

Agua '86 and '87



Two
Expeditions
to the Picos de
Europa Northern Spain



SOUTH WALES CAVING CLUB
NEWSLETTER

Two Expeditions to the Picos de Europa Northern Spain

Expedition Personnel

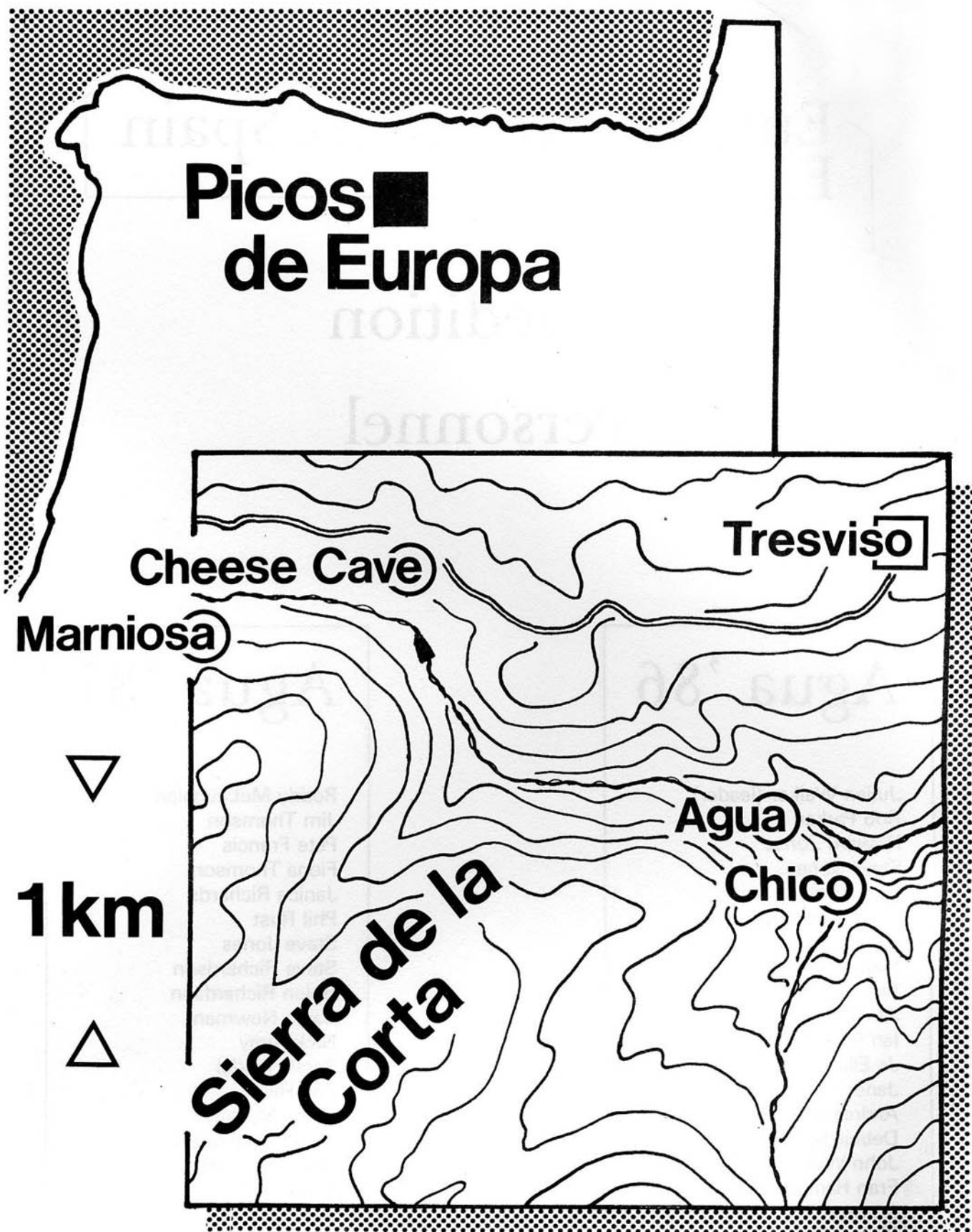
Agua '86

Julian Walker (leader)
Rob Parker
Howard Jones
Steve Jones
Nick Airey
Colin Boothroyd
Roddy McLauchlan
Mags Thomson
Rich Barker
Jim Thomson
Ian Rolland
Jc Ellis
Jane
Andrea Sawyer
Debbie Stevens
John Walwark
Fran Hampton
Andrea
Clive Gardener

Agua '87

Roddy McLauchlan
Jim Thomson
Pete Francis
Fiona Thomson
Janice Richards
Phil Rust
Steve Jones
Steve Richardson
Helen Richardson
Gavin Newman
Nick Airey
Sarah Tyndal
Phil Hill
Cathy Mackay
Marco Paganuzzi
Nigel Ashcroft
Trailer

*To Nick Airey, Colin Boothroyd, Howard Jones and all
older members of LUSS - without whom none of this
would have been necessary.*



Introduction

Every summer, the Picos de Europa in Northern Spain sees a friendly invasion by foreign cavers. Over the past few years, these mountains have slowly revealed many of their secrets, giving British caving clubs some of their most exciting finds. Pozu del Xitu was pushed by Oxford University Caving Club (OUCC) to -1147m during 1981, and only two years later, Lancaster University Speleological Society (LUSS) succeeded in following Sima 56 to a depth of -1169m. 56 ended in a sumped shaft, and the water from this (then Spains deepest cave), re-appeared in La Cueva del Agua, in the Urdon Gorge, 1500m below.

Agua, a magnificent resurgence system, was first explored by LUSS during the late 1970's and after several years work, was abandoned when the main streamways sumped and no continuation could be found. LUSS turned their attention to the Andara Massif, several kilometres to the south. There, they finally found 56 and other 'top camp' caves. Some of them, including 56, were eventually dye tested to Agua, as was the stream from Marniosa in the Sobra valley. Clearly Agua still had great potential.

So during the summers of '86 and '87, the isolated mountain villages of Tresviso was once again home to two British expeditions. The main objective of the 1986 expedition was to enable a diver to pass the 'Road to Certain Death' sump, considered for many years to be the most likely route into the Andara Massif. This proved more difficult than expected, but almost by way of compensation, during the final days, a major new passage was located, far into the system. With strong hopes for this lead, a return visit was organized for 1987. This is an account of the fortunes of these two expeditions and a look forward to future exploration in the area.

The organisers of Agua '86 and Agua '87 would like to thank the many sponsors that enabled the exploration to be attempted, and without whom, none of this would have been possible. We would also like to acknowledge the excellent work done by LUSS in the years prior to our visits, and the valuable help we have had from their experiences and association with the area.

Sponsors

G.P.F./Sports Council	1986	1987
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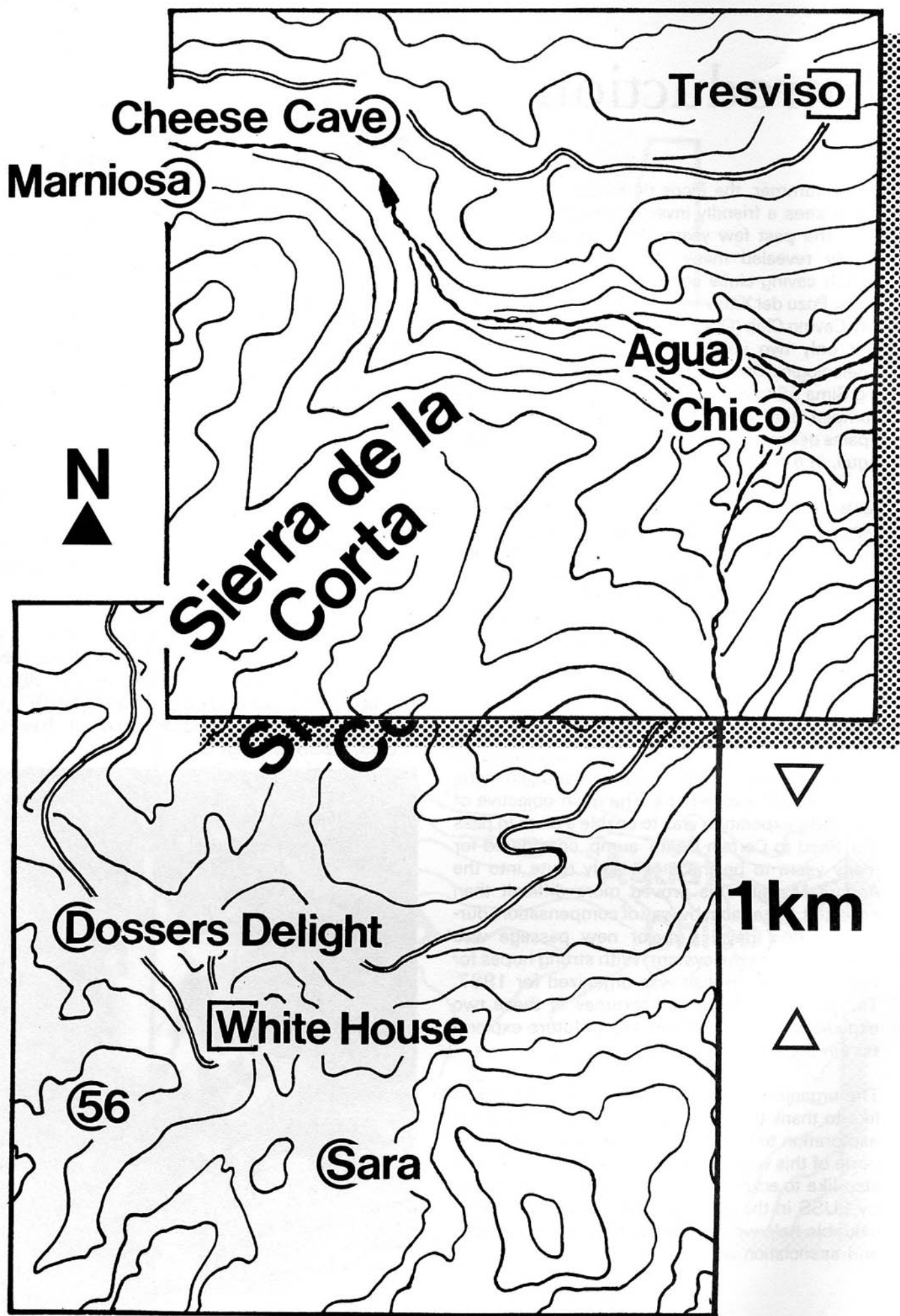
We would also like to extend a special thank-you to the following people and organisations for their valuable help.

Howard Jones, Jo Ellis, Julian Walker, Rob Parker and his Dad, Fran Hampton, Marco's Dad, Gavin Newman, Debbie's Mum & Dad, Janice Richards, Steve's Mum, Simon Howe, Nick Airey, Dr Tony Boycott, The Mayor and Villagers of Tresviso, LUSS, UBSS and YUPC.



Janice Richards

Lower Main Streamway - Agua



History of Exploration

Roddy McLauchlan

At the Eastern end of the Eastern Massif of the Picos de Europa in Northern Spain, where the Urdon Gorge joins the Deva, there is a small hydro-electric power station. If you were to follow the water pipes up the mountainside you would come to a canal, impressive in its construction, seeming to cling to the side of the gorge, running round sheer cliffs, sometimes through tunnels, sometimes cut into the rockface. Always an amazing monument to its engineers. If you were then to follow the canal further up, into the gorge, you would finally arrive at a dam; not, as you might expect, a dam across the river that runs to the Deva, but a small dam across a cave - the entrance to La Cueva del Agua.

The flow of water from Agua is always high, ($1.5\text{m}^3\text{s}^{-1}$ even during a dry summer) and it is now known to be the resurgence for many of the caves of the Andara Massif over 1500m above the entrance. However, when LUSS first descended the 500m from Tresviso in 1975, they little suspected the fine system that was waiting to be found behind the dam. This was their first visit to the area, and they had spent the earlier part of the expedition examining the many shafts and holes around the village and in the Sobra valley. Marniosa was one of their best finds up to that time, but it soon became apparent that Agua was in a completely different league.

The swim across the dammed pool would have been daunting, but after 5 minutes caving, the main stream could be heard giving encouragement. It was impossible to walk in the Agua stream, progress had to be made clinging to the walls and crossing to the other side when the going became difficult, but this stopped after 100m when a clear and fast flowing sump was reached. It looked like that might be the end, but while most of the party rested, one enthusiastic caver found and followed a crawl. As is often the way, this small crawl proved to be a major find, for after 10 minutes crawling and thrutching, the way

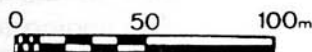
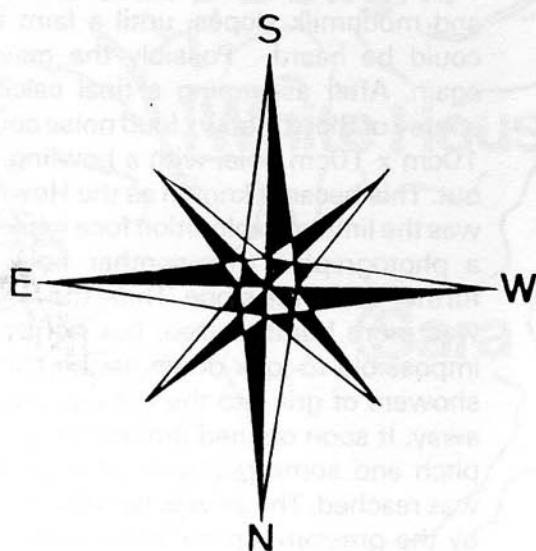
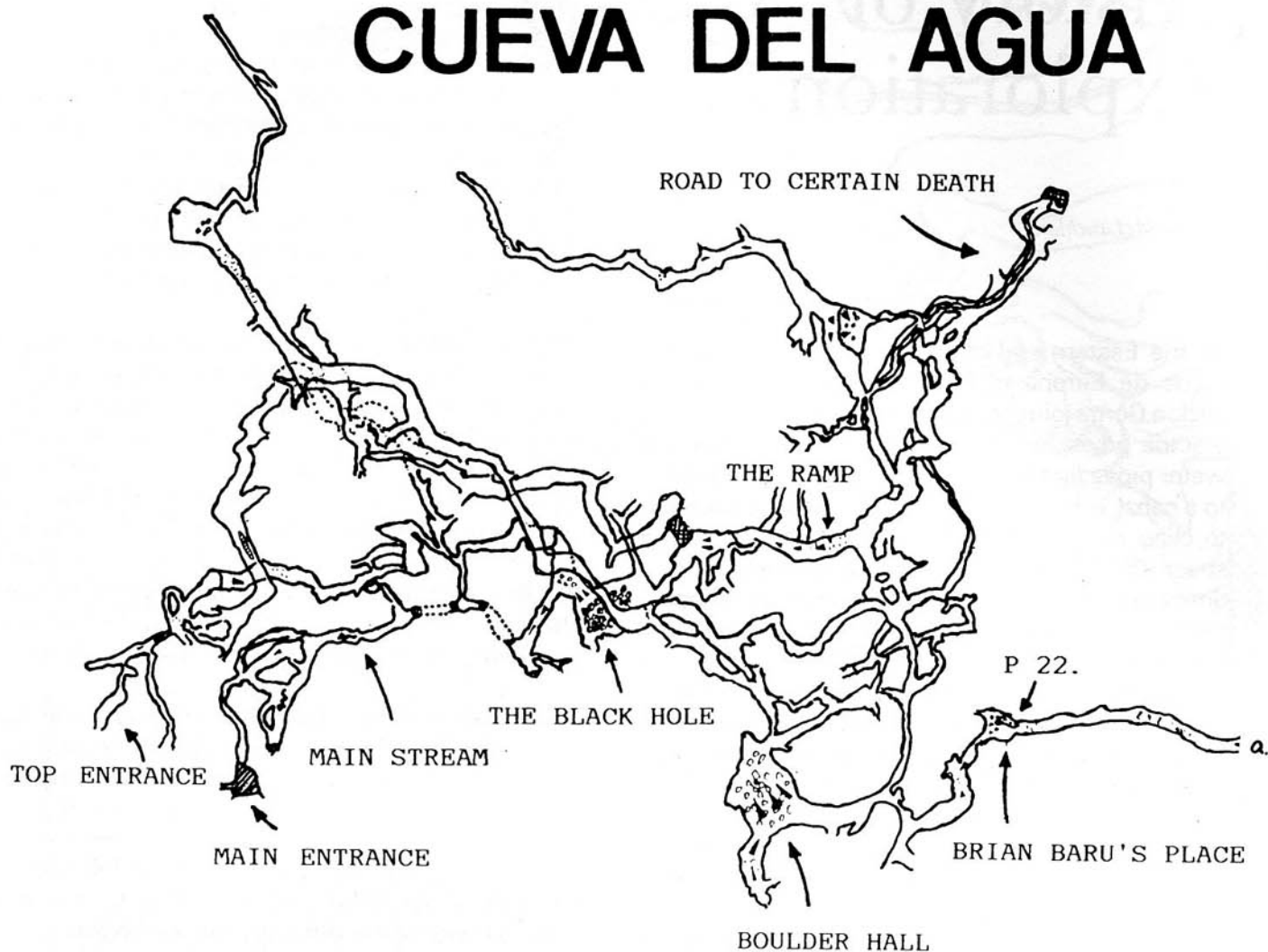
opened up into the floor of a large, partially abandoned, phreatic tube. From this point on, progress was easy - rarely having to stoop, walking on a washed floor, past large solution pots and water worn rock, or over large stones covered in a black deposit. Eventually they reached the Black Hole - so called because of more of the black covered rock, and because the small Premier carbide lamps they carried were incapable of allowing them to see the size of the chamber they had entered. Continuing, they came to the first proper junction.

Ahead, a large phreatic tube ascended steeply, looking difficult to follow. To the left, a dry series was explored and to the right a clean washed canyon. This involved many traverses and climbs, and its final section became known as the Road to Certain Death. On a subsequent trip the 'Road' was taken to explore the phreatic tube. This turned out to be an enormous ramp, split into two parts. 100m in length. A lot of height was gained, then the cave levelled off slightly until Boulder Hall was reached, where once again it started to climb.

That was the limit of the first day's exploration, but during the remainder of their time, more passage was found, although much more slowly, and the expedition ended with many leads left for the following year.

The best hope for 1976 was the waterfall pitch at the end of the Road to Certain Death. This was climbed with some difficulty but at the top it was found to be a perched sump, with any continuation disappearing into an impossibly tight fissure on the far side. However, a party exploring in Boulder Hall had some success. Following a slope out of the top of the hall and up a tight rift, the head of an impressive 22m pitch was reached, Brian Boru's Place. The way on from there followed up calcite and moonmilk slopes, until a faint roaring noise could be heard. Possibly the main streamway again. After ascending a final calcite climb, the source of the, (by now), loud noise could be seen - a 10cm x 10cm hole, with a howling gale blowing out. This became known as the Howling Hole, and was the limit of exploration for a while, until, during a photographic trip, another hole was noticed further down the slope. This - the Hole in the Wall, was more human sized, but not by a lot. It was impossible to look down as the blast of air, sent showers of grit into the eyes and took the breath away. It soon opened out, and after another short pitch and some relatively easy passage, a sump was reached. The air was being forced through this by the pressure on the other side, and the water

CUEVA DEL AGUA



lapped and sprayed out. It turned out to be a short free dive, and on the far side, after some more awkward climbs and a pitch, the limit of that years exploration was reached, a beautiful chamber, the Oasis.

The growing realisation that Agua had to be the resurgence for a number of caves on the Andara Massif resulted in LUSS splitting their effort during the 1977 expedition. For the first time, they set up a camp in the Lake Depression as well as the regular one at Tresviso. Due to heavy rain, it was impossible to enter the streamway during the first week, but once the water levels dropped, exploration commenced, and it wasn't long before 1976's end point had been passed. A smalls chamber, beside the Oasis, and a calcite slope were pushed, to reach a large boulder filled chamber. A traverse along the wall of a wide passage then a drop down a rift, reached the head of another pitch (12m). This went straight into a large, level floored chamber, (eventually known as Consort Hall). This was to become the site of future underground camps, being flat, relatively draught free and close to water. Beyond here, Son of Ramp was the next major obstacle. This, steep 35m slope, led onto another calcite climb (12m) and a series of small, but well decorated, passages. There were some route finding difficulties here, but after two trips, and another climb (11m), a small passage was found, leading via a little chamber to the head of a pitch, the Big Rift. On the next trip, this was descended, but it was found to be choked around 60m. Attention was turned to another downward pitch (6m), and this eventually led, via a finely decorated series of passages, to Dan's Room, containing many formations and huge helectites.

After the last trip to Dan's Room, the decision was made to set up an underground camp, (over 19 hours were now being spent underground, always with the thought of the one hour slog up to Treviso). Consort Hall was chosen, and proved to be an excellent camp-site on this and subsequent expeditions. Three camps were achieved in the time left, but although many leads were discovered, no obvious way on was located.

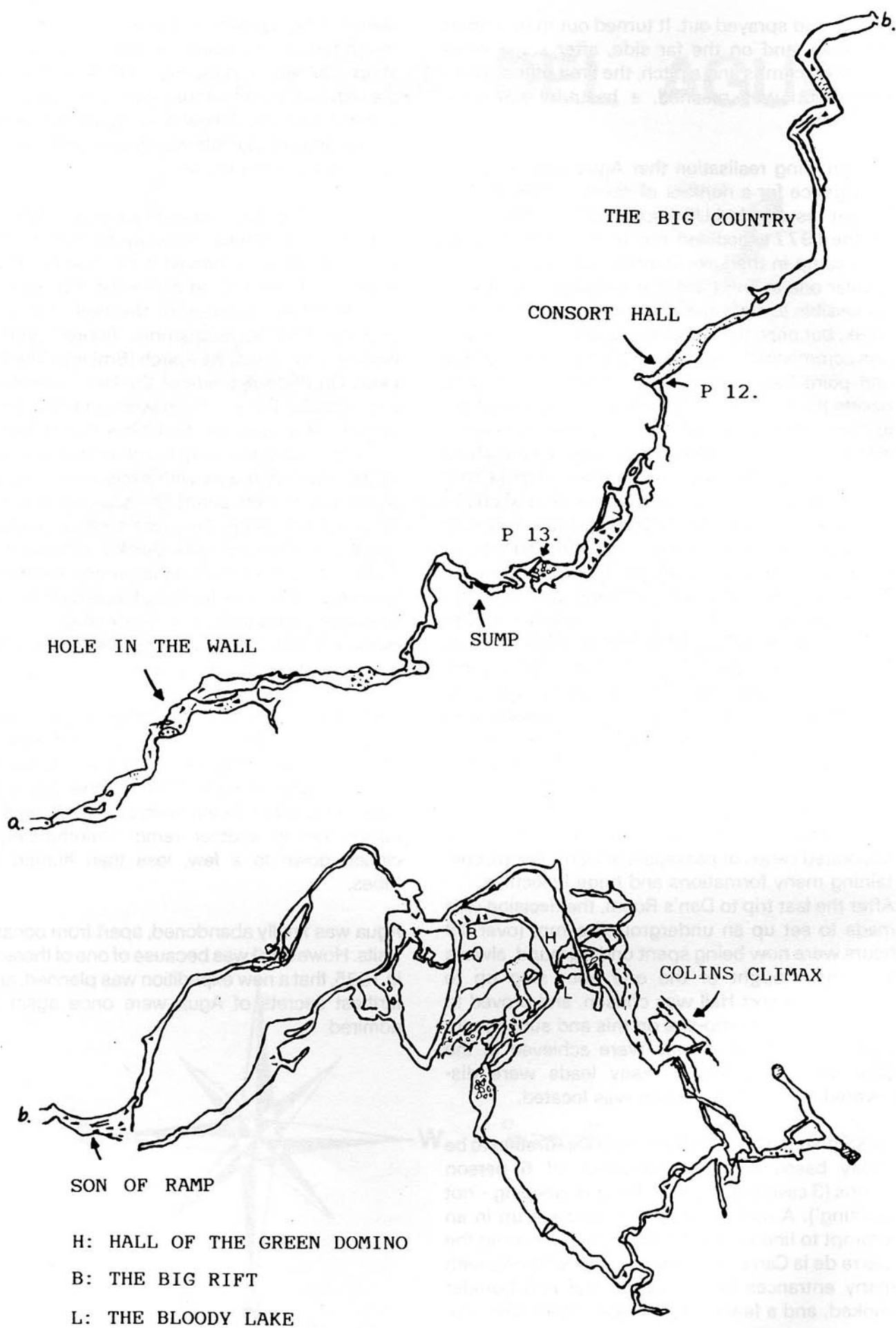
LUSS planned for the 1978 Agua exploration to be totally based around a sequence of 6 person camps (3 cavers caving and 3 cavers sleeping - 'hot bunking'). A middle camp was also set up in an attempt to find a more convenient entrance on the Sierra de la Carta. Success was limited there, with many entrances found, mostly leaf and boulder choked, and a few found and lost again. The pro-

blems of exploration on the Sierra were vast, with rough terrain, thousands of trees and consequent short visibility. Navigating from A to B was problematic as it was almost impossible to walk in a straight line and follow a compass bearing. One strong draughting hole was discovered, although it was too tight to pursue.

In Agua, a fabulous series of passages, later called the Winter Gardens, were found but all of this, although beautiful, proved to be another dead end. However, further effort in the Big Rift was rewarded with the discovery of the Hall of the Green Domino. This large chamber, floored with huge boulders, dropped, via a pitch (8m) into The Bloody Lake. On the other side of the lake, a climb and a pitch quickly led to a most welcome find the main stream. This was the first time that it had been encountered since early in the entrance series, at Wigan Pier, so it was with excitement that it was pushed to its (very short) limits, an upstream and a downstream sump. This was a major disappointment, but attention was quickly focused further back in Green Domino area where several leads were found, mostly forming loops back to known passages. Although a considerable amount of passage was located, none showed any promise of a continuation into the Sierra.

1979 was to be similarly disappointing. The few leads at the back were soon pushed to their conclusion, and a new highest point was reached with Terminal Chamber (+392m). Further back, at the Road to Certain Death sump, a climb was done above this to another ramp. Unfortunately, this closed down to a few, less than human sized, tubes.

Agua was finally abandoned, apart from occasional visits. However, it was because of one of these visits, in 1985, that a new expedition was planned, and the farthest secrets of Agua were once again to be admired.



Agua '86

EXPEDITION REPORT

Gavin Newman & Julian Walker

Objectives: To dive Certain Death, Colin's Climax and Wigan Pier sumps, in Agua, and terminal sump in Marniosa. To set up a camp in Consort Hall and re-examine previous areas of effort at the 'back end' of the system. To prospect for new entrances in the Sobra Valley and the Sierra de la Corta.

Marniosa

Marniosa was the first to yield. The cave was rigged on our first day, and Colin Boothroyd passed the sump on day two. A 35m sump lead to 650m of spectacular stream passage ending in a 15m pitch. Colin returned after 4 hours to a cold and bored Steve Jones.

Steve was at the sharp end the following day, when he and Gavin Newman went back to descend the pitch whilst Colin and Ian Rollands surveyed. At the bottom of the pitch a deep pool was crossed, but tight rifts lead to another sump. It appeared that an easier liead was in the roof, so an aid climb was undertaken opposite the 15m pitch.

This was completed after a number of trips by Colin, Ian, Steve, Fran Hampton, Rich Barker and Rob Parker. A further 600m of stream rift was found, terminating in yet another sump. Unfortunately, a lot of this section was tight and sharp and particularly uncondusive to bottle carrying.

A total of 1.5km of new passage was surveyed in Marniosa, and a through trip to Agua in years to come is definitely possible.

La Cueva del Agua

The first aim in La Cueva del Agua was to put Rob Parker into a major sump at the top of the "Road to Certain Death" (The Certain Death Sump). This is the upstream point of Agua's second streamway, situated at the top of a 10m pitch. The diver has to kit up before climbing the pitch and finish whilst streading water. Despite this, it is a superb dive site, with large passage and crystal clear visibility.

Rob had dived the site in 1985, laying out 120m of line and ending at a depth of just -5m. The sump was not to surface however, as on his first dive this year it dipped immediately back down and Rob turned back at a depth of -20m some 170m from base.

The next dive was a different affair, with Rob taking 250 cubic feet of air and using a dry suit. This time the ceiling forced him down to -54m at a point 210m from base. This was the limit of Rob's decompression tables, and he had to return. A 47 minute decompression schedule allowed him to surface with no fear of the 'bends'.

One final dive was made. Using the same gear as in the previous dive, Rob made a 240m penetration to -64m. At his far point, he reached a vertical shaft up which he could see his bubbles ascending for at least 20m. It was not practicable for rob to suface beyond the sump, with the complicated decompression this would require, so this point now marks the present limit of exploration in Certain Death.

The Back End (La Cueva del Agua)

At the back end of Agua a complicated maze of passages is entered. The main stream disappears into an upstream sump whilst the strong draught is lost. We had three main leads to follow in this area and set up a four man camp in Consort Hall.

The first of our leads was an open downstream passage leading back towards the entrance. It was hoped to follow this to any inlets such as Marniosa that might lie between the entrance and here. Nick Airey and Julian Walker pushed down the cascading stream using a combination of techniques such as pendulums, tyroleans and swimming. A magnificent chamber was found with a 20m gour pool ramp above the inevitable sump. In all, 300m of passage was found.

Our next aim was the upstream sump itself which appeared to be the only way on. Gear was carried into the cave by Rob, Ian and Howard Jones and the sump was dived on a subsequent trip. Ian, supported by Colin was the first to dive. He laid out all of his 120m of line at a depth of -24m in passage varying from 10m to 20m diameter. Rob's dive followed, and a further 47m of line was added at a depth of -27m until he turned back. No more dives were made at this site.

With all the obvious leads at the back end of Agua worked out we embarked upon our final hope of

finding a route to '56' and the caves of the Andara region. The idea was to hunt the draught, checking out every lead from where it was last noticeable. Nic, Julian, Roddy McLauchlan and Clive Gardener went in for the final camp before de-rigging began.

It was in the Hall of the Green Domino that the draught was lost. At one end of the hall, above the Bloody Lake, a hole could be seen in the roof. Roddy made an exposed and unorthodox ascent up the wall of the chamber and into a steeply ascending passage. Some very bold soloing and 2 more aid climbs led Rod and Julian up into a complex of ramps with many leads which they could not follow. And there was a strong downwards draught! The ramps were followed for over 200m, ascending 192m above the starting point. The series earned its name "Satan's Teeth" from a large stalagmite and stalactite formation which the two climbers found at the top of particularly frightening climb!

The far point was both above and beyond any other point in Agua. This is now thought to be the major route out of the back end of Agua.

Other Sites in Agua

Two sumps closer to the entrance of Agua were also dived.

The first was the initial mainstream sump just inside the entrance. This led through an airbell to a roaring stream passage after 45m, but unfortunately the passage had been entered from the other side.

Another mainstream sump at the end of the Road to Wigan Pier is the first time the stream is seen again after disappearing in the down stream sump at the back end, some 500 - 750m away. Colin and Jim Thomson set about diving this helped later by Steve. They passed the sump after several attempts, surfacing into open stream passage 180m from base and at a depth of -16m. This was followed to a 4m high waterfall and another sump which remains undived. A bypass to sump 1 was found, and then a bypass to the bypass. In all, some 400 - 500m of passage was explored.

Whilst climbing the waterfall Colin managed to split his finger open. Emergency first aid was administered underground by Steve. And some epic driving by Gavin got him to the "local" hospital in Oviedo some 100km away, where 9 stitches

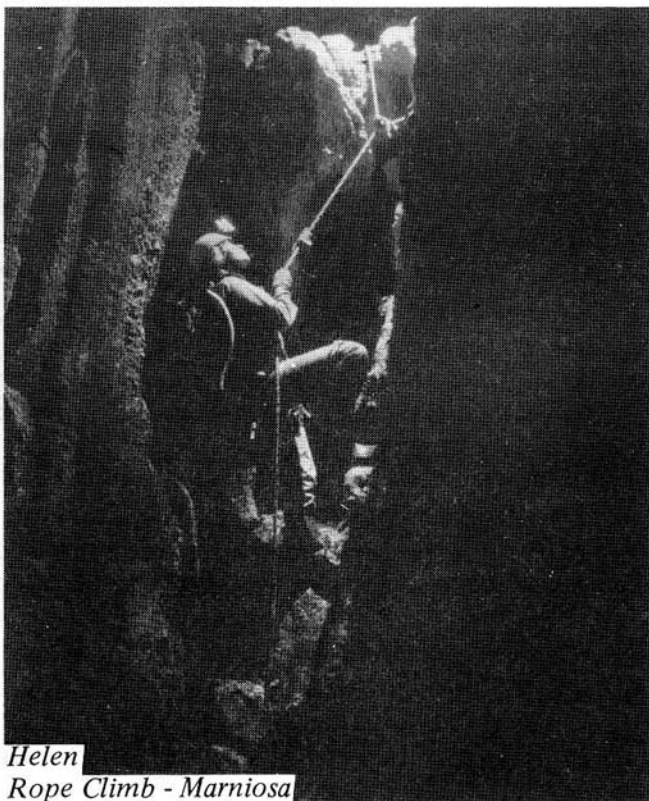
were used to put it back together. This was the only accident of the expedition.

Chico

Chico is a flood overflow to Agua, some way along the Urdon Gorge. Shortly inside the entrance the first sump is met. This was dived some years previously by Colin who entered an airbell after 35m.

The second sump was attacked this year by Steve. On his first dive he dropped to -37m in a descending canyon. His second dive was accordingly planned to be a decompression dive, Steve setting himself a depth limit of -55m. At -55m the canyon was still descending so Steve prepared to return to his decompression tank and tables left at -9m. Whilst checking his gauges, however, he sank to -62m on account of being negatively buoyant. Realising his dilemma, he dropped the line reel and immediately began his ascent. He reached the -9m decompression stop only to find that this decompression tables were gone (they had fallen out of their housing!). Steve did have a decompression meter with him, but it failed to work. However, he decided to use the remainder of his air before surfacing, and spent 75 minutes decompressing.

Upon surfacing, he ran directly back up the 500m deep gorge to base camp to find that he had done the right times but in the wrong order! He spent the next 2 days worrying, but no signs of the bends were noticed. A close one.



Helen
Rope Climb - Marniosa

Cowshead Cavern

Tresviso is known for its cheese and it is matured in the caves. This brought LUSS here 12 years ago, and it served us again this year! Gavin and Fran were returning from a prospecting trip when they passed the entrance to an old cheese cave which was resurging. They followed it to a choke and the following day this was dug by John Wallwork and 250m of passage followed to a sump. The skeleton of a cow was found, giving the place its name.

The sump was subsequently passed by Julian after a 100m dive and led to a further 100m of open

stream passage and sump 2. This looked deep but was only 4m long and was easily passed by Rich Barker to 500m of open streamway and a large end chamber. The stream entered from a passage some 8m up the wall which Rob and Julian scaled. Sump 3 was only a few meters beyond, but a few hundred meters of small oxbows were also explored.

Achievements: Over 4kms of passage were found, surveyed and photographed - an important new lead was discovered. Further information was gathered about Certain Death sump and a new cave was explored.

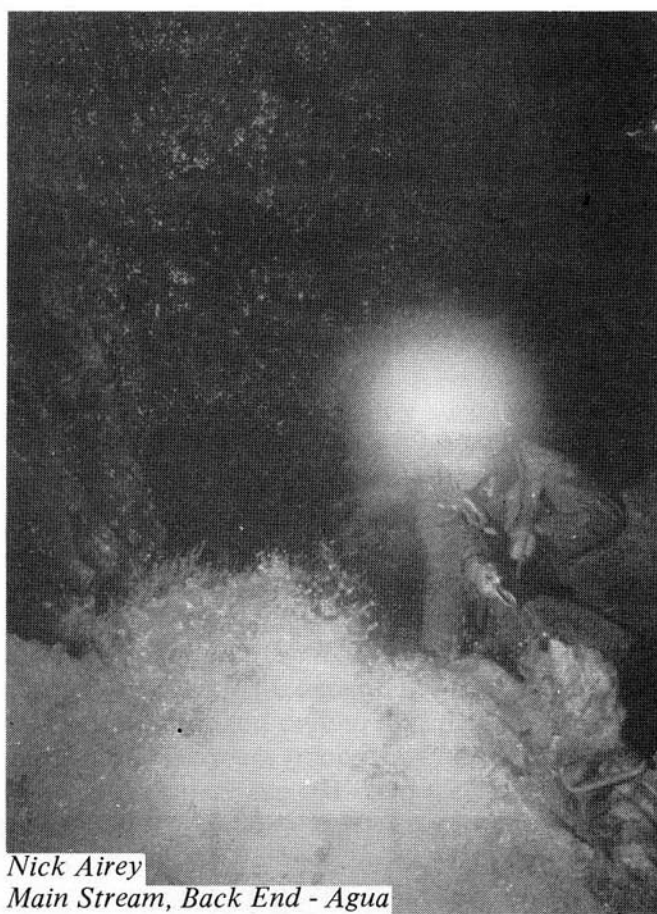


Jo Ellis

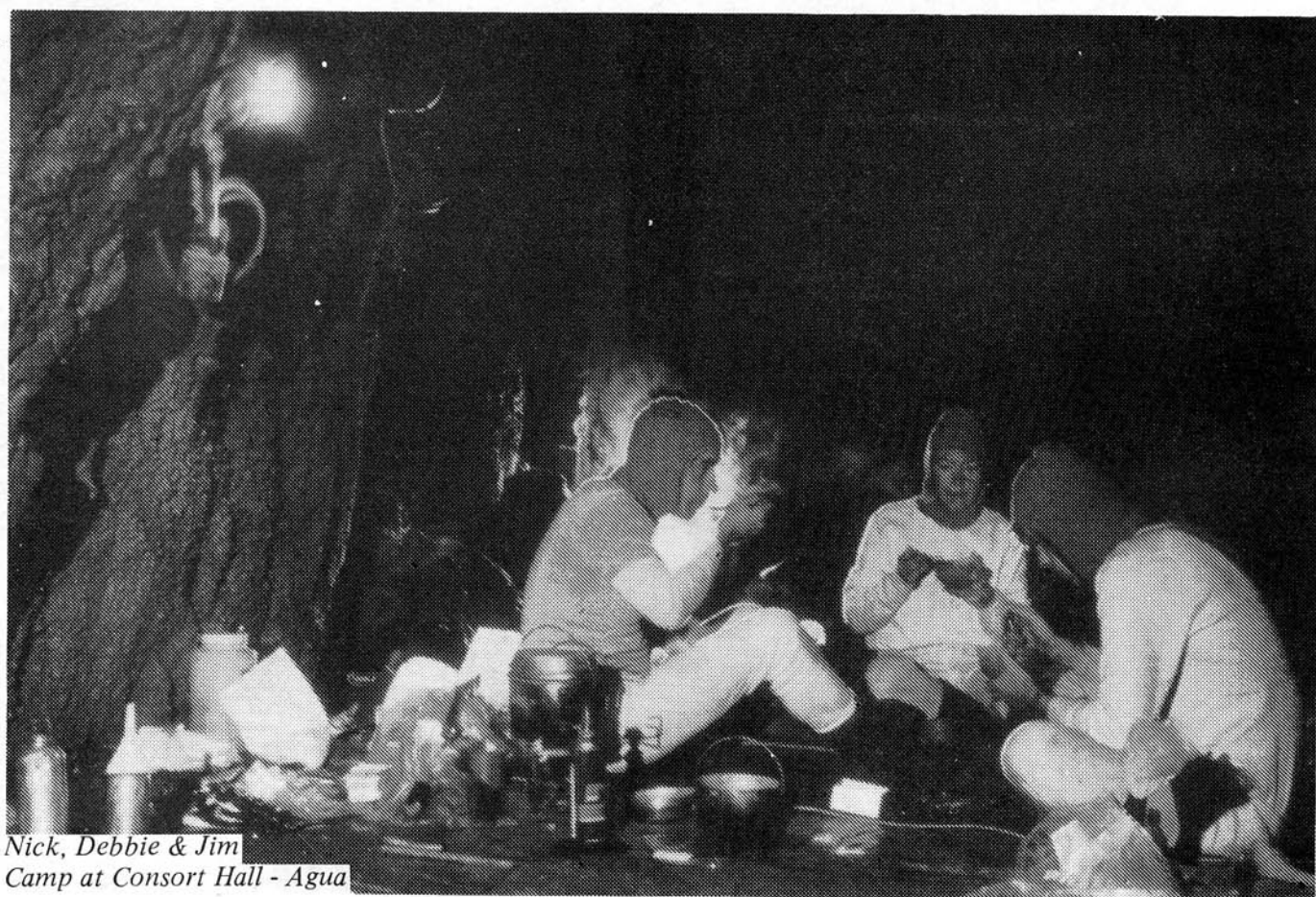
The Cowshead - Cowshead Cavern



*Fran
Marniosa*



*Nick Airey
Main Stream, Back End - Agua*



*Nick, Debbie & Jim
Camp at Consort Hall - Agua*

Agua '86

DIVING REPORT

Diving comprised a major part of the activities of Aqua '86. Whilst the expedition was set up to tackle the majority of underground obstacles, many of the leads we knew about were underwater. In their expeditions of the late 70's, LUSS had thoroughly explored Agua and the other local caves, and most of the main routes in the caves eventually terminated at sumps. It was these sumps which we intended to investigate.

Half of the expedition members were cave divers; some very experienced, others less so. We took enough equipment to put 6 divers underwater simultaneously, a wide range of cylinders, a portable compressor and many spares. We also had with us the necessary technology to dive deep. This was to prove very useful.

The following report is a summary of the diving that was done at various sites during the expedition. The first four dive sites are found in Agua whilst the remaining 3 are in caves in the Tresviso region.

Certain Death

The prime dive site in Agua was the sump at the head of the Road to Certain Death, about 1 km from the Entrance. From the clean washed walls, large scallops and flooded potholes it can be seen that in flood a large volume of water flows down the passage, emerging from a sump pool at the head of a 9m pitch. This passage is certainly the 2nd major route in Agua. In dry conditions only a trickle flows and the sump pool is large, clear and obviously deep. It drops vertically immediately beyond the lip of the pitch, giving the impression that the wall is only a few feet thick. In fact, when it was initially found someone proposed to drill through the wall to drain the sump. What they could not know was that the sump is over 60m deep!

The sump had previously been dived. In 1984, Colin Boothroyd dived to a depth of -27m, straight down. In 1985, Rob Parker made a penetration of about 100m, his far point being at a depth of only 6m.

With this in mind, Rob returned on the first dive of the expedition in 1986. At his previous limit of exploration he tied on a new reel expecting to surface shortly. Instead, the roof forced him back down and 70m on he reached a depth of 30m with the floor some 12m below.

On the next dive he was prepared to dive deep, wearing a dry suit, 250 cu. ft. of air and with decompression facilities set up at a depth of 9m. Beyond the previous limit of exploration Rob continued to follow the roof, reaching a depth of 54m some 210m from base. On his return, 47 minutes of decompression were required before he could surface.

Rob made one final dive in Certain Death. Using the same equipment as on his previous dive, he followed the passage down to 64m. Here the passage turned into an ascending shaft, up which Rob could see for 20m with no sign of a roof. Low on air and with no possibility of surfacing beyond such a deep sump, Rob left the shaft to another year.

Wigan Pier

The second sump in Agua is found at the end of the Road to Wigan Pier, off the Black Hole area of the cave. The main stream is seen for the last time here until it is met again in the back end of Agua. Some km of passage must exist inbetween, and the Marniosa inlet is thought to lie in this section of cave.

Colin Boothroyd and Big Jim Thomson arrived at the sump late one afternoon to find kitting up less than easy in the kicking water sump pool. However, they laid out 65m of line to a depth of 16m on separate dives. They made two further trips together to the site and extended the length to 170m at the same depth. However, no reports are available for these trips, perhaps because of the embarrassments suffered by both and their desire to conceal. Suffice to say that after their last trip together, Colin refused to cave or dive with Big Jim again.

So it was that Steve Jones returned with Colin. With typical Jones/Boothroyd overkill, they dived with 300 cu. ft. of air and 120m of line only to pass the sump after a further 10m. The final sump length was 180m, maximum depth 17m. They explored 300m of stream passage to a 4m waterfall, and found a sump bypass. The waterfall remains unclimbed despite one attempt by Colin which ended in a split finger and a number of stitches.

Mainstream Sump

A couple of hundred metres inside the entrance to Agua, the main stream issues from a clear sump pool. Whilst the stream is seen again below the Black Hole region, Julian Walker decided to dive here to fill in the missing detail. The sump was passed after a shallow 45m dive. Over 300m of stream passage was enthusiastically followed and numerous ways on were noted. It was only on a subsequent trip with Rob Parker that they discovered they were in a known part of the cave.

Terminal Mainstream Sump

Some 4km from the entrance of Agua the mainstream is seen for the last time as it issues from a dark, uninviting sump. This is the furthest upstream point in the cave and, it would appear, the only way on. Due to its remote location, we could only mount one attempt to dive the sump.

A strong team comprising Colin Boothroyd, Ian Rolland, Steve Jones and Rob Parker set about the task. One carry was made, under the guidance of Howard Jones, to within easy reach of the sump. The plan was for the four to split into two teams, each team putting one diver into the sump.

Colin and Ian went straight to the sump, and Ian dived. With visibility of 5m in a passage never less than 10m x 10m, the sump was a gloomy place. Ian laid out all of the 120m of line to a depth of 24m, and returned without any problems. He had created a problem, however, because he'd used up all the diving line in the cave. Rob would not be put off, and proceeded to scavenge all suitable line in the cave including an 8 year old washing line from the campsite in Consort Hall. At 3.15am Rob dived, adding a further 42m to the length of the sump to a depth of 27m. The passage showed no sign of surfacing.

Marniosa

The cave Marniosa lies in the Valdediezmo valley a few km above Tresviso. Its stream has been dyetraced from the terminal sump through to Agua giving the potential for a 400-500m deep through trip.

The Marniosa terminal sump was dived by Colin early on in the expedition, with support from Steve. Colin had prepared for a long dive and the sump initially dropped to a depth of 10m. The way on was found at 7m and the sump surfaced after only 20m.

Colin initially explored about ½Km of stream passage to a pitch. Future trips through the sump explored another 1 km of passage; the stream was lost beyond the pitch, but a series of tight rifts led back to the stream and eventually another very convincing sump. This sump was not dived.

Chico

Chico is a flood overflow resurgence about 1 km down the Urdon gorge from Agua. A large, short passage lead to sump 1 which was passed by Colin in 1984. It is short and shallow, but is followed almost immediately by sump 2.

Steve Jones tackled this project. On his first dive Steve followed a huge descending canyon for 66m to a depth of 37m.

The following day, Steve prepared to dive deep and took some 160 cu. ft. of air and deposited emergency decompression air supplies at 9m. He passed his previous limit, and continued on down the canyon to a depth of -55m. Experiencing trouble with his buoyancy, Steve inadvertently sank to 62m whilst search for a belay. He was a little worried by this as his decompression tables only covered depths to 57m, but this particular problem soon disappeared. On returning to his decompression stop at 9m, he found that the decompression tables had fallen from their mounting and were gone. As a last resort, Steve decided to use up his remaining air in surfacing, and set himself an estimated schedule of ascent. Despite the cold, he stuck to the schedule and afterwards suffered only from extreme anxiety.

No more dives were made in Chico.

Cowshead Cavern

This was an old cheese cave discovered during the expedition by John Wallwork. The cave lies above the broken dam below the Tresviso road, and runs towards the road. A choke was dug, and some 300m of passage followed to a sump.

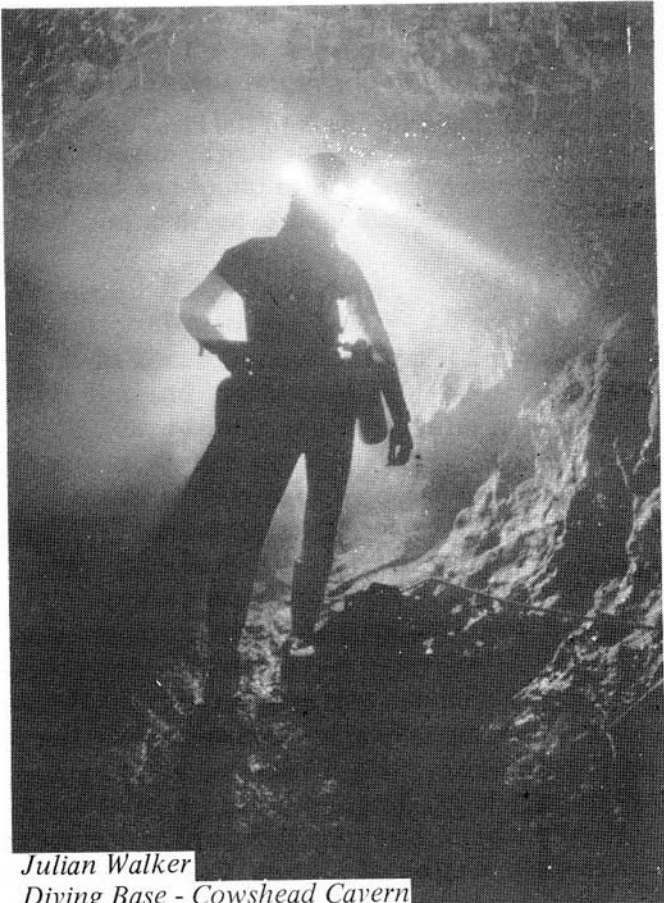
The sump is blue, clear and inviting at the bottom of a 5m pitch. Julian dived the sump in crystal clear water, following a spiralling passage to a depth of 9m. From here the passage slowly ascends, surfacing after 100m. About 100m of stream passage was followed to sump 2.

Rich Barker passed sump 2 which turned out to be a mere 4m long. He followed some ½Km of passage to a large chamber estimated to be 50m wide, 25m long and 70m high. Rich returned with Gavin Newman to survey the passage.

On a final trip, a waterfall was climbed out of the chamber by Ian Rolland and Rob Parker. Another sump was found after only a few meters, and despite more climbing and exploring a few hundred meters of crawls, no bypass could be found.

As with most cave diving, the majority of effort is involved in getting the diving equipment to the sump. Once underwater the activity is relatively easy and almost enjoyable, even if it is a little dangerous. Thanks must therefore go to the members of the expedition who spent most, and in some cases all, of their time in supporting and carrying, especially those who were not divers.

Hence some of the exploration was halted by the sheer effort required to get people and equipment to the sump in the limited time we had available. Other sites were left because the challenge had become purely technical with no possibility, on this expedition at least, of surfacing beyond the sump. In any event, there is more left to go at now than before.



Julian Walker
Diving Base - Cowshead Cavern



Jim & Rob
Below Certain Death - Agua

Agua '86

A Cave Diving Expedition to the Picos de Europa

Extracts from the log of Agua '86.

On the 25th July 1986, with most of the preparation completed, the team gathered in Bristol. However, we weren't to leave Britain without a reminder that even experienced divers can sometimes push their limits that little bit too far.

25th July 1986. Steve Jones.

And it came to pass, that due to poor organisation, and Ian's wife's baby being late, a last minute, rushed trip had to be made to the end of Wookey to retrieve a sleeping bag needed in Agua. Things started badly and became progressively worse. Two 80's (80 cu.ft. diving cylinders) and a valve were collected from Julian's flat on the way. We assumed the 80's were full, but they were later found to be just over half full. Only the start of a minor epic to follow. Ian operating on almost totally borrowed gear, had not only a 'bum' fill on his 30, but also a highly sensitive, blowing-off valve.

Nevertheless, the dive through to Wookey 24 went very well, in a time of just over 35 minutes. Here the first mistake was made when we expressed our thoughts that we "didn't know what all the fuss was about getting here, it's easy". The sleeping bag was collected and we started out, all going well until leaving chamber 22, when my fin strap broke. Whilst retrieving it I lost the line. After a quick panicked search, I found it buried in the mud. Progress was now slow, scooping along the bottom. Passing a belay point, the line suddenly went slack. I pulled in some 4 metres before following it up into a tight ascending rift. Fortunately, the visibility was just good enough for me to see the rift dipping away to the left, and after a shaky retreat I eventually surfaced in (chamber) 20, fin in hand and bloody glad to have arrived. I waited anxiously for the comforting arrival of Ian.

Ian Rolland

Coming to the same slack line as Steve I held it out in my left hand as I slowly made my way in the zero visibility. I came across a narrow piece of passage and pushed through. As I popped out, the line came out of my hand. I dropped the bag and made a bid to get back through the narrow section. This was done with not too much effort. I then had a quick feel around the passage for the line, but with no luck. I said to myself "You're going to die here Rolland". Low on air, I made a last effort by going to (Chamber) 20 without the line. I was very happy to surface and see Steve, and after hearing his story, realised it was time to get out. We left the sleeping bag in the sump and exited with no more problems.

We arrived in Spain on Tuesday 29th July via the Plymouth Santander ferry, caught a bus to the Urdon Gorge and walked up to Tresviso, a tiny mountain village. Tresviso is only accessible by a mule track from the east and a landrover track from the west but it makes an ideal base camp, situated 600m directly above the entrance to Agua. We anxiously awaited the arrival of the Range Rover, which carried the majority of our equipment and by early evening it had appeared and camp was set. Later on we retired to the tiny village bar where the members of the team who had not been to Spain before were introduced to Spanish beer.

Our plan of action was discussed and we decided on three areas of effort. First, and most important was the dive in the Road to Certain Death sump. Second, was to rig towards the furthest extreme of Agua where there was another important diving site (Upstream Terminal Sump) and the possibility of a dry lead. Third, was to rig another cave called Marniosa, in the Sobra Valley, which also contained an undived sump.

30th July 1986 - Julian Walker

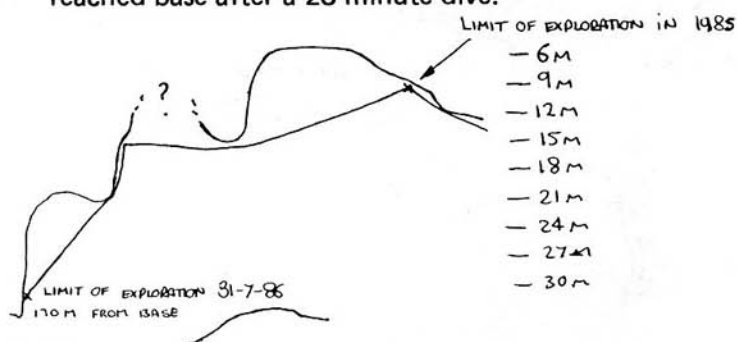
Agua revisited, as Jim, Ian, H and Julian rigged Road to Certain Death (now Road to a Minor Injury) and repeated the bolt climb to Certain Death Sump.

31st July 1986 - Rob Parker

A late start saw Howard, Julian, Jim, Gavin, Ian 'I don't need any air' Rolland, and myself heading down the gorge for Agua. The first job was to rig a short length of bluewater across the entrance pool, instead of its old 6 mm diving line. Howard was the first to try the new line, and unfortunately it wasn't tight enough.....

We arrived at the sump at around 3.30pm. Julian climbed the pitch and hauled the tanks up, whilst Ian and Jim helped me kit up with gauges, knives etc.

Diving on two 72's and one 50, I followed the line I had laid the previous year. Reaching the limit of exploration I tied on the new reel and set off into virgin passage, thinking that I should surface within a few metres. To my dismay the roof of the sump levelled off at -6m then dipped again leading into a wall going down. The roof was found again at -18m, 20m further on the passage dipped again to -25m. A further 20m and it was down to -30m. The floor could be seen some 12m deeper at this point. I would have had to go below -36m to make any forward progress so the dive was called off. I reached base after a 23 minute dive.



This was a major setback, and at the start of the expedition. Our prime lead was going to be difficult to crack and require a lot more effort than originally thought. However, in Marniosa on the same day, things were going rather better:-

31st July 1986 - Colin Boothroyd

Downstream Marniosa Sump - Two Acurex (light-weight diving cylinder that can be pumped to high pressure), two valves and a connecting hose, plus all the danglies needed for a long dive. The sump pool was 10m deep and line was laid into a blind alcove, only to be wound back onto the reel again (with difficulty as the line was overly full). The way on was found at -7m and followed for a further 20m to where, surprisingly it surfaced. A short deliberation over whether to go back for Steve, and then decided to check the passage out first. It continued in a similar fashion to that immediately prior to the sump, rifts with chert nodules and numerous small cascades. Approximately 200m in, a large dripping oven was reached, thought to be about 80m in height. The rifts continued beyond the aven to another chamber where the water was lost under the boulders. Clambering over to the far side the passage continuation was a dry, flat-floored canyon. It passed an 18m deep pot in the left hand wall to a

large boulder-floored passage. An abrupt end came after 50m at the lip of a 17m pitch, with a pool at the bottom. The return trip to the sump was paced out to 920m (later to prove to be considerably exaggerated). The dive back through the sump was surveyed and found to be 35m. Returned to a very cold and relieved Steve, Debbie, Nick and Rod.

1st August 1986 - Steve Jones

Downstream Marniosa Sump - All to Downstream sump in 2hrs. Donned the gear. Colin dived first with fins and tackle bags (50' ladder and survey gear). On reaching the far side he re-belayed the line, and started screaming. No voice connection was made. The rest of us dived through uneventfully by pulling on the line. Ian and Colin started surveying towards the pitch while Gavin and myself set off to rig it and explore the "miles of passage" at the bottom. An inlet was noted on the right as we moved downstream. The route is very impressive, passing through some massive canyons and very high avens. Reached the pitch and rigged it on decidedly dodgy belays. I descended first to find the ladder about 3' short. In the excitement I dived straight into a 4m wide resurging sump pool, and swam across waiting for Gavin. (Wished I had done my jacket up). 15m of impressive canyon passage, estimated to be 45m high led straight into a series of tight jagged rifts. Various routes were forced through and eventually after about 1½ hrs and shredded wetsuits we dropped about 12m into a pool. I swam around for about 5 minutes praying this couldn't be the end of exploration. After a few laps and sticking my feet under the edge, it was quite definitely the end. On retreat a few more desperate avens were climbed. All closed down. We slumped down into a heap on the gravel, head in hands.... Set off home, uneventful exit, reached surface about 11.15pm after a 9½hr trip.

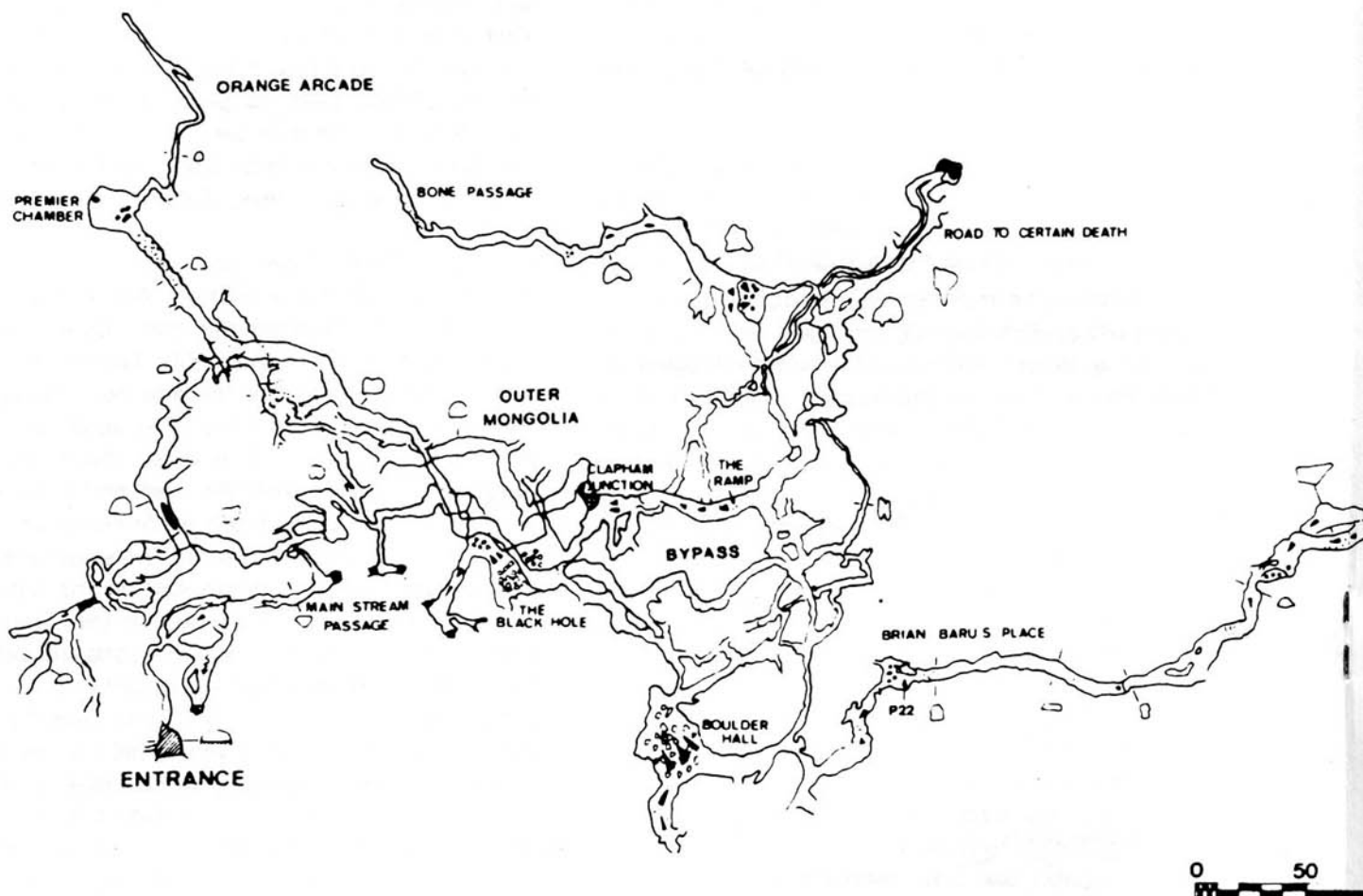
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Some possible climbs were noticed in the new extension and on the 5th August, Steve Jones and Colin Boothroyd returned to tackle them.

* * *

5th August 1986 - Steve Jones

Marniosa - Following a very efficient entry, we got to the climb at the end of Colin's extension in under 3hrs. Colin climbed a muddy rift using friends and slings to a false floor..... The way on was to the left, which felt like we were doubling back on ourselves. Nevertheless, an overflow stream passage was met and followed for a few hundred metres. At one point I managed to fall about 4m into a pot and



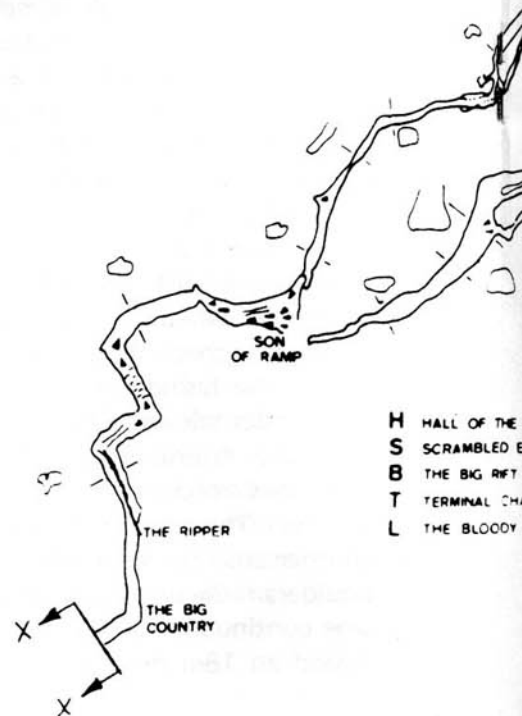
CUEVA DEL AGUA

TRESVISO

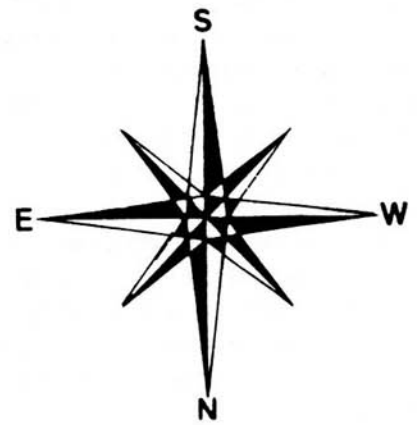
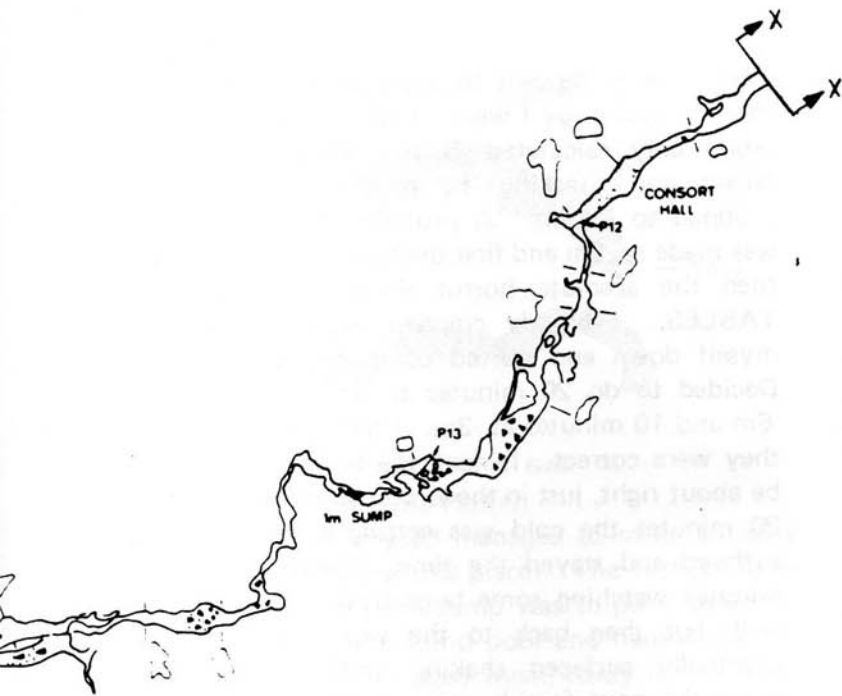
SANTANDER

BASED ON AN ORIGINAL SURVEY BY L.U.S.S.

WITH ADDITIONS BY AGUA 86 & 87

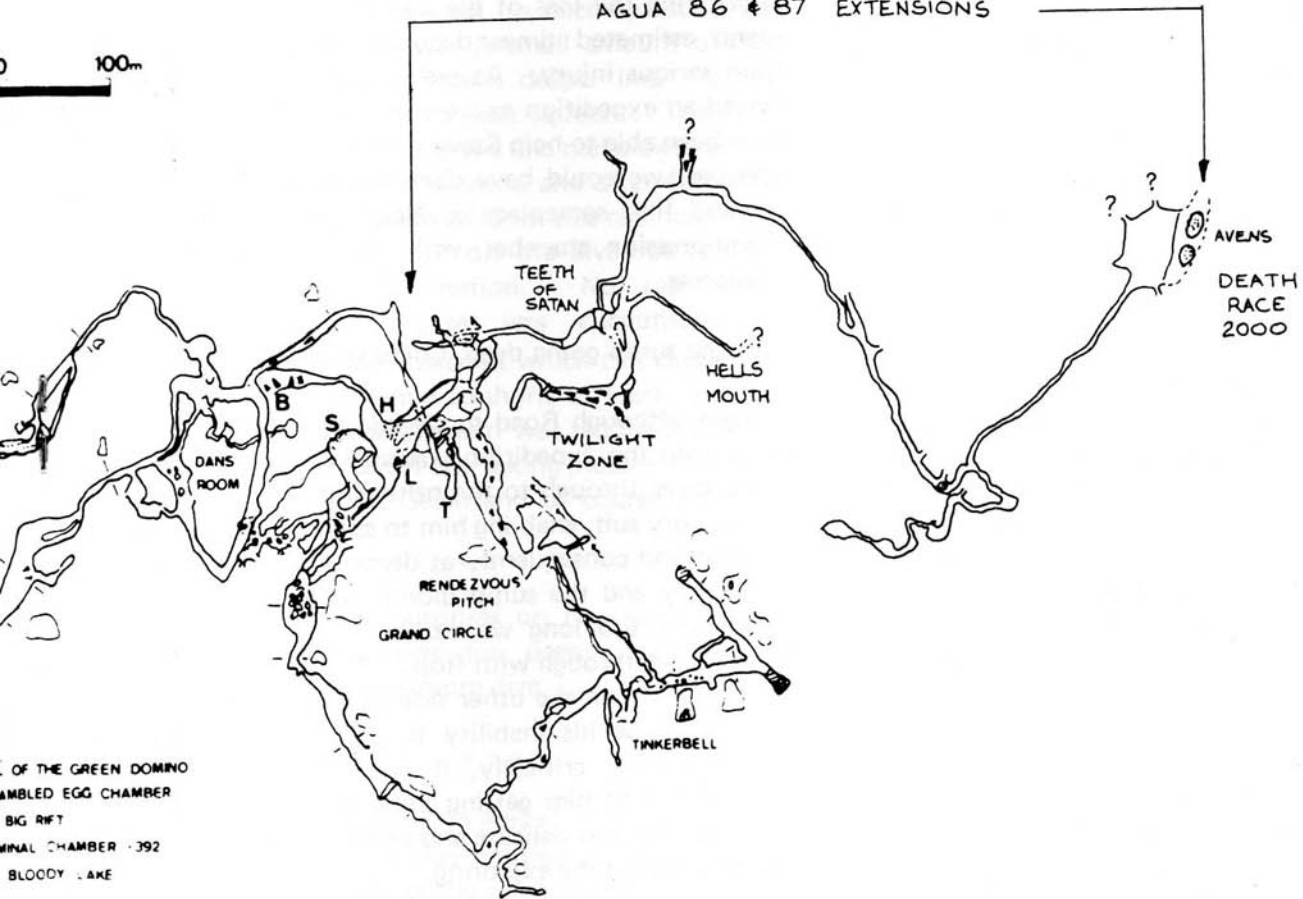


H HALL OF THE
S SCRAMBLED B
B THE BIG RFT
T TERMINAL CH
L THE BLOODY



100m

AGUA 86 & 87 EXTENSIONS



was lucky to escape with a bruised bum. Colin found a way over the top. This passage continued and entered an extremely tight rift, which was impossible to traverse at any one level. On squeezing out of the far end after about 200m, we entered a chamber and from there we were in huge stream passage. We had remet the Marniosa water! Many huge avens and amazing formations were passed. The passage terminated after an estimated 750m at a beautiful, calcite-rimmed, crystal-clear sump pool.....Two weary, but very happy cavers eventually emerged after 12hrs, getting back to camp at 2am.

* * *

On subsequent trips many of the climbs were checked out but none of them "went". However, Colin did another trip into the new terminal sump and free-dived with a mask and a bag of rocks on a base fed line. He went down to -3.5m and could see the passage continuing, large and with good visibility just waiting for a dive.

Apart from the divers activities, over the course of several trips, Roddy with Howard and Fran concentrated on climbing the avens between the entrance and sump one in the hope of finding a by-pass. None was found but the climbs led to several hundred metres of old, high level passage.

Meanwhile, exploration continued in Cueva del Agua and dramatically in another resurgence cave, further down the Urdon Gorge, the Cueva del Rio Chico.

* * *

3rd August 1986 - Steve Jones

Chico - Aimed to dive terminal sump. Using one Acurex and one 30 cu.ft. bottle. Passed the first sump. Colin's line still in place from two years ago. Crossed the chamber without problem, belayed the line and set off into the unknown. Descended down a huge canyon, following the roof. Put out 66m of line to -37m, on a bearing of 90°. The line was belayed to a large nodule and cut to bring out the line reel. Uneventful exit, thanks to Colin for support.

4th August 1986 - Steve Jones

Chico - Kitting up took a while - 2x80 cu.ft. and 1x30 cu.ft. decompression bottle, ABLJ etc. I spent a few minutes playing/learning how to use the ABLJ (air inflated life jacket) in the first sump. Struggled over the lip into the second sump. Time was noted and a quick descent to -9m where the decomp. tables plus 30 cu.ft. bottle were tied to the line.

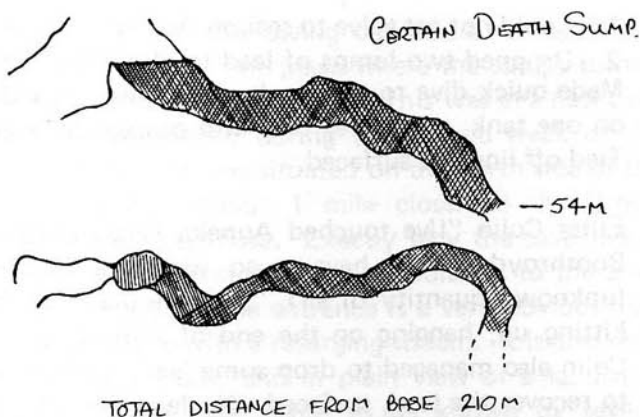
Then a rapid descent to previous day's limit, tied the line and away I went. I stopped at -55m, (my tables only calculated -57m). While looking for belays and checking my gauges I unknowingly dropped to -62m. A probably too rapid ascent was made to -9m and first decompression stop. And then the absolute horror show. NO DECOM. TABLES. I bloody crapped myself. I calmed myself down and started computing on the slate. Decided to do 20 minutes at -9m, 15 minutes at -6m and 10 minutes at -3m. I had no idea whether they were correct. In fact, the times transpired to be about right, just in the wrong order. After about 20 minutes the cold was getting a bit serious. I suffered and stayed the time. Spent a couple of minutes watching some bugs crawl around on the wall, but then back to the worrying reality. I eventually surfaced shaking quite violently and spent the next four hours worrying about getting decompression sickness. A true epic I don't wish to repeat. A great carry with heavy loads by John & Debbie - thanks.

* * *

Steve was very lucky - the fact that he only "bounce-dived" to -62m and then had the sense on discovering the loss of his decompression tables to spend estimated times decompressing, saved him from serious injury. As well equipped and experienced an expedition as we were, we still would not have been able to help Steve if he had got the bends. The best we could have done would have been to try and find someplace in Northern Spain with a decompression chamber, with very little guarantee of success.

With the sump going deep, Chico still remains open.

In Agua, although Road to Certain Death sump was going deep the expedition was still capable of putting a diver through to the other side. Rob would dive in a dry suit, enabling him to spend greater time at depth and consequently at decompressing. If we were lucky and the sump didn't keep descending and wasn't too long we would be able to get a second diver through with Rob. The problem with Rob surfacing on the other side of the sump on his own would be his inability to get out of his dry suit, and more critically, if he did succeed, the impossibility of him getting back into it. The dry suit would be too delicate and constricting to spend any reasonable time exploring.



3rd August 1986 - Rob Parker.

Ian, Gavin and myself managed to make an early start (well, early for this place). The first job to be done on reaching the sump was to put a brew on. Ian climbed to the sump pool and hauled the full cylinders up, then rigged them, ready for the dive. Gavin helped me to get into the dry suit. A quite nervous pee before zipping the suit right up and I was ready to climb the ladder. Kitting up was once again performed on the little perch between sump and pitch.

Using two 72's and an Acurex as main gas supply vessels, plus a 47 as back up decompression gas, I set off into the water. A small amount of cramp was experienced as I sank deeper into the sump, this being caused by 'drysuit squeeze'. The Acurex was staged at -30m and the line reel picked up. The passage continued to descend and after 40m of line had been laid, a depth of -54m was reached. At this point I decided to call off the dive due to lack of decompression information. No real delayed psycho-motor response was encountered (the 'Narcs' or nitrogen narcosis which can cause a diver to feel either extreme euphoria or fear). A total of 47 minutes decompression was required. This passed quickly as Gavin was taking pictures. Thanks to Debbie, Jim, Ian, Gavin and of course, as seen on TV - me!

* * *

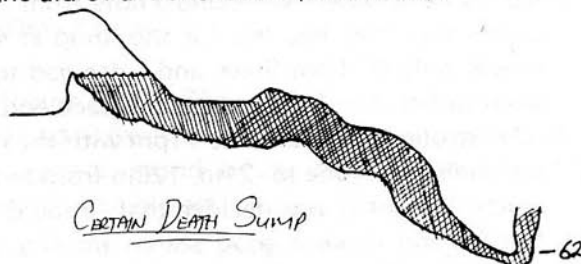
For all practical purposes on our expedition, the sump had now gone too deep. However, Rob decided to have one more dive.

* * *

11th August 1986 - Rob Parker

Final Push - A wet day ensured a late start, we left camp at 2pm just as the rain stopped. A large team of porters comprising Ian, Jo, Rich, John, Chris, Dick and Clive made the journey to the sump effortless. The standard thrutch saw me clad in the dry suit at the top of the ladder with 2 x 72's strapped

to my side. With an Acurex as a stage cylinder and a 47 as a spare decompression cylinder I set off. Stopping at the -36m belay I dropped all the stages and prepared the line reel ready to clip on. The 'narcs' could be felt as I neared the limit of exploration at -54m. Line attached, I quickly followed the passage gradually gaining depth. At -62m the roof gave way to a shaft heading vertically upwards. Bubbles could be seen 20m above reflecting light back down. Near the safe air limit I looked for a belay, finding an eyehole at -64m (sorry Steve). Feeling quite high I set off out. Had trouble dumping air out of my suit. Decom. passed quickly with the aid of a 'Penthouse' (thanks Ju).



So there we have it, the sump is ascending. Unfortunately, it was beyond the logistics of the expedition to continue its exploration as decompression will now be required going in as well as returning. Practicality dictates that a minimum of two divers with drysuits are necessary with all the requisite support - another time, another expedition.

Concurrent with the diving of Road to Certain Death Sump and the pushing of Marniosa and Chico, an underground camp was set up in Consort Hall. This was the best way to explore the least accessible areas of Agua without having a long and tiring trip just to get there, let alone get back.

From the camp the downstream passage from Colin's Climax was pushed through several hundred metres of very active streamway to a sump. This sump has yet to be dived.

The camp was again used when the Upstream Terminal sump was dived after the cessation of activity in Road to Certain Death sump.

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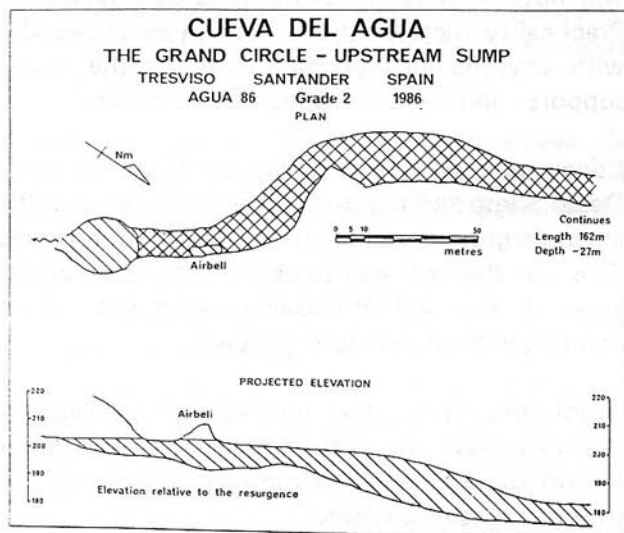
14th August 1986 - Ian Rolland

Agua, pushing Terminal Sump - A late start to the trip, but we soon got to the sump after a stop at the camp for a hot drink. In no time at all the diving gear was up the climb and we were ready. I dived off. With 15m visibility I came across an airbell after only 30m. The passage in one place was a good 20m x 20m, but never smaller than 10m x

10m. As I came to the end of my line I found a nice place to tie off, and I had not even hit 'thirds' on my 47. A slow exit was made looking again for any sign of passages. After a 17 minute dive I was back with Colin. Back to camp then Rob and Steve went to dive and we turned in for a sleep. Up at 6am as Rob and Steve returned but we did not leave camp until 9.30am. trip 23hrs, a good one. Dive just over 120m to -24m. What a buzz!!

14th/15th August 1986 - Rob Parker

Agua, pushing Terminal Sump - Followed Colin and Ian into cave. About 4hrs behind them. Quick, hot trip to camp where we found a note from the others saying that they had left for the sump at 4pm. As it was only 6.30pm Steve and I decided to eat and sleep rather than follow on to the back end. CB and IMR strolled into camp at 11pm with the news that the sump had gone to -24m, 120m from base. After much thought it was decided that I should try to go further and make a good search for side passages. Arrived at Colin's climax at 2.15am and promptly dropped my generator hose into a 1m deep pot. Dived 3.15am, reached the limit and laid a further 42m to a maximum depth of -27m.



The sump wasn't dived again because of the shortage of time. Road to Certain Death and Upstream Terminal sumps were the main diving objectives in Agua, but with plenty of man power and limitless supplies of air they were by no means the only ones.

2nd August 1986 - Jim Thomson

Agua, Road to Wigan Pier - Myself and Colin entered cave at approx. 4pm. Eventually located sump and kitted up by 6.30pm. Sump pool turned out to be a pain in the arse. Kitting up needed to be done while bobbing around in the water. Problem:

1. Could not get valve to seal on Acurex
2. Dropped two lumps of lead to about 6m depth. Made quick dive to recover lead, followed by a dive on one tank, one valve, 15m into passage 3m x 2m. Tied off line and surfaced.

Enter Colin "I've touched Anneka Rice's bottom" Boothroyd. "I'll have a go with the Acurex" (unknown quantity of air), "and one mini". After kitting up, hanging on the end of some dive line, Colin also managed to drop some lead. Colin dived to recover the lead, surfaced. No lead, no light, no helmet. Colin dived again to recover helmet - surfaced with helmet on head. "Where's my f-ing helmet?". "On your head". "Oh, yes", said Colin, as helmet fell back into sump pool. Finally Colin made dive, laying 50m of line at -16m. CB surfaced with no problems and an exit made from the cave at 10pm.

On the next dive at this site Jim managed to scare himself pretty thoroughly by getting tangled up in a lot of loose line. Luckily, Jim hadn't lost his knife and was able to cut himself free.

The sump eventually surfaced after 180m on a push made by Steve and Colin. Approximately 300m of passage were surveyed on that trip finishing at a 4m waterfall. A number of side passages were also followed and one particularly grovelly one dropped back into a streamway. This turned out to be the stream they had just dived from - a sump bypass had been found.

The waterfall was climbed on the next trip by Colin.

16th August 1986 - Steve Jones

Road to Wigan Pier -The climb was attacked by Colin by traversing in from the right in the hope that the pitch lip could be reached. A friend and a sling were placed for protection, and then, whilst swinging from one dubious friend, attempts were made to lasso a spike. The dubious friend "popped" and Colin fell, just being held by Steve before he decked out

In the fall Colin had badly cut his little finger necessitating a rapid exit from the cave, and a frantic night time drive to a hospital in Oviedo (about 100kms away) where it was sewn up.

The climb was finished by Steve producing a short length of streamway going to yet another sump.

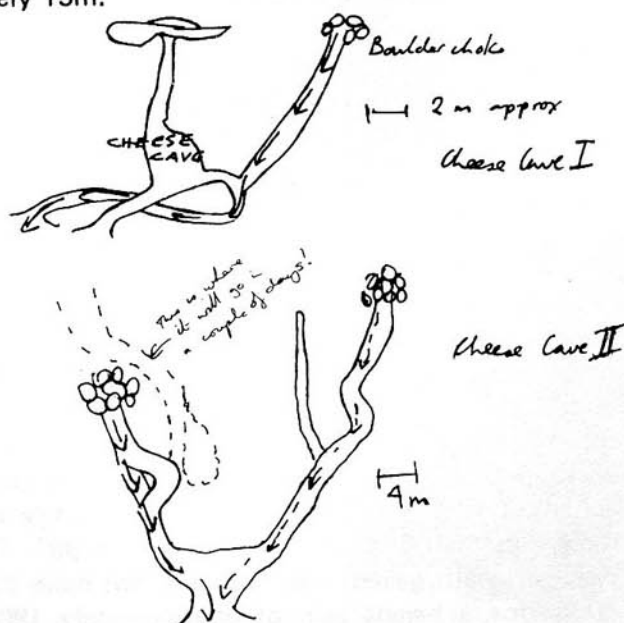
In contrast to the diving conditions in Agua and Chico there was one place where the sumps turned out to be easy and shallow. This was in a new cave system discovered during the second week of the expedition. It was situated on the north side of the Sobra Valley about 1 mile closer to the Urdon Gorge than Marniosa. Exactly why the cave hadn't been explored on previous expeditions to the area, is a mystery, as the entrance is a very obvious hole in a cliff face with a resurging stream. It is also only 10 metres from, and in plain view of a landrover track. This cave came to be known by several names - Cheese Cave (because most accessible cave entrances are used by the Tresvisans to store cheese); Cows Head Cave (after the fossilised remains of a cows head calcited to the floor in one of the main chambers); and finally the local name Cueva del Agua (simply because any cave with water is a cueva del agua).

* * *

7th August 1986 - Rich Barker

Cheese Cave I - The Cheese cave was visited, and a crawl pushed to a small chamber and a smaller crawl. Two minutes knocking the shit out of some stals. opened it up for another small section ending in a calcite choke.

Cheese Cave II - Two minutes further up the road, a stream was noted coming out of a 6m high rock face. Following the stream up the lefthand passage we passed a low section of streamway, through an oxbow and then hit a boulder choke - a potential dig/push. To the right we followed a smaller streamway, approximately 30m to a boulder choke. Pushed a crawl to another calcite choke approximately 15m.



The next day John Wallwork and Dick visited the cave and pushed a crawl through boulders in the lefthand streamway of Cheese Cave II. The cave 'went' for ¼km to a sump, passing on the way a chamber with the calcited cows head (Ogof Pen y Buwch).

13th August 1986 - Julian Walker

Cows Head Cavern (Ogof Pen y Buwch) - To dive the sump. Fran had a quick look at the blue pool, but handed over to Ju. Laid 100m of line to -9m maximum. Passed one air bell to surface in an open streamway. This was followed for about 100m to a further clear sump. Total about 150m of passage and 100m of sump.

14th August 1986 - Rich Barker

Cows Head Cavern (Ogof Pen y Buwch) - Aim: to survey passage found by Ju on previous day, and explore new sump pool.

After problems of various kinds, original three person team beyond Sump 1 became one man with no intention of surveying. Ju's 100m sump passed easily. Abandoned spare 13 cu.ft. at end of sump and continued on to Sump 2 with 200m of line and an Acurex with two valves. Expecting a similar length to Sump 1.

Arrived at Sump 2 cursing Acurex, belayed line observing passage spiralling down in very similar manner to Sump 1. Sump passed after 12m of line laid, descending to -2m.

Surfaced in large deep sump pool with stream entering down a 1m high oval tube. Part de-kitted and set off to explore. Got carried away exploring and arrived at large chamber 70m+ high, 50m wide and 25m long.

Grade 2 survey done on return journey. Passage estimated at 500m, proved a little inaccurate later. Arrived back at home side of Sump 1 after 3½hrs, to find willing team to help remove kit back to vehicle. Thanks to Gav. and Fran.

* * *

The cave was properly surveyed to a large chamber on the 15.8.86 and the following day, Rob and Ian went in to attempt a climb in the terminal chamber.

* * *

16th August 1986 - Ian Rolland

Cows Head Cavern (Ogof Pen y Buwch) - After a late start got to the chamber with a tackle bag of climbing/rigging gear each.

We were over the moon to get to the top of the waterfall coming in to the chamber, without even taking the bags off our backs. Continued, only to find a sump after a short distance. Rob put on a mask and had a go at free-diving, but with no luck. I climbed a rift to the sound of water finding an upstream and downstream sump. Rob had another go at free-diving, but again no go.

A 22m aven next to the sump was climbed and two ways on were found at the top. One way came to an 8m pitch.

.....We rigged the rope and I set off down to find a small ramp, at the bottom of which was another climb. By now it was 3am. Rob and I had a go at soloing the pitch but gave up. Got the rope and Rob started climbing, with only a bolting kit (with no hangers), and one tape sling. He used the tape for his highest possible point of protection then for the last bit put in a bolt and clipped into the bolt driver before making the final moves.

There was passage at the top.

.....After only a short distance a 3m climb was scaled with the aid of our last piece of gear - a chest harness! We were only to get about 100m further before the passage became full of mud. On the way out we went back down the other passage (at the top of the 22m aven) to find a drop of 40m+ back into the big chamber. Out of the cave at 6.30am. Trip 15½hrs.

* * *

Cows Head Cavern was left at this stage with a sump still to be dived, and every possibility that it will go as easily as the previous two. The cave is an important one because it is the only known development of cave passage on the north side of both the Sobra Valley and the Urdon Gorge. This is because most of the limestone of the northern side belongs to the formation resting above that of the southern side. The junction between the two formations is characterised by the presence of a thin (1-6m) calcareous sandstone unit, seen by Rob and Ian at the highest point in the Cheese Cave and seen by the landrover track in the Sobra Valley. A good find.

With the chronicling of the discovery and exploration of Cows Head Cavern, we have almost reached the end of the expedition's log, but there was one more find that could prove to be of major significance. The aim of the last underground camp in

Agua was to follow, as far as possible the draught in the area around Colin's Climax, and to look at one or two climbs that had been noticed on earlier camps.

* * *

15th August 1986 - Julian Walker

Final camp, Consort Hall, Cueva del Agua - Day 1: The earliest start of the expedition! Underground by 11.30am and through Consort Hall (stopping for a quick brew) and on to Hall of the Green Domino by 4pm. Clive and Nick started hunting for the draught whilst Ju and Rod looked at two climbs in Green Domino. The first came to nothing - going to a balcony leading around into the big rift.

The second climb took Roddy into a passage seen above the Bloody Lake, via an aid climb (total climb 11m). The passage went up at 45° for about 50m to another 3m climb on loose mud and fragile calcite with a strong draught. Ju followed up, surmounted the climb and the two went on. The only easy way ahead was down a short pitch and then a tube, to who knows where? The draught obviously went over the top of a calcite ramp/wall which we decided to leave until the following day. The two climbs were left rigged.

Meanwhile Clive and Nick had had little success draught hunting.

16th August 1986 - Roddy McLauchlan

Teeth of Satan - Day 2: Awoke at 9am and away from camp by 11.30am. Ju and I to continue exploration of the new passage - Clive and Nick to Dan's Room and associated area.

Swiftly up fixed lines into the passage above Bloody Lake. Intimidating passage - having to traverse up the walls on brittle calcite cauliflowers, as the central area is slippery mud at an angle of 45°. It plunges into the lake 20-25m below.

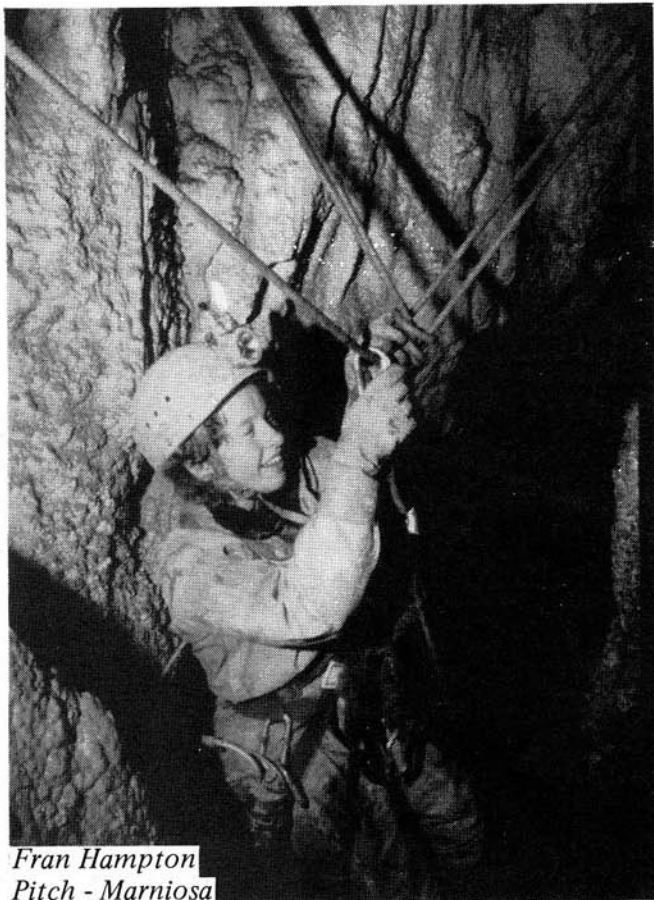
I tackled the climb over the calcite ramp with a total lack of subtlety - knocking footholds in the hollow calcite with a bolt driver and belly flopping over the top. Once up the draught was quite noticeable. Ju followed up and after sorting out gear set off into caverns new. The next three hours encompassed some of the most intimidating caving Ju and I have ever done. The passage angle was rarely less than 45°, frequently closer to 90°. The passage length gained was probably not more than 200m for a height gain of approximately 190m.

Mostly large passage - 3m high by 6m wide, with an exciting 25m+ aven entering about halfway up, (an active inlet with an obvious lip at the top). Ju and I finally reached a very large rift, the edge of which was free-climbed on mud and loose calcite to a calcite platform. Lying there, recovering our nerves (we were both by now quite frightened, having come up some nasty climbs with big drops beneath) Ju noticed that it looked like we were lying in a mouth with calcite fangs pointing down at us - "The Teeth of Satan".

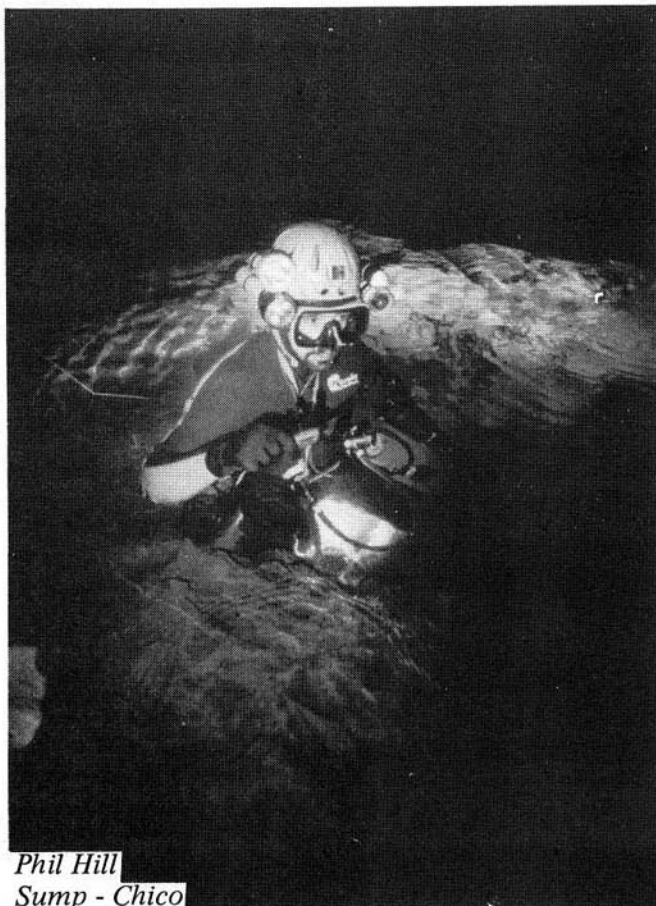
We explored one more small passage left still going, then surveyed out. Four or five leads still untouched - draught still present! Looks like this could be the way on up the mountain. A truly amazing day.

Back to camp by 10pm.

The next day, the 17th, detackling was begun and Julian, Nick, Clive and Roddy removed all the tackle from the cave in one mammoth effort. A total of nine tackle bags and two coiled ropes were taken from Consort Hall to the entrance in 6½hrs.



Fran Hampton
Pitch - Marniosa



Phil Hill
Sump - Chico

Agua '87

Expedition Report

Roddy McLauchlan

Objectives: To set up a four person camp in Consort Hall and push all the known leads in Teeth of Satan. To dive the terminal sump in Cheese Cave. To dive Parting Friends in the Road to Wigan Pier. To prospect for further entrances on the Sierra de la Corta.

The 1987 expedition started badly, when the trailer, towed by the Hilux, had a 'blow out' on the M25. Fortunately, the contents weren't spread across the motorway, and a very overloaded vehicle continued to Dover. Despite this mishap, and driving through France at the start of their national holiday all three vehicles reached Tresviso.

There, we had a problem with our pre-arranged campsite, and had to spend the first night in the village dance hall. However, this was sorted out next day, and in the afternoon we started rigging in towards Consort Hall. By Thursday 6th the first camp was established and rigging could proceed towards Satan's Teeth. On Friday the first pushing party went into camp.

Satan's Teeth

Nick Airey and Marco Paganuzzi were the first up to Satan's Teeth. They were slightly delayed by having to re-rig The Big Rift, so they were unexpectedly joined by Nigel Ashcroft and Roddy McLauchlan at the top of the first pitch out of Hall of the Green Domino. Everyone was impressed with the surroundings and the feeling of exposure, perched high above Bloody Lake.

It took 3 hours to rig up to the wet aven, most of the climbs having to be soloed again. While Nick safely re-rigged the final pitch before the aven, Marco and Roddy rigged the first pitch (10m) past it. This involved more free climbing and took Roddy up to the bottom of a previously un-entered rift. Gingerly stepping out of the water worn gulley, Roddy moved onto a mud slope and into a short (4m) section of passage. At a constriction, a strong draught could be felt. Once the party had gathered, exploration began.

A winding canyon was followed for a short distance to a chamber, (Space, the Final Frontier) with an amazing stal curtain and beautiful floor. Under the curtain, a short passage led to a drop and a ramp disappearing up and out of sight. It seemed that Agua was once again wide open.

The drop was examined and found to be blind, so Nick and Roddy climbed the first 10m of the ramp to an opening. Through the opening was a chamber, and via this, Nick managed to gain some more height on the ramp. However, he still couldn't see the top, and it looked intimidating to climb. Back in the chamber, a good look around drew a blank, so a large calcite flow was climbed to within 5m of the top. Rope ran out, and the lead was left for the next party.

Next day, Steve Jones and Phil Rust finished the climb and entered an old high level canyon. This was full of yet more, beautiful formations and a mud floor that trebled the size of boots after 2 steps! The passage was classic vadose, with a very large high level tube, meandering off to the side. Progress was occasionally impeded by boulder falls and climbs, until a small chamber was reached (P. Chamber). Just past this there was a slight constriction, (still stooping size) and through this the draught was howling in true Agua fashion. Beyond here the passage became taller and straighter. Two down pitches had to be rigged, and Phil performed a tricky climb to regain the original level. After a short section of rift, the two explorers were astounded to enter an enormous chamber.

Their lights couldn't illuminate the farthest sides of it, and an awe inspiring silence, apart from the drip of water, seemed to dominate the place. They had entered at approximately two thirds up the chamber, and, at the edge of a large, relatively level area of boulders, it tumbled down into the gloom. Two avens entered over the deepest part. They examined the obvious leads off the platform and found a tube leading down. After 70m a rope was rigged over the rest of the boulder slope. In total, it took 150m of rope to reach the bottom! Disappointment waited, with a small stream trickling into a tight rift, and no sign of a draught.

On subsequent camps, parties returned to examine the other leads, and the last team in the cave pushed the stream rift. The rift showed no sign of widening and everything else closed down. All told, 1 km of new passage had been found.

Marco and Roddy then climbed the final section of Satan's Teeth. This proved to be just as scary as in '86, with no belay point for the second and no holds for the leader! Marco was ready to jump down one side of a mud and rock saddle, should Roddy fall off the first section of the climb. A halfway point was reached and Marco was brought up to finish. It all looked good - a large passage, even a small inlet stream and a sump going down. Marco scaled a 5m wall to gain another large passage and incredible formations - thousands of helectites, some 1m long and a beautiful crystal floor - but this ended in a mud choked chamber. A downward pitch (20m +) was explored to the limit of available rope. This contained the stream, but no draughts. It wasn't very hopeful and wasn't pushed to its conclusion.

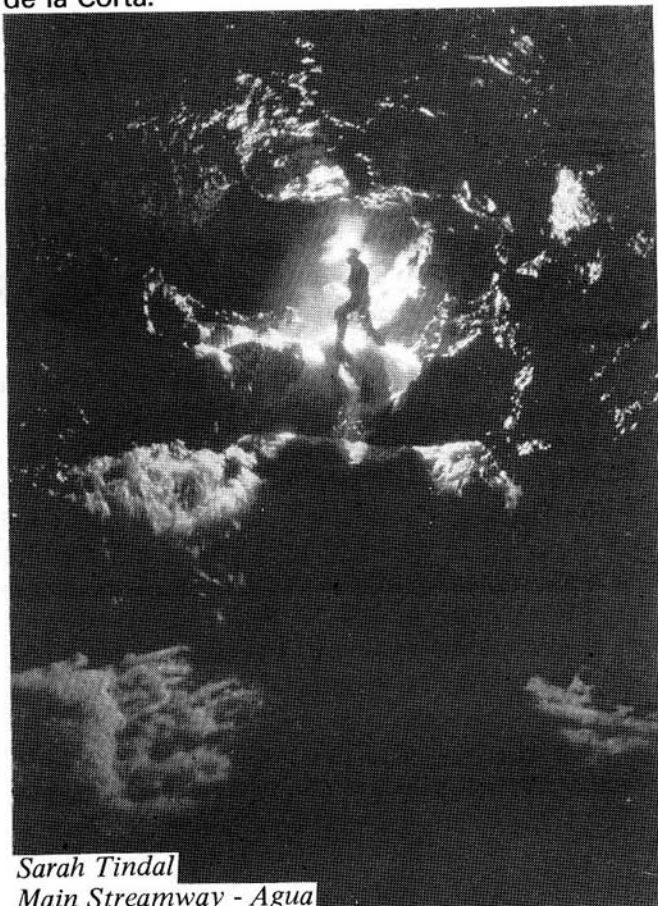
Elsewhere in Agua, attempts had been made to search the final sump at Wigan Pier (Parting Friends), but the water levels were much higher than in '86 and it proved impossible to advance upstream. A side sump, off the Wigan Pier system was dived by Marco, and the Road to Certain Death streamway was re-discovered!

Cheese Cave - Sobra Valley

The terminal sump in Cheese Cave (Cueva del Agua en Sobra/Cows Head Cavern/Ogof Pen y Buwch!) was probably our brightest hope for diving. At the end of Agua '86 it had received last minute attentions from Rob Parker and looked as if it would prove as easy to dive as the previous sumps. However it went deep and was the subject of much decompression table juggling by some of the divers. In the end a dive profile was achieved and Phil Hill went through to surface on the other side to another sump! Cheese Cave was ended for 1987.

Some surface work was carried out with Jim Thomson, Steve Richardson and Helen Richardson re-discovering a cheese cave with a pitch off the Bejes road. Some entrances were found and examined on the Sierra de la Corta - all choked with leaves and boulders. However, after the expedition had left for home, Marco joined LUSS in a surface search of the Sierra and was partly responsible for discovering a new draughting 80m shaft. This is going to be one of the targets for LUSS in 1988 - with high hopes of reaching the large chamber in Agua (now called Death Race 2000).

Achievements: Satan's Teeth pushed to possible terminal chamber (Death Race 2000). All other leads from '86 pushed, except for the wet aven. Over 1km of new passage discovered and surveyed. Cheese Cave terminal sump pushed to further sump. Prospecting carried out on the Sierra de la Corta.



Sarah Tindal
Main Streamway - Agua

Agua '87

Diving Report

Marco Paganuzzi

A succession of caving expeditions to Tresviso had left a large number of inviting sumps unexplored, and the 1986 expedition to Cueva del Agua soon revealed the enormous potential for cave divers in the area. In 1987, six divers returned with high hopes for further discoveries.

Cheese Cave (Cueva del Agua en Sobra & Ogof Pen Y Buwch)

This was the main objective for the divers in 1987. The previous year, the cave had been explored through two sumps to over a kilometre in length, terminating at an inviting third sump. This was dived, on the 5th July, by Steve Jones, supported by Phil Hill, and in clear visibility he descended to -31m. A dive to this sort of depth had not been expected, and he had not catered for any decompression stops. He therefore turned round, the way on wide open.

Phil Hill returned a few days later, supported by Steve and Phil Rust. The sump continued up a sloping passage to surface in a streamway. The way on, however was blocked by a further sump after 5m. It was now clear that any further exploration in Cheese Cave was dangerous without drysuits. (Phil had already spent 20 minutes decompressing in water at 7 degrees centigrade, in a wetsuit). The diver's attention were turned to other sites in Cueva del Agua.

The Road to Wigan Pier, Cueva del Agua

Two attempts were made to reach the upstream sump, discovered by Steve Jones and Colin Boothroyd beyond the Road to Wigan Pier sump, in 1986. Both failed, the high water making the streamway impassable.

An inlet sump was dived by Marco Paganuzzi, close to Spangle Junction. This was passed after 2m, only to emerge in the downstream end of the Road to Certain Death.

Cueva del Rio Chico

Steve Jones made a short dive to -9m to collect bugs for Simon Fowler at Cardiff University.

General

A number of photographic dives were made by the expedition divers, in the company of Gavin Newman, in Cueva del Agua, Cheese cave and Cueva del Rio Chico.

The high water levels in Agua made a further exploration in the terminal sump impossible.



Jane & Clive
Main Streamway - Agua

Extracts from the Log of Agua '87

Roddy McLauchlan

The 1987 expedition, despite minor problems on the surface, ran smoothly underground, and within 3 days of the start we were starting to rig up into Teeth of Satan.

Friday 7th August

Roddy McLauchlan, Nick Airey, Marco Paganuzzi, Nigel Ashcroft

In to Consort Hall with the remainder of the rigging gear, electric drill, bolting platform etc. Stopped at camp for a quick brew-up, then on with the tackle bags to the Big Rift, when Nigel and Roddy could hear Nick and Marco in Green Domino. Nick and Marco had just started to go up the fixed rope into Teeth of Satan. Roddy joined them, whilst Nigel sorted out the intricacies of his first real SRT pitch with added traverse. Continued up to the top of the first ramp, dumped the bags then rigged a 54m length of Bluewater back down. This rope is going to be in a real mess within a few days because of all the vast stretches of un-avoidable thick mud. Back to camp where we had a jolly good time watching Marco impersonating a grasshopper. Ate lots and lots of food.

Saturday 8th August

Roddy, Nick, Marco, Nigel

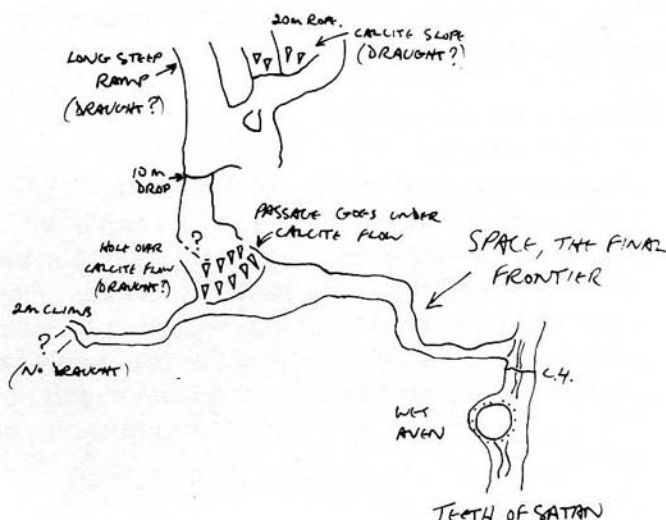
Up by 9am and slowly returned to life. Took the usual 2 hours to actually prepare and eat breakfast and get ready to go caving. All off with the remainder of the tackle at Consort Hall.up the ramp (Teeth of Satan) where Marco and Nigel explored the lead at the base of the 7m pitch. Nick and Roddy continued rigging up the series of ramps, reaching the aven by 5.30pm. All the rope pitches will need looking at with an eye to re-belays and minimising rope stretch.

The Aven looks horrendous. It would probably take 2 days hard work. The walls are covered in very liquid mud, and there is a constant stream of water coming down. There is definitely a lip on the North side of the aven at approx 25-30m height. It

is obviously a separate systems to Agua, captured by the old high level passage.

Continued past the aven for 15m free climb, now rigged with rope, to the first lead, which looked last year like the base of a rift. Strong draught coming out of it. Roddy gingerly climbed round the corner on mud, then briefly explored. Definite draught and large passage. Waited for Marco, Nick and Nigel, then set off into unknown territory. All impressed by the short length of passage leading to a large, well decorated, chamber. Two obvious leads going off this, so stopped for a very late lunch of sardines. One lead down with no draught, the other under the formations and draughting quite strongly. We were stopped (following the draughts) after 20m by the lip of what looked like a large drop (turned out to be only 10m). Still draughting. However, the most impressive feature was the enormous, extremely steep ramp, going up from the other side of the drop. After rigging line, the drop was checked out and found to have no leads. Nick and Roddy started on ramp. Draught by now intermittent and difficult to locate. After ascending about 20m of the ramp, Nick wasn't sure that there was any draught at all, so a climb was made over a large stal flow in an adjoining chamber. Intermittant draught again. Roddy left 20m rope in place as there is still a hole to climb up to. Very late return to camp where we were entertained by Marco being very ill!

This team headed out of the cave next morning, passing Phil Hill, Steve Jones and Phil Rust at Boulder Hall on their way in to camp. Unfortunately Phil Hill was unwell by the time they reached Consort Hall, so he spent all his time there, tidying up and trying to recover. Steve Jones and Phil Rust take up the story.



Sunday 9th August

Phil Hill, Steve Jones, Phil Rust

Into camp Sunday. In bed early and up really early (6.00am). Found our way to the top of the ramp by the Aven. Stopped for a brew and then up to the top of Roddy's climb done previously. Steve continued for another 5m and stooped under some calcite and into a 10m high, muddy floored, horizontal passage. We followed this for about 50m and up into a phreatic upper passage, which led back down to the rift. Continued through a couple of chambers with high level passages leading off. At 'P' chamber, the passage turned South again.

A distinct draught was found in a small calcite constriction which we climbed up and on into the continuation of the rift. A 15m pitch was descended, followed by a 10m pitch and a 10m climb. We entered a huge chamber with loose boulders and mud on the floor. The floor dipped away to the right, and down very steeply where boulders were thrown down to tremendous crashes at the bottom, (after several seconds!). It took us an hour to take in the vastness of the chamber and find a suitable way down to the bottom. This was through a small tube which descended in the side wall at the edge of the pitch. This led directly to the bottom of the drop in the large chamber after a descent of 70m. At the bottom a stream led down through a tight rift which became miserable, and upstream it sumped. We de-tackled back to the large chamber and got back to camp after 16 hours of exploring and surveying. Several leads still to be explored.

Although all the other leads were looked at, we failed to make any further breakthrough in the new passage. The remaining climb at the top of Teeth of Satan was completed by Roddy and Marco with the discovery of 120m of beautiful passage. The formations were up to the usual Agua standard with 1 foot helectites in profusion. However there was no major way on.

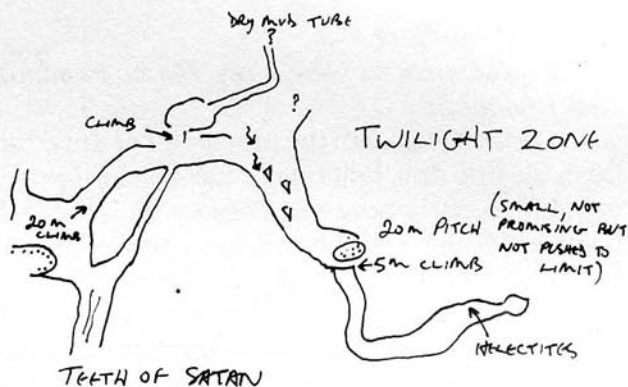
Friday 14th August

Marcus & Roddy

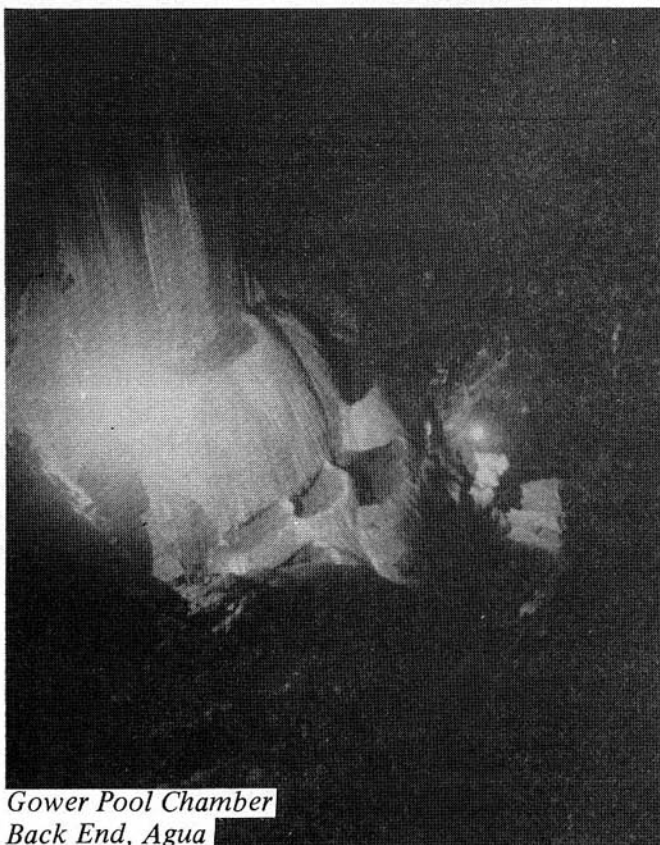
A rapid trip to the end (Consort Hall in 1 hr 50min) and the ramp was ascended with the explorers in high spirit. It had been decided to check out the continuation of the ramp to its conclusion. Fine climbing followed Handholds of apparently solid rock were, in fact, mud. The climb could only be completed by a combination of levitation and not thinking too much about the consequences of falling.

Over the top and the explorers were stunned by formations of utmost beauty formed over the eons. The passage continued as a large, sandy tube, interlinking chambers draped in formations which twinkled in the light of their carbides. A further climb of 5m above a 20m pitch was ascended, and the passage followed to its disappointing conclusion as the sandy floor and roof met. The passage (The Twilight Zone) was surveyed, 120m.

The 20m pitch was descended (to the limit of tackle) but showed little promise. A roof tube was pushed above the ramp but this too began to close down (no draught). The ramp was descended in a circuitous tube and the pair returned to camp.



The wet aven in Teeth of Satan was not attempted.



Towards the Future

Roddy McLauchlan

La Cueva del Agua is now known to connect hydrologically with Sima 56, other caves on the Andara Massif and Marniosa in the Sobra valley. Although major progress has been made in Agua, no physical connection has been found. There is a big possibility that it never will be, due to localised water tables, but a dived link is not beyond hope.

Two major sumps have still to be pushed conclusively: Road to Certain Death and the upstream terminal sump at Colin's Climax. Both have gone deep, but Certain Death is now ascending. The problems of diving these sumps are immense, with lengthy decompression becoming necessary. Terminal sump is also remote and an enormous effort would have to be made to mount and sustain any diving operation. There is always the possibility that the terminal sump, like Chico, goes deep. Certain Death may just be a flood overflow for the main stream, beyond Parting Friends in the Wigan Pier area. However, there is a reasonable chance that it could go into a fair amount of walking passage.

The water from Marniosa joins the Agua main stream, and it is still worth diving the sump at Parting Friends in an attempt to find this. The new terminal sump in Marniosa has still not been dived - a major project.

There are still dry lead at the 'back end' of Agua. There is the wet aven, halfway up Satan's Teeth - almost definitely the final pitch in a vertical system coming in from the Sierra de la Corta. There are the two avens in Death Race 2000, and the small stream in the bottom of that chamber. There is also a small inlet stream in the Twilight Zone. Of all of these, the most likely to be productive is definitely the wet aven, although this would involve a lengthy climbing push.

On the Sierra de la Corta, a new and draughting (80m deep) cave has been found - possibly connecting with Death Race. It is well worth pursuing. Further prospecting still needs to be done.

In the Sobra valley there is also the terminal sump in Cheese Cave, about which there is little information.

During the summer of 1988 there will be another attempt on Certain Death sump, and the draughting hole on the Sierra will draw some attention.

Sites of Importance

Sumps

Cueva del Agua
Road to Certain Death
Parting Friends
Terminal Sump

Other

Marniosa
Cheese Cave
Cueva del Rio Chico

Dry Leads

Cueva del Agua
Aven in Satans Teeth
2 avens in Death Race
Stream in Death Race
Stream in Twilight Zone

Other

Sierra de la Corta



Jane

Lower Entrance Series - Agua

Appendices

The following appendices are lists of equipment and consumables taken to Spain in 1987. They obviously refer to the difficulties and needs of caving in the Picos, but in general terms could be adapted to other locations.

Appendix 1

Food and consumables, purchased in Britain.

Assuming 15/17 persons in the field for 21 days.

Pork Luncheon Meat	12 large cans
Baked beans	48x14oz cans
Sweetcorn	24 cans
Dried soup	2 kg
Porridge	6kg
Muesli	16kg
Dried fruit	9kg
Mixed fruit & nuts	3.5kg
Angel whirl	6kg
Custard powder	3.5kg
Ginger crunch creams	24 packets
Digestives	36 packets
Hob - nobs	36 packets
Golden Crunch	12 packets
Chocolate Chip	12 packets
Ryvita	24 packets
Mars	96 bars
Marathon	48 bars
Topic	72 bars
Twix	192 bars
Ketchup	5 litres
Branston pickle	2.27 litres
Gravy mix	1kg
Chilli/Curry sauce	700gms
Pulses	3Kg
Jam	7kg
Marmalade	4kg
Syrup	5 litres
Sugar	3kg
Apple	4kg
Tea	1540 bags
Instant coffee	500gms
Drinking chocolate	3kg
Washing up liquid	5 litres
Disinfectant	5 litres
Toilet rolls	80 rolls
Gas cannisters	24 cans
Parafin	5 gallons

Also 60 packs of Springlow Space Age dehydrated meals, for underground camp.

All these items were taken with the knowledge that they were either unavailable in Northern Spain, or of inferior quality. Fresh fruit and vegetables, meat, cheese, soft drinks and, of course alcohol, are easily obtained, and are good value.

It is impossible to put too much emphasis on the importance of good, and familiar food, to the success of an expedition. Poor quality food, or low quantities quickly demoralise, and small 'treats' are essential. The most simple items can have the greatest result - something like toast!

Cooking on an expedition should be a sociable event, and an effort should be made to make sure that the kitchen is within the main gathering area. The possible objection, of too many people getting in the way, is more than offset by the fact that the cook for the day doesn't feel cut off from the evening's discussion.

Base camp equipment

2 Base camp tents. (for cooking and stores, also as a communal tent in bad weather)
1 Paraffin double burner
1 Paraffin single burner.
2 Gas stoves. (One for large bottles, with grill)
1 Fuel container
2 Large pans. (Large enough to hold a stew for 20 people)
2 Saucepans
2 Frying pans
4 Sharp knives
2 Spatulas
4 Can openers
1 Ladle
1 Grater
1 Cullender
1 Chopping board
1 Sieve
3 Washing bowls
* Scourers
* Jey cloths
1 Pair scissors
4 Water containers. (At least 5 gallon)
* Matches and lighters
2 Gas lights
* Lamp and stove spares
* String
* Plastic rubbish bags
* Adhesive tape
* Large plastic sheeting
1 Plastic bucket. (For toilet disinfectant)

Appendix 3

Underground camp equipment

- 4 Goretex bivi bags
- 4 Sleeping bags
- 4 Damart one piece thermals
- 4 Pairs of gloves
- 4 Balaclavas
- 4 Pairs of socks
- 4 Karrimats
- 2 Gas stoves
- 1 Paraffin stove
- 2 Fuel containers
- * Paraffin
- * Gas
- 2 Sets of mug, bowl and spoon
- 2 Funnels
- 2 Collapsible water containers
- 1 Trowel
- * Polythene sheeting
- * Plastic bags
- * Washing line

Appendix 4

Rigging Equipment

- 3 Petzl hammers
- 6 Bolting drivers
- 6 Bolt kit bags
- 6 Plastic blow tubes
- 100 Anchors & wedges
- 100 Petzl twist hangers
- 100 Maillons. (7mm)
- 60 Screwgate Krabs
- 200m Tape (25mm flat)
- 380m Bluewater (10.5mm) SRT rope
- 520m Beal (9mm) SRT rope
- 50m Edelrid (9mm) SRT rope

- 16/20 Tackle bags (Assorted sizes)

Underground climbing equipment

- 10 Pitons (Assorted types & sizes)
- 8 Chocks & hexes on rope
- 14 Rocks on wire (sizes 1 to 6)
- 12 Friends (Sizes + to 4)
- 2 Skyhooks
- 36 Krabs. (Snap & Screwgate)
- 2 Descendeurs (Figure of eight)
- 4 Etriers
- 2 Climbing harnesses
- 1 Bolting platform
- 150m Climbing rope (11mm)

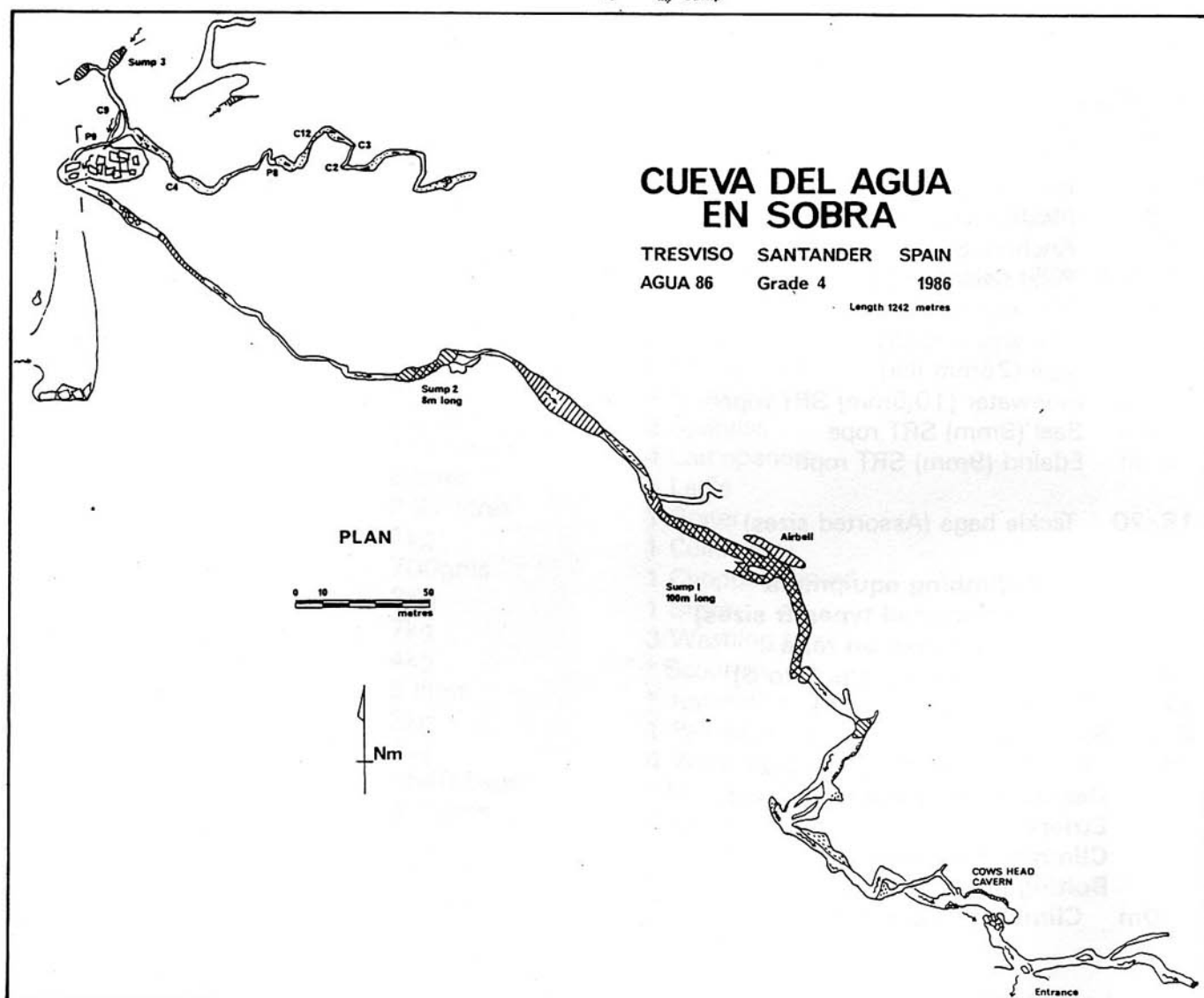
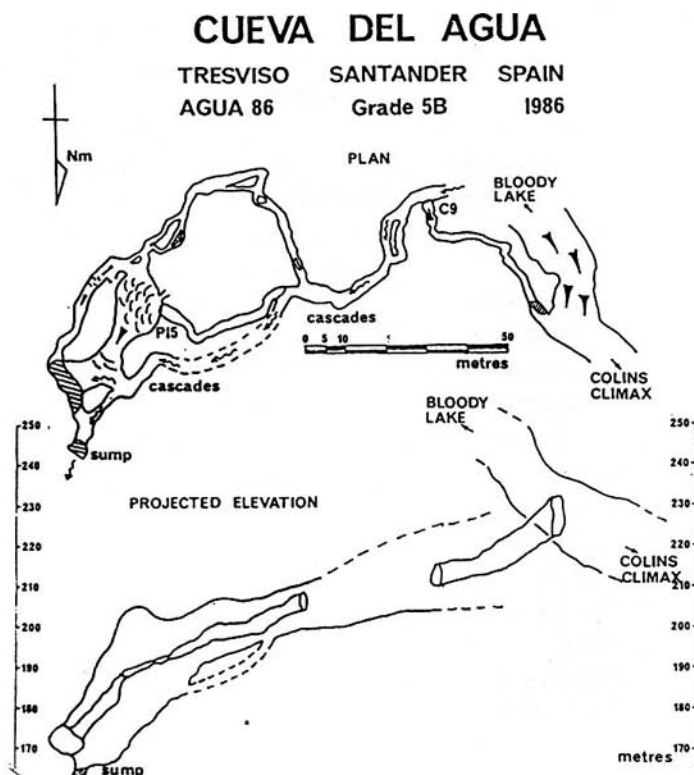
Appendix 5

Survey equipment

- 4 Suunto compasses
- 4 Suunto clinometers
- 4 x 30 metre tapes
- 1 Survey board
- 2 Rulers
- 2 Protractors
- 1 Calculator
- 1 Set of log tables
- * Survey sheets (Plastic)
- * Graph paper
- * Paper clips & pins
- * Pencils & sharpeners

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Agua '87

Medical Report

Janice Richards

Whilst preparing the medical supplies for the Agua '87 expedition I took a pessimistic attitude and tried to consider all possible misfortunes that could befall us. Both below and above ground we would be a long way from rescue services and we had to be prepared to look after ourselves in the event of an emergency. Luckily, we had only a few minor accidents, the worst of these happening when Nick Airy cut his hand grabbing a tackle bag which had been dropped down a pitch to him. Other minor ailments included 'Agua groin rub', which affected several expedition members, and a delicate bottom due to a recent operation on the haemorrhoids.

Three underground first aid kits were stationed at strategic points in the Agua system. Each was packed in a large BDH container lined with a polythene bag. This was then marked with red reflective tape and then twice sealed in heavy duty polythene bags using gaffa tape, (the same technique was used to waterproof other supplies for underground camp). These kits would have to survive the washing machine effect of the Howling Hole sump. One kit was left at the top of The Ramp, another went on to Satan's Teeth. The third kit joined the other supplies at the camp in Consort Hall; this kit contained a few extras such as hand cream and diarrhoea tablets.

A fourth first aid kit remained at the surface camp, along with a 'bathroom cabinet' containing medication to deal with minor ailments such as upset stomachs and insect bites. There was also a selection of stronger drugs for emergency use supplied, along with the essential instructions, by Dr Tony Boycott. After a considerable amount of discussion it was decided that we would take a stretcher, (there was just enough room for it). This was borrowed from SWCC, who also provided some krammer wire and several items for the first aid kits.

NOTE: It is best not to pack First Aid containers too tightly, as this makes access difficult, and replacing items after use almost impossible.

Reference: EXPEDITION MEDICINE by Robin Illingworth published by Blackwell Scientific Publications.

Prescription Drugs

Analgesics

Temgesic Injection (0.6 mg in 2ml) 4 vials.
4 syringes
8 needles
Temgesic Tablets x 10
Distalgesic Tablets x 60

Antibiotics

Erythromycin x 20
Ambaxin x 24

For Diarrhoea

Caps Immodium x 50

'Bathroom Cabinet' Medical Kit

For Surface Camp

Enterosan)
Diocalm) Tablets for Diarrhoea
Arret)

Extax - For Constipation

Milk of Magnesia Tablets - For indigestion

Paracetamol - Pain relief

Savlon - antiseptic cream
Anthisan - antihistamine
Acriflex - burns
Calomine Lotion - for bites and rashes
Atrixo - hand cream
Mycil Ointment - for athletes foot
Mycil Powder
Pain relieving Balm

Eye wash & Bath
TCP antiseptic lotion
Cotton Wool
Plasters
Thermometer

First Aid Kit

Large plastic bag - to empty contents into

Disposable gloves (6)

Survival Bag

Foil Blanket

Candles (2)

Waterproof matches

Salt

Glucose Tablets (3 packets)

Antiseptic Wipes

Antiseptic washes (3)

Saline wash

Large dressing

Adhesive dressing

Melolin dressings (2)

Gauze (2)

Skin closures (4 packs)

Assorted plasters

Triangular bandage

Adhesive bandage

Crepe bandages (3)

Open weave bandages (2)

Sticky tape

Cottonwool

Tweezers

Scissors

Safety pins

Scalpel Blades (2)

Paracetamol

Cotton Buds (6)

Pencil & Paper

First aid notes

Extra chocolate bars

