it required another bolt. In



Drying off by the fire after a day's prospecting. (MH)

different parts of the world the limestone varies in hardness. Whilst the rock of the Picos in Spain is relatively soft making bolt placement pretty quick, the Dachstein in Austria had the nastiest bullet hard rock on the planet that can almost double the length of time it takes to put in a bolt. Rich was rapidly finding out that this rock was just as hard as the Austrian variety and being situated at 4200m above sea level didn't help either. By the time the bolt was in Rich's right arm was totally wrecked, he gratefully abseiled directly to the floor from this new hang. ... Rich rested his bolting arm whilst I hammered the next hole. It took a good fifteen to twenty minutes with plenty of rests to get the hole deep enough. ... After the bolt was in however my time came to return back behind the lens of the camera and film Rich making the descent into virgin territory. As he slowly dropped over the edge he scanned the walls of the pitch for the best line of descent. It was obvious that there was a continuing passage over the far side but getting to it would probably be quite exciting. Straight down however the deep pot gradually faded to black and it was this that had Rich's attention transfixed. He looked back up at the camera with a mixed expression, part excitement part fear. "This is a seriously deep chasm man," he half giggled, betraying the nervousness that always lies just beneath the surface. With glee he looked back down the drop and began to pick up speed as he sank deeper to be swallowed up by the inky blackness, leaving only the tiny white dot of his head light to reassure me he was still below. I returned to a more comfortable perch away from the pitch head where I could relax a little better. If Rich had to place bolts then I could be in the same spot for some time. I was very concerned about kicking rocks down the pitch as I knew that Rich was undoubtably in the direct line of fire. Even though we had gardened the lip intensively the slope above it was still loaded with suitable ammunition and this was no place for having an accident. I carefully picked my way to a small ledge and tucked my legs up off the floor and into a corner.



Rich B waits to descend Subvertical Pot, while Rich G prepares his video gear.

(MH)

to match the rate and rhythm of ascent, which is in turn linked to the stretch in the rope and its rate of reciprocation or bounce. Each step up coordinated to begin just as the rope stretches to the bottom of the bounce and finish as it nears its apex. How fit, tired and skilful the caver is determines whether they can prussik on every bounce of the rope or whether they need to rest and sit out a cycle before performing another. Here in Yunnan at 4200m above

As I waited in the darkness the sounds of metal clicking on stone echoed back up the shaft. After a short period of time the familiar sound of prussiking began. The slow, light rasping noise of rope running through an ascender, terminated by the rattle of metal work as the caver's rising body comes to rest, before the next repetitive move upwards. As the caver nears the breathing fades in.

Controlled, steady inhalations timed

sea level we had all learnt to redress our perception of our own abilities due to the inhibiting lack of oxygen. Rich's slow movements up the pitch were the epitome of this.

As Rich drew nearer to the pitch head I delicately left my ledge to talk with him. He reported that the bottom of the pitch was choked. This I had feared as we had found it a common theme in previous explorations in the area. We were not discouraged by this discovery though. In other parts of the world similar weathering outside caves causes eroded rock to fall in and block the direct route down. In these caves however, "windows" through to parallel pitches had enabled explorers to evade the direct fall line of debris and bypass blockages to find caves systems of extreme length and depth. From the moment we had seen the window on the far side of our pitch we knew we had found something interesting.



*Chris looking up from the bottom of
(yet) a(nother) choked 10m shaft.
(MH)*

[Two more exploration trips went down Subvertical Pot. Several parallel shafts were found and explored, but all eventually choked. In the end, the cave was surveyed to a depth of 113m. Numerous other caves were found on the Ye Kang plateau, but nothing else went deeper than 50m. The area was frustrating us – the limestone looked perfect to deliver deep caves, but getting through the frost-shattered surface layer was proving extremely difficult. Eventually, we decided to turn our sights

elsewhere, temporarily at least ... -ed]

Several days later a plan was formulated to visit the mountains to the south of Ye Kang. Several members of the 2003 expedition had passed by these mountains on route to Ye Kang and had been told by a man we had come to know as "Mr Wrongway" that there was a cave over one of the passes. Mr Wrongway's directions were the same every time we passed by his hut. Whichever direction we were coming from and whichever direction we were heading in he always assured us it was the wrong way. This time however we hoped that he would show us the right way to the caves on the hills over there.

Rigging Dawa Dong: 2nd August

Chris Jewell

A five-second drop! When we first heard it from Liu Hong we all assumed he was just exaggerating, but when the rest of the group returned they confirmed it. After peering at the tiny screen on Rich Gerrish's camcorder we were all excited, and a plan to return to base camp to get the longest ropes we had was quickly hatched. That night in Zhongdian over dinner, Rich G asked me if I wanted to drop the cave, and I could hardly believe my luck. Ever since I had learnt to rig I had dreamt of dropping long pitches and here was my chance. Back at camp the night before the big trip, I lay in my sleeping bag sorting out

the kit in my head, excited and nervous. Here was my big chance, but to make matters worse Rich and Pete were going to video it all. So if I mucked up the evidence would be on tape for everyone to see.

In the morning after a quick breakfast I started sorting out the kit for the trip. I wanted everything to be perfect and spent a good hour counting out slings, hangers, pitons, bolts, maillons and all the rope. About half ten we then set off on the short walk to the cave. The cave was named after Mr Dawa, the local Tibetan yak farmer who had originally shown us the cave. Our



Hilary traversing the approach to Dawa Dong. The exposed limestone visible on the left in the distance is the Ye Kang plateau. (MH)

kind host was also interested in what we were planning to do, and wanted to come with us to watch us drop the cave. He led the way with his son, and about half an hour later I stood by the entrance to the cave. As this was my first visit to the cave I threw the obligatory stones down the opening, my grin getting wider and wider as they whistled down the hole for what seemed like an age. After about five seconds there was a loud clatter followed by a few seconds silence and then a more distant boom.



The camp at Dawa's place, on a rare sunny morning. (AA)

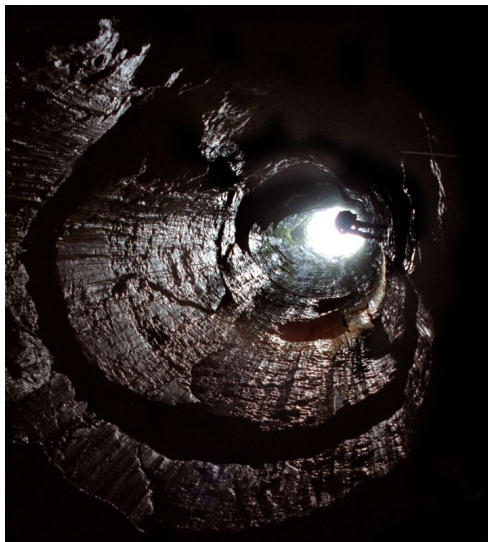
The area around the cave had plenty of large rhododendron bushes (a common feature of the local area), and I used three of the sturdiest for the initial tri-hang to get me to the edge of the drop. I was then able to scramble down a very steep grass slope to a rocky ledge a couple of metres down. Below here the rope would rub on the ledge without a rebelay, and it also provided a comfortable spot to put my first bolt in. Rich Gerrish treated us to a few well known caving

songs whilst I hammered away, and soon I could drop off the ledge. After putting in a piton (my first ever) to deviate away from the wall I dropped down the shaft, out of daylight.

Even though the rope gave a nice clean hang, we had already decided it is best to avoid long free hangs at altitude. So as I went down I was looking for good natural re-belays. Fifteen metres down I found the perfect one, and tucked a sling around a pinnacle of rock. As I descended further, conversing with the surface became increasingly difficult due to an impressive echo. The almost perfectly round shaft caused the sound to reverberate, meaning each word was garbled. As I continued my descent I used a powerful halogen light in my hand to look at the walls and floor. The shaft was impressive, with beautifully scalloped walls initially covered with moss giving way to bare rock. As I dropped down I kept my eye out for another natural to rebelay off and

break the drop up. However no decent ones presented themselves and I ended up dropping approximately seventy metres to the floor of the shaft.

The floor was covered with snow, but to the left the drop continued for possibly another twenty or thirty metres, judging by the sound. However getting there easily was going to be more of a problem. Three metres below me was a wide ledge, but reaching it from the bottom of the shaft would mean at least a couple more bolts. Anxious to avoid placing bolts unnecessarily, I wanted to have a clean hang down to the ledge from the main shaft. So the only way I could get there was to prussik back up six or seven metres and bolt into a large slab in the roof. Then, after a deviation, I gained the ledge cleanly. All that remained below was approximately a thirty-metre drop.



Andy Sewell in the entrance shaft of Dawa Dong. (MH)



Andy Sewell on the second pitch. (MH)

I clambered round the left-hand wall by the ledge and shoved a skyhook clipped to myself into a crack. Then I was able to lean back and place my final bolt. Fifteen minutes later I dropped down the final pitch, to find a boulder-floored chamber with a possible way on on the right-hand side. I had been shouting for Rich to come down since starting to put the last bolt in so I expected him to be hot on my tail. However he was filming and the technology had been playing up again. So I went to explore the way on whilst he made his way down the shaft slowly.

The ongoing passage didn't look encouraging and after a quick scramble I sat down to wait for Rich. We were in a tall rift off the side of the main shaft and although there was a trench in the floor, it was filled with rocks. A little later I watched Rich

drop down the shaft with his bright film lights illuminating the rock until he joined me. I broke the bad news to him but said it was still worth looking at.

The pair of us moved into the adjacent rift and Rich filmed whilst I hunted for a way through the boulders. Near where we had come in there was an opening in the trench and I was able to squeeze under the rocks. Throwing a few stones before me, I realised that there was another pitch just ahead and our mood brightened immediately. A couple of minutes later we had a sling round a well jammed rock, and I locked my descender on to the rope. Rich filmed again

as I disappeared down the drop, which proved to be about ten metres. I landed in an area similar to the one above, a continuation of the rift, which was less than ten metres long. In the floor was another trench, again filled with rubble. My heart sank; for a few minutes I really thought we had broken through, and now the way was blocked again. When Rich joined me we scoured the ground for a way through, finally resorting to digging. However I was cold, without gloves, and progress was extremely slow, so this was quickly abandoned in favour of leaving it for another day and another group. As I prussiked up the big pitch I assumed after a quick dig the cave would be de-rigged the next day - how wrong could I be.



Hilary kitting up at the bottom of the 3rd pitch. (AA)

Friday the thirteenth and all that: 2nd – 13th August

Hilary Greaves

“Come back with good news.”

We had picked our youngest expedition member (Chris) and were sending him off to Dawa Dong with a 200m rope and plenty of bolting and rigging kit. Rich G had wangled himself a position as the backup member of the rigging trip, using some story about how the momentous trip should really be documented on video. Despite not being on the trip myself, I was ridiculously excited. Too long the mountains of Yunnan had been teasing us. This was the big one: surely a shaft as deep as this had a decent chance of breaking through any frost-shattered surface layer and connecting to the proper cave that we knew must lie somewhere below and anyway surely a shaft as *impressive* as this couldn't just go nowhere ... Rich, somehow, had learnt not to get his hopes up, and was expecting a choked shaft, but I knew he was just being overly pessimistic as a protective psychological mechanism.



Dawa and son. (AA)

To my utter dismay, Rich and Chris returned that evening with the verdict that the cave was ‘pretty much dead’: 130m or so to a choked floor. Rich, though, had figured it deserved a second opinion, and anyway they hadn't surveyed it, so they had left it rigged. The next day Pete, Gavin, Rich B and I went down: Gavin and Rich to have a second go at digging the choke, Pete and I to survey. When we got to the bottom, though, we found two possible dig locations, one at the bottom of the rope (where Chris and Rich had started



Camp at Dawa's, on a more typical morning. (MH)

line of the rift towards the other dig, but doing it by tunneling slowly underneath 2m depth of rubble, which seemed inefficient when you could gain 20m of free progress in that direction by just walking along the wide open passage above. Gavin, meanwhile, liked the look of our dig. He called me out of his old dig, at which point I noticed that Pete and Rich had quit and started to survey out together, the bastards!! Fortunately, Gavin wasn't in the mood for a long trip either, so we decided to dig until the others had had enough of a headstart up the shaft so as not to hold us up on the way out, and then leave it for tomorrow.

We pulled out rocks, pausing now and then to strategise about the best direction to dig, and eventually uncovered a sort of 45 degree downward sloping tube. It was too narrow to pass right now, but we could see black space beyond, so we took turns hammering the fuck out of the walls and floor of the tube. 'What do you reckon?' I enquired after a while. Gavin is an expert on digs that go nowhere as well as those that don't, so I was keen to hear his take on this one. He was enthused: 'I think it's just a matter of time', he stated simply, sticking his head out of the dig, and went back to hammering. My heart leapt: was there hope yet?

The next day Gavin and Andrew went down to hammer the squeeze. The day after that Andrew and I went down to do more of the same, and broke through! It was still bloody tight, but I could just fit through the squeeze, and below there was a small chamber, just big enough to comfortably turn around in, and then a rift, with a noticeable draught. The rift didn't look too narrow in principle, but its walls were covered in spiky projections which we'd have to remove in order to fit through. At the moment I was the only one who could fit through the squeeze, so the next day I hammered

digging the day before) and one at the opposite end of the rift, so all four of us set to work moving rocks.

Rich and Gavin dug at the bottom of the rope while Pete and I worked on the other end of the rift. After a while Gavin decreed that someone else should have a look at his dig front, so I inserted myself into his horrible drippy squeeze while he went to have a bash at our dig. It soon became clear that Rich and Gavin's dig was just following the



Gavin searching for the way on. (HG)



Hilary waiting at the dig site. (AA)

the rift while Gavin widened the squeeze, and then Rich G and Gavin went rift hammering, and then Martin and I, and then Gavin and I, and then Gavin alone, and then Rob and Gavin.

Each night after dinner, we would go into Dawa's hut to sit round his fire, dry off, and chat and drink baijiu with the family. After three expeditions in Yunnan and much effort back home, my Chinese was getting to the point where (to my absolute delight) I could just about hold a conversation, and the family were somewhat intrigued by our project, so each night I would tell them how the day's caving had gone. They had been impressed the first day with the report of a 130m descent, but as I relayed the dig progress day after day, 'today cave have three more metres', 'today another half metre', they found our antics absolutely hysterical. Understandably. Rich, meanwhile, had taken one look and washed his hands of the Dawa Dong project, saying he thought the draught was just recirculation and the cave almost certainly going nowhere; this was much to the disappointment of Gavin and me, who were convinced it wasn't recirculation and thought that, slow and difficult as the progress was, Dawa Dong was currently the best lead the expedition had.



Baijiu at Dawa's place. From left: Andy, Hilary, Simon Froude, Dawa, Dawa's son, Dawa's wife. (MH)

Finally, expedition circumstance had it that I would go down Dawa Dong alone. On Friday the thirteenth. Being utterly unsuperstitious, I found the spectacle of going solo hammering on a Friday the thirteenth pretty amusing. Once underground I wasn't amused for very long though. Somehow, lying in a tight rift, alone 100m underground, sometimes in positions that took several minutes of uncertain and uncomfortable struggle to reverse out of, could get quite miserable. A whole lot more miserable than when there was someone right behind you to take the piss, which did a pretty good job of making a physically identical situation amusing rather than miserable. I have never been particularly into solo trips – takes a lot of the point and most of the fun out of caving for me – and this one was getting quite grim. All the time the thought, 'this rift could make the difference between a return in 2005 or goodbye to Zhongdian', was at the back of my mind, and every time it came to the front of my mind I hammered the rock with a renewed energy, but it was difficult to make progress. I hammered ineffectively from awkward positions, continuously having to decide whether it would be more efficient to try to find and manoeuvre to a better position to hammer from (which could waste a lot of time and might not gain any improvement anyway) or a better target to attack, or to stay where I was and keep going (which could achieve next to nothing), and feeling I was always getting the decision wrong.

After a few hours I stopped and took stock. There was a tight right-hand corner just ahead, where the passage bent abruptly through about 100 degrees. If I squeezed as far as possible I could see round that corner to another similar-

looking left-hand one about 2m further on. On previous trips it had looked as though it might soon be possible to pass the first corner by wriggling into an upright position at the corner, but now a TV-sized rock had moved into the corner at what would have been chest or shoulder height according to that tactic, and it just wasn't going to happen any more. So we would need to widen the whole corner instead, to make it big enough to pass with one's body horizontal. That would take a while, it would need a lot of widening. And the rift beyond looked pretty tight too, plenty more hammering there. Plus, I was the only one left on expedition who really had any 'enthusiasm' for pushing this cave — Rob had said he would help if necessary but didn't seem to actually want to and



Hilary in the squeeze. (AA)

was leaving soon anyway, and Martin sounded as though he might come down another time or two if absolutely necessary but would rather go prospecting round in the hanging valley, and the rest of the troops were either too big to fit through the squeeze or wouldn't go and hammer rifts for love nor money, or both; plus, we were planning to move camp to a fresh area to make prospecting more efficient, and that would put this cave at 2 hours' walk from camp rather than the current half hour; and in any case we had only about another week up the hill before the end of expedition, and did I really think this cave had any realistic chance of going in merely another few trips?

No. Face it. Fuck this. Game over. I repeated the logic of my decision out loud to myself, listening to check that it actually made sense and hadn't been crucially swayed by my mood: to my relief, I honestly thought that it did and hadn't. I heard my voice start to break as I talked to myself, though. God, I



Hilary relaxing at camp, after another Dawa Dong trip. (MH)

am such a baby, I thought, but on this occasion there wasn't much point bothering to fight it. I reversed carefully out of the rift and wriggled up through the squeeze for the last time, manoeuvring the digging tools above my head, and then I sat on a rock and cried. Quitting that goddamn rift was a relief, but to say it was a bittersweet one would be something of an understatement.

The Inquisition: 20th August

Andy Sewell

The end of any expedition is always a time for reflection, and this time was no exception. Early evening of the last field day of the trip found a tired trio of myself, Simon and Martin contemplating what on earth we were doing

sitting amid a gargantuan pile of expedition kit somewhere on the perimeter of Zhongdian's municipal airport



Loading up the horses at Dawa's place.

(MH)

in the realms of at least a road.



The derig party stuck in a yak jam, en route back to Zhongdian. (MH)

towards the nearest sign of civilisation several kilometres distant in search of rescue. Never mind, it was a pleasant evening and we had six squares of chocolate between us; thoughts of the Milk River, pizza, and hot showers would be put to the backs of our minds.

Half an hour later and our thoughts had turned to the huge amount of food that had had to be abandoned up the hill, and that all we'd eaten on a very busy day was some Tibetan bread and yak's cheese. We then realised that here we were, 3 Europeans and a lot of strange looking kit, sat on the security fence of an airport in a country where such things until recently could end up getting one 'in the soup'. We then reflected on the squaddies' ill fated expedition to Mexico, and wondered if any of the plimsoll-shod Saturday night revellers who passed us on their way down from villages to the hot spots of Zhongdian would have reported us, would we end up being guests of the Chinese police ... no, such a thing couldn't happen to us!!!

At this stage we observed a large expensive-looking Japanese 4x4 approaching along the dirt road around the perimeter, interesting we thought, it got

watching an old woman gathering in her ubiquitous yaks. The reason for this being that our intrepid leader Hillary had somehow managed to negotiate with Dawa's relatives who had provided the packhorses, some sort of deal that involved descent via a less vertical route from the camp at Dawa's to the edge of the plain near the airport. Not being Chinese speakers the three of us had assumed that this also would encompass being dropped off somewhere

As I'd hurt my ankle and Simon had kindly waited to make sure I got down the final tortuous corkscrew footpath we were somewhat surprised to find to find Martin alone with the gear mountain. 'What's happened to the horses?' and 'Where's Hils?' we enquired. Martin didn't seem to know, just that there had been some sort of misunderstanding and that this was the result and that Hils had set off to-

wards the nearest sign of civilisation several kilometres distant in search of rescue. Never mind, it was a pleasant evening and we had six squares of chocolate between us; thoughts of the Milk River, pizza, and hot showers would be put to the backs of our minds.

Half an hour later and our thoughts had turned to the huge amount of food that had had to be abandoned up the hill, and that all we'd eaten on a very busy day was some Tibetan bread and yak's cheese. We then realised that here we were, 3 Europeans and a lot of strange looking kit, sat on the security fence of an



Andy and Simon guarding kit. (MH)

closer, and then closer ... Oh no, the driver is wearing a uniform, uniforms mean questions and possibly trouble, we don't speak Chinese. We sat up in anticipation, and with a certain nervousness. The pristine new and very large vehicle crunched to a halt.

A flustered-looking Chinese NCO in a smart clean uniform jumped out, opened the rear door and allowed a confident-looking Chinese officer with a row of shiny stars on his epaulettes, and the look of a man who knows what he says goes, to disembark. 'Oh no' we mumbled, 'this is it', when we noticed a beaming face in the rear seat, it was Hilary!! 'What, who, how?' we asked. It appeared that whilst following the path to the main road and the nearest houses, the said 4x4 had pulled up, and she'd asked to borrow their mobile phone so she could call for taxis from the town. 'Nonsense,' the police general (for that's who he turned out to be) replied, 'I am at your service.' He was a keen naturalist and photographer, who just happened to be on a trip to the countryside near the airport.

He seemed a very pleasant fellow, and shook our hands, ignoring the whiff of 2 week old unwashed bodies and clothes, although his driver looked a little bit more apprehensive. He obviously knew his commander well, because he was ordered to load all of our gear hill into the capacious boot. Amazingly, it all fitted. And we were ushered into the back seats. We then set off past local Tibetan farmhouses, and noticed that people stood reverently back or pulled off the road to allow us past. This is the life, we were beginning to realise how important the man was, although he was under no illusion, he would lean over the dash board and press the vehicle's siren any time some cyclist annoyed him. 'Let's see what happens when we pass the police post by the big roundabout,' I mused to Martin. Low and behold the policeman sprang to attention and saluted smartly! We then had an amusing trip through the thronging Main Street of early Saturday night Zhongdian, with vehicles pulling off in all directions; it's the life of a high Chinese official for us, we thought. We finally arrived at the Milk River where our tame General leapt from the car and hammered in that purposeful way that only the police can, the door was answered by some bemused Tibetans from Daisy's family who were obviously puzzled as to how this had come about. We posed for pictures, but unfortunately Martin's camera had no film, and mine had jammed. Still, it was one of those expedition moments that will be talked about in the Hunter's, Red Lion, Marton for years to come. A truly memorable



The derig team enjoying breakfast in Zhongdian. (MH)



Causing trouble back at the Milk River Guesthouse. (MLi)

end to the trip.

8 Medical Report

Simon Flower MB ChB

General considerations

Medically trained personnel. Owing to the remote nature of the expedition, and for reasons outlined above, it was considered important to have people with medical / first-aid training present. A qualified doctor with wilderness medical training was present for the first four weeks of the expedition. Three other members had undertaken wilderness medical training in the UK, one of whom was present for the whole of the remainder of the expedition.

Blood transfusions. China has one of the world's highest prevalence rates of Hepatitis B and has one of the fastest growing rates of HIV infection. Blood transfusions have been responsible for a significant proportion of this. Just recently, the Chinese government has spent a great deal of money upgrading the testing of blood donors, but the prospect of a blood transfusion should still be taken seriously. Hepatitis B vaccination was therefore recommended to expedition members. Another point is that, owing to the fact that over 99% of the Chinese population are rhesus positive, the availability of rhesus negative blood is severely limited. Around 15% of European whites are rhesus negative and would require this type of blood. For this reason it was recommended that expedition members find out their own blood type. If rhesus negative, they were to make a decision whether or not to take the risk of coming on expedition.

Altitude sickness. Zhongdian, the lowest point of the expedition, is at 3200m, and members would be carrying loads up to camps at around 4100m. Prospecting would be at anywhere up to 4400m. The current British Mountaineering Council advice is that height gain above 3500m be gradual, with no more than a 300m increase in sleeping altitude per day (with a rest every third day), and heavy loads should be avoided until acclimatised. However, serious forms of altitude sickness (cerebral and pulmonary oedema) are unusual below 4000m, and only minor effects of altitude had been experienced on the three previous expeditions to the area. It was therefore decided to take a variety of medications to treat the serious forms, but not to provide or recommend prophylactic therapy.

Gastroenteritis. Clean piped water, basic hygiene standards and sanitation are severely lacking in Zhongdian and its surrounds. All water in towns must be treated or boiled before drinking (something even the locals do), and sewage is largely untreated, spilling directly into rivers running through town. Some vigilance is therefore required to avoid gastroenteritis. Iodine was provided with all medical kits (along with loperamide for emergencies), and antibiotics were

well stocked in the main medical kits. Owing to the lack of surface water in the mountains, a container of an antiseptic solution is recommended for hand washing.

Hypothermia. Temperatures in the mountains around Zhongdian, although rarely extreme in the summer months, are sufficiently low to cause exhaustion hypothermia in an exposed or injured person. Hot water bottles were to be used for rewarming casualties, whilst standard equipment (bothy bags, roll-mats, sleeping bags etc.), could be used to reduce any further heat losses. Homemade devices to reduce the heat lost through respiration (a frequently overlooked problem), were also supplied. These consist of a mask joined in turn to a condenser-humidifier and a piece of plastic tubing which can be placed under a casualty's clothing.

Malaria. The World Health Organisation advice on malaria is that malignant *p.falciparum* (i.e. cerebral) malaria is a risk during a prolonged stay in rural Yunnan, but only in villages below 1500m. Zhongdian, at 3200m, is risk free so malaria prophylaxis need not be taken unless travelling from an endemic area. As a precaution, medications for the treatment of malaria were kept at base camp.

Equipment

Surface medical kits. Supplies were divided between two main kits and eight portable kits. The portable kits were lightweight enough for use by teams of two to four on the hill, but comprehensive enough for brief camps away. They contained items needed in emergency such as oral airways, Sam splints, basic wound care materials, injectable analgaesics and medications for diarrhoea, allergy, anaphylaxis and altitude sickness. The more comprehensive kits were prepared for base camp (Zhongdian) and top camp use. These contained, in addition to that described above, benzodiazepines, antibiotics, ear and eye drops, local anaesthetics, cannulas, suturing materials and scalpels, burns care, stethoscope, adjustable C-spine collar and a home-made device to reduce respiratory losses of heat in the event of hypothermia (as described above). A rescue stretcher was also kept at base camp.

Underground medical kits. Members were asked to provide a plastic survival blanket and their own personal selection of mild-moderate analgaesics and bandages. These kits could then be supplemented with the injectable analgaesics kept in the portable kits, which were stored in durable containers for portage underground. In the event of an accident, the whole portable kit could be taken underground.

Oxygen. Oxygen was considered but decided against. Although there is little doubt that oxygen would be useful in the management of a serious casualty at altitude, a number of factors limit its usefulness:

- Casualties sustaining injuries that truly need oxygen will most likely be dead by the time it has been retrieved from its store on the surface. Few such casualties deteriorate slowly.
- It has been argued that at altitude, any cold or seriously injured caver would probably benefit to some extent from oxygen. However it is debatable whether this oxygen would be truly life saving. Again, if a casualty is still alive by the time the oxygen has been retrieved from the surface store (likely a good distance from the cave), they are likely to survive without it anyway.
- A one-litre bottle of oxygen, even running at a sub-therapeutic two litres per minute, only lasts around seven hours. Unless further bottles of oxygen can be provided quickly from a local source (something that did not seem at all likely), or unless many bottles are purchased and stored in each area of investigation, the oxygen will be depleted long before evacuation from the cave and mountain can be achieved. Because there would be few instances when oxygen would be truly lifesaving, I decided that it would be poor use of expedition funds to provide such a plentiful supply of bottles.

Locally available health care

Hospitals. The tertiary medical provider for Yunnan is situated in Kunming at the Number 1 Hospital of Kunming Medical College. This is a large hospital offering all major specialities, and some staff members speak English. However, a guided tour of the emergency department revealed a number of shortcomings:

- Whilst not dirty, the standards of hygiene are not up to those of the UK.
- Basic equipment, such as monitoring equipment, appeared to be lacking.
- Overcrowding and privacy were an issue, with barely any space between the beds.
- The hospital does not stock O Rhesus negative (universal donor) blood. If notified in advance, the hospital would be able to acquire the blood within 24 to 48 hours.

A small clinic/hospital exists in Zhongdian, but was not investigated.

Pharmaceuticals. A great many medications are available over the counter at pharmacies. Often the English name is printed on the packet so they can easily be identified, but this is not always the case. Medications seen include: paracetamol, tramadol and most classes of antibiotic (although co-amoxycylav wasn't seen). Prices were a fraction of their UK cost.

Incident reports

The expedition experienced no major incidents. Minor incidents included:

Gastroenteritis. Gastroenteritis was experienced by a number of expedition members to varying degrees. It affected the working capacity of six expedition members, five of whom required antibiotics (one owing to prolonged symptoms and four owing merely to the assumed levels of bacterial pollution in Naigan Dong (C3-106) to which they were exposed antibiotics in this group were started as soon as symptoms began). The antibiotic regimen used was ciprofloxacin 750mg twice daily for five days (more than the usual 500mg, owing to the resistance to this antibiotic in China). All then made a quick recovery.

Viral illness. Two members experienced flu-like symptoms of fever, lethargy and muscular aches. These were self-limiting, and both made a full recovery within 48 hours.

Vasovagal attack. One member experienced a vasovagal attack whilst sat in a caf, very shortly after arriving in Zhongdian after a 16-hour overnight bus. This was thought secondary to the combined effects of fatigue, drinking alcohol on an empty stomach and arrival at altitude. The patient was taken to base camp to rest and made a full recovery.

Infected wounds. Two members sustained wounds to the hands that took a prolonged time to heal, after caving in the Guli caves. One of these members developed an abscess over a proximal interphalangeal joint, requiring drainage.

Sprained ankle. One expedition member exacerbated a pre-existing problem in the tight rifts at the bottom of the 120m-deep Dawa Dong (C3-294). A Sam splint was required to support the ankle in order to prussik out.

Altitude illness. Little time was spent deliberately acclimatising and all members experienced minor effects of altitude, principally undue breathlessness on exertion, poor quality sleep, fatigue, light-headedness and mild headaches. All resolved with time. One member developed an intractable headache that eventually resolved with descent and 60mg prednisolone.

9 Rescue report

Gavin Lowe

The difficulty of carrying out a rescue of an injured caver from a Chinese cave has long concerned us. There is no such thing as a Chinese Cave Rescue Organisation. As such, we realised that we would have to be basically self-reliant. This article outlines our plan.

Erin had cobbled together a list of a dozen other cavers in China who could be called upon to help if a rescue were necessary. We had agreed with a French expedition that we would provide mutual rescue support. An Australian rescue team had agreed to turn out if we could arrange the necessary permissions. Even more speculatively, we had plans to fly out rescuers from the UK. Of

course, it would take all of them several days to arrive, and then several more days to acclimatise to the altitude before they could do anything useful.

It seems impossible to arrange adequate insurance cover at a sensible price. Most insurance companies will only cover rescues carried out by recognised rescue authorities — which is no use when there are no such authorities. Others would not cover original exploration (why go caving in China if not to do original exploration?). Others provided totally inadequate levels of cover for rescue costs, such as GBP5000, which clearly would not cover the costs of flying in more than two or three rescuers: however, we figured that that level of cover was better than nothing.

A couple of months before expedition, we carried out a practice rescue in Ogof Draenen in South Wales. Martin Hicks drew the short straw, and was nominated as victim. We treated his injuries, loaded him into the borrowed stretcher, and spent several hours lugging him along a piece of passage that would normally take only a few minutes: we thought we had done well, but were very aware that, at that rate, a rescue from even moderately deep in a Chinese cave would take days if not weeks.

We also bought ourselves a secondhand, reconditioned stretcher: thanks to Dudley from Dragon Caving Gear for sorting this out for us.

On expedition, we were well equipped with first aid equipment: every team carried a first aid kit with them, and a kit was stashed in Dawa Dong while it was being actively pushed. At camp, we had a “rescue runner”: a small bag permanently packed with rescue gear, ready to go at a moment’s notice. We had planned to have the stretcher at the main camp, but in the event it never left Zhongdian; we always had more urgent things to carry up the hill.

If we had needed to carry out a rescue, we had a rough plan worked out [Low]. We would have had to hospitalise the casualty underground while we fetched the rescue gear, called for support, and generally readied ourselves. We would then have hauled the casualty up the pitches, using hauling systems to give ourselves a mechanical advantage. We would have generally man-handled the stretcher through the rifts. At least, that was the plan; the thought of trying to get a stretcher through the rift in Dawa Dong [C3-294] does not bear thinking about.

10 Accounts

The two expeditions organised their accounts separately; summaries of each in turn are given below. Within each expedition, expenditure is split into three categories: expedition expenditure, kitty expenditure and personal expenditure. *Expedition expenditure* covers all expenditure that was deemed to be the responsibility of the expedition as a whole, and that was independent of the number of man days spent in the field. *Kitty expenditure* covers all costs incurred in the field that were shared between expedition members. *Personal expenditure* covers costs that were incurred by individuals as part of the expedition but regarded as a matter for individual responsibility: these costs were not processed through the expedition accounts, but are included here to give a realistic estimate of the total costs of the expeditions.

All figures are in UK pounds.

Yunnan Resurgences 2004 expedition accounts

Erin Lynch

Income

The entire cost of this expedition was met by expedition members' personal contributions.

Expenditure

Expedition expenditure

Gear	
Bolting equipment	85.00
Rescue runner	7.00
Buoyancy aids	8.00
Gear moving trollies	11.00
Subtotal	<hr/> 111.00
TOTAL	<hr/> 111.00

Kitty expenditure

Food, drinks, etc	152.00
Accommodation	52.00
Local transport	5.00
Inter-town transport	166.00
Equipment shipping	7.00
Guides	4.00
TOTAL	<hr/> 386.00

Personal expenditure

Travel	
Flights	760.00
Buses etc. in UK and Hong Kong	30.00
Subtotal	790.00
Personal gear	400.00
Photography	3.00
Insurance	164.00
Visas	36.00
TOTAL	<u>1393.00</u>

Summary of expenditure

Expedition expenditure	111.00
Kitty expenditure	386.00
Personal expenditure	<u>1393.00</u>
	1890.00

Balance

Total income	1890.00
Total expenditure	<u>1890.00</u>
Surplus	0.00

Yunnan 2004 expedition accounts

Rob Garrett

Income

The expedition was well supported by external grants. Most other income took the form of contributions from expedition members.

Grant income	
Royal Geographical Society	750.00
UK Sport Fund	1000.00
Mount Everest Foundation	550.00
Neville Shulman OBE	500.00
Captain Scott Society	2000.00
Lyon Equipment ¹	<u>1129.11</u>
Subtotal	5929.11
Personal contributions	13000.00
2003 expedition surplus	18.00
2003 report sales	<u>4.00</u>
TOTAL	18951.11

¹Lyon Equipment supported the expedition with a donation of equipment of retail value UKP2000, under the Lyon Equipment Award. The figure of ukp1129.11 is the value of this equipment at trade prices. The Lyon Equipment Award contribution was processed in the expedition accounts as an effective cash donation (spent on equipment from Lyon) of ukp1129.11; this way of processing the accounts was convenient for reasons of transparency to the Hong Meigui CES, which requires expeditions to contribute ukp100 towards club equipment per expedition member not already a member of the Society for the year in question.

Expenditure

Expedition expenditure

Gear		
2 sets of Silva survey instruments	244.00	
5 Xitu tackle sacks	95.65	
40 Faders screwgate krabs	120.00	
120m 5mm Beal accessory cord	34.46	
2 Petzl bolting hammers	37.22	
6 thick Ortlieb dry bags	76.20	
4 map cases	27.68	
4 radio bags	33.84	
Spares kit	324.89	
SRT kit for Chinese	101.20	
72 rechargeable batteries + 4 chargers	136.40	
Vango storm shelter	49.49	
Stretcher and backboard	370.83	
Other rescue equipment	152.38	
Misc. equipment	103.17	
Subtotal		1907.41
Prospectus and interviews		39.55
Photography		169.71
Medical		133.25
Water analysis (estimated)		200.00
Publications (estimated)		100.00
TOTAL		<u>2549.92</u>

Kitty expenditure

Food, drinks, etc	416.85
Accommodation	211.89
Local transport	206.64
Equipment shipping	183.43
Guiding/porters/gifts	138.32
Miscellaneous	95.24
Total ²	<u>1252.37</u>

Personal expenditure

Travel		
Flights (estimated)	10000.00	
Buses etc. in the UK (estimated)	400.00	
Inter-town transport in China	429.00	
Subtotal		<u>10849.00</u>
Personal meals (estimated)		441.00
Personal gear (estimated)		2000.00
Insurance (estimated)		1500.00
Visas (estimated)		300.00
TOTAL		<u>15090.00</u>

²This kitty total works out at an average of 1038 RMB (72.53 UKP) per expedition member, and 40 RMB (2.80 UKP) per man day in the field.

Summary of expenditure

Expedition expenditure	2549.92
Kitty expenditure	1252.37
Personal expenditure	15090.00
TOTAL	<u>18892.29</u>

Balance

Total income	18951.11
Total expenditure	18892.29
Surplus ³	<u>58.82</u>

11 Song

To the tune of 'Sally Maclellane', with apologies to The Pogues

Well Jimmy played the caver in the town where I was born
He dropped the pots of Yorkshire where the ways are old and worn
He smashed the plates and burnt the tapes and drank until the dawn
And we all drove off to Bernie's in the morning
But Jimmy didn't like his place in this world of ours
When the tourist trips grew stale and the pitchhead queues took
hours
Said I'm sad to see the grieving of the people that I'm leaving
And he took the plane for China in the morning
We drove him to the airport in the rain
We kissed him as we put him on the plane
And we sang him a song, of times long gone
Though we knew that we'd be seeing him again
I'm sad to say I must be on my way
So buy me beer and whiskey 'cause I'm going far away
I'd like to think I'll be returning when I can
But have you heard the rumours 'bout the mountains of Yunnan
The years went by the times they changed I grew to be a man
I learnt to love the virtues of the mountains of Yunnan
I held the tears and drank the beers and crawled back home at dawn
And slogged back up the mountain in the morning
I dug the dig and it went big and down the pitches went
I wrote of fame and glory in the pages of Descent
The tales they read, the rumours spread, the bullshit did the rounds
Some people left for China in the morning
They drove 'em to the airport in the rain
They kissed 'em as they put 'em on the plane

³Any surplus that remains once the final expenses are in will be passed to the Hong Meigui CES.

And they sang them a song of times long gone
 Though they knew that they'd be seeing them again
 I'm sad to say I must be on my way
 So buy me beer and whiskey 'cause I'm going far away
 I'd like to think I'll be returning when I can
 But have you heard the rumours 'bout the mountains of Yunnan
 When Jimmy came back home he was so pissed it was the same
 A hoard of Sunday cavers doing Sell Gill in the rain
 Some people they are scared to fly, but Jimmy drank the whole
 place dry
 And took the plane for China in the morning
 They drove him to the airport in the rain
 They kissed him as they put him on the plane
 And they sang him a song of times long gone
 Though they knew that they'd be seeing him again
 I'm sad to say I must be on my way
 So buy me beer and baijiu 'cause I'm going there to stay
 I'd like to think that you will follow when you can
 'Cause I believe the rumours 'bout the mountains of Yunnan.

12 Report distribution list

Hard copies of this report will be placed with the following institutions:

- The Alan Rouse Memorial Collection;
- The Alpine Club;
- The Bodleian Library, Oxford;
- The British Mountaineering Council;
- The Ghar Parau Foundation;
- Guilin Karst Institute, Guangxi, China;
- The Royal Geographical Society (with the Institute of British Geographers);
- The Oxford Mountaineering Library;
- Oxford University Cave Club library;
- Yunnan University Department of Geography, Yunnan, China.

13 Thanks

Mounting a cave expedition to China is expensive, and mounting several in consecutive years is obviously more so. Our heartfelt thanks go to the expeditions' financial supporters, whose farsightedness in funding pure exploration keeps us running, and without whom this project might have died some time ago. The Yunnan 2004 expedition thanks the Ghar Parau Foundation, the UK Sport Fund, the Mount Everest Foundation, the Royal Geographical Society (with the Institute of British Geographers), the Captain Scott Society, and Neville Shulman OBE for direct financial support, and Lyon Equipment, for a generous donation of equipment that helped significantly in keeping the expedition both affordable and productive. HG also thanks The Gordon Foundation, for additional financial support. Thanks are also due to the Alex Pitcher Award, which would have helped Henry Clarke to come on the Yunnan 2004 expedition, if he hadn't dropped a large rock on his hand a few weeks before his planned departure.

We would also like to thank the usual non-financial suspects once again, plus some new ones: thanks to Steve Roberts, for being our Home Agent; to Jingjing Sun, for helping to translate the abstract of this report into Chinese; to Lou Maurice, for dyetrace advice; to Daisy, to the owners of Zhongdian's Milk River Guesthouse and to the yak farmers of the Zhongdian mountains (especially Dawa and family), for their hospitality, help and friendship; and to Liu Hong of Yunnan University Department of Geography, for everything. Xièxie!

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14 Surveys

Andrew Atkinson & Erin Lynch

Significant caves explored by the expeditions were surveyed to the highest reasonable standard. In the majority of cases, this meant surveying to British Cave Research Association Grade 5b; some small caves were surveyed to BCRA Grade 2. Surveys from the Yunnan 2004 expedition were drawn up using The-
rion.

The expeditions employed precision sighting compasses (Suunto KB-14/360, Silva Model 80) and clinometers (Suunto PM5, Silva Clinomaster) which are widely used for cave surveying in Britain. On the winter expedition, on their eighth day above 1900m ASL two of the four instruments (the Suunto KB-14/360 and Silva Clinomaster), which had previously been normal, developed large bubbles. The day before the bubbles developed the Silva instruments were taken on a walk which reached 2900m ASL. The bubbles persisted throughout the remainder of the expedition. The instruments returned to normal when taken back to 200 m ASL where they are stored between expeditions. The summer expedition experienced similar problems.

Bubbles in survey instruments are a problem for high altitude caving expeditions. They make it impossible to take high-angle clinometer readings, and may decrease accuracy of readings with both compasses and clinometers. Future expeditions will need to develop methods of dealing with them.

All surveys use the UIS symbol set (see figure 2).

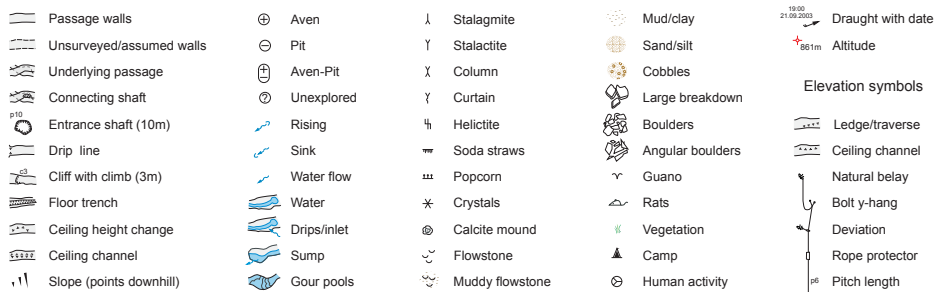


Figure 2: UIS symbol set

With the exception of C3-1 (Shǔi Lián Dòng; 水帘洞), the surveys that follow are given in numerical order. For the C3-1 survey, see the fold-out page at the back of this report.

C3-67

Railway Tunnel
Yunnan, P. R. of China

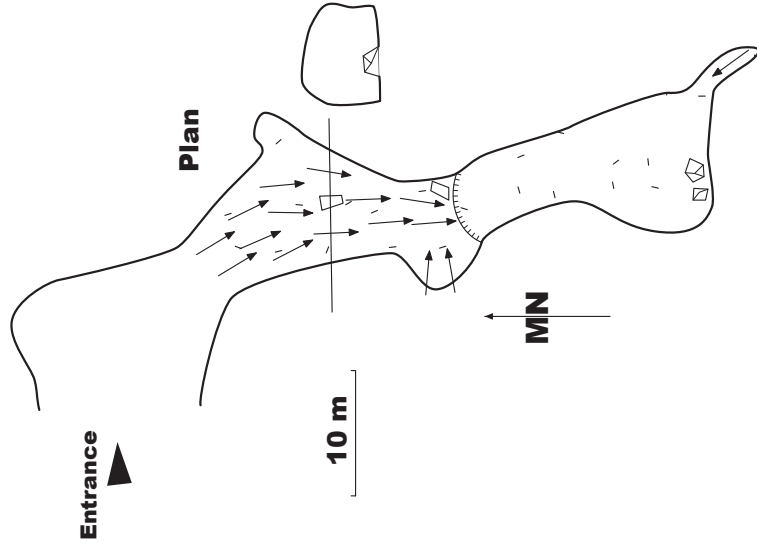
WGS84 UTM 47R 0555474 3073443
Altitude 4280 m

Length 15 m Depth 20 m

Surveyed to BCRA Grade 5b
by Hong Meigui CES August 2004

Survey Team : Hilary Greaves
Computer Graphics by Andrew Atkinson

Based on UIS symbol set



C3-81

一夜亲洞

Yi Yé Qín Dòng
Yunnan, P. R. of China

WGS84 UTM 47R 0563797 3053446
Altitude 3902 m

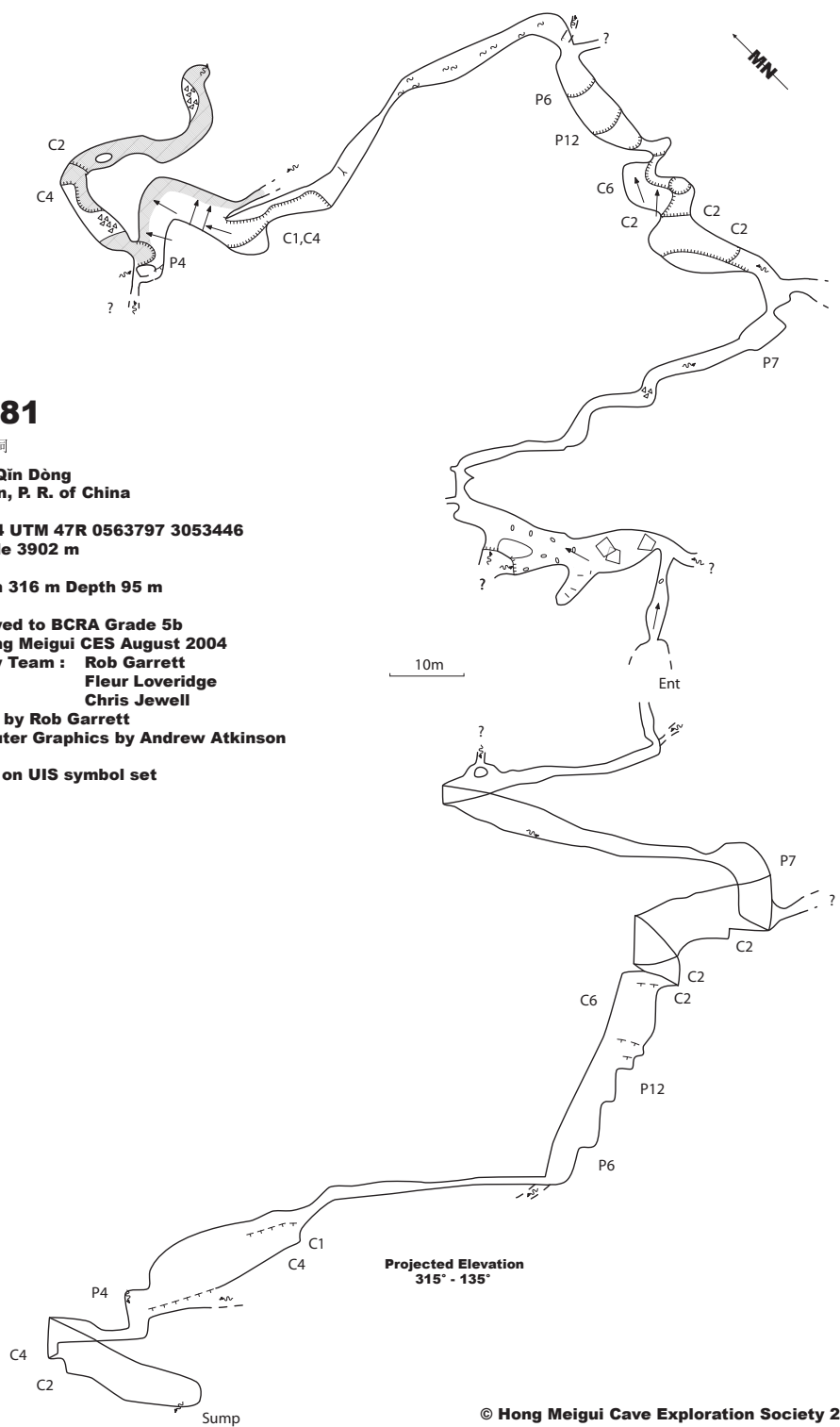
Length 316 m Depth 95 m

Surveyed to BCRA Grade 5b
by Hong Meigui CES August 2004

Survey Team : Rob Garrett
Fleur Loveridge
Chris Jewell

Drawn by Rob Garrett
Computer Graphics by Andrew Atkinson

Based on UIS symbol set



C3-160

spf02

Yunnan, P. R. of China

WGS84 UTM 47R 0555476 3073510

Altitude 4418 m

96

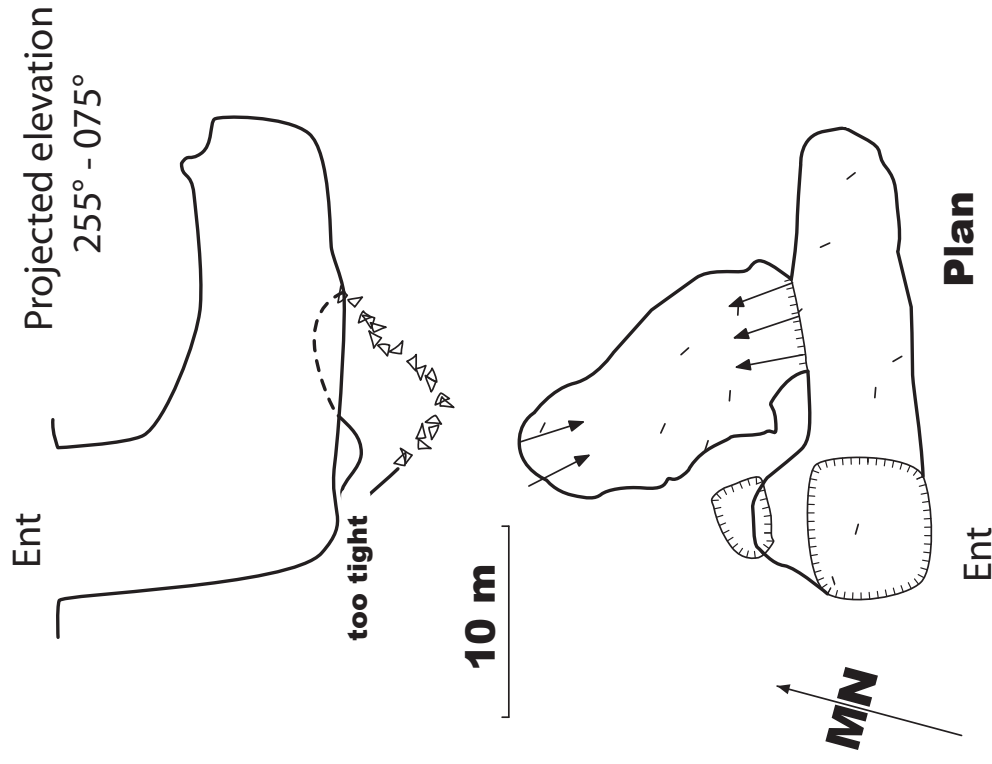
Length 44 m Depth 18 m

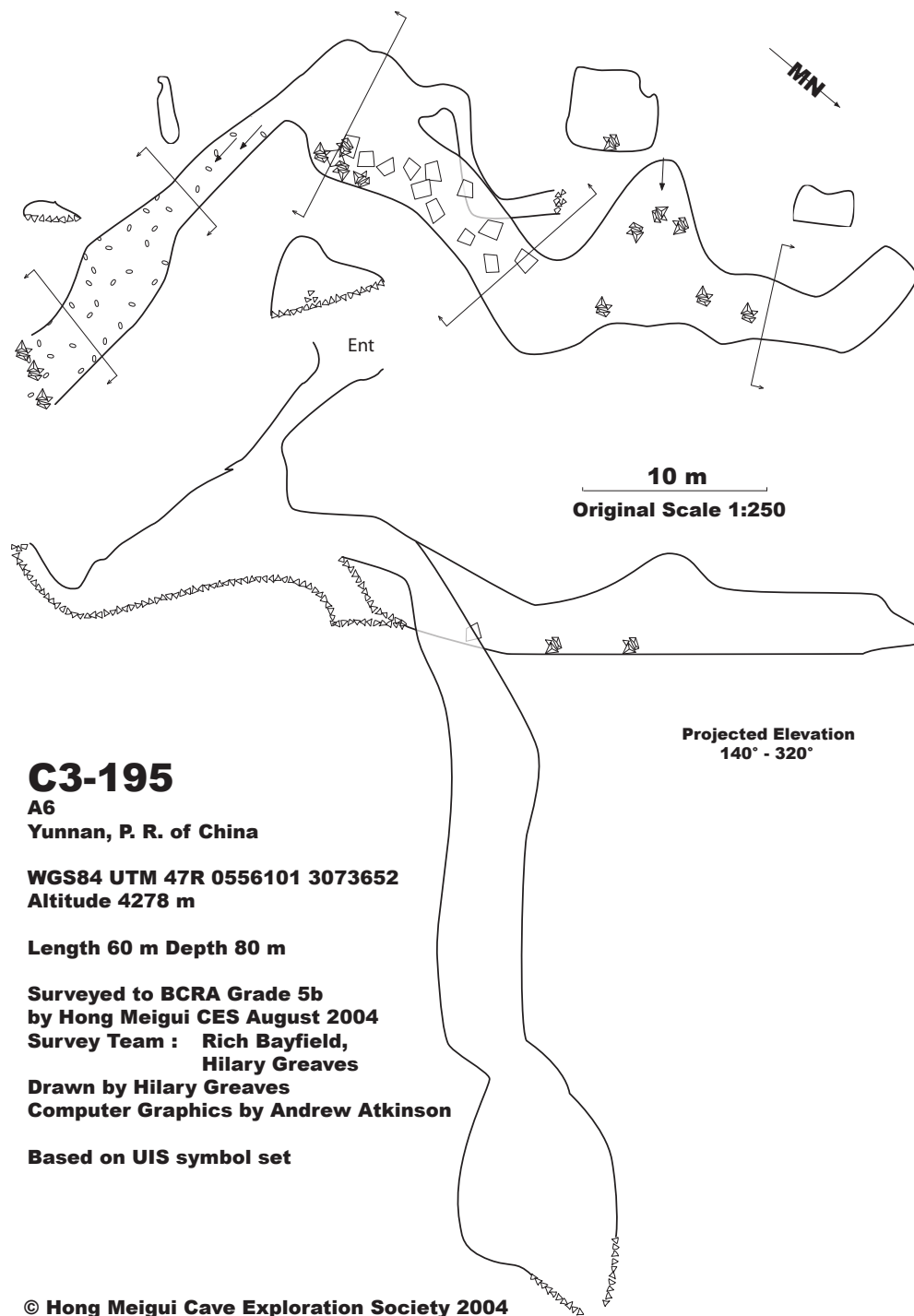
Surveyed to BCRA Grade 5b
by Hong Meigui CES August 2004

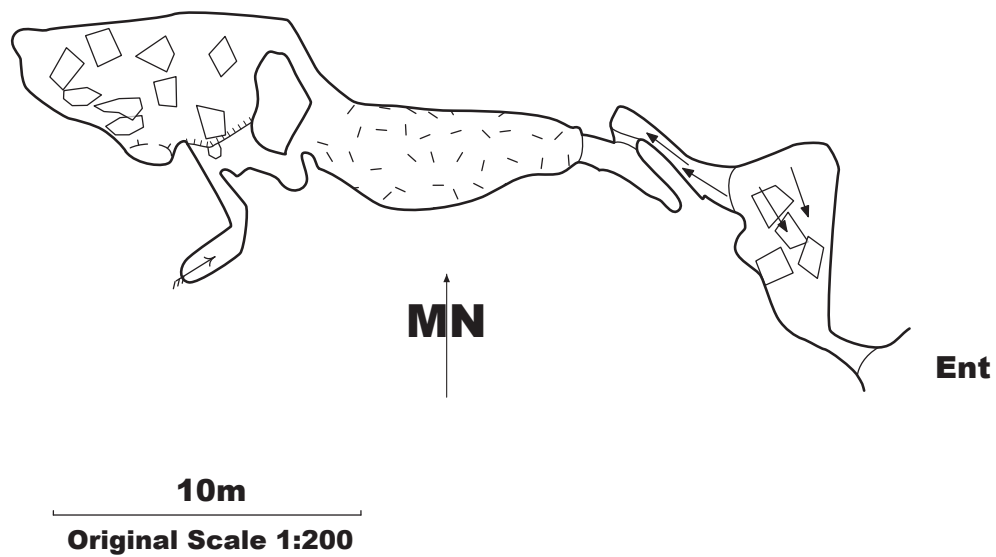
Survey Team : Richard Bayfield
Hilary Greaves

Drawn by Hilary Greaves
Computer Graphics by Andrew Atkinson

Based on UIS symbol set







C3-268

**Cold Cave
Yunnan, P. R. of China**

WGS84 UTM 47R 0552123 3071854

Length 64m Depth 20m

**Surveyed to BCRA Grade 5b
by Hong Meigui CES August 2004
Survey Team : Rich Gerrish
Pete Telling
Computer Graphics by Andrew Atkinson
Based on UIS symbol set**

C3-294

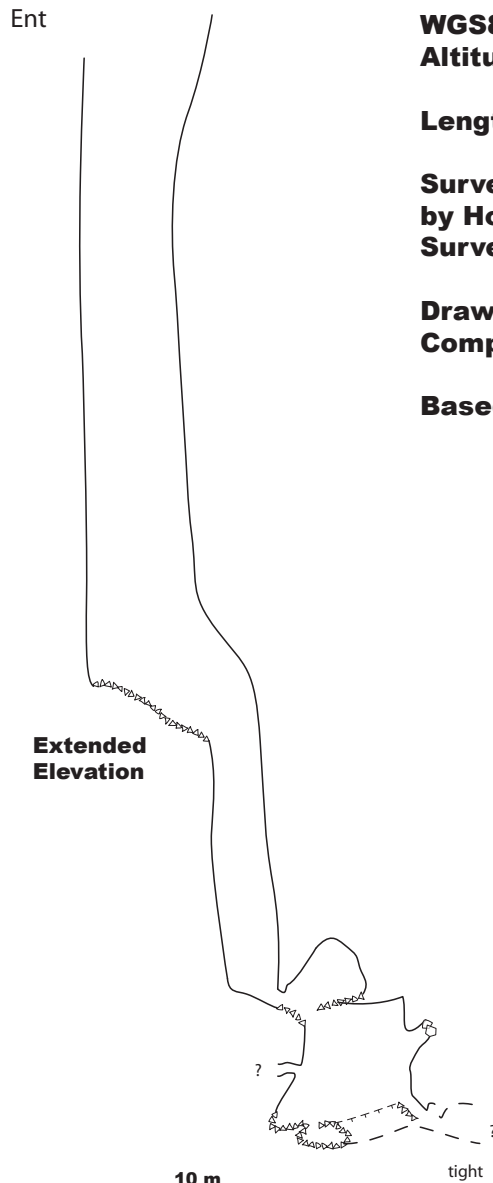
Dawa Dong
Yunnan, P. R. of China

WGS84 UTM 47R 0553609 3070771
Altitude 4165 m

Length 164 m Depth 131 m

Surveyed to BCRA Grade 5b
by Hong Meigui CESA August 2004
Survey Team : Rich Bayfield
Pete Telling
Drawn by Hilary Greaves
Computer Graphics by Andrew Atkinson

Based on UIS symbol set



Original Scale 1:750



C4-2

小马厂一洞.

Guli 1

Yunnan, P. R. of China

WGS84 UTM 47R 0585506 3036122

Altitude 3145 m

Length 262m Depth 103m

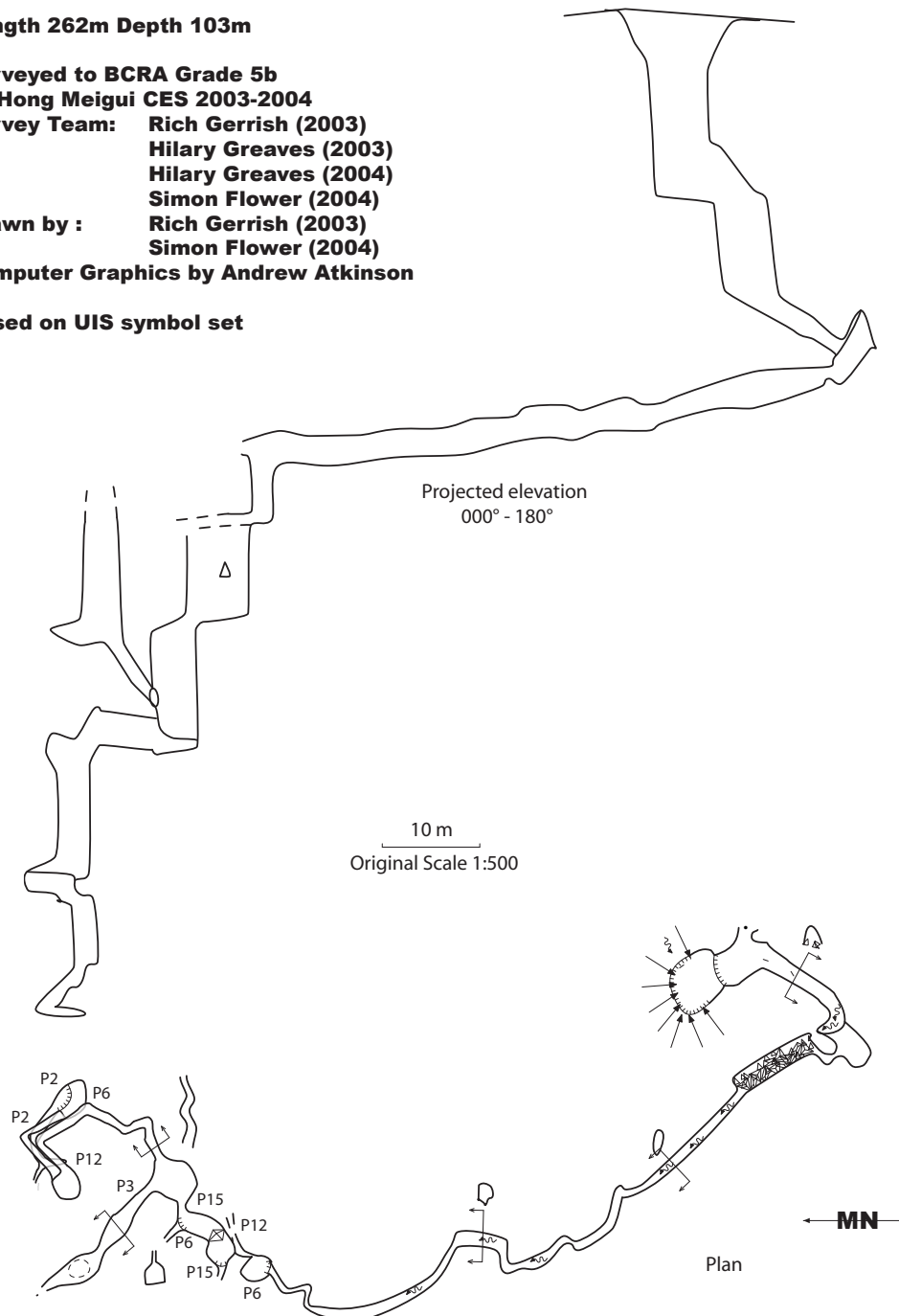
Surveyed to BCRA Grade 5b
by Hong Meigui CES 2003-2004

Survey Team: Rich Gerrish (2003)
Hilary Greaves (2003)
Hilary Greaves (2004)
Simon Flower (2004)

Drawn by : Rich Gerrish (2003)
Simon Flower (2004)

Computer Graphics by Andrew Atkinson

Based on UIS symbol set



C4-3

小马厂二洞

Guli 2

Yunnan, P. R. of China

WGS84 UTM 47R 0585041 3036281

Altitude 3185 m

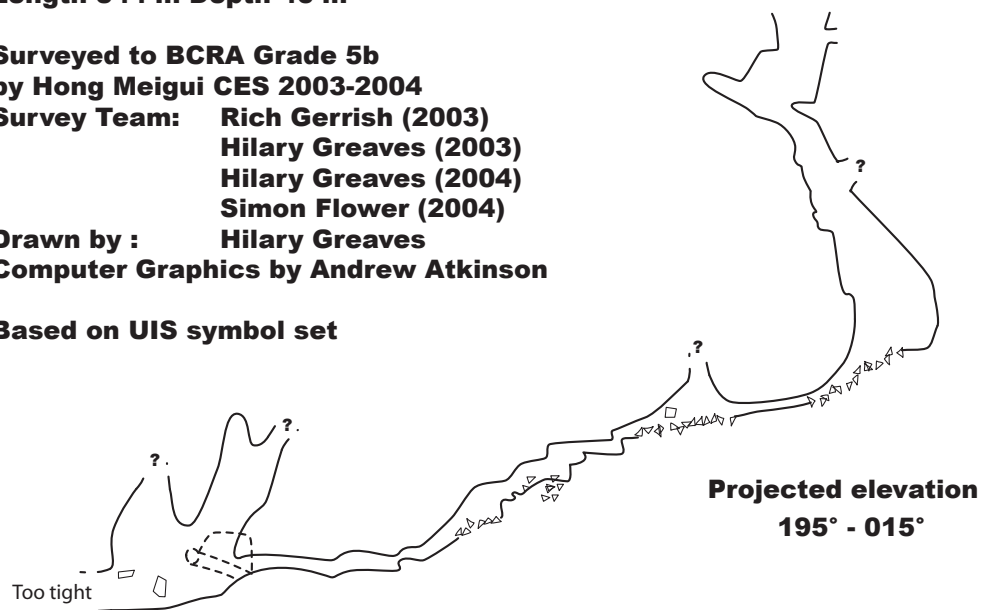
Length 344 m Depth 46 m

**Surveyed to BCRA Grade 5b
by Hong Meigui CES 2003-2004**

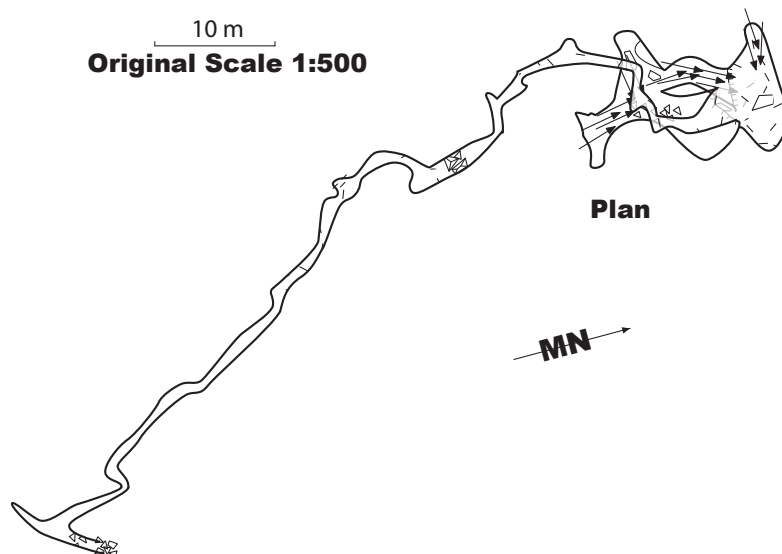
Survey Team: Rich Gerrish (2003)
Hilary Greaves (2003)
Hilary Greaves (2004)
Simon Flower (2004)

Drawn by : Hilary Greaves
Computer Graphics by Andrew Atkinson

Based on UIS symbol set



10 m
Original Scale 1:500





*Duncan Collis in Disco Fever,
Shui Lian Dong (EL)*



*Andy Sewell in the entrance shaft
of Dawa Dong (MH)*



The Yangtze valley (CD)



A Tibetan farmer making butter (MH)



*Hilary Greaves and Heather Work
shaftbashing with a local villager (MH)*



Rainbow over a Zhongdian house (RB)