El Regallón 1997

Expedition Report

Oxford University Cave Club

Oxford University Cave Club El Regallón 1997 Expedition Final Report

Edited by Nathaniel Mumford

Cover photograph of Jo Whistler in F88 by Paul Mann

Contents

'Maximum Coherence for Greater Depth'

OUCC El Regallón 1997 Expedition Members

Expedition Committee

Leader: Nathaniel Mumford

Secretary: Joanne Whistler

Treasurer: Will Jeremy

Equipment Officers: Oliver Hilton/Andy King

Sponsorship Secretary: Fleur Loveridge

Medical Officer: Tim Guilford

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Present in spirit: Gerhard and Ilka...

Thank you all for coming and contributing to the spirit and discoveries of an extremely enjoyable, rewarding and successful summer.

We would like to take the opportunity to thank the following organisations and individuals for their invaluable support throughout the course of the expedition:

Oxford University
The Ghar Parau Foundation
The Sports Council

The RTZ – CRA Group
The AC Irvine Travel Fund
Foundation for Sport and the Arts

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Thomas Tunnock Ltd
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R. Twining and Co. Ltd
Morning Foods Ltd

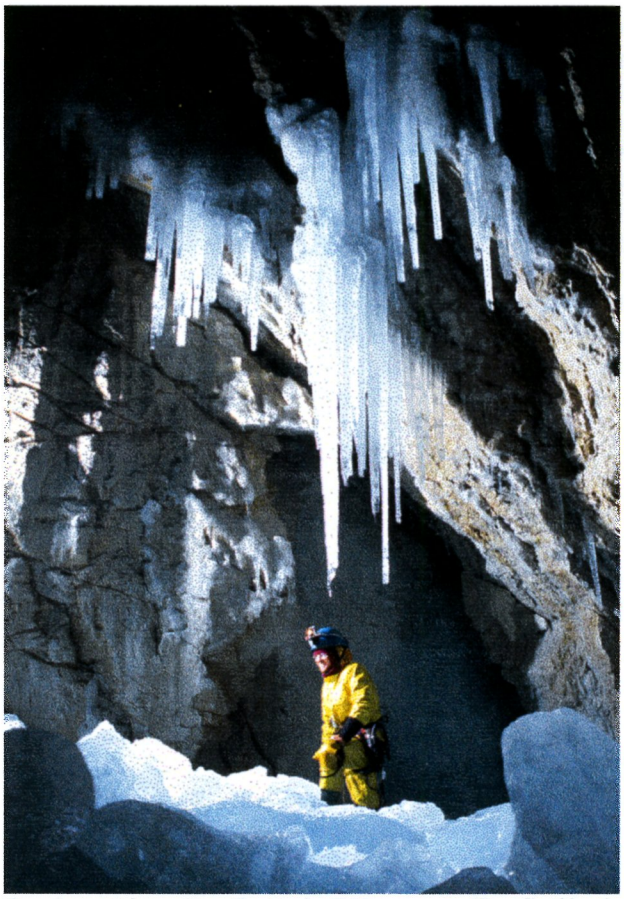
Everyone, within and without OUCC, who went out of their way to make things easier for us, and particularly the following, without whom...
Joan Arthur; Terence Bennett; Peter Bolt; Chris Densham; Dirge Gardiner; Dr Tom Kemp; Dave Lacey; Martin Laverty; Jim Ramsden; Pauline Rigby; Richard Ward; John Wilcock, and particularly Steve Roberts.

We would also like to take the opportunity to thank Juan-José González Suárez, president of the Federacion Asturiana de Espeleologia, for the continued goodwill and support we have enjoyed throughout many years of visiting the Picos. Without such help our expeditions would be impossible, and we hope this fruitful liaison will continue for many years to come.

A Royal Geographical Society approved expedition

Expedition Leader's Report

OUCC began its 36th year of exploration in the Picos facing something of a conundrum. The 1994-6 expeditions had been largely concerned with the exploration of Sistema de la Verdelluenga, firstly via the –640m C3, and latterly via the C4 entrance. The system was clearly a key element in the overall picture of the Ario drainage, situated as it was in an area between the Xitu and Jultayu systems otherwise devoid of major caves, and with at least one other important cave, F64, feeding the streamway. Was it a contributor to the large streamway in 2/7? Consultation with veterans of the age of heroes suggested that it was unlikely to feed Xitu above the terminal sump. Unfortunately neither the 1995 or 1996 teams had had the time or the resources to devote to an exhaustive examination of leads at the bottom of the Verdelluenga system, leaving the intriguing possibility that a way on existed in the high rift above the lake at the downstream limit, or that the elusive draft might be traced to a bypass further upstream.



Ben Lovett in an Ice Grotto in F41 *Tim Guilford*

Thus, after a certain amount of soul-searching, the decision was made to return to C4 and to resolve the uncertainties of this fascinating system, with the help of another dinghy and a bright light to help to identify possible leads. The hope was that as the system lay close to the hypothetical edge of the water table, a breakthrough might bring us into another shaft series. Failing that, extrapolating the line of the streamway brought it into the vicinity of the two Canalizos caves explored by SIE between 1979-82; we obtained permission to look at these caves in the hope of extending them to make a connection with the Verdelluenga streamway. Given that of all the major caves explored since 1994, only F64 was a completely new discovery, this was an entirely reasonable and very exciting proposition.

Meanwhile, exciting advance were being made in other departments, particularly those of training and technology. A weekend in Mendip, incorporating a medical course and a full-scale mock rescue, has been an integral part of preparations for expedition for some time, and this year a well-attended rescue took place in Rod's Pot, although the 'casualty' was so traumatised by the whole experience that he has hardly been seen since...! In addition, a considerable amount of time was spent in Oxford both in the gym and dangling from the ring road bridge above the river practising SRT rescue technique, whilst a number members benefited from a course in the Ingleton gym under the guidance of Paul Ramsden, an experiment which is certain to be repeated. On the technological side, the usual radios and GPS at Top Camp were supplemented for the first time by a computer. Less glorious, it must be noted, was the club's record with more humble surface equipment, as the usual Picos storms were joined this year by herds of aggressive cows at Top Camp, with the result that camp was actually destroyed and evacuated in mid August.

So began what was once billed, in an inspired flight of fancy before the AC Irvine committee, as a pivotal expedition, and which turned out more as a catalogue of small successes and missed

opportunities. 'We wuz robbed', the cavers cried. The advance team gained invaluable experience of deep caving by rigging into C4, but a close examination of the downstream limit revealed no ways on over the sump. The draft was traced up a phreatic ramp some distance back upstream and was revealed to be funnelled up the aven, *A Hard Day's Night*, which had been found in 1994, whilst a climb up near the lake connected into the same aven. Disappointment put aside, the opportunity was seized to carry out flow measurements in the streamway as part of a wider project co-ordinated by Ian Benson to collate information on the various watercourses of the area (see elsewhere). For a while, as SIE extended Asopladeru la Texa above Ario, it was hoped in discussion with them, that they would be able to carry out similar measurements in the Cabeza Muxa streamway, and several nights were spent in a spirit of speleological camaraderie between the two clubs in the refugio as we contemplated the interesting possibility of taking flow measurements in the gorge, Sistema de la Verdelluenga and this other major system all in the space of a few days of settled weather. This would have provided some fascinating data in terms of the overall picture of the proportions of water that we can identify in the resurgence in the Cares, but it eventually became apparent that Asopladeru was unlikely to meet the main Muxa stream before the end of 1997 expeditions.

In the shattered karst of area F, early interest was based around F41 (left unfinished in 1992), and F88, high on the slopes of La Verdelluenga. A huge ice plug halted progress in F88 at -171m whilst F41 appeared to be going in fine style before stopping equally abruptly. Deep cave clearly exists under the green tongue, perhaps connected with upstream 2/7 and/or Sil de Oliseda on the Leon side of the ridge, and both these caves may reward another visit in future years as snow levels continue to fall. Meanwhile, on the far side of Gustuteru, those exploring the Canalizos caves were having more success. The 'impenetrable rift' at the bottom of Canalizos #1 was passed with ease, only to lead, apparently, to a sump. For the second consecutive year, however, the sump disappeared on closer inspection, this one being a temporary one caused by high rainfall flooding a phreatic area of the cave, but negotiating this obstacle led only to a strongly drafting boulder choke. Despite sterling efforts to break through this, spearheaded by our visiting Welsh contingent, its position on the far side of a flood-prone area meant that the dig was eventually abandoned on safety grounds.

Extensive finds were also made in the parallel shaft of this cave and a connection was made to the new areas of Canalizos #3, establishing the link eighteen years after the initial exploration of the system. Nevertheless, this remains another clearly important site which frustrated our attempts to place it in a wider context. The result of a dye trace, which might have allowed us to establish where the Canalizos water resurges, was unfortunately inconclusive. However, the possibility remains that the downstream Tortellini streamway may be a completely independent watercourse rather than the upstream continuation of the main Canalizos #3 stream as was first thought, which provides another intriguing potential lead.

Extensive surface work was also carried out, the most interesting minor finds being D7 and E14. D7 may well prove to provide another entrance into Torca del Vasco, whilst E14 represents potential for another deep cave in the area of F64. Most surface work was again carried out with the aid of GPS, and we are now in a position to plot most of the major caves in the Top Camp area on a large scale map of the area, which will help to focus the search for important 'missing' elements of the Ario catchment, as will the hydrological work carried out this year. Whilst the main aim of the 1998 expedition at the time of writing is a long-overdue return to Pozu Jultayu, there clearly remain several lines of inquiry opened in 1997 to be pursued. An expedition, in short, that answered fewer questions than it posed.

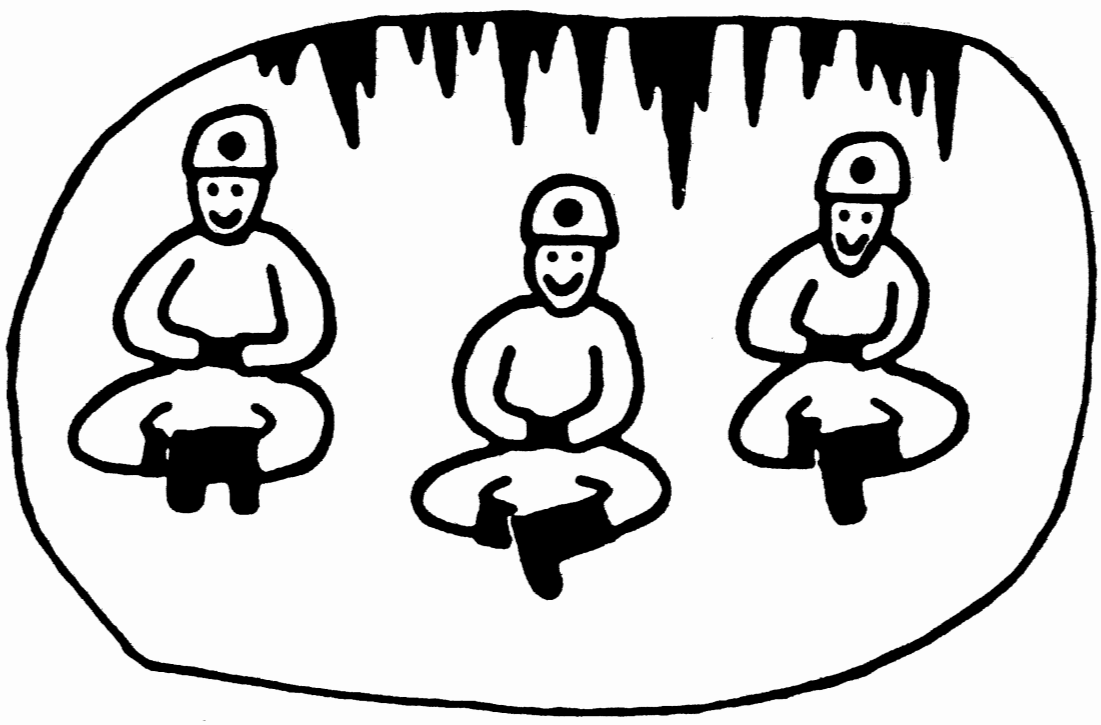
Nathaniel Mumford December 1997

Expedition Diary

Date	Cave	Work in progress	Members
1/7/97		Expedition leaves Oxford	
3/7/97		Arrival at Los Lagos	
4-7/7/97		Top Camp established	
7/7/97	C4	Entrance pitches rigged	KDH, OJH, FB
8/7/97	C4	Rigged to *Maria Rosa*	WGJ, JW, AMW
10/7/97	C4	Rigged to *Hash Brown*	GL, OJH, FB
10/7/97	C4	Rerigging	JW,AMW, KDH
11/7/97	C4	Rigged to *Free n' Easy*	NJM, WGJ, JW
12/7/97	C4	Rigged to *There be Dragons*	OJH, GL, FB
12/7/97	Area F	Shaftbashing F44	KDH, NJM
14/7/97	Area F	Location of F41/F80/shaftbashing	GL, OJH, WGJ, AMW
15/7/97	Area F	Shaftbashing	GL, NJM
15/7/97	F41	Rigged entrance pitches	OJH, KDH
15/7/97	D7	Entrance rigged/breakthrough to 2nd pitch	NJM, AMW
16/7/97	F41	Previous limit reached	NJM, KDH
17/7/97	F41	Cave apparently bottomed in choked chamber	GL, AMW
17/7/97	Area F	F88 located/examined	KDH, WGJ
17-18/7/97	C4	Rigging completed. Lake established as sump after leads checked with big light.	NJM, OJH, FB, JW
18/7/97	F88	Entrance pitches descended	KDH, NB
18/7/97	Area F	Shaftbashing F28/F89/F90	GL
19/7/97	Area F	Shaftbashing F90/F5b/F5c	GL
19/7/97	F88	Rigged to *Rastaman Redemption*	KDH, NB
20/7/97	F88	Surveyed to limit of exploration	KDH, NJM, AMW
20/7/97	Area F	Shaftbashing F18/F19	GL
20/7/97	F41	Survey	IB, WGJ
20/7/97	F88	Pushing *Rastaman Redemption*	OJH, NB
20/7/97	F41	Jolly/orientation practice	ADK, JW
21/7/97	F88	Leads at base of *Rastaman Redemption* checked	IB, WGJ
21/7/97	D7	*Gardener's World* descended	ADK, NJM, AMW
22/7/97	F88	Exhausted leads at bottom of cave	PH, GL
22/7/97	F41	Way on via alternative 4th pitch discovered	JW, LM, AG
22/7/97	Canalizos #1	Entrance pitch rigged	HJ, RBG
23/7/97	Canalizos #1	Cave extended beyond 'impenetrable' rift at limit of SIE exploration	GL, HJ
23/7/97	F41	New route extended to head of big pitch	AG, LM, JW
23/7/97	F88	Jolly – identified leads across head of *Rastaman Redemption* across traverse	RBG, FAL, ADK
24/7/97	Canalizos #1	Cave extended by two further pitches to apparent sump.	GL, HJ
24/7/97	Area F	Shaftbashing F45a/F46	WGJ, JW, LM
24/4/97	F88	*Vampire's Leap* rigged and pushed	RBG, FAL

24/7/97	F41	*Ice Spider* descended to choked floor	AG, OJH
24/7/97	Area D	Shaftbashing D9, D12, D14, D15	PH
25/7/97	Canalizos #1	Sump found to have drained (!) – extended into phreatic section and boulder choke	ADK, OJH
25/7/97	Area D	Shaftbashing D13-15	PH, IB
25/7/97	D20	Shaftbashing	RBG, LM
26/7/97	Area F/D/6	Shaftbashing F91-93	GL, LM
26/7/97	F74	Shaftbashing	IB
26/7/97	Area D	Shaftbashing D16-17	PH
26/7/97	F88	Crossed *Vampire's Leap* to pitch into blind shaft	PJH, FAL
27/7/97	Area D	Shaftbashing D15-19	PH
27/7/97	F88	Survey completed	RM, HJ, LM
27/7/97	F86(a)/F41	Shaftbashing F86/F86(a) and rigging in F41 for photography	AG, JC, FAL
27/7/97	Canalizos #1	Examination of boulder choke	GL, ADK
27/7/97	F41	Photography trip	BL, TCG, AMW, RW
28/7/97	Area F	Shaftbashing F94-99	GL
28/7/97	F41	Survey of extensions to head of last pitch	JC, OJH
28/7/97	C4	Draft traced and all downstream leads tied up/detectors placed and flow volume measured	AG, PH, BL, HJ
28/7/97	Canalizos #1	Digging boulder choke and exploring aven chambers	TCG, LM, RBG
28/7/97	F88	Photography trip	JW, PMM
29/7/97	Canalizos #1	Digging choke and placing line in sump area	GL, JC, RW
29/7/97	D19	Descended two pitches to boulder chamber	FAL, NJM, RM
29/7/97	F88	Pushed blind inlet beyond traverse and derigged cave	HJ, AMW
29/7/97	Canalizos #1	Photography trip	OJH, PMM, JW
30/7/97	D19	Explored choked leads/identified possible alternative route	FAL, NJM, RM
30/7/97	Canalizos #1	Digging boulder choke/surveying *Gerbilism*/photography	TCG, LM, RBG, AG, BL, ADK
31/7/97	C4	Photography trip/detectors removed	PMM, JW, JC, RW
1/8/97	C4	Derigging	Practically everyone but...
1/8/97	Area 8	Shaftbashing Pozu Xastre and 13/8	TCG(!)
2/8/97	Area F	Shaftbashing F13	HJ, FAL
2/8/97	D20	Further pitch descended to end of cave	BL, TCG, LM
2/8/97	Area F	Shaftbashing F96	RM, NJM
4/8/97	Canalizos #1	Rigging in parallel shaft	NJM, HJ, FAL
4/8/97	Areas E/F	Shaftbashing – E14 identified	JC, AG
4/8/97	Canalizos #3	Rigging entrance pitches	TCG, LM
4/8/97	E12	Abortive attempt to move boulder blocking rift ends with Rob's head exploding	RBG, RW
5/8/97	Canalizos #1	Rigged to base of parallel shaft	BL, HJ
5/8/97	Canalizos #3	Cave conclusively bottomed. Possible alternative route identified through window	TCG, LM
5/8/97	E14	*Tubular Bells* descended	JC, AMW, AG

5/8/97	D19	Alternative route descended to aven chambers with drafting boulder floor	NJM, RW
6/8/97	Canalizos #3	Pushing tight leads	RBG, RW
6/8/97	Canalizos #1	Pushing leads at base of parallel shaft	BL, HJ
6/8/97	E14	Digging squeeze at base of *Tubular Bells*	JC, AMW, AG, LM
7/8/97	Canalizos #3	*Clusterfer* descended to *Tortellini Streamway,* with upstream sump and downstream rift	JC, TCG, LM
7/8/97	D19	Pushed terminal lead and derigged	RBG, NJM
8/8/97	Area F	Shaftbashing around F96	JC, NJM
9/8/97	Canalizos #1	Push to window across final pitch in parallel shaft/begin to derig main shaft/epic	BL, NJM, KAW, RW
9/8/97	Canalizos #3	Push rifts and survey all extensions	RBG, JC
10/8/97	Canalizos #3	Derigging	JC, KAW
11/8/97	Canalizos #1	Derig main shaft	RBG, KAW, NJM
11/8/97	F41	Complete survey and derig	JC, AMW
11/8/97	Canalizos #1	One pitch descended through window at base of parallel shaft, to head of 25m pitch	BL, RW
12/8/97	D7	Push to third pitch and survey	KAW, NJM, AMW
13/8/97	Canalizos #1	Connection of pitch in parallel shaft to *Clusterfer* in Canalizos #3, survey and derig	RBG, KAW
14/8/97	D7	Push to tight drafting rift at base of *Misfit,* survey and derig	RBG, NJM
14/8/97	Top Camp	Attack and definitively destroy	3 COWS
14-17/8/97	Top Camp – Los Lagos	Huge loads carried back down the hill several times a day	The survivors, especially KAW
19/8/97	Oxford	Expedition arrives back to a very welcome homecoming party	



The Bubbling Bliss of Yogic Caving

F41

(Pozu del Polar Bear's Packedlunch)
(A very cold and slightly hostile place)

By Jonathan Cooper

Depth: 203m
Plan length: 86m
UTM Co-ordinates: 0342051.49E; 4787754.4N

Location: To the right of the house sized boulder in the middle of the Green Tongue. Traverse 50m upslope past large snowchoked shakeholes (F86a and F86b). The entrance lies at the upslope end of a boulder strewn shakehole. F13 lies on a bearing of 204°. See also Top Camp Shaftbashing Guide.

History: First visited by Sherry Mayo in 1988, when it consisted of a short descent to ice with an impenetrable fissure through which pebbles rattled for some time. It was revisited during the 1993 recce when the snows had dropped. Gavin and others dropped the entrance pitches and reached an ice choked chamber on a 100m rope. In 1997, the snows were even lower, and F41 looked like a prime site for a way into the Mythical system lying beneath the Green Tongue.

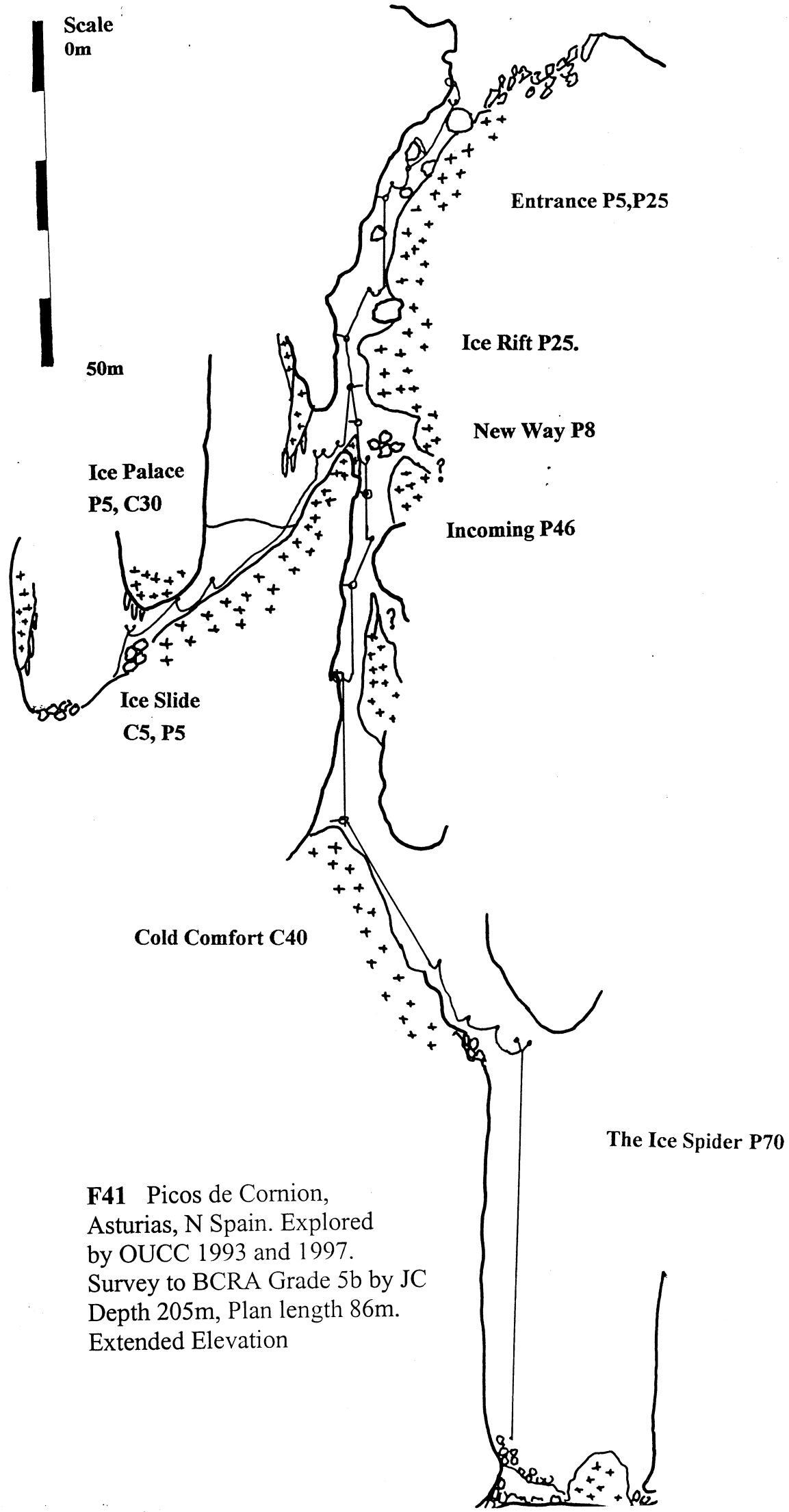
Description: The cave regularly shifts shape, so the rigging may differ markedly from year to year. In 1997 it consisted of three sections, *Entrance*, *Old Way* and *New Way*, which lie on a fault-line running roughly NNE-SSW. The entrance series began as a short pitch (P5) from a large boulder at the bottom of the shakehole. This dropped to an ice-slope at the far end of which an eyehole led to a second pitch (P20). This was rebelayed beside a large jammed boulder, with a deviation to drop to an icy ledge overlooking the third (*Ice Rift*) pitch (P25). Two deviations pull the rope away from the slippery walls and the pitch landed at an icy stance (*The Parting of the Ways*).

Continuing ahead (SSW) is the *Old Way*. A traverse along to a short pitch (P5) dropped to a 45° snow slope at the top of the *Ice Palace* (C30). This was a large icy chamber with two high avens. The chamber is littered with ice formations including impressive icicles and large blocks of ice scattered across the floor. The way on was an *Ice Slide* (C5, rope required), to another pitch in an ice covered rift (P5). This dropped into another chamber with yet more ice formations at the bottom of a high aven. The way ahead led to a rock-choked rift.

The *New Way* headed back under the entrance pitches (NNE). A snow slope (P8) reached an icy chamber with several holes in the floor. From this point until the top of the final pitch the route twisted its way around and beneath several large piles of snow which seemed to sporadically barrage the next section of the cave with ice and rocks. Ice or rocks dislodged here or in the entrance series follow the route of *Incoming* (P46), which was rigged down the largest hole to a hanging rebelay over snow, with several potential routes down. A further rebelay gave a free hang between snow piles and ice covered walls, to reach a cold stance on a 45° snow slope. Upslope appeared to be snow-choked and the way on was the 40m *Cold Comfort* climb downslope with the rope rigged at the stance. The final pitch, (*The Ice Spider* P40) lay at the bottom of this snow slope following a short traverse along the left hand wall. The final 60m was free-hanging in a superb shaft which appeared to be a largely out of the firing line. This landed in a 20m x 15m chamber with no obvious way on, except for a rock-filled rift. There was a possibility of a parallel shaft on the far side of the *Ice Spider,* but this would involve a long traverse from the pitch-head. Alternatively holes at the top and part way down *Incoming* may drop into the far side of the *Ice Spider*, whilst both F86a and F86b draft and lie above the lower sections of F41.

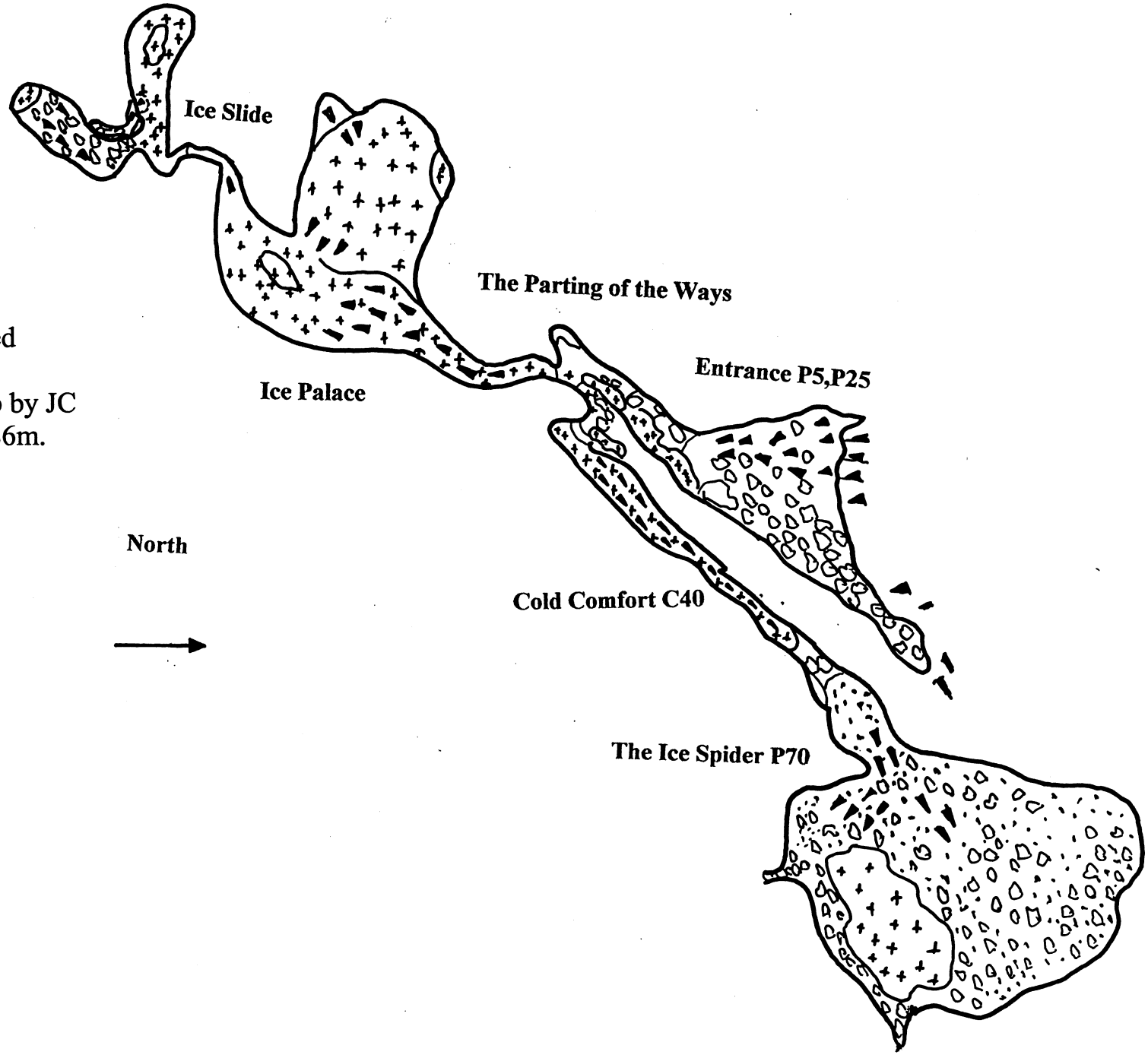
Rigging Guide

Entrance (P5)	75m rope	Y-hang on bolts. Back up in shakehole
Second (P20)	"	Natural, bolt, deviation from natural
Ice Rift (P25)	"	Natural, two deviations from chockstones
Old Way (P5)/*Ice Palace* (C30)	80m rope	Bolt traverse from stance to Y-hang
Ice Slide (C5, P5)	"	Bolt to Y-hang. Back up in chamber
New Way (P8)	120m rope	Bolt at stance to natural rebelay
Incoming (P46)/*Cold Comfort* (C40)	"	Bolt, bolt, deviation, natural, natural at stance
Ice Spider (P70)	100m rope	Bolt traverse. Short pitch to Y-hang



F41 Picos de Cornion, Asturias, N Spain. Explored by OUCC 1993 and 1997. Survey to BCRA Grade 5b by JC Depth 205m, Plan length 86m. Extended Elevation

F41 Picos de Cornion, Asturias, N Spain. Explored by OUCC 1993 and 1997. Survey to BCRA Grade 5b by JC Depth 205m, Plan length 86m. Plan



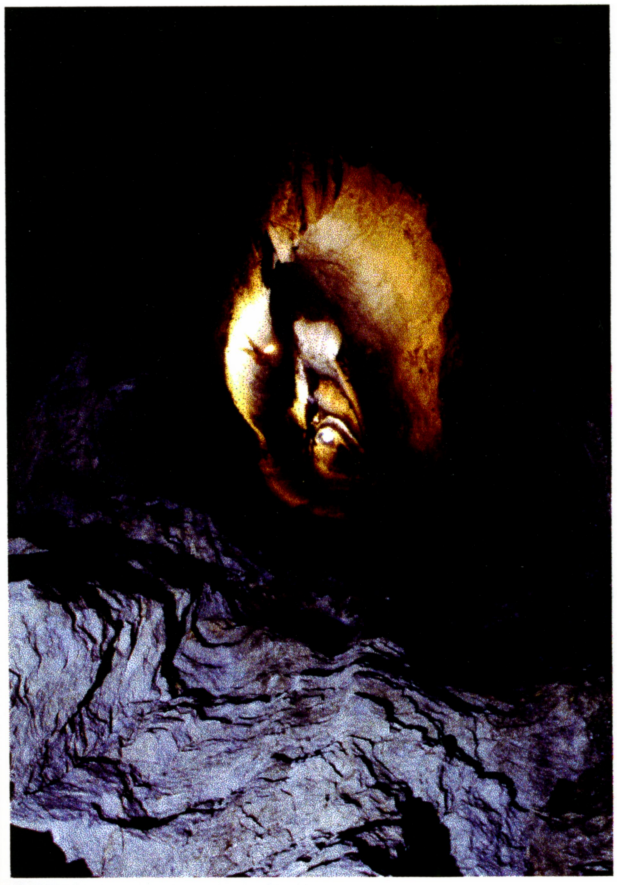
Sistema Canalizos de Gustuteru

Location: 0343145E 4789176N
Altitude: 1670m

Originally explored by SIE (Barcelona) 1979-82

Canalizos #1 (1/8)

The cave is located near the foot of the gully which ascends to the 'notch' on the route to Top Camp. The entrance is on the rim of a shakehole to the true left of the gully, and the 4 x 2m slot is hidden from view unless closely approached. The easiest way to find the entrance is to descend the gully until roughly parallel with the cliffs to the left, clearly identifiable by the striations or 'canalizos', then contouring left to a large shakehole with faded SIE and OUCC markings on the opposite side, close to the Canalizos #1 entrance.



Canalizos #1 - Looking up the Entrance Shaft
Paul Mann

The Spanish cave

The entrance shaft (P162) was rigged in a rather more conservative style than previously, with four rebelays. One is at –15m as the main shaft bells out, with the remainder at –50m (on a large shelf where the parallel shaft diverges) and the others at –90m and –100m. On reaching the rubble strewn floor an obvious descending rift is followed to a constriction followed by the second pitch (P7); the rift continues to the third pitch (P10) into a larger chamber and crossrift, which to the right quickly narrows to impenetrability. The way on to the left in the rift quickly reaches the third pitch head (P8), dropping through a hole in the floor to a chamber where a clamber up to the left reaches the start of the rift which marked the previous limit of exploration.

Breakthrough chamber – side passages

The tight rift, which was hammered, pops out into an aven chamber where the nature of the cave becomes more complex. The aven inlet and small rift intersect with a phreatic tube running perpendicularly to the trend of the rift. Off to the right, a 2m climb gains access to a sandy floored crawling sized tube containing a variety of mud formations for about 50m, where it intersects a tight rift containing a small active streamway from the right. This passage continues on as a keyhole cross section trending downwards until it closes down to a tight duck, which continues very low with no sign of larger passage for several metres.

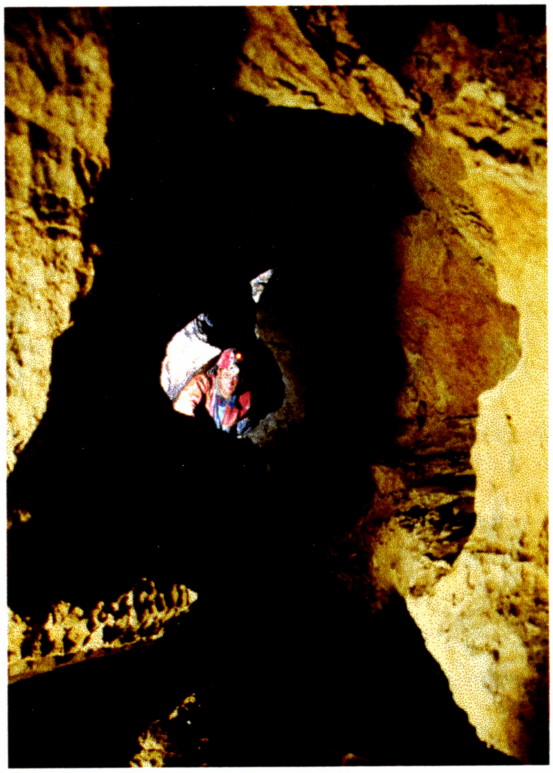
On the left-hand wall, a 4m climb gains the other side of the phreatic tube. This continues with a treacherous false floor to an 8m drop back into the main rift. Traversing over leads again to keyhole shaped passage as the rift has cut through the phreas floor. A cross rift to the right after 10m leads back

into the main rift, while ahead continues into a large aven of 5m diameter, the roof of which is not visible, with an 8m climb up to a blind inlet.

Main rift continuation

The rift continues to the head of a pitch (P7) into a large chamber, the way on being a short climb up to the head of the next pitch (P10). This lands in a sandy floored chamber with the active streamway. Upstream is impassable, but downstream leads through a low arch to a sharp right hand bend where two sumps rise. Following the rift off to the right leads to a 6m x 4m chamber. The far side of the chamber is filled with mud, but the streamway has cut down on the upstream side to where it disappears into a very immature crack in the floor. **This description applies only under low water conditions – when first discovered, several days after a storm, the chamber was flooded to a depth of about 4m.** Under these conditions, the archway which is the way on from the chamber is completely sumped, and a bolt on the archway remains in place to anchor a line in case of emergency. **Exploration on the far side of this obstacle must be conducted with extreme caution.**

Ducking under the arch leads up a muddy slope into a phreatic tube which continues roughly level to a junction. Left closes down immediately in a choked rift, while right leads into a muddy bedding plane. The draft at this point in the cave, blowing inward, is very strong. The bedding plane opens out into a cross rift with a boulder slope directly ahead, and the draft heads into the choke, access to which is gained initially by squeezing under the largest of the blocks. A meandering path was dug and hammered through the choke to a more unstable, clean-washed zone where further digging looked possible if not advisable.



Olly Hilton in a Rift Passage in Canalizos #1
Paul Mann

Flaming Gerbils

On the left, just before the first right hand bend after the 'sump' area a climb up into the roof leads into 'popcorn'-covered rift passage. This continues up into a large (20m x 8m) boulder floored chamber, similarly decorated with some interesting formations. Ahead, an ascending rift, covered in 'popcorn', was not pushed further to avoid damage to formations. Two climbs, either from the main chamber itself or just before the rift enters the chamber lead to a 5m x 5m chamber with no ways on.

Canalizos #1 parallel shaft

The parallel shaft diverges from the main shaft about 50m below the entrance. It is reached from a sizeable ledge located just above the second rebelay in the main shaft. Reaching the ledge when rigging requires an exciting pendule before tying the rope off to a bolt on the far wall. The shaft is entered through an eyehole on the northern side of the ledge which opens onto a 35m pitch. From just above the base of this shaft the best way on is a short traverse in a high rift away from the ledge. After 5m or so it is possible to descend the rift to its base some 80m below. There are two comfortable rebelays at –10m and –55m.

The very base of the pitch is choked, and the way on follows the draft into a series of walking size passages via a short scramble from a ledge 5m up. These passages appear to be phreatic in nature but

are now dry, with many complicated converging rifts. Following your nose leads inescapably to the only junction of note at the head of a 24m pitch. The original exploration led down this pitch to a small streamway in a tall rift, which terminated downstream in a sump.

The Missing Link

An alternative way on from the head of the 24m pitch is found by traversing to a phreatic continuation. The crux of this traverse is best managed by attaching one's footloops to the bolt which is halfway around the traverse. It is then possible to use them as a much needed foothold before gaining the passage on the far side where the traverse line is secured to a convenient natural. Once again route finding is quite straightforward, although care should be taken in some areas where traversing becomes necessary. After about 30m an 18m pitch is reached. It lands in a small chamber with an impressive popcorny floor with miniature castellations at one end which overlook a small drop to a pool from where water appears to flow under the chamber.

The way on continues at the other end of the chamber where the passage gradually deteriorates in size. However, after about 20m, when progress is beginning to become awkward the passage suddenly arrives at a window 27m up an impressive shaft. This is '*Clusterfer*' and looking across the shaft and slightly upwards, one can see another window which was the original route in from Canalizos #3.

Canalizos #3

The Canalizos #3 entrance is about 50m to the north-west of Canalizos #1 and slightly downhill.

The Spanish cave

The cave starts with a 10m pitch down a surface rift. From one end at the base of this the rift continues around a corner and over a boulder pile to a short traverse and pitch. This lands on another boulder pile. From the far edge of this boulder pile a further two short pitches take you to the head of the main shaft.

From here, the Spanish cave consists of several parallel shafts which diverge and converge most confusingly. The main shaft, '*Rajoli*', is so called because of its resemblance to a small drain – especially noticeable during thunderstorms. This shaft is an impressive 129m to a boulder floor. However, the preferred route down starts with a ledge rebelay after 20m, which takes you clear of any water which may be falling down the shaft. A further 15m down, a deviation facilitates a pendule into a window onto another shaft. Pitches of 15m and 25m in quick succession take you to a small chamber. From here, a slightly more awkward takeoff leads to a 40m pitch, to another chamber. At the SW of this chamber an easy 2m climb onto a ledge permits access to a window which opens out 40m up a large shaft, '*Clusterfer*'. A window in the opposite wall of this shaft is where the connection from Canalizos #1 enters.

Meanwhile, on the opposite side of the ledge a 15m pitch lands on a boulder floor overlooking the base of '*Rajoli*' some 20m below. There are also two small eyeholes accessible from the ledge. Throwing stones through them has led to the conclusion that these, too, open onto the main shaft of '*Rajoli*'.

From the base of '*Rajoli*' a short climb reaches a ledge from where a rift passage may be accessed. After a few metres of traversing, a sharp corner is reached. A small hole on the left enters a body-sized tube which may be followed for 4m to a small chamber from where the way on is too small to follow. However, traversing carefully around the corner leads to slightly more exposed traversing along the main rift until a pitch of 30m is reached. This has a rebelay half way down, and lands in a high chamber with a small stream. Upstream enters from an impassable rift while downstream slides away to a sump. A mud-choked bedding plane, believed to be a sump overflow, was briefly dug before being abandoned as hopeless.

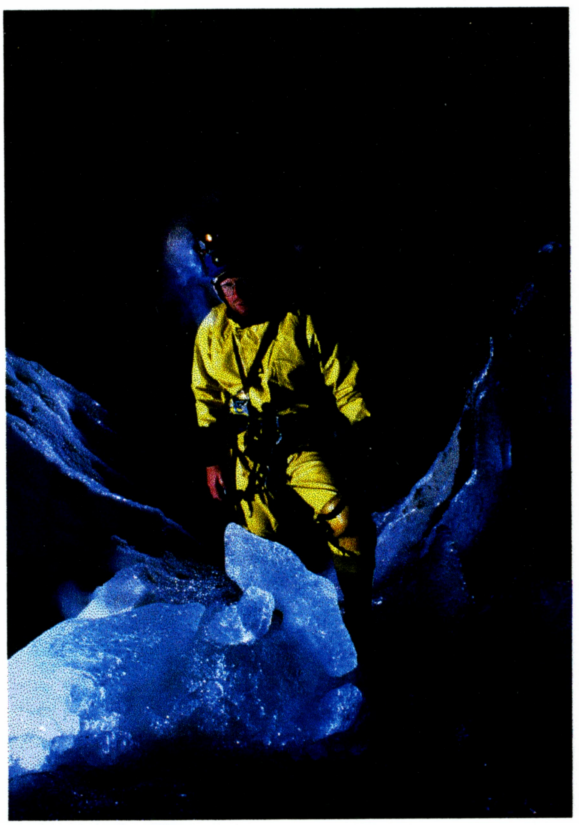
The *'Clusterfer'* extensions

'Clusterfer' was a new shaft found in 1997. Its importance lies in being the connection point, found independently from both sides, of the two Canalizos caves. It also leads to the lowest point of the sistema as well as offering one of the best opportunities for further exploration.

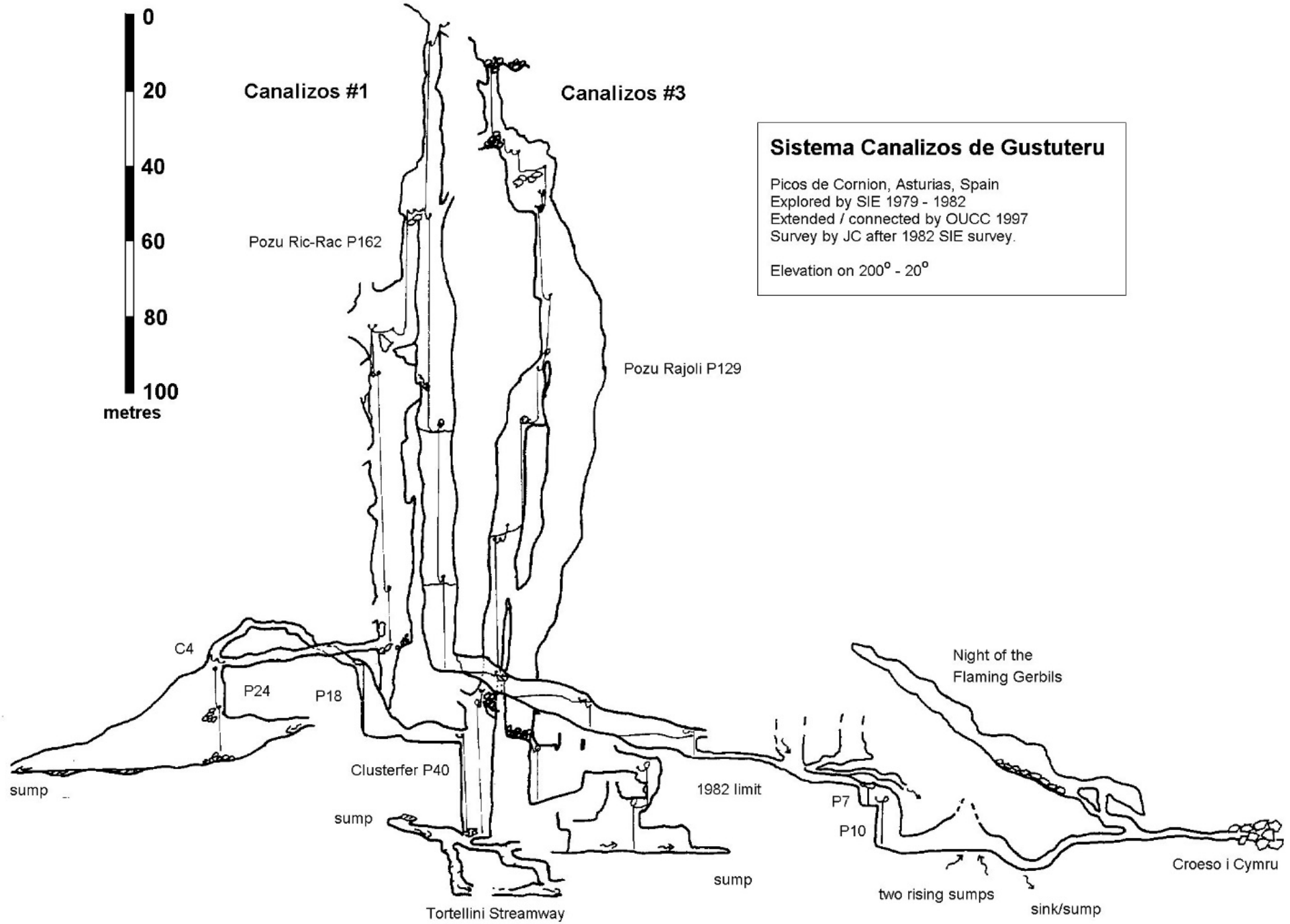
From the base of the shaft a dry passage winds off to the west. After a few metres this intersects *'Tortellini Streamway'* running approximately SW to NE. Following this upstream for 10m or so, a comfortable meander arrives at a small blue rising sump. In the downstream direction the water falls away down a series of short cascades. Attempts to follow it soon fail due to more impenetrable rift. However, a higher level permits easy traversing for 10m of progress. From here the way on is not obvious. The original explorers examined several different levels of the rift before concentrating on one of the lower ones. This is accessed by a choice of downward squeezes in the rift. An awkward horizontal squeeze then gains a little chamberette. From here a hammered squeeze allows progress horizontally to a place where progress appears unpromising although it might repay further hammering. The alternative is a slot down that regains the streamway although progress downstream is again prevented by tight rift which might also be hammerable.

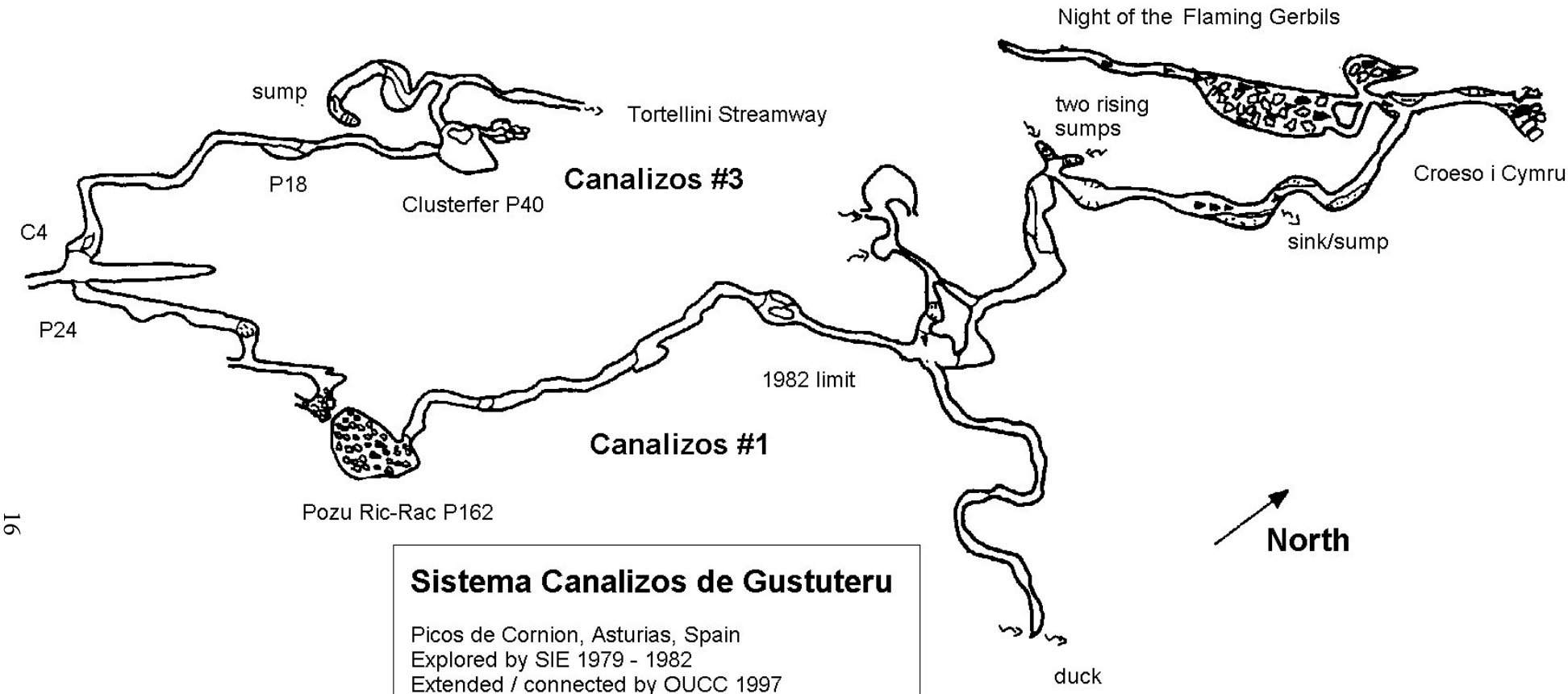
All explorations in this rift were conducted with the expectation that the streamway would turn out to be the same one as found in the main shaft of Canalizos #3 entering from an impenetrable rift. However, the survey suggests that this stream is already some 20m lower than its compatriot and may well be the key to the way on. This is by no means assured since without access to the original survey data on the Spanish discovered parts of the cave it is impossible to be sure that the surveys have been correctly joined. Nevertheless it is encouraging enough to justify a more determined look at the streamway and rift. In particular, the higher levels above the streamway were never really pushed and may yet yield easy progress.

Andy King and Rob Garrett



Ben Lovett in F41 Tim Guilford


0
20
40
60
80
100
metres
Canalizos #1
Canalizos #3
Sistema Canalizos de Gustuteru
Picos de Cornion, Asturias, Spain
Explored by SIE 1979 - 1982
Extended / connected by OUCC 1997
Survey by JC after 1982 SIE survey.
Elevation on 200° - 20°
Pozu Ric-Rac P162
Pozu Rajoli P129
C4
P24
P18
Clusterfer P40
sump
sump
1982 limit
sump
Tortellini Streamway
Night of the
Flaming Gerbils
P7
P10
two rising sumps
sink/sump
Croeso i Cymru



Sistema Canalizos de Gustuteru

Picos de Cornion, Asturias, Spain
Explored by SIE 1979 - 1982
Extended / connected by OUCC 1997
Survey by JC after 1982 SIE survey.

Plan of Canalizos #1 showing
connection to Canalizos #3

D7 – The Back Door into Torca del Vasco?

Depth: -109. 96 m
Length: 65. 37m

Location: By the Vega de Aliseda Moraine, bearings La Verdelluenga 152, Conjurtao 274. Head direct from new Top Camp to the orange rocks N of the Vega de Aliseda moraine. Stop at prominent shakehole about 30m before reaching the Vega. The prominent back wall has yellow/brown staining and a small bush growing out of it.

Climbing down through large boulders for 3m leads to a small chamber and the first pitch, *'Rolf Roof Digging'* (P29). An awkward pitch head soon opens out and parallel shafts can be seen at –10m and –15m. Landing (in 1997) is on a very small snow cone. The obvious way on to the SW leads over a choked hole to a small canyon which soon fills with rubble, but the way forward is a small drafting rift beside the snow cone. A short squeeze is best approached head first, and anyone of above average build should consider removing gear.

This squeeze emerges in an aven, probably connecting with the parallel shaft seen from the first pitch. Several holes immediately ahead are blind or tight, but to the right a large block provides a belay for the next pitch, *'Gardener's World'* (P44). The first section of this pitch (P12) lands on a shelf and then on a rubble-strewn ledge with a convenient chamber for a shelter at the main rebelay – this area of the cave is very loose. At least three avens converge at this point, and a small amount of water is followed from here even in dry weather.

From the main rebelay a steep descent passes a deviation from a rock bridge to a further rebelay which allows a direct hang to the floor. To the left of the pitch base an inlet connects back to the left hand end of the rubble-strewn ledge above. The third pitch (P11) follows immediately, landing in a chamber with a small pool. The water debouches into a prohibitively tight meander, but in the roof of the rift a crawl over 'cauliflower' leads past a sharp left-hand bend to an enlargement where another small passage can be seen in the roof of the rift.

A hand line protects a climb down onto a small rock bridge where the *'Misfit'* (P13) lands in another pool, and the water vanishes into a very tight, drafting rift. Several possible routes through the rift were given only a cursory examination, and it is possible that the way on is high in the rift – to the left of and immediately beyond the pitch head potential routes remain unexplored owing to lack of time and manpower in 1997. Initially thought likely to be the inlet in the roof of the aven which represents the 6th pitch (P28) of Torca del Vasco, at this depth it seems more likely , if indeed the two caves are connected, to be connected with one of the parallel shafts around the 7th and 8th pitches of the latter cave, or perhaps to be the wet inlet below *'Bolt Farming'* in the 1996 OUCC extensions.

Rigging Guide

Entrance (*Rolf Roof Digging*) (P29): 35m rope; spike belay L; bolt belay L; bolt rebelay L, pitch head; deviation –3m R.

Gardener's World (P44): 60m rope; spike belay, large block; bolt y-hang L, R; deviation –5m R; spike rebelay –10m L; bolt y-hang R, R; deviation –25m L; bolt rebelay –30m L.

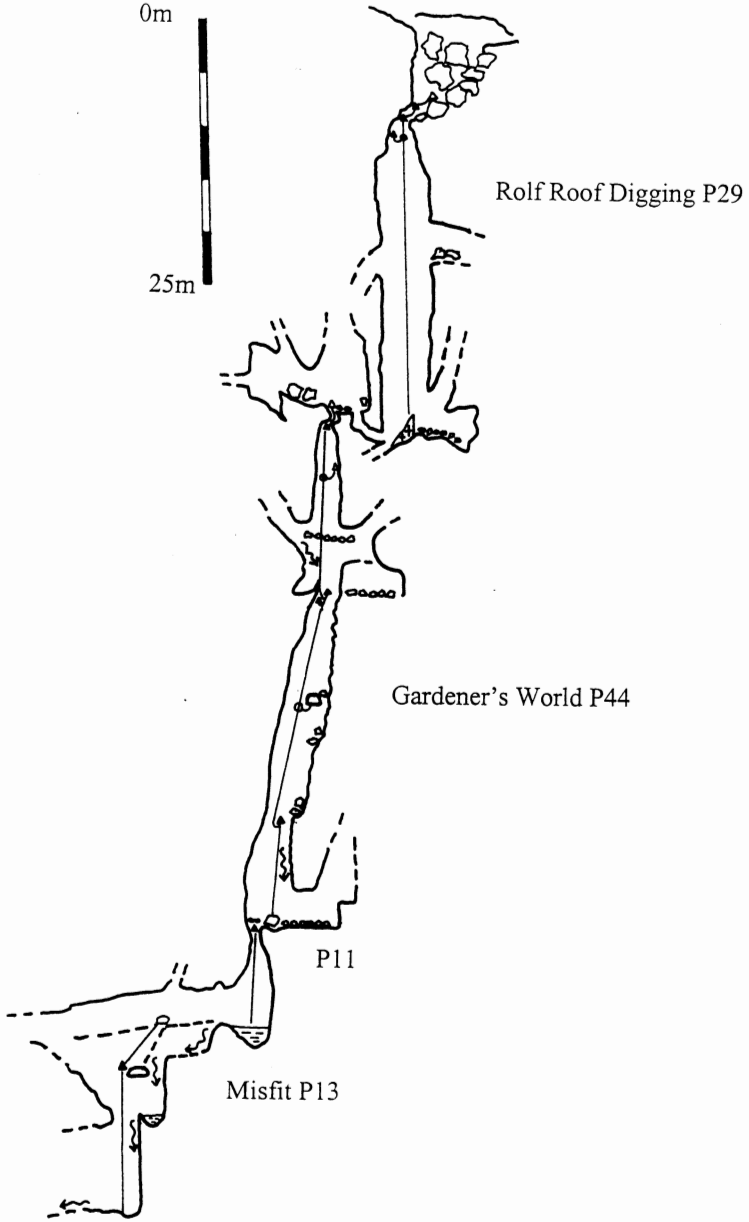
Third pitch (P11): 15m rope; bolt y-hang L, R.

'Misfit' (P13): 20m rope; spike belay for handline, L; bolt rebelay R, at pitch head.

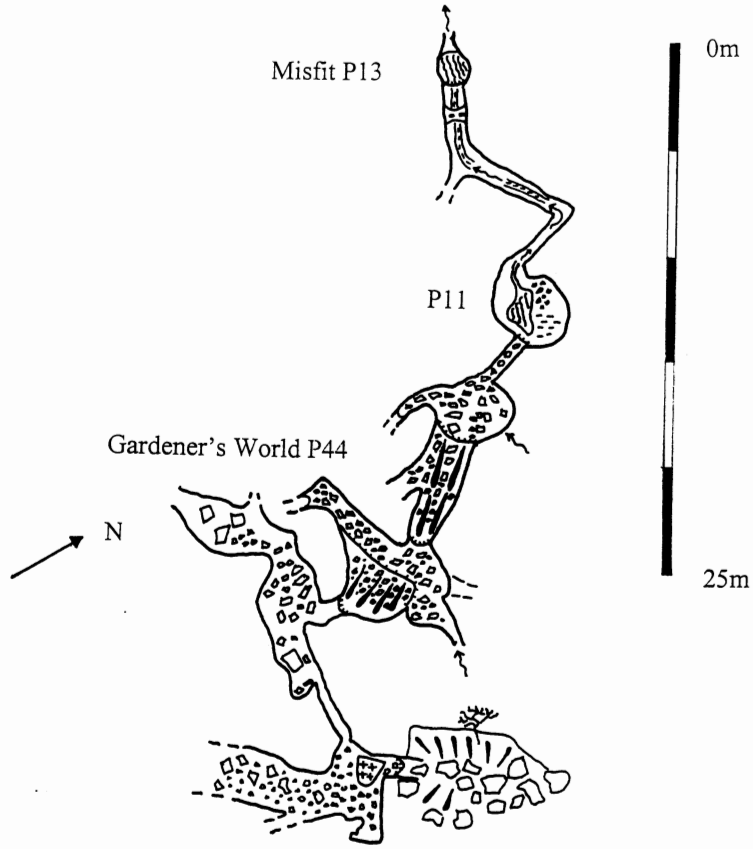
Area D: 'There aren't any caves round here, except underground, of course...'

Elevation on 270°-90°

D7 (F82) **Vega de Aliseda**
Picos de Cornion, Asturias,
Spain. Explored by OUCC,
1997- . Survey by NJM to BCRA
Grade 5b



Plan



F88

Depth: -171m
Length: 70m

Location: 0342026E 4787639N
Altitude: 2040m

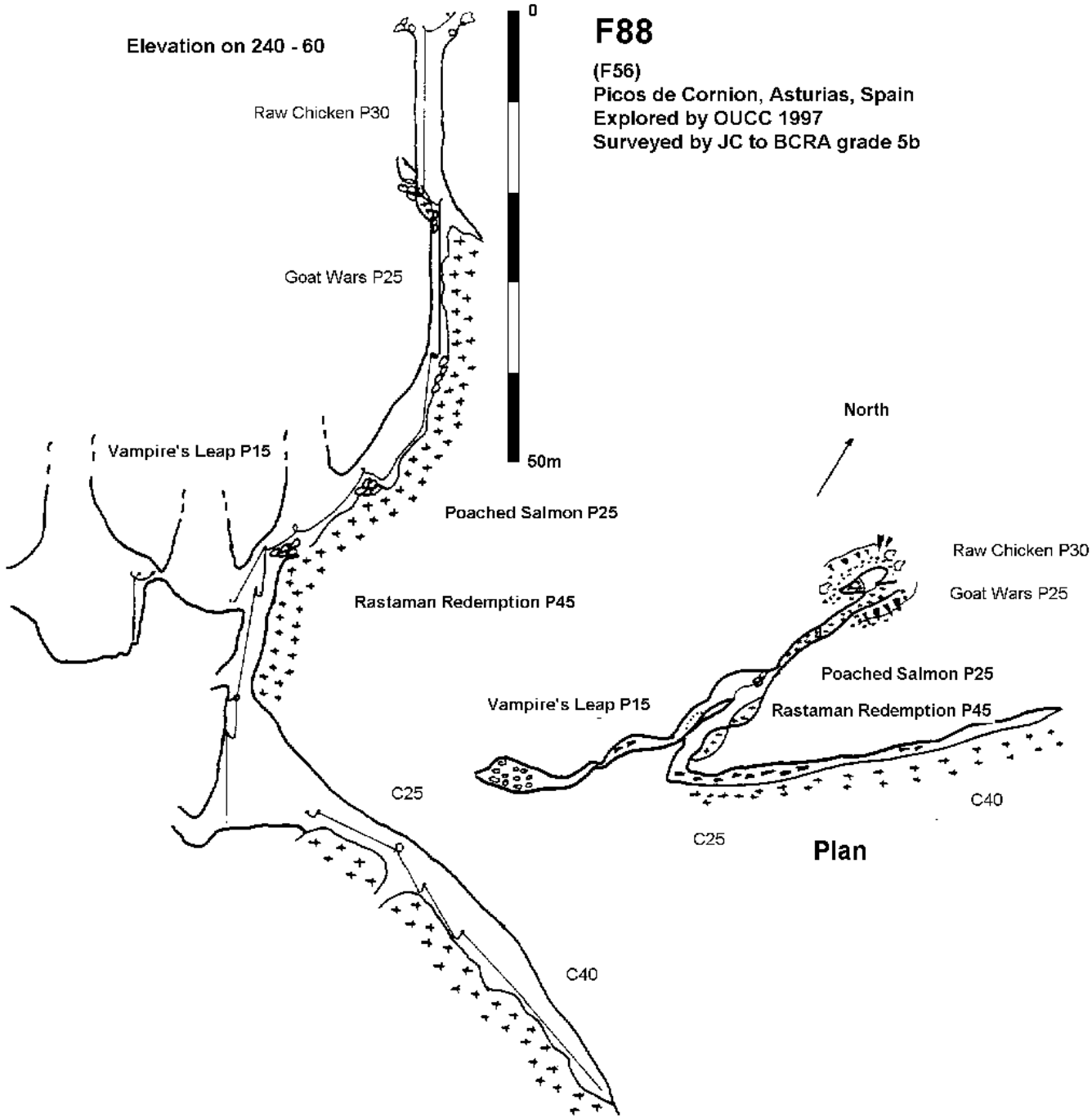
The cave is located just below the Verdelluenga—Cabrones ridge, to the west of the Verdelluenga Thrust ("The Green Tongue"), in a small depression in an area of karst, near the base of a cliff. It was originally explored in 1993, when it was numbered F56, to the base of the first pitch, where it was blocked with snow. It was explored further in 1997.

The entrance pitch of 30m drops down a roomy shaft, into a 4m by 6m chamber. The second pitch continues immediately, dropping down the side of a snow pile for 25m. [It is possible to descend to the bottom of the snow pile, where it appears to be blocked; any continuation here is likely to link into the cave further down.] The way on is to swing slightly left, doubling back under the entrance shaft, to a stance from where the next pitch is rigged, a 20m descent down another snow slope.

At the base of the pitch, a short, lined traverse along a rift leads to the head of another shaft. [A difficult pendule across the top of the shaft reaches a short scramble up to a small hole, followed by a 14m pitch, with no way on at the bottom.]

Joanne Whistler at the head of the second pitch in F88
Paul Mann

Back at the end of the traverse, the pitch can be descended for 42m, past a ledge, to land on a snowplug. [Continuing in the same direction enters a choked rift.] The main way on is doubling back under the descent route, and either descending the snow plug and walking along the floor, or an awkward 10m traverse along the snow before descending. The cave continues, descending at an angle of about 45 degrees, with a few short vertical sections, for 80m. The passage becomes more and more full with snow as the descent continues. A few holes are visible through the snow, but none are inviting. Eventually, the snow runs out at a pebble floor, with no way on visible.


F88
(F56)
Picos de Cornion, Asturias, Spain
Explored by OUCC 1997
Surveyed by JC to BCRA grade 5b
Elevation on 240 - 60
0
50m
Raw Chicken P30
Goat Wars P25
Vampire's Leap P15
Poached Salmon P25
Rastaman Redemption P45
C25
C40
North
Raw Chicken P30
Goat Wars P25
Poached Salmon P25
Vampire's Leap P15
Rastaman Redemption P45
C40
C25
Plan

Small Caves Explored in 1997

F89 (GL)	On flank of Cabrones, above F5. Bearings 300° to F2, 244° to right hand end (cliff) of Punta Gregoriana. A small crawl into chamber chokes.
F90 (GL)	About two levels higher than F89. Snow pole 8°, top of F13 rock 56° (about 200m). Cave slightly higher than F13 rock. Impressive rift with snow plug heads into hillside. 25m pitch onto snowplug. All ways on choke.
F5b (GL)	6m right (true left) of main F5 shaft. Narrow crack leads into cliff face. Bottom chokes, but 'top might be hammerable'. Very good draft.
F5c (GL)	Between main shaft and F5b. Bold step across shakehole into small phreatic tube leading into cliff. Tight but might be passable. Slight draft.
F18 (GL)	Chokes; no way on past the snow (see shaftbashing guide)
F19 (GL)	Chokes; no way on past the snow (see shaftbashing guide)
F? (GL)	Unnumbered shaft in continuation of F19 rift, a few metres SW; hand-lined climb of about 10m. Rocks rattle down a slot to the left for a few seconds; "I dug at this for a bit, before realising the slot was only 10cm wide".
F91 (GL, LM)	From W end of Vega Aliseda, follow valley to L uphill, following cairns, for about 150m into area of shakeholes. Cave is in R (true L) hand side, overlooking obvious shakehole. Verdelluenga 128°, Cabrones 172°, climb out of Vega Aliseda on direct route to Los Lagos 84°. Cave descends at 45 for 5m to choke, but on left just inside entrance is hole through boulders looking into chamber. Well-aimed rocks rattle for a few seconds. Drafts. Needs a crowbar.
F92 (GL, LM)	Further up valley from F91, scramble up to the left along fault on bearing 138°, hading at 40° down to NE. 126° to Pico Aliseda. Awkward 10m climb down into rift. A few metres ahead is a drop of maybe 20m. Next shaft up may go with digging.
F93 (GL, LM)	Overlooking F92, phreatic tube at base of cliff. Goes 5m, and then gets low. Needs oversuit (!)
F94 (GL)	In middle of scree-filled valley running along base of Cabrones towards the pass. Cave is about 100m from col leading to F38. Bearings l/h peak of Cabrones 104°, r/h peak 214°. "Basically its in a fairly naff place, and I'm surprised its not already full of rocks". 10m shaft.
F95 (GL)	Near F94, at base of cliff jutting out from Cabrones. 10m shaft may continue past snow.
F96 (GL)	2/3 of way up valley is snow field at base of cliff. F96 is at top L (true right) of this. A rift heading into the mountain. Not tagged.
F97-99 are on a 25m x 20m ledge, to SW of F96 snowfield, a short climb above the scree slope. Bearings F2 12°, pass 292°. The easiest way might be to continue up the main valley, climb up a scree runnel, and then traverse up to the ledge.	
F97 (GL)	Near N end of ledge. Several parallel shafts to snow.
F98 (GL)	SE corner of ledge, shaft to snow. Skylight above, possibly with parallel shaft.
F99 (GL)	SW side of ledge. Walk into 8m x 8m ledge. Appears to be blind, but needs checking with a light.
D12 (PH)	Revisited (see shaftbashing guide). Climb over final meander gave some pretty formations but ended in a choke after 10m.
D13 (PH, IB)	NW of D9 and 40m lower. Climbable meander descends 10-15m to further pitch head - 10m pitch into canyon. Soon choked. Slight rattle and intermittent draft.
D14 (PH)	Due W of D9 and 30m lower is 'shepherd's cave'. About 25m N of this descending gully in loose rock. Chokes after 20m.
D15 (PH)	146° to La Verdelluenga. 180° to next peak W. Awkward 5m climb down obvious fissure entrance chokes about 25m down. Rebecco skeleton in 1997. Alt 1733m 43. 14.146N; 4. 57 .321W
D16 (PH)	Follow Vega Aliseda to W end and turn N into large doline. D16 is large shaft on N edge of doline, about 20m deep and undescended. La Verdelluenga 141°, 180° to next peak W.

D17 (PH)	50m W of D16 and on the same bedding/fault is 1m x 2m meander descending at 45° for 15m to small chamber with four small outlet. Needs dig/blast. Drafts out. Alt. 1773m. 43.14.019N; 4.57.342W
D18 (PH)	Follow path W uphill from end of Vega Aliseda. Entrance under cliff which bounds r/h side. About half way up. Ramp descends 5m to diggable choke with draft. La Verdelluenga 130°, next peak W 172°. Alt. 1848m 43.13.884N 4.47.355W
D19 (PH etc)	On W side of small hill S of Vega Aliseda at W end. Large open rift with snow plug. La Verdelluenga 139°, next peak W174°. 10m pitch down to rock bridge over meander. Obvious way on ahead follows bolt traverse over large boulder and down ramp on r/h wall to a 30m pitch into a very large boulder-filled chamber. 10m pitch at the far end of this drops into water-worn but thoroughly choked smaller chamber. Trending back underneath the entrance, the westwards continuation of the fault goes down 10m, 5m and 20m pitches, through a small arch to tall perpendicular rift passage, which appears to be upstream passage and pinches out after about 40m. Boulder floor by arch is effectively downstream and drafts but is completely choked. Cairned entrance E of D19 undescended.
D20 (LM, RBG etc)	'The cave in the bowl with lots of moonmilk that Rob showed me...' An obvious entrance at the foot of an outcrop between the 'notch' and the Vega Aliseda, skirted on either side by the two conventional routes to Top Camp. A crawl from the entrance leads to a small rift. Round a few bends it enlarges to where a single ladder pitch lands on a false boulder floor. L, a pretty 7m high passage goes 10m to a drafting choke. A way through the boulders from the main passage leads to a descending rift that pinches out. R at the bottom of the first pitch through boulders leads to another pitch (two ladders). Turning R at the bottom of this pitch leads to a boulder filled chamber with no way on.
E14 (JC etc)	On N flank of La Verdelluenga, immediately above F71 in an outcrop overlooking the valley below Top Camp, and directly to the W of the green ramp running up towards the 'dolomite knobble'. 10m long rift with faded Polifemo markings. Pot at N end is 15m deep but blind. Tight entrance at S end through a squeeze (*The Mink*) leads to a 45-50m pitch (*Tubular Bells*) rigged from natural belays with one bolt rebelay. Window through to parallel shaft 30m down, before landing on a small snow cone. Obvious hammered continuation on shelf just above snow cone is blocked by a 'ship's prow' of rock, beyond which is running water, and a pitch. A good prospect, although probably related to F64.
Two caves in area of bare limestone down the ridge E of El Regallon	
E15 (BL, AMW)	200m on 255° from El Regallon. 43.13.7N; 004.56.3W. Steeply sloping narrow streamway enters too-tight crossrift at –10m. No draft.
E16 (BL, AMW)	Obvious large double shaft at top of bare rock area. 20m deep, 10m diameter with a snow plug and boulder floor. No draft.
C22 (BL)	Tagged but not in shaftbashing guide. Small hole in base of shakehole with incredibly faint draft. Alt 1773m. 43.13.8N; 004. 56.2W
Pozu Xastre (TCG)	(See SIE material). "Hammered through the rift described by SIE as 'impenetrable with a 20m drop beneath' in two places. Convinced myself that there is nothing but a 3" slot below. No draft".

An Argument at Camp

"Paul wants someone to help take pictures of the lake in C4", said Jo. Paul was still asleep.

"Sump", said Rob.

"What? No, the lake", said Jo.

"Sump. It's a sump", said Rob.

"So much cynicism in one so young", said Rhys.

"The roof comes all the way down to the surface of the water, thus", said Rob in his inimitable Rob-like logic, "it's a sump and not a lake".

"I think it's a lake", said Ali. "Says so on the t-shirt".

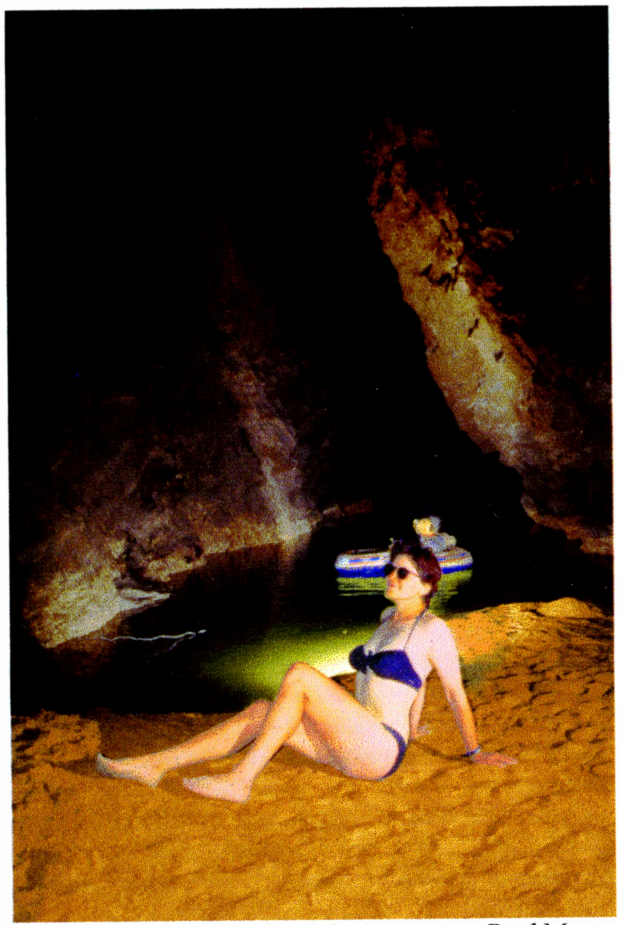
"It's no use trying to explain logic to a South Wales digger", said Andy, having spent the night on the ridge with Nick Burcham.

"Sump", Rob repeated, disgruntled.

"I think it's a sump", added Ian to the debate.

"How would you know: you've never been there", said Alison.

"Neither have you", said Fleur.



Joanne Whistler at the beach in C4 *Paul Mann*

An argument was developing. El Regallon 1997 looked to Nobby for leadership. "Er, shall we have a sesh?" said Nobby helpfully.

JC decided to intervene. "It's both".

"What???" everyone asked simultaneously.

"It's both a sump and a lake. A sump at one end, a lake at the other", JC said in his triumphantly mediocre fashion.* Silence reigned.

"Great strawberry cheesecake, this", said Tim. And a great peace settled over the camp as the first gerbils became visible attempting atmospheric re-entry.

Tim Guilford

* I did not say this. I said "Most sumps are small and are usually called sump-pools. C4's end is bigger, more of a lake than a pool, so it should be a sump-lake". Get it right. JC

Surface Surveying

During 1995 and 1996 many man hours were spent by certain expedition members, particularly John Pybus and Alex Harding, on a surface survey of the cave entrances in the new Top Camp area. The thinking behind this was that although the caves in and around the Ario area were generally well located, and those in the area of Old Top Camp had been located by Gerhard Niklasch [1] over a long period to 1989, no such project had been undertaken on La Verdelluenga, simply because before the translation of Top Camp to the snow pole, this area had been a considerable distance from either base. Moreover, the shift of concentration, and changes in exploration techniques, had naturally resulted in a glut of new entrances since 1994, which needed to be logged [2].

The results were not recorded in the 1996 expedition report, owing to some uncertainty over the accuracy of some loop closures, and some obvious anomalies in the positions of certain caves. Thus the co-ordinates are presented here with the proviso that there may still be slightly anomalous locations lurking within the table. The authors of the data, however, claim that they should still be accurate to within 10m or so, a degree of accuracy which, with the prospect of G.P.S becoming increasingly effective and influential in the field of alpine navigation and hence cave location in the Picos, should soon enable us to substantially cut time spent locating promising entrances; the original surface surveys included sections to the peak of La Verdelluenga, and to the permanent survey station at Old Top Camp, both of which are accurately linked to the Spanish national grid, and have confirmed UTM co-ordinates.

G.P.S has been in use on OUCC expeditions for the last two years in parallel with the ongoing work of the surface survey. Whilst it was concluded that at present, the positioning of entrances using this system was no substitute for an accurate surface survey [3], it has proved to be indispensable in locating new caves whilst engaged in shaftbashing, for example, where the time and effort required to carry out a surface survey are not justified in order to accurately locate, say, a new 10m deep choked shaft. Below are presented the co-ordinates of all the caves identified by the surface surveys of 1995-6, plus a number of entrances logged by G.P.S in 1997, and identified as such; the position of D7 given by this system, for example, was so obviously erroneous as to confirm the conclusions reached about its current accuracy. The map of the central section of the OUCC area overleaf is included solely for the purpose of giving an impression of the distribution of cave entrances in this region - the 1:10000 map upon which it is based is sufficiently unreliable, particularly in terms of contour, to preclude completely accurate cave location.

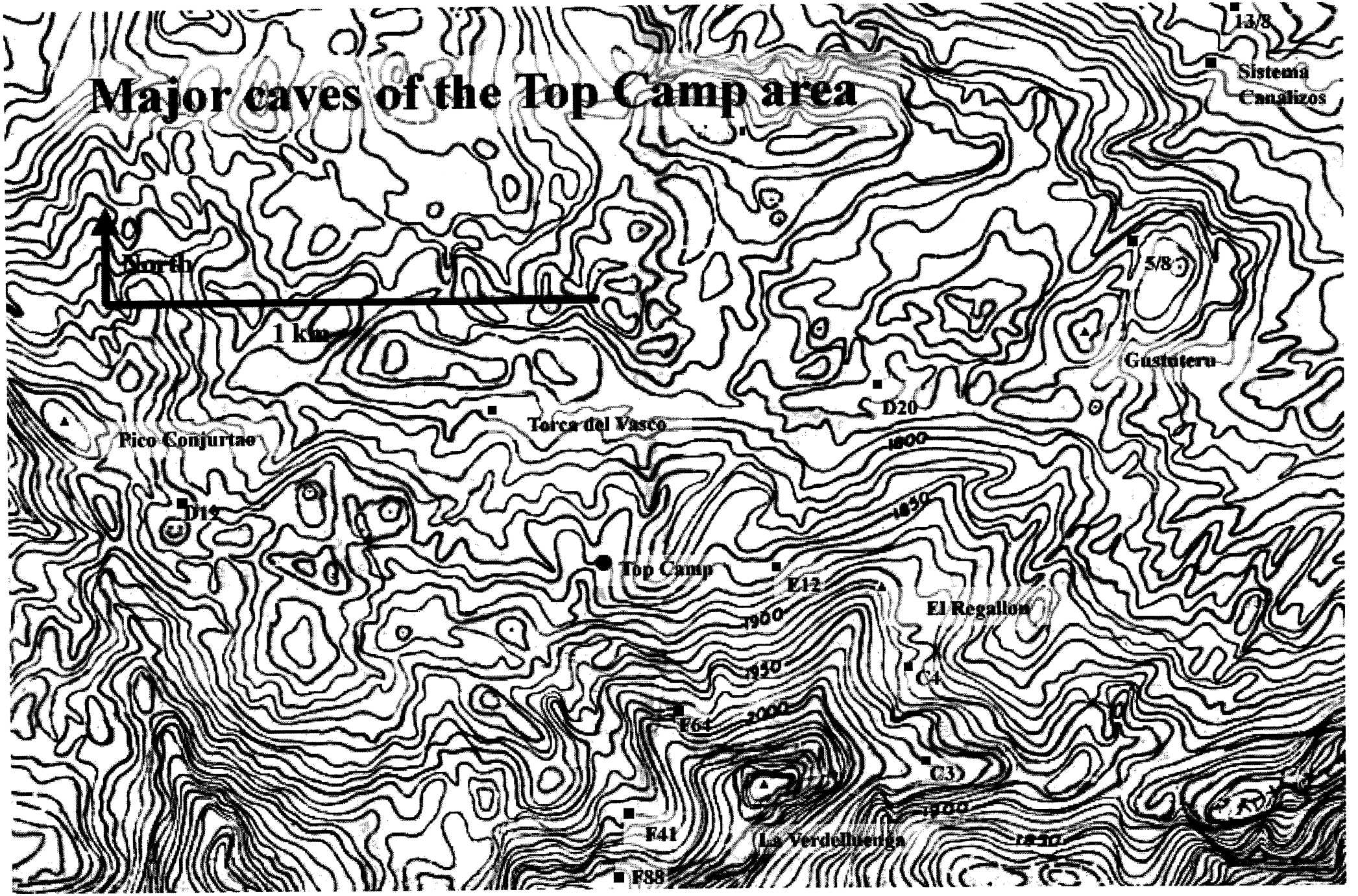
[1] Niklasch, G : 'Geodesy and mapping projects', *Proc. Ox. Uni. Cave Club* 13 pp 101-104 (1991)

[2] Pybus, J : 'Surface Surveying', *OUCC Gustuteru Expedition 1996 Final Report* p22 (1997)

[3] Guilford, T :'A small pilot experiment with G.P.S', *OUCC Gustuteru Expedition 1996 Final Report* p23 (1997)

Cave	E	N	Altitude
1/8 (Canalizos #1)	0343145.3	4789176.2	1643.03m
5/8	0343065.93	4788954.3	1707.97m
C4	0342574.48	4788050.67	1899.41m
C7	0342551.79	4787903.9	1946.87m
C9/C3	0342633.74	4787847.16	1942.79m
C10	0342650.77	4787877.6	1921.62m
C11	0342705.19	4787939.3	1877.75m
C12	0342794.28	4788019.4	1835.32m
C13	0342649.96	4788162.7	1862.71m

C14	0342784.2	4788229.8	1842.19m
C15	0342768.99	4788234.2	1838.03m
C16	0342693.29	4788202.7	1855.84m
C17	0342653.68	4788139.2	1867.75m
C18	0342634.27	4788251.2	1870.83m
C22	0342791.24	4788352.5	1801.89m
E6	0342394.35	4788268.3	1823.13m
E7	0342300.92	4788204.5	1852.91m
E8	0342248.61	4787989.8	1961.43m
E9	0342034.43	4787955.6	1990.15m
E10	0342186.9	4787978.2	1970.08m
E11	0342283.64	4787972.1	1969.77m
E12	0342366.95	4788228.7	1853.75m
F41	0342051.49	4787754.4	1993.3m
F50	0342024.99	4787885.2	1958.2m
F51	0342005.18	4787947.8	1943.54m
F52	0342110.7	4788020.5	1953.41m
F53	0342200.55	4788128.3	1888.37m
F59a	0342098.64	4787799.6	1985.33m
F60a	0342071.68	4787827.8	1973.65m
F64	0342143.52	4787930.29	2011.86m
F66	0342005.18	4787947.8	1943.54m
F68	0342043.29	4788001.3	1954.97m
F70	0341992.97	4788125.3	1896.75m
F71	0342161.5	4788155.8	1869.6m
F73	0341938.82	4788214.9	1860.48m
F74	0341933.67	4788177.1	1874.51m
F84	0341933.58	4788163.6	1877.11m
F86	0342093.98	4787786.5	1993.21m
La Jayada	0343064.16	4788084.2	1789.60m
Tras la Jayada	0343249.57	4788542.2	1702.89m
Torca del Vasco	0341859.99	4788564.08	1779.89m
A Dig	0343022.7	4788883.8	1730.07m
Snow Pole	0342020.02	4788267.3	1854.95m
Various caves discovered and/or logged in 1997 using G.P.S only			
13/8	0343175	4789267	
F88	0342026	4787639	
D19	0341246	4788814	
D20	0342510	4788574	
Pozu Xastre	0343238	4789357	


Major caves of the Top Camp area
North
1 km
13/8
Sistema Canalizos
5/8
Gustotero
D20
Torca del Vasco
Pico Conjurtao
D12
1800
1850
Top Camp
E12
El Regallon
1900
1950
C4
F64
2000
C3
F41
La Verdelluenga
1900
1850
F88

Hydrological Work in Sistema de la Verdelluenga/Rio Cares

In parallel with original underground exploration, the team also had a brief to carry out a variety of exercises intended to shed some light on the complex hydrology of the Ario bowl, which were co-ordinated by Ian Benson. Whilst it is a well-known fact that four major systems, ie Cabeza Muxa, Pozu Jultayu, Pozu del Xitu and Sistema de la Verdelluenga resurge in the Rio Cares at Culiembro, the actual proportion of the water in the resurgence for which we can account remains uncertain, and even in the run-up to the 1997 expedition we heard (mostly) guesstimates ranging from 50% to almost all of the water. This uncertainty remains despite previous measurements of the flow in the resurgence (see the 1984-5 expedition reports), and other less reputable pieces of 'science' such as Sherry throwing her hat in the 2/7 streamway, which have gone down in club mythology and provided the basis for many a spurious calculation.

Much, obviously, rests on this in terms of the number(s) of remaining major cave systems to be found in the area. Whilst it is true that the Old Top Camp caves, (Jorcada Blanca, Conjurtao, Perdices, F20) may go independently to Culiembro and thus provide important 'missing links' in the evolution of our picture, they could equally drain towards the Dobra or even be connected with upstream 2/7. As an illustration, then, if we were to accept a hypothetical figure of 70% of the water in the resurgence as accounted for, we could expect to look for at the very least one or two more substantial streamways in the area. Thus the motivation for the monitoring of flow volume both underground and at the resurgence was to begin to build up a body of information upon which we can at least base further speculation. We accept that, given the level of technology available, this is the most inexact science. But maintain that there is a justification for any such work which is carried out and co-ordinated with a modicum of enthusiasm and dedication, as it undoubtedly was in 1997. We present the results without further comment, pending publication of more extensive considerations of the question by those better qualified to do so, in OUCC Proc. 14. At the time of writing, as Ian would say, 'it's just data....'

Flow measurements were taken at the resurgence at Culiembro on three occasions: 23/7/97, after heavy rainfall of 45mm; 30/7/97, and 3/8/97. One flow measurement was taken in the streamway of Sistema de la Verdelluenga near the terminal sump on 28/7/97. Those in the gorge were conducted by Ian and assistants, those in the underground streamway by Ali, Ben, Huw and Pete, with the instructions:

1) Pick a reasonably uniform stretch of passage about 2.5x as long as it is wide
2) Measure the cross section in several places with survey tape at 10cm intervals; this gives an average cross-sectional area to work out back at base
3) Measure flow velocity with a float and stopwatch – flow = mean velocity x cross sectional area

23/7/97 Observations: storm the previous night, and upper waterfall at Culiembro flowing. Flow measurement downstream 'not as high as expected': 1.09m³/s. Flow of resurgence not successfully measured; suggested 0.60m³/s based on later proportions.

30/7/97 Observations: No rain since 22/7/97. Flow calculated as 0.55m³/s, but methodological problems – result noted as 'lousy'...

3/8/97 Observations: The best of the three measurements by far. No rain since 22/7/97; not much apparent difference in river height or flow velocity from 30/7/97. Represents a good 'base flow' measurement, after 11 days dry weather. Q downstream = 0.60m³/s. Q upstream of resurgence = 0.28m³/s therefore Q Culiembro = 0.32m³/s. Claimed 10-20% accuracy.

28/7/97 Flow calculated at 8.144 l/s in the Verdelluenga streamway.

The chief disappointment of this programme was the failure of the dye trace to produce a result. Approximately 250g of fluorescein were placed in the main streamway of Canalizos #1 but detectors placed in both the Culiembro resurgence and downstream of El Hoyo la Madre at La Molina failed to provide any positive evidence when analysed in Oxford. Various explanations for this have concentrated upon technical aspects of the approach – it seems unlikely that the water could resurge anywhere else, although Ian has queried the provenance of the water in the canal cut along the hillside above the Cares to feed a nearby power station. Perhaps further exploration of the system will shed more light on this.

Medical Officer's Report

By Tim Guilford

The attention in recent years to camp hygiene and an increasing level of awareness of safety underground have again appeared to pay off this year. There are no significant medical incidents to report for the 1997 expedition. However, two points are worthy of raising within this context. The first concerns medical issues, the second safety.

Dehydration continues to remain an underestimated problem. During the expedition, there were several cases of cavers experiencing fairly severe dehydration after exertion either on the carry-up from Base Camp, or, more importantly, after long underground trips. There's a simple solution: drink.

The second, safety, issue involved a classic SRT incident in which a combination of minor problems compounded to lead to a potentially extremely serious problem. In short, Rhys Williams found himself in water at a rebelay in complete darkness halfway up a very large pitch unable to complete the standard SRT manoeuvres. On the one hand a combination of unfortunate (but not rare) circumstances and lack of SRT experience led to Rhys entering a dangerous situation. On the other hand, a combination of awareness of the cave around him, and a decision to take drastic action led to his escape unharmed. It is a shame that the situation arose, and a great relief that the caver concerned had the composure to deal with effectively, if in an unorthodox fashion. There are lessons to be learned from the incident, and the immediacy of Rhys' own account of it provides the best insights, so it is presented below.

"Nobby and I prussicked up the parallel shaft [in Canalizos] to go and derig the main cave. As we got the ledge where the two routes meet it was apparently thundering and raining on the surface. 'Looks like it could be a bit of a wet one', I thought to myself as I abseiled away from the daylight and off deeper into the cave. I eventually caught up with Nobby at the breakthrough rift, and we pressed on to the rescue dump. The temporary lake/sump was not there so we picked up all the gear and derigged the dive-line. There seemed to be far more gear in the cave than we had anticipated. We already had two full heavy tacklebags, five small pitches to derig, and then the 170m entrance shaft, Also, no empty bags. 'Hmm, lets see how far we can get'.

Derigged back to the breakthrough rift with no real problem. Dumped the rescue kit and carried on with two tackle bags of rope. Time was ticking on. We would have about one hour to get back up the main shaft, and one hour to walk back to top camp in time for our call out at midnight. The rest of the derigging would have to wait. The main shaft seemed a lot wetter than it did on the way in, but I set off up leaving Nobby to shelter at the bottom singing 'The body of an American" by The Pogues. First rebelay passed fairly rapidly, if a little on the damp side. The next hang was in the full force of the water. No chance of keeping the flame going, and full wellies within a few seconds.

As I approached the next rebelay, 'Hmmm, that looks quite tight, my light's fading, it's wet here' I thought. Attempted to pass rebelay. 'This is not going to be easy', came to mind. Suddenly total blackness. Batteries dead. Cold wet hands unable to install new ones correctly. Try rebelay in dark. 'Shit, this is tight'. Shout to Nobby. 'I'm at a rebelay, this could take a while'. Grunts and groans: 'Can't pass the thing'. Gloves off, but can't tell what's a rope, a jammer, or anything. 'Very wet here. I'm soaked to the skin. Must get out of this water soon'. Try torch again. No good. Try rebelay. Still soaking wet and getting colder. 'I'm sure there's a ledge that this tape rebelay is attached to, I've got to get out of the water'. Nobby still singing...'Is the rope free yet?' 'No!!!', I reply.

Haul up with all my strength on the tape. Get one leg on ledge. Something's weighing me down. The tacklebag is carefully removed and clipped to rebelay. Prussic bag is clipped to my other side on the ledge. Still can't move. Jammers now hard up against the knot. Still blackness and water. 'Shit, I really don't like this!' Arms failing, I pull up onto the ledge, fighting the rope below as I go. Semi-comfortable now. In the dry. Still dark. Still being pulled off my ledge by the rope below. Still can't sort the batteries out. Try hauling tacklebag up to take some weight off the rebelay. Its jammed. After a few more minutes I hear the tacklebag whistle off down the pitch. 'Below", I shout, with three batteries in my mouth. 'What the fuck was that?', cries singing Nobby. 'Only my tacklebag full of rope. Are you ok?' 'Yes, is there anything I can do?' 'No. Just give me a minute'.

Well, the tacklebag is one less problem. Now, Nobby can't come and help me because if he prussicks up he'll pull me off the ledge. Also, my leg is through the tape, and fuck knows if it is still secure. Have to take my harness off. Footloop wrapped around the 'up' rope and clipped to my belay belt. 'That's not very safe'. 'Ah, spare jammer'. I find it and clip that to my belay belt and the rope. 'Phew, safe'. Kit slid nicely off. Able to stand up. 'Nobby, you'll have to prussic up to me and give me some light'. 'Is it safe?!' 'Err, hold on a minute...yes, it is now', I reply, having located the tape and put it back in the slot it came from. Fucking cold now. As Nobby approaches the rebelay and my gear hanging down from it, I get my light to work. 'Can Nobby help me?' I wonder. 'I'm cold, he's been

hanging at a rebelay in the water below for probably half an hour. Is he hypothermic?' Now I start to really worry...

Nobby passes the rebelay by prussicking up my chest harness or something, and we both shiver together on the ledge. He seems very slow and not sure what to do.' Shit, we're both going down with hypothermia', I think. The rebelay won't come undone, so I persuade Nobby to cut the rope above my jammer - this will be the quickest way we'll both get out of this hell hole, without pissing about on prussic knots or passing gear up and down. I get my kit on and by now my carbide light has dried out and will work again. Both now ready to head out, but neither wanting to leave our cosy, warm dry ledge. Sounds of people above. ' Hello...'. No answer. Nobby heads out and I follow to meet Kev at the entrance. No rain, clear skies, lightening far away. Bloody wet and cold. One hour overdue and still a good walk to top camp."

Rhys dealt with an potentially fatal situation without panic. Hanging on a rope in the water is one of the most serious situations a caver can encounter. Rhys had been observant and had noticed an escape route accessible even in complete darkness. It is a credit to him that he managed to execute such an escape. It should be clear from his own account how little time he perceived himself to have before becoming incapacitated by cold, and so just how desperate his situation was at the point he decided to leave the apparent safety of the rope. Nevertheless, leaving one's SRT kit on the rope to climb to a remembered ledge 70m above the floor in the dark is no textbook escape manoeuvre. And, perhaps with more experience, he would have appreciated that to call a second caver up the same rope to help would have been a legitimate option. Nevertheless the entire incident highlights the problems associated with the trade-off between rigging tight to reduce potential shock loading if a rebelay fails, and rigging loose to facilitate passing rebelays. Don't forget that new rope can shrink when it gets wet.

On reflection, there were a few things which should have been included in the expedition report, and which weren't, for various reasons. A list of events or recurring themes which seem to have particularly stuck in the memory from the editor's point of view might include:

Riding the Devon expressway; Winning the bar quiz on the ferry (as Dog Trouble); waiting for Keith; No woman no cry; Gavin falling off his box whilst trying to pronounce Mi-shinigan-a-do rum-a-da; Yogic flying; Teaching the Welsh to sing whilst Top Camp flooded; Sitting on top of La Verdelluenga when 300m below, the calm of a Picos evening was shattered by Ian and Will running out of the tent banging pans and screaming in another vain effort to teach those cows; Psychospeleogenesis; Using beetles to divine the way through the Canalizos choke; How many people in the tyre?; The bump 'n grind helicopter...; Andy and Olly 'diving' the sump; The Night of the Flaming Gerbils (of course); Bikini Camp; The aperitif terrace; Irish coffee; The discovery of E14, totally as a result of the state of JC's behind; Hi-tech Cabeza Muxa slide shows in the refugio with SIE; Farewell singing by the Xitu entrance; The white spider; Cow attacks; Kev's huge carries; An epic final day at Lagos; Alison falling in El Hoyo la Madre (allegedly); Navigating through France (Ducks, sticks and chickens/agriculture and gastronomie); Full body cavity searches; Sunset on the ferry, and arriving back in Oxford to be looked after by Sandra, Jo and Paul. Excellent.

Fenella on the subject of bolting : 'Do we need the dildo, or just the hammer?'

Tim on the subject of washing up: 'I'll certainly put some stilton in it...'

Lou on the subject of cows: 'I pretended to be a bear because I thought they might be scared of bears'.

Will on cave safety : 'I always tie a knot in both ends of the rope so I don't prussik off the end'.

And finally Gavin on the subject of beaches; 'Beaches are boring'
(Cue mocking noises from everyone else present) 'They are! They're hideously boring!'

'Lou the Mad' – A Canalizos Digging Song

with apologies to Fairport Convention...

A boulder choke, a boulder choke, the first one of the year,
El Arbol came into the tent, the bullshit for to hear.
And when the bullshit it was done he cast his eyes about,
and there he saw little Lou the Mad, a-lying on the ground.

"Come down with me little Lou the Mad, come down with me tonight.
Come down with me little Lou the Mad, and cave with me till light."
"I can't come down, I won't come down the cave which you will rig.
By the scars on your fingers I can tell it is Ben Lovett's dig."

"Well what if it is Ben Lovett's dig – Ben Lovett's not at home.
For he is out on the Ario path, a-bringing the Bimbos home..."

Ali Garman, who was standing by, and hearing what was said,
he swore Ben Lovett he would know, before the sun did set.
And in his hurry to carry the news, he ran straight up the crag,
and when he came to the Ario path, he wandered in the clag...

Little Lou the Mad she lay down, by the stream that did a-burble.
When she looked up, Ben Lovett was brandishing his gerbil,
saying "How do you like my furry suit, and how do you like my dig?
How do you like my boulder choke, whose draft it is so big?"

"Well I like your furry suit, and well I like your dig,
but better I like your boulder choke, with the draft that is so big."
"Get down, get down," Ben Lovett cried, "Get down as quick as you came!
It'll never be said in fair South Wales that I killed a dig in Spain."

"Oh I can't get down, I won't get down, I can't get down for my life,
For you have two long digging tools, and I but a pocket knife."
"Well its true I have two digging tools, and I borrowed them from Rhys,
but you shall have the better of them, and I shall have the least.

And I shall strike the very first blow, and strike it like a man.
You shall strike the very next blow, and get through if you can..."

Ben Lovett struck the very first blow, and knocked the keystone out.
(The pirates heard the cry too late, and boulders fell about.)
Then taking up El Arbol, and sitting him on his knee, said
"Which cave d'you like the better now, Canalizos or C3?"

Well up and spoke El Arbol, never heard to speak so free,
" I'd rather dig this boulder choke than survey in C3."
Then Ben Lovett he jumped up, and loudly he did bawl.
He struck El Arbol through the heart, and pinned him against the wall.

"A space, a space" Ben Lovett cried, "to stack these diggers in!
But bury Mad Lou behind that rock, in case the roof falls in..."

Expedition Accounts

Income

Fees	17 x £130	£2210.00	
	2 x £90 (day rate)	£180.00	
	3 x £100 (first expedition)	£300.00	
	1 x £54 (day rate)	£54.00	**£2744.00**
Grant Aid	Oxford University Chest	£571.00	
	Royal Geographical Society	£750.00	
	Ghar Parau Foundation	£150.00	
	Sports Council	£900.00	
	Foundation for Sport and the Arts	£1100.00	**£3471.00**
Personal Gear		£2297.14	**£2297.19**
Insurance	(personal)	£176.00	**£176.00**
Travel in van	(7 journeys out, 4 back)	£715.00	**£715.00**
T-shirts		£149.40	**£149.40**
Kitty contributions	(69 person/weeks at £20/week)	£1380.00	**£1380.00**
Interest		£14.00	**£14.00**
		Total	**£10946.59**

Expenditure

Equipment	Members' personal gear	£2297.19	
	Rope/rigging/surveying	£1545.32	
	Camping	£703.17	
	Electronics	£400.00	
	First aid/emergency supplies	£51.03	**£4996.71**
Insurance	Personal	£176.00	
	Vehicle	£255.85	**£431.85**
Travel	Van Hire	£300.00	
	Ferry	£619.50	
	Fuel	£117.88	
	Van repair	£814.83	
	Trailer Repair	£400.00	**£2252.21**
Training	Rescue weekend	£200.00	
	SRT rescue course	£138.50	**£338.50**
Post expedition	Van hire	£85.00	
seminar/debriefing	Accommodation/food	£112.46	**£197.46**
T - shirts		£149.40	**£149.40**
Administration	Leader	£187.57	
	Secretary	£38.39	**£225.96**
Photography		£94.50	**£94.50**
Library copies - slides		£150.00	**£150.00**
Report		£126.00	**£126.00**
Kitty expenditure		£1380.00	**£1380.00**
OUCC Proceedings		£600.00	**£600.00**
Unpaid cheque fine		£4.00	**£4.00**
		Total	**£10946.59**

Kitty payments of £20/week in the field pay for all food and fuel whilst in Spain.
The above travel figures also take no account of costs incurred by those who travelled to and from Spain independently of the main body of the expedition; of a total of 46 person/journeys to and from Spain, only 11 are covered above, and even at the very competitive rate of travel with the van, these other journeys would account for a further £2275 of expenditure.