

**Oxford University Cave Club**

**Xitu 2011**



**Final Report**



# Summary

Xitu 2011 was a five week long caving expedition to the Western Massif of the Picos de Europa mountains. The expedition was organised by Oxford University Cave Club with the aim of re-descending Pozu del Xitu to Stag Sump after an absence of 30 years. In particular the objectives of the expedition were to:

- Re-rig the cave using stainless steel bolts to prevent a profusion of bolts in this classic cave in the future;
- Explore an un-descended pitch, located near to Chunder Pot at -950m;
- Enable a traverse of the Xitu-Culiembro system, recently made possible by connection of the resurgence cave to Stag Sump by divers in 2010;
- Explore side passages higher up in the cave.

In the event, the objectives were only partially achieved, due in the main part to the exceptional weather conditions experienced over much of Europe during July 2011. The local shepherd, who has lived in the mountains his entire life, indicated to us that this was the wettest summer he had ever seen. This meant that there were a number of days when it was not safe to make further progress within the cave and hence it is estimated that in excess of a week of caving time was lost due to the prolonged rainy and stormy conditions.

Despite these trying conditions, morale within the expedition team remained high and we were able to:

- Rig the cave to Chunder Pot;
- Make an initial investigation for leads in this area. We did not however manage to locate the un-descended pitch;
- Make small extensions to the cave in other areas;
- Identify further leads that should be investigated in the future

Due to the time lost, it was decided to de-rig the cave, but to leave the ropes coiled up in dry locations near to the pitch heads. This will facilitate a return in 2012. With the ropes in the cave, Xitu rebolted to -950m, and an accurate rigging topo it is anticipated that much quicker progress will be made in the future. This will allow us to both reach the bottom of the cave and to access other prospects, higher up, which we wish to examine.

The 2011 expedition was also successful in terms of caver trainer, with a number of new expedition cavers experiencing deep alpine caving for the first time. One of them, Ben Hudson will return to lead next year's expedition to Xitu.

# Contents

Expedition Members	1
With Thanks	2
Introduction	3
Background	3
Permissions	3
Logistics	4
Travel	4
Accommodation	4
Food & Water	4
Equipment	5
Underground Camp	5
Expedition Timeline	7
Expedition Leaders' Report	9
Pozu del Xitu	12
Rigging	12
Exploration	13
Science	16
Hydrogeological Behaviour	17
Derigging	21
Freshers' Tales	22
Ben Hudson's Expedition	22
Vicky Lim: I caved, I saw, I conquered	26
My, Haven't You Grown?	33
Medical Officers Report	36
Preparation	36
Incidents	36
Expedition Accounts	37
Typical Individual Costs	38

If you would like further information regarding this expedition then please contact, Fleur Loveridge on [fleurloveridge@hotmail.co.uk](mailto:fleurloveridge@hotmail.co.uk)



# Expedition Members

Rich Gerrish\*, *El Jefe*  
Fleur Loveridge, *La Jefa*  
Daniel Ballesteros‡  
Callum Braithwaite, *Sponsorship Officer*  
Rosa Clements, *Gear Officer*  
Paul Cooper  
Chris Densham, *Treasurer*  
Steph Dwyer<sup>§</sup>  
Nick Edwards  
Richard Gregson  
Sara Gregson  
Ross Hemsley<sup>€</sup>  
George Hostford  
Ben Hudson  
Jamie Jordan, *Medical Officer*  
Paul Mackrill†  
Andrew Mawer  
Sarah McCullough  
Dickon Morris<sup>€</sup>  
Martin Laverty  
Vicky Lim  
Steve Roberts  
David Rose  
Tony Seddon, *Dive Leader*  
Harvey Smith  
Pete Talling<sup>€</sup>  
Chris Vernon  
John Wilcock

## **Visiting**

Beardy (Paul Swire)  
Rich Hudson  
Hutch (John Hutchinson)  
Benjamin Reise  
Heike Reise

## **Support from home**

Hilary Greaves (SRT training, underground food)  
Gavin Lowe (Home Agent, rescue training)  
Phil Leichauer (Techno)  
John Pybus (Techno)

## **Field agent**

Nacho Montero

\* Did not travel to Spain

<sup>§</sup> Bradford Pothole Club; † Association Speleo Vercors; ‡ University of Oviedo; <sup>€</sup> University of Bristol Speleological Society

# With Thanks

We would like to thank Oxford University and the AC Irvine Fund for their financial support, to the expedition and to some of its individual members respectively.

After several difficult years in the Picos, we are indebted to the support of the Federacion de Espeleologia del Principado de Asturias (FESPA), and to the National Park in the Picos de Europa for granting permission for this expedition to proceed. In particular, our field agent, Nacho Montero of FESPA has worked tirelessly on our behalf and we are exceptionally grateful.

We would like to thank our gear and food sponsors, who helped to make the expedition possible and fuelled our cavers in their long hours underground:

Starless River

Lyon Equipment

Inglesport

Beast Equipment

Morning Food Ltd (Mornflake Oats)

Your Piece Baking Company (Porridge Bars)

Blackfriars Bakery (Flapjacks)

Tunnocks

Hot Packs Meals

Organising a deep caving expedition takes a lot of work by a lot of people and we would especially like to thank the following people who gave up their free time to help the expedition, but could not join us in the field:

Rich Gerrish, for working so hard to arrange an expedition he could not in the end attend;

Hilary Greaves, for all her assistance with caver training, trailer packing and food shopping;

Gavin Lowe, for being home agent, for helping with rescue training, and always offering good advice;

John Pybus and Phil Leichauer for help sorting out all the techno issues, but especially the solar charging system;

Simon Headford and John Pybus for the loan of solar panels.

While based at the Vega Ario we are also very grateful for the friendship, support and hospitality offered to us by Laura and Ignacio (wardens of the refugio). We look forward to sharing another beer with them in 2012.

# Introduction

## Background

Oxford University Cave Club has been exploring caves in Northern Spain for 50 years, and amongst the high peaks of the Western Massif of the Picos de Europa for over 30 years. The aborted 2010 expedition had left Sima de le Chapa partially explored. Hence it was initially assumed that the 2011 expedition, providing permissions could be gained, would continue its exploration beyond the undescended pitch left open at approximately 180m depth. However, subsequent trips by our Catalan friends showed the cave to end shortly beyond the 2010 limit in a tight meander.

Consequently, it was decided instead to revisit Pozu del Xitu, a cave first discovered by OUCC in 1979. Fittingly, 2011 would be 30 years since the cave was originally bottomed, and it was felt that by returning to Xitu at this time it would offer the opportunity to both celebrate three decades of work in the high Picos, but also look to the future with a new generation of cavers. Despite three expeditions to Xitu in 1978 to 1981, it was felt that, particularly in the deeper parts of the system, there remained the potential for further discoveries. Given the advances in lighting and bolting technologies in the intervening thirty years this proposition was very reasonable.

In addition to the potential for further exploration, the 2011 Xitu expedition followed on from the successful Cave Diving Group Expedition to Culiembro in 2010, which connected this resurgence cave to the terminal sump (-1139m) in Xitu for the first time. With the divers also returning in 2011, this offered a unique opportunity for both OUCC and CDG divers to make a traverse of the newly connected system (vertical range 1264m), now number 30 in the list of deepest caves in the world<sup>1</sup>.

## Permissions

Following on from the incidents at the end of the 2009 expedition, caving permission was withheld by the National Park in 2010 pending satisfactory resolution of arrangements for funding rescues should any further incidents occur. Consequently we are very much indebted to the work of FESPA, especially Nacho Montero, in negotiating and arranging, on our behalf, permission to cave within the National Park in 2011. Whereas in the past, permission was something obtained or collected upon arrival in Spain, we were now delighted to be able to leave the UK with our permit in place.

Our permit allowed us vehicular access to the nearest road head at Los Lagos, permission to camp with six tents within the National Park (at the Vega Ario), and permission to explore the caves and conduct dye tracing.

---

<sup>1</sup> <http://www.caverbob.com/wdeep.htm>

# Logistics

## Travel

The expedition requires a large amount of equipment in order to descend and camp within deep cave systems. This year, Chris Densham was kind enough to lend the expedition his Peugeot 406 estate car, which we used to tow a trailer laden with rope, food, camping and other equipment to Spain. The expedition vehicle travelled to Spain via the Portsmouth Bilbao ferry route. Although more expensive than travelling through France, this route has been proved to reduce wear and tear on vehicles and be considerably safer by substantially reducing the mileage driven by the expedition.

While three expedition members accompanied the vehicle in each direction, most members travelled independently. The three most popular routes were direct flights from London Stansted to Asturias Airport, direct flights from other UK airports to Bilbao, and various cross channel ferries. Travel within Spain is relatively straightforward with a variety of bus and train services connecting airports to the expedition base at Los Lagos.

## Accommodation

For some years it has not been possible to camp at Los Lagos and the sole expedition camp is now based at the Vega Ario, some two to three hours walk from the road head. With permission restricted to six tents, where the expedition members could not easily be accommodated within these tents, some expedition members stayed in the nearby refugio.

As in previous years, the camp was made around an abandoned and partly ruinous shepherd's hut. Using a tarpaulin for a roof, this allowed for a mostly dry area for expedition members to cook, eat and plan caving trips. This was especially important this year due to the poor weather conditions encountered for much of the expedition.



*Ario camp with the Central Massif in the background [Vicky Lim]*

## Food & Water

Most food for the expedition was purchased locally in Cangas de Onis or Arriondas. However, some dried food was brought from the UK, especially for use at underground camp (see below). As in previous years we used a mixture of dried staples (pasta, rice, beans etc) and fresh vegetables, occasionally supplement by dried or cured meat or tins of fish.

This year we were very fortunate to receive food sponsorship from Blackfriars Bakery (flapjack), Hot Pack Meals, Tunnocks, Your Piece Baking Company (porridge bars), and of course Morning Foods Ltd (Mornflake oats).

Water supply can be a problem in the Picos, with local springs only running in the early part of the summer. However, this year, due to the abundant rains, we were able to use the tap adjacent to the refugio throughout the expedition, without resorting to time consuming collection of snow for melting.

## **Equipment**

The majority of Xitu has not been descended, at least by OUCC, for thirty years. Consequently we anticipated a need to re-bolt the cave entirely. This is not just a reflection of the age of the previous bolts, but recognition that rigging skills and techniques have moved on in the intervening years. Therefore we purchased 200 stainless steel Rainox bolts for placing with a drill, but to be used with standard hanger plates. These proved straightforward to install, although care must be taken to drill the correct depth hole. For this purpose all drill bits were marked up with correct depth markers.

As well as the drills purchased in 2009 and used with the purpose built high capacity battery packs, the expedition also borrowed a new Matika drill, with smaller lighter lithium ion batteries. All the drill batteries were charged by a solar charging system connected to two lead acid battery packs. Two 40W 12V solar panels were used and these provided plenty of power, also allowing for the charging of caving batteries and mobile phones.

Existing 11mm rope from the OUCC stocks was used to rig the cave as far as the top of Flat Iron Shaft. Following this new 10.5mm and 9mm rope was used to minimise the weight and volume of tackle to be carried forward through the cave. Many thanks to Starless River for donating the rope to be used on the main section of Flat Iron Shaft. Due to uncertainties in the rope lengths likely to be required, much rope was cut to suit in situ.

## **Underground Camp**

A three person underground camp was set up in the Hall of the Mountain Dwarf in Xitu. The camp utilised a surface tent to help trap body warmth of cavers during the stay and this was very successful. However, with limited flat spaces in Xitu, a level platform had to be constructed from rocks and this was adjusted throughout the expedition to increase comfort levels. A combination of Buffalo (fibre pile) and synthetic sleeping bags were used in combination with bivvy bags. The bivvy bags are essential to prevent wetting of the sleeping bags through condensation within the tent, which unfortunately happened on one occasion. Foam mats were used to provide insulation from the rock floor.

Individual expedition members tended to bring their own dry thermals and socks to wear at underground camp. However, this was by choice and in addition to provided "Alpinex" style furry suits used as pyjamas. This system continues to work well, and provides flexibility according to an individual's body temperature.

In previous years petrol stoves have been used underground as they are more efficient than gas. However, they are prone to clogging unless carefully maintained and used with filtered fuel. Therefore this year gas was used exclusively at underground camp. Principally dehydrated food brought from the UK was used at underground camp, typically pasta, rice and bean based dishes. These were supplemented with instant mash potato, instant custard and soups.

Again we used the Nicola Radio to communicate between Ario camp and underground camp. Xitu being much closer (both horizontally and vertically given the shallower camp used) to Ario than Asopladeru La Texa, we were able to achieve good communications at any time of day. This was especially important when planning trips in the more flood prone lower part of the cave.



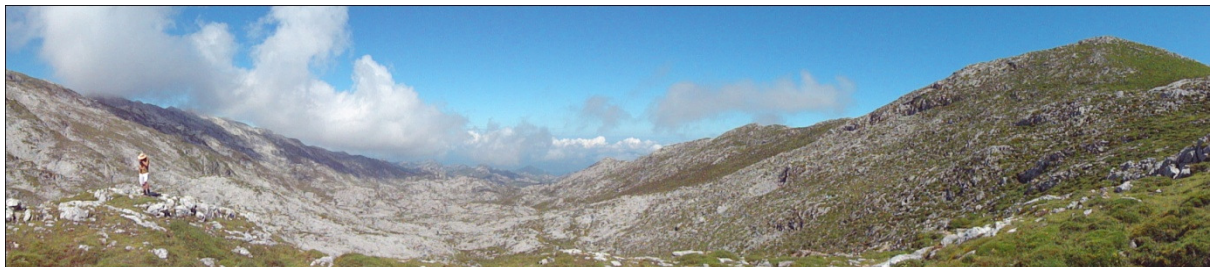
***Harvey Smith and Nick Edwards at Underground Camp [Ross Hemsley]***

# Expedition Timeline

Date	Who	Details
1 <sup>st</sup> July	CD, CB, BH	Expedition vehicle leaves Oxford
2 <sup>nd</sup> July	CD, CB, BH	Arrive at Los Lagos
3 <sup>rd</sup> July	CD, CB, BH	Carry first tackle bags to Ario, establish camp
4 <sup>th</sup> July	CD, CB, BH	Rigging in the Xitu entrance series
5 <sup>th</sup> July	CD, BH	Rigging in the Xitu entrance series
7 <sup>th</sup> July	CD, JJ, AM, DR, VL, CB, BH	Rigging in the Xitu entrance series; accidentally discovered Pendulamus Passage
8 <sup>th</sup> July	DR, BH, TS, SD	Rigging to Bold Step
8 <sup>th</sup> July	VL, GH, CB, JJ	Stempling in Climax Rift
9 <sup>th</sup> July	CD, JJ, CB, DR	Rigging to Graham's Ballsup; witness flood pulse
9 <sup>th</sup> July	VL, AM,	Portering for rigging party; exit after VL slips in Teresa series
10 <sup>th</sup> July	PSM, SD, BH, TS, GH	Rigging to base of Flat Iron
11 <sup>th</sup> July	VL, JJ, AM	Carry bags of underground camp gear to Terasa Series, place flourosce in upper streamway
13 <sup>th</sup> July	AM, BH, DM	Rigging to camp
14 <sup>th</sup> July	AM, BH, DM	Exit from camp
14 <sup>th</sup> July	DR, SD, CB	Re-rigging pregnancy pitch
15 <sup>th</sup> July	CD, JJ, GH	Rigging to the top of Dampturation
16 <sup>th</sup> July	CD, JJ, GH	Exit from camp
16 <sup>th</sup> July	TS, PSM	Descend to camp
17 <sup>th</sup> July	TS, PSM	Rigging to base of Pythagoras
17 <sup>th</sup> July	FL, CB, BH	Descend to camp
17 <sup>th</sup> July	JJ	Portering gear to top of Flat Iron
17 <sup>th</sup> July	DM, AM, RH	Digging in 29/5
18 <sup>th</sup> July	FL, CB, BH	Rigging to the Cheesegrater
18 <sup>th</sup> July	DM, RC	Exploring in Pendulamos Shaft
18 <sup>th</sup> July	DR, JJ, VL, SD, PT	Exploring in Pendulamos Rift
18 <sup>th</sup> July	RH, AM	Photo trip in Teresa Series
19 <sup>th</sup> July	FL, CB, BH	Exit from camp
19 <sup>th</sup> July	JJ, RH, PS	Portering gear to top of Flat Iron
20 <sup>th</sup> July	VL, RC, AM, HS, SM	Rigging topos in Teresa Series / Customs Hall
20 <sup>th</sup> July	RH, DM, PT	Digging in 29/5
21 <sup>st</sup> July	RH, DM	Upstream Xitu
21 <sup>st</sup> July	VL, RC	Rigging topos from Teresa Series to the top of Flat Iron
21 <sup>st</sup> July	JJ, PT, TS	Descend to underground camp
22 <sup>nd</sup> July	JJ, PT, TS	Rigging to the Flyer
22 <sup>nd</sup> July	FL, PSM, DM	Descend to Camp
22 <sup>nd</sup> July	HS, SM	Xitu entrance series
22 <sup>nd</sup> July	NE, RH	Hammering in 29/5
23 <sup>rd</sup> July	JJ, PT, TS	Exit from Camp
23 <sup>rd</sup> July	FL, PSM, DM	Rigging to Chunder Pot; looking for way on



24 <sup>th</sup> July	FL, PSM, DM	Exit from Camp
24 <sup>th</sup> July	NE, HS, RH	Descend to Camp
25 <sup>th</sup> July	NE, HS, RH	Pushing in Chunder Pot area
25 <sup>th</sup> July	JJ, RC, VL	Descend to Camp
25 <sup>th</sup> July	DM	Shaftbashing in Area 4
26 <sup>th</sup> July	NE, HS, RH	Exit from camp
26 <sup>th</sup> July	JJ, RC, VL	Pushing in the vicinity of the Flyer
27 <sup>th</sup> July	JJ, RC, VL	Exit from camp
27 <sup>th</sup> July	FL, DM	Descend to Camp
28 <sup>th</sup> July	FL, DM	Derigging and rigging topos to top of Pythagoras
28 <sup>th</sup> July	NE, PT	Hammering in 29/5
28 <sup>th</sup> July	RG, SG, PC	Xitu Entrance Series
29 <sup>th</sup> July	FL, DM	Exit from Camp with tackle
29 <sup>th</sup> July	NE	Retrieve tackle bag from Camp
29 <sup>th</sup> July	RC	Retrieve tackle bag from Camp
29 <sup>th</sup> July	PT	Helping with tackle bags in Entrance Series / Customs Hall
29 <sup>th</sup> July	JJ, VL, RH	Descend to top of Pythagoras and derig and topo back to Camp
29 <sup>th</sup> July	JJ, VL, RH	Pack up camp, derig and topo back to top of The Gap
30 <sup>th</sup> July	DM	Explore cave near top of sod 3 (Hammer Pot)
30 <sup>th</sup> July	PT, PC	Survey and derig Pendulamus Passages
31 <sup>st</sup> July	RC	Retrieve tackle from top of The Gap
1 <sup>st</sup> August	FL, DM	Derigging from The Gap to the Entrance; rigging topo of Entrance Series
1 <sup>st</sup> August	RC, DM, PC, SR	Retrieving tackle from the deriggers at various and multiple points
2nd August	All	All carry
3 <sup>rd</sup> August	RC, DM, PC, RH	Shaftbashing in Area D
4 <sup>th</sup> August	All	All carry
5 <sup>th</sup> August	All	All carry and move equipment to Cangas de Onis
6 <sup>th</sup> August	FL, SR, RH	Expedition vehicle leaves Spain



***Panorama from the top of "Sod 4"***



# Expedition Leaders' Report<sup>2</sup>

The stated aims of the 2011 expedition were to investigate a supposedly undescended pitch near to Chunder Pot, along with various higher level leads and to enable a full traverse of the Xitu-Culiembro System. However, from the outset a number of “softer” aims were viewed as equally important. These included rebuilding relationships with the local authorities, including the National Park, and encouraging a new generation of cavers, giving them experiences of deep alpine expedition caving for the first time.

Consequently, in the build up to the expedition an emphasis was placed on both the permissions process and on caver training. For the former, we did not commit significant financial expenditure until permissions were in place and we would not travel to Spain without a permit. Thankfully, due to much hard work by our colleagues at FESPA, we were able to leave the UK with a permit.

In terms of training, as well as local SRT training in Oxford, and regular club caving weekends, two specific training events were held for the expedition. The first of these was an SRT training session held in the Yorkshire Dales during the Easter holidays. This allowed those cavers relatively new to SRT to hone their skills and also to get some first experiences of rigging pitches and other obstacles. This was followed in Trinity term by a range of rescue training. The first part of this was an evening in Oxford discussing the possible scenarios which could lead to a party of cavers missing their callout and what action should be taken in such scenarios. The evening including learning from previous “near misses”, both in terms of preventing future incidents and what actions were appropriate when the situation arose.

A “hands on” rescue weekend completed the training sessions. On the Saturday expedition members were given practical experience of how to use a stretcher and the techniques relevant to passing this through cave passages. An introduction to hauling techniques was also demonstrated and cavers practised various methods for setting up mechanical advantages with pulleys and jammers. On the Sunday there was a workshop on SRT rescue techniques, where different methods for helping injured cavers descend or ascend ropes were studied. An important part of this day was the appreciation of the essential extra emergency equipment which should be carried by alpine cavers.

As well as caver training, there were many organisational challenges associated with planning the equipment for the Xitu expedition. Although the upper part of the cave had been descended by OUCC during the 2001 expedition, the club had no experience of the vast majority of the cave in 30 years. During this time rigging techniques have improved substantially and although it was expected that the 1981 rigging guide would provide some indication of pitch lengths and other obstacles to be encountered, it was clear that significantly more equipment would be required in 2011. This would be to allow rebelaying of larger pitches for more efficient ascents, as well of greater use of traverse lines and pitch ropes on supposed “free” climbs in order to reduce risks and improve safety.

---

<sup>2</sup> And for the OUCC pedants, there were two leaders, hence the use of the apostrophe



***Left: SRT Rescue Workshop [Vicky Lim]; Right: Fleur Loveridge using the Nicola Phone to relay weather forecasts to underground camp [Martin Laverty]***

In 2011 we were also delighted to make a link with the University of Oviedo through Daniel Ballesteros. Daniel is working towards a PhD on the genesis of caves in the Pico de Europa and the factors that control their development. He coordinated our scientific programme, a separate summary of which is contained later in this report.

In the end there was one significant challenge which we did not and probably could not have anticipated and that was the weather. Xitu is an active stream cave and July 2011 saw some of the worst weather in the region for decades. The consequence of this was that we lost a lot of time to floods which made the cave unsafe to descend. While most of the cave was rigged clear of the water there were some locations where it was either not possible to escape from the spray at the base of large pitches, leading to very inclement and windy conditions, or where cavers would get soaking wet in smaller stream passages.

We were fortunate that internet access (via wi-fi) was now available at the adjacent refugio in the Vega de Ario. This allowed us to check the weather forecasts on a twice daily basis and as well as planning trips from the surface, use the Nicola Phone to communicate any changes in the forecast to those at underground camp. We found the IMetCam website<sup>3</sup>, which gives map based 3 hourly rainfall accumulation forecasts to be particularly useful, but also used the text based mountain forecasts from the Spanish Meteorological Service<sup>4</sup>. The forecasts proved quite accurate, perhaps as a result of feedback to the models from a weather station placed nearby to the refugio.

As a consequence of the time lost due to wet weather, and also contributed to by the need to rig a greater number of obstacles that had originally been estimated, it became apparent during the third week of the expedition that we would not have time to reach the bottom of the cave in time to permit the divers' system traverse. This was sad blow for everyone who had worked very hard, often in miserable conditions due to the weather. Nonetheless, it was decided by all present that we would push on to Chunder Pot and then derig leaving the ropes within the cave. This decision freed

---

<sup>3</sup> <http://imetcam.uclm.es/modelos.html>

<sup>4</sup> <http://www.aemet.es/es/eltiempo/prediccion/montana?p=peu1>

up a little time for exploration rather than requiring an immediate removal of all equipment from the cave.

Although in the end the Chunder Pot lead proved elusive, the mythical undescended pitch not being found, we did explore two small areas of new passages in Xitu. Firstly, much excitement was caused early in the expedition when the “wrong” pendulum out of the entrance series was taken and unexplored passage resulted. This led to a significant undescended pitch, which at the time was left to permit continuation of rigging of the main cave. Unfortunately this was later found to reconnect back to the known high level around Customs Hall. Nonetheless, this highlighted the potential for modern lighting to see new options and find new cave in Xitu. In addition a small new passage was explored above the head of the Flyer pitch, although this was soon found to choke.

Leaving the ropes within the cave now provides a fantastic opportunity for the 2012 expedition. Many of the 2011 objectives remain, but this time the cave has already been rebolted to -950m and over 1km of rope will not need to be carried up the mountain at the start of the expedition.

After removing all the rigging gear from the cave our focus became to dismantle our camp at Ario and carry all the equipment back down to the road head. We placed particular emphasis on making sure the area around the shepherd hut was tidy and spotless in accordance with the Leave No Trace<sup>5</sup> principles which we had been adopting this year. The expedition ended with a celebratory meal in Cangas de Onis, with OUCC expeditioners young and older reflecting on a mixed year. Although we had not achieved many of our aims, we had rigged 950m despite horrendous weather conditions, and we were leaving with renewed enthusiasm for returning in 2012.

Fleur Loveridge & Rich Gerrish, November 2011

---

<sup>5</sup> <http://www.lnt.org/>

# Pozu del Xitu

## Rigging

Rigging in Xitu commenced on the 4<sup>th</sup> July, only a few days after the expedition vehicle left Oxford. Initial rigging of the entrance series was held up by having the wrong size drill bits for the Rainox bolts, but this was swiftly rectified and on the third trip Chris Densham accidentally swung into the unexplored Pendulumus Passage rather than correctly swinging into the Customs Hall area a few pitches further on. After this brief diversion, progress was quickly made to the end of the high level series by the 9<sup>th</sup> July. This day was also significant as it saw us witness the first flood pulse in Xitu, but at least these clarified which part of Graham's Ballsup pitch would be the safest place to hang the rope.

On the 10<sup>th</sup> July Paul Mackrill and Tony Seddon continued from Graham's Ballsup and then embarked on an overnight epic rig down Flat Iron Shaft to the top of Pregnancy Pitch. With more water than in 1981 and greater care for rub points, we used 25 belay points on this 160m shaft this year, compared with a mere 9 in 1981. Suffice it to say that due to the much improved rigging, on two separate occasions cavers embarked on the massive shaft, or descended it entirely without realising they had reach this fearsome obstacle.

Further rigging was then hampered by three days of continual rain which put caving off limits. In the following days a number of teams attempted to make progress, but the somewhat damp conditions stalled progress further. Eventually underground camp was set up in Hall of the Mountain Dwarf and on 15<sup>th</sup> July rigging continued below. There are few spots suitable for an underground camp in the deeper reaches of Xitu. In 1981, a camp was set up in the wet and draughty gallery below Pythagoras, using uncomfortable single-point hammocks, which were suspended above the steeply sloping boulder floor. This was a suboptimal recourse in every way and certainly not something we wanted to repeat in 2011. Despite being higher up the cave, Hall of the Mountain Dwarf offered as close to level a location as we could find, shelter from the draught, but sufficient proximity to water to enable plenty of tea to be drunk.

By the 17<sup>th</sup> July Xitu was rigged to the base of Pythagoras. Or rather to the base of the vertical section of Pythagoras, as it became clear that the second, merely steep, half of the pitch had been free climbed in 1981 and that this would now require extra rigging. Fleur Loveridge, Callum Braithwaite and Ben Hudson carried this out the following day, but only made it into the Cheese-Grater as more severe weather was forecast and it was important they were back in camp before the cave flooded again. Having people at camp during this incident was a useful exercise as it provided more experience, from the safety of one's sleeping bag, of the response times and other water level indicators. However, the cave proved again slow to drain and no further rigging could proceed for several days.

Around this time it became clear that enabling the divers to traverse the system would not be feasible within the time window available. It also became clear that if the cave was to be fully derigged then this would need to commence in all too short a time. The team decided that, as Xitu

was such an enjoyable cave, and because so much effort had been made to come this far, that it would be the best strategy to leave the ropes in the cave to facilitate another expedition in 2012.

This decision having been made, on the 21<sup>st</sup> Tony, Jamie Jordan and Pete Talling descended to camp, and the following day set about trying to reach Chunder Pot, a destination which forever seemed to be getting slightly further away. Despite being blighted by failure of drill batteries the team made heroic progress with hand bolting such that by the evening of the 22<sup>nd</sup> (or possibly the morning of the 23<sup>rd</sup>) the cave was rigged to the Flyer. This meant that the hot-bedding team who followed them down, Fleur, Paul and Dickon Morris, could now finally reach Chunder Pot.



*Typical 2011 expedition weather*

## **Exploration**

### ***Pendulamus***

Halfway down the third to last pitch in the Xitu entrance series is a window about 3 metres across into a descending passage. It was apparently never noticed by the expeditions 1979-81, presumably because their carbide lights were not very good at picking out more distant features.

A large team entered the passage on 7 July, 2011, in the mistaken belief, fostered by Chris Densham, who had tied off the rope there, that it was the main way to Customs Hall. David Rose, the only veteran of the 1980's who was present, soon noticed that this was not the case. A steep calcited slope led down to a flat sandy area. Here there were footprints. It therefore seems likely that the



passage was either discovered during OUCC's last visit to Xitu, in 2001, or by one of the local Spanish teams.

At the sandy area the passage split. Straight ahead soon led to a deep black hole, a continuing rift passage with huge amounts of deeply eroded, ancient calcite at the top. Hopes were high here that this might be an entirely new passage, leading away into blank mountain far from the Xitu streamway. To the right, there was a deep pool, avoided by rigging a 5-metre pitch. Beyond this almost immediately was a deeper hole of about 15 metres. This section seemed to be corkscrewing back towards the main entrance series shafts.

After this first trip, Pendulamus – as the series was named – was left alone until 17 July, when another large team went to push it, armed with a bolting equipment, rigging gear and a bag of rope. The difficulties of either rigging down into the rift straight ahead or traversing at roof level looked considerable, thanks to the crumbly calcited rock. However, bolting commenced. Meanwhile Dickon Morris rigged the 15 metre drop in the right-hand branch and quickly found himself in Customs Hall. Here he traversed upstream high above the water, until it became clear that he could hear the bolting team directly above.

After so much excitement, and wild talk about Pendulamus being a possible way to connect Xitu to 2/7, it appeared that it was merely an alternative route into the first Xitu stream passage – which, it would seem, must be more than 50 metres high, from the Pendulamus roof to the water in the narrow rift far below Customs Hall.



***A large team about to explore Pendulamus Passage. From left to right, David Rose, Pete Talling, Vicky Lim, Steph Dwyer, Andrew Mawer, Jamie Jordan, and Ross Hemsley.***

### ***Chunder Pot***

Towards the end of the 1981 expedition, as the cave was being de-rigged, David Rose climbed above Chunder Pot in the hading rift which precedes it. There, more than 30 metres up, he discovered the roof, and a flat area below it – apparently the cave's original phreatic tube. On the far side of this tube was a vertical slot down which he could not free-climb, leading to further open, visible passage, apparently leading away from the stream passage beneath. The descent of this shaft was one of the 2011 trip's main objectives, together with investigation of a "window" near the start of the Classic Numbers cascades, which was noticed by Graham Naylor at about the same time. Unfortunately, the time constraints imposed by the poor weather meant that only three parties made it all the way to Chunder Pot.

The first was the rigging party which made a first cursory exploration up the high hading rift in this area. However, the undescended pitch was not obvious and so they elected to continue down to properly understand the layout of the cave in this area. A short drop down from the rift into the stream canyon passage was then rigged, followed by Chunder Pot itself. This both confirmed that we were in the correct place and also gave the first opportunity to look for the supposed window beyond. However, the first pitch (climb in 1981) of the Classic Numbers followed immediately and given the time this was left for the following team.

Nick Edwards and Ross Hemsley investigated this area in more detail on the following trip. They rigged the first of the Classic Numbers, continuing to an obvious bend on the streamway where the window was most likely to be, but this was not discovered. Consequently they returned to the hading rift above Chunder Pot.

The rift above Chunder Pot goes up a very very long way, and also along horizontally a long way. It's quite complicated, there are lots of bits where it closes down and you have to traverse across to find a way on up, then double back on yourself. Given this complexity it is completely possible that we just didn't find Dave's lead. When Ross and Nick climbed up in the rift they ended up maybe 100 metres or more back (above Ferdies Delight) and Dave doesn't remember going back on himself like this. Therefore it is clear that we simply did not have enough time to resolve the mystery of Chunder Pot. Consequently it still remains, tantalisingly, the best deep lead in the cave.

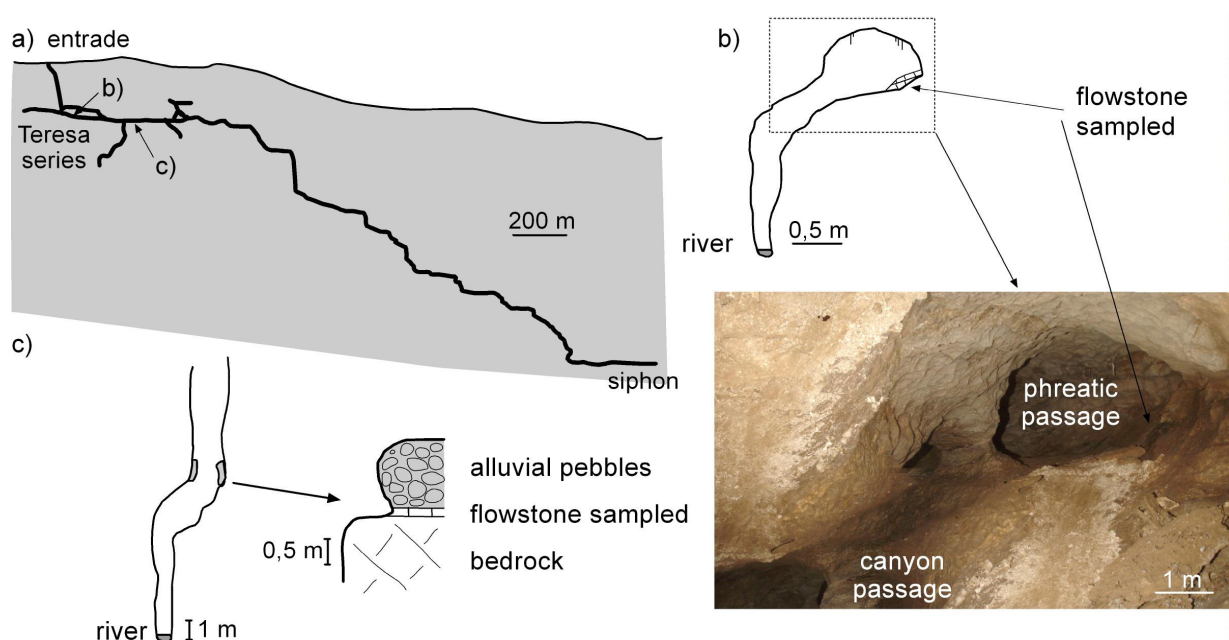
### ***The Flyer***

On one of the final underground camping trips before derigging, Vicky Lim, Jamie Jordan and Rosa Clements went to investigate a side passage previously identified by Jamie during a rigging trip. Skirting around to the left of the pitchhead, a rocky outcrop of ledges hovering over a large rift is encountered to the right hand side. This runs in the same direction as the main way down. Rigging down into this rift revealed little other than it was about 20m deep and showed signs of heading back to the main streamway. However, traversing around the rift on the left and up a small slope heading away from it, a window can be found which leads to a small chamber, not that wide, but about six metres tall, with passages heading out from it at ceiling level. It is interesting to note that the air was much fresher in this chamber. The climb to the ceiling level is seriously sketchy and only Jamie has been up there. You climb up to the left and this takes you to another squeezey window. There was flowstone near the roof and the rift passage leading off this area heads in a different direction to the rest of the cave but chokes very soon. This bit is also very unstable and the ceiling has a tendency to fall and crumble.

## Science

*Daniel Ballesteros from the University of Oviedo reports on the karst geomorphology of Xitu.*

The caves of Picos de Europa massif are formed in both galleries and shafts. These galleries are often situated at specific elevations above sea level. Some passages within the galleries show phreatic features which originated near to the water table. Thus, the phreatic passages of the galleries represent the old position of the water table. Xitu includes the phreatic galleries of the Teresa series located at 1,450 to 1,500 m a.s.l. (figure a below). The Teresa Series is development within the laminated limestone from the Barcaliente formation and follows the bedding (N126°E/53°NE) and NE-SW and NW-SE trending joints. The Teresa Series is also a conduit with a round cross-sections, scallops, dissolutions pockets and roof pendants. The conduits are incised by small rivers that originated as canyon shape and narrow passages (figure b and c below). Small deposits of speleothems and alluvial sediments are recognized. The main fluvial deposits are formed by 1) pebbles of laminated limestone and are situated several metres over the current river level and 2) sands and pebbles made of quartz and limestone located a few metres above the streams. Clay deposits are rare compared to the caves from the Northern parts of the Western Massif. The speleothems are small flowstone situated over the bedrock or over and under sand and pebbles. Some flowstone includes pebbles. Six samples of flowstone were taken to dating by U-Th method. The ages of these samples represent the minimum age of the phreatic passages and, thus, when the water table was situated at 1,450 to 1,500 m a.s.l.



**a) Profile of the Xitu shaft; b) and c) cross-sections of two selective passages.**



## **Hydrogeological Behaviour**

It seemed that during 1979 to 1981 the original Xitu explorers experienced very little rain and therefore the inherent risks to cavers it brings. 2011, however, was the wettest summer for decades and as a consequence we learnt a lot about the hydrological behaviour of the cave. We directly witnessed four incidents where water levels within the cave became elevated.

### ***Graham's Ballsup Flood Pulse***

On the 9th July Dave, Chris, Callum and Jamie rigged the last couple of pitches in Teresa Series and then The Gap. Water levels up to that point had been quite low, by 2011 standards. There was no water falling down the big aven to the side of CBW passage, and only a trickle flowing down the back wall of The Gap. Chris and Callum went to bolt Graham's Balls Up, using the left hand of the two possible drops. This was the way we had descended the pitch (on dodgy naturals) in 1980 and 1981, when we never saw any water there. Meanwhile Dave got the brew kit out, putting the stove down on a flat rock close to where the others were bolting and scrambled back across the boulders to fill the pot from the aforementioned trickle. Just as Dave was just coming back to put the brew on everyone heard a noise that grew steadily louder, a cross between a rattle and a rumble.

"Gosh, that stove is loud," said Chris.

"I haven't turned it on yet," replied Dave.

A few more seconds passed and everyone realised it must be a flood pulse. Then it was as if a tap had been turned on, and cascades began falling out of the roof in several places – beyond the pitch into the void, directly above the pitch head, and further back into the chamber. What had been a dry, cosy space was now filled with spray and wind. It was realised that the pitch would have to be rigged on the right, through the muddy boulders, one of the few places which was still quite dry. But it was decided to leave this for another day, suspecting that the rest of the cave might be quite damp. So it proved. There was now a tremendous waterfall crashing down the CBW aven, and the streamway was much fuller. There was no way to avoid getting soaked on one of the drops below the entrance series, and on the pitches down to Customs Hall. There was even a stream flowing in the entrance rift.

### ***The Three Day Flood***

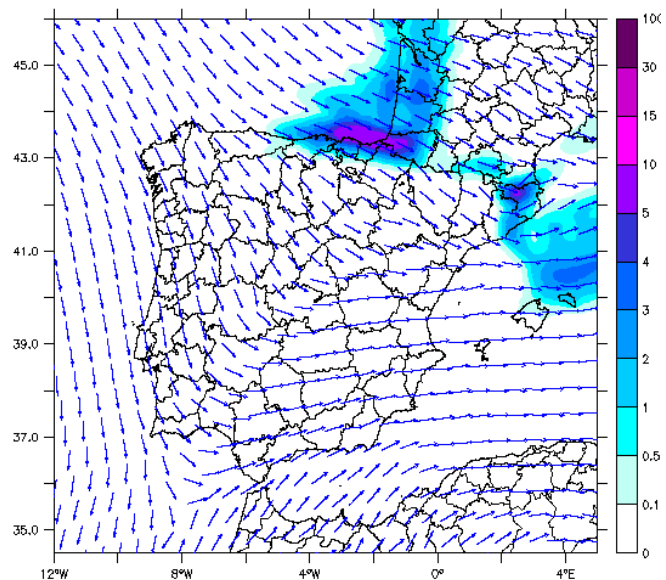
It had been raining for three days and very little caving had been going on. When it finally stopped on the evening on the 13<sup>th</sup> July a team set off to rig the final pitch of Flat Iron (Pregnancy Pitch), pick up the underground camp tackle bags and use them to set up camp in the Hall of the Mountain Dwarf a short distance on from the base of Flat Iron. In retrospect it is easy to see how this was too early after this much rain to be heading back into the cave. But at the time everyone was keen to recommence rigging given the time that had been lost in the preceding three days. The team found the cave wet, but passable on the way in, until they reached the large ledge which separates the main part of the Flat Iron shaft from the last drop of Pregnancy Pitch. Here those not engaged in the rigging shivered; while the rigger made an "expedition" rig to enable the team to descend as rapidly as possible to prevent anyone getting hyperthermia. The team then went on to set up camp, the assumption being that the subsequent team following in the next day would re-rig the pitch to make it safe for ascent as well as descent.

Hindsight it a wonderful thing and it is clear that the rigging team on the 13<sup>th</sup> should have seen the conditions at the head of Pregnancy Pitch, ie lots of spray, extremely windy and consequently very very cold, and instead of going on, turned round and headed out. This would have retained their independence. However, as it happened, the team entering on the 14<sup>th</sup> found themselves unable to re-rig Pregnancy Pitch as the drill they were due to collect and use for this task was found to be in a puddle of water. This in itself is an indication of how much conditions had changed in the four days since the Flat Iron rigging team had left the drill, in its dry bags, on a nice dry ledge a long way above the water. The situation resolved itself by the second team descending to camp to collect the rigging equipment stored there, but this had the unsatisfactory consequence of one member of the team being required to prussik up the inadequately rigged pitch. Following re-rigging all the cavers exited the cave; the wet drill, wet cave and wet cavers meaning no further progress was going to be possible that day.

While everything worked out and everyone exited the cave safely, this incident should be regarded as a significant “near miss” and one we have already learnt from. While we have not been used to such wet conditions in recent years it is important that all parties assess the risks properly on all trips and be prepared to turn around if in any doubt. We have also learnt that water levels have a “long tail” in Xitu, ie it takes some time after a rainfall event for them to return to normal. This three day event was also exceptional<sup>6</sup>, so we should probably have anticipated that it would impact for some days afterwards.

### ***Purple Rain at Underground Camp***

By the time underground camp was properly set up we also had a good handle on the best way to get the weather forecast information, some understanding of its accuracy and were using the Nicola Phone to relay weather related messages to those at underground camp. This was a significant improvement on the early part of the expedition when we were still learning, both about the amount of rain which would cause unsafe conditions in the cave, and about how to get forecast information.



***“Purple rain” is in excess of 5mm in a three hour period***

It was with this improved confidence that we decided that it would be appropriate to send a team down to underground camp, allow them to carry out a day’s rigging below camp, return ahead of a forecast storm and then spend the necessary time at camp until water levels had dropped sufficiently. This was possible because the underground team could have a weather update every 12 hours. The team went underground on the 17<sup>th</sup> July with a forecast for a “purple rain” storm (>5mm in three hours) on the evening of the 18<sup>th</sup>. By the time the team reached camp, communication with

<sup>6</sup> We later learnt that the CDG diving team, based at Culiembro, saw the resurgence stream rise by 20m. This is a staggering amount and showed the exceptional nature of the three day storm we had experienced.

the Nicola phone suggested the timing of the storm would now be the afternoon of the 18<sup>th</sup>, suggesting immediately exit on the 18<sup>th</sup> rather than further rigging. However, on the morning of the 18<sup>th</sup> the forecast timing had returned to the evening and the team proceeded to rig the pitches below Pythagoras, aiming to return to camp with a 2 to 3 hour contingency on the timing of the storm. In the end the forecast timing was very accurate with rain commencing at 10pm. Although the peak flood level was not witnessed by those sleeping at camp, it was heard as the cave reverberated to the sounds of the flood water during the night. In the morning the following observations were made of the small cascade above camp:

- 9am: foaming white water fills the full width of the cascade
- 12 noon: water on the cascade reduces to two separate waterfalls, but each is white water with a horizontal component
- 3pm: no further change

These observations showed how although the peak flow reduced quickly, there is a long tail in the water level decrease following a storm. In the end the team decided to exit in the afternoon, safe in the knowledge from the Nicola Phone that no more water was forecast and that if the cave was passable conditions would not deteriorate during their exit. In the event the cave was wet but passable. The main point of concern, the ledge on Flat Iron, was extremely windy and very cold, but by timing the exit of the cavers no one had to wait here for the next rope. Two smaller pitches (Stream Climb I above Flat Iron and the Stream Pitch between Customs Hall and the Gap) were very wet on the way out, as well as a generally dampness in the Entrance Series, especially at two pitches up at the drippy rebelay). The cavers were fairly cold by the time they exited Xitu, and although this would be fine when you are returning to Ario camp, these conditions, 24 hours after a major storm would not be advisable for entering the system to commence a long trip.

### ***Testing the Marble Steps***

Later in the expedition a team entered the cave to explore the area around the Flyer during a period of extended, but only "light blue" rain (<2mm in three hours). During their stay at underground camp the forecast changed to "dark blue" (2 to 5mm in three hours). Based on our experience at the time this was judged to be an acceptable risk and so the team continued on below camp to the Flyer. Beneath camp further inlets enter the cave and the stream size increases. We had correctly identified that the most unpleasant place below camp in high water was likely to be the Marble Steps. This beautiful and fun section of streamway is quite narrow and there is not much space to escape the water.

And so our judgement proved to be correct. As the team returned from the Flyer to camp in elevated water conditions they got fairly wet. Pitches had increased spray leading to the team getting damp, but it was the Marble Steps where they got seriously wet. Although never in danger, it is never desirable to be soaking wet in a deep alpine cave and the team were grateful to get back to camp and dry clothes and warm sleeping bags.

This was our first real experience of wet conditions below camp and showed that while it was passable in "dark blue" conditions, it would be preferable to restrict caving to light blue conditions.

Consequently at the end of the expedition all derigging was brought forward by a day or two to avoid an impending storm.

### ***Reducing Flood Risk in Future***

By the end of the expedition we were using the following rules of thumb to help plan trips:

- Purple rain (>5mm in three hours): No caving. Allow in excess of 24 hours for the water levels to recede.
- Dark blue rain (2 to 5mm in three hours): Caving will be wet but passable. Try to avoid getting too wet on the way in.
- Light blue rain (<2mm in three hours): Caving can proceed, may be slightly damp at times.

We also came to use the small cascade just above camp in the Hall of the Mountain Dwarf as a water level indicator:

- One waterfall: normal water conditions.
- Two waterfalls (see below): slightly elevated water conditions, still safe.
- Two waterfalls, but with horizontal component to flow: elevated water conditions, safe but wet to exit, probably avoid going below camp.
- Water across full width of cascade: go back to bed for a good few hours.



***Nick Edwards on the cascade above camp [Ross Hemsley]***

## **Derigging**

After the mammoth effort in rigging Xitu while fighting against the weather conditions, derigging progressed swiftly in three major trips. This was achieved partly by the reduction in equipment to exit the cave due to the decision to leave ropes inside, but was also motivated by the knowledge that a storm was soon expected and it would be necessary to get all the necessary gear out in advance of this. All ropes were coiled and placed in dry places at the head of pitches, or in nearby areas where they would be unlikely to suffer from passing floodwaters. All metal work was removed to avoid any corrosion risks. As the tackle was removed, rope lengths were measured and a rigging topo was produced to aid both next year's expedition and any future sport or exploration trips to the cave.

Having derigged Xitu a few days ahead of the original schedule in order to allow for the weather, this permitted two days extra shaftbashing at the end of the expedition before camp was packed up. All that then remained was too many days of hideous carries down the Ario path, which was by now a serious quagmire.

# Freshers' Tales

Every year OUCC aims to take novice cavers and turn them into experienced expedition cavers within one year. 2011 was particularly successful in this respect. In the stories below, two new expeditioners tell the tales of their expedition.

## **Ben Hudson's Expedition**

My side of the OUCC Pozo del Xitu story begins on 1<sup>st</sup> July, only the day after my final Mods paper. More to the point, it was only some nine months after my first taste of real caving, and perhaps six months after I first (literally) learned the ropes of SRT. As far as being dropped in the deep end goes, 1143 metres is very deep. The decision was made to return in 2011 and finish off Xitu once and for all, surveying and exploring missed leads that were either ignored in the race for depth, or missed in the temperamental gloom of carbide. The ultimate aim? A link along a hypothetical phreatic passage to 2/7 – bullshit? Perhaps, but the 3D surveys we were shown at the presentation looked pretty persuasive...

And this is where my part of the story begins, meeting the expedition vehicle at the club hut (a slightly worn out car that became increasingly so as the expedition went on), and setting off for Portsmouth – the climax of several months' anticipation and planning. Having run the gauntlet of getting our knives and petrol stoves past British customs *leaving* the UK, we spent the night of the 1<sup>st</sup> on the ferry to Bilbao, and the night of the 2<sup>nd</sup> in considerably less comfort, enduring a thunderstorm in bivouacs near the Maria Rosa. All around, the cowbells rang constantly, the enduring soundtrack to an otherwise silent mountainous region once we got beyond the touristic lakes. Having heard about the several legendary crashes and breakdowns that beset previous expeditions driving cross-country across France, we were glad to have been able to take the long ferry to Spain instead, and shorten the trip. The car had overheated twice on the way from Bilbao, necessitating careering along the Spanish motorways in a cloud of steam with the windows open and the heating on full, but had completed the task of bringing three cavers and a trailer full of all the gear to the furthest extent of the mountain road.

The vanguard of the expedition consisted of Callum, Chris (getting his money's worth out of the car before selling it) and myself. Two carries of gear on the 3<sup>rd</sup> set the standard for the most arduous and unpleasant parts of the expedition, carrying as much bulky and heavy kit as we could bear up the Four Sods. On the first carry we took two bags of rope with metalwork each, stocking up to make good headway into the cave and win glory before the next wave of cavers arrived. On my second carry, with all my kit, enough food for camp and a stove, I fell on Sod 4 and bruised my ankle. But that evening, we had the pleasure of a glorious view over the limestone crags of the Central Massif, pink in the sunset, that was to be denied for some time to the cavers who came after us. John Wilcock, veteran of the first OUCC expedition and member of the 2011 expedition, recalled the view exactly the same in the 1960s – 'that fantastic row of pointed peaks, glowing pink in an alpine sunset, which haunts the memories of all'... This is a region soaked with Cave Club lore.



This pleasant break in our luck did not last. My diary entry for the 4<sup>th</sup> reads, 'Today should have been the first day of caving, the privilege which we knackered ourselves for yesterday. But [...] while I was going back to camp to fill in the call-out log which we had forgotten, a boulder fell on Callum's toe [...] and ripped the nail off'.

With what Chris described as a sickening squishing noise, a large and pointy boulder had crushed Callum's toe before he had even reached the entrance proper, and seemed to have put an end to his caving for ten days at least. Ironically, this injury had occurred while he and Chris were gardening the entrance climb for safety. (As it happened, with the aid of several boxes of endurance condoms used as anaesthetic non-absorbent dressings, Callum made a miraculous recovery within a few days) Undeterred by his injury, he limped back to camp to bleed profusely and read a book, and Chris and I pressed on. And so I drilled a hole for the first bolt; the first bolt I had ever done, and the first one to be placed in Xitu for years. In keeping with the theme of the day, it transpired that the wrong size drill-bit had been bought, and my 12mm bolt would not fit in the 10mm hole. As penance, Chris ran off down the hill to make his way to the nearest big town for the right bits, while I followed more slowly for yet another carry from the trailer, my third in two days.

After all of that, we were raring to go as soon as we had the right parts, and on the next day Chris and I took turns rigging the first seven or so pitches. But before total darkness was even reached, one of the cave's biggest challenges presented itself – Climax Rift. Best described as a key-hole shaped rift, it was named after the noises made by one of the first explorers as he battled through it. The steep walls made slipping down easy, and the grippy limestone made getting back up again a nightmare. To complicate the matter even further, a previous expedition had rigged (and then abandoned) a gear line through the rift which served only to get in the way. Within a couple of minutes, it became clear that it was good only as a tightrope to make the tricky bits easier. The rest of the cave is relatively simple to negotiate, but here at the very start was a challenge that seriously taxed several of our cavers until they had the correct knack to move through the rift at the correct level and with the minimum amount of elbow grease. With wooden stemples added later, and a little practice, we soon mastered it.



*Ben Hudson on the Ario path*

Our (well, Fleur's) shiny new cordless electric drill avoided the tedium of hand-bolting and we were able to make quick progress, with Chris teaching me rigging as we went. I went to Spain with a solely theoretical knowledge of knots and rigging principles, and came back confident enough to have a go at rigging even quite tricky pitches. But of course, occasionally the cave throws challenges at you that cannot be predicted or avoided. An example of this came half way through the entrance series, when Chris found himself rigging Traverse Pitch with no room for a drill. I sat in a puddle for an hour or three while he, crammed by his elbows and knees above the sheer drop, left-handedly hammered in a bolt by hand, using the side of the hammer because it was too tight to swing it normally. Another two pitches and we ran out of battery, rope and energy – my first trip on expedition, the longest I'd ever done by about four or five hours. We returned to find that the clag had descended, coinciding with the arrival of Dave, Vicky, Jamie, Andrew and Chris Vernon, who soon became the expedition head chef.

It would be more than a week before the newcomers would properly see the sun, let alone the Central Massif – the thick cloud would envelop the mountaintop without let, a precursor to the weather that would later come with such dramatic effect. In the meantime, Dave had a run-in with Climax Rift – having become a somewhat different shape to his self of the Eighties, he slipped and became irretrievably stuck. After much swearing and wriggling, and with the heroic aid of Callum (who worked his way further down into the rift, and offered his head as a human stemple), he freed himself. The next trip was sent post-haste to insert wooden stemples.

My next trip, after a day to recover, revealed just how under-examined Xitu was. Descending a newly-rigged pitch with a large group, we veered off unknowingly from the correct route, and found ourselves in an ancient, unvisited part of the cave at only some two hundred metres' depth. An obvious lead had been overlooked with poorer lighting, running up to one large undescended pitch, thirty metres or so, and another enormous hole – a stone rattled and boomed down to the distant bottom for an incredibly long time. Astounded by our luck, we named it 'Pendulumus Passage', the result of a chilly discussion on whether 'pendulum' was in fact a real verb, and what 'we pendulum' would be in Latin... Preliminary surveying later on in the expedition revealed that it was not heading towards 2/7 as hoped, but rather eventually linked back into the known cave at Customs Hall, though it is yet to be fully explored to its limits.

Armed with this new information, I set out a few days later to carry bags of rope for Tony and Paul. After ten or eleven hours crawling, climbing, abseiling and squeezing through the cave (during which we re-rigged Graham's Balls-Up on the right-hand side to avoid the water even in bad weather), we reached an inauspicious-looking crack with the darkest space imaginable beyond and below. I stood on the precipice and dropped the biggest stone I could lift. My diary reads, 'It fell and fell, catching the air and gliding from side to side, going out of view of the brightest setting on my lamp... and then, an almighty boom, so long after dropping the rock that it seemed almost unrelated, the mountain roaring back.'

This was Flat Iron – some one hundred and twenty metres of free-fall down a perfectly smooth shaft, lined with glistening and soft immature calcite. In the previous expeditions it had been rigged somewhat lazily, giving large teams an extended wait at the bottom for their team-mates to prussik up a ninety-metre free-hang. While I and the other bag-carriers headed out to put an end to our nineteen hour epic, Tony and Paul carried on, reaching as far as Pregnancy Pitch. This use of regular



rebelays removed the long wait, and also minimised the exposure to the spray from the enormous waterfall that thundered down the shaft. In the Eighties, this had been a relatively small affair – now, it was much stronger and more dangerous, a lesson that I almost learnt to my expense. My diary entry for my next trip down Xitu captures how I felt at the time much more accurately that I could reconstruct now, so I shall quote at length:

'The weather had been shit again today so by 6 o'clock Dickon, Andrew and I were raring to go and desperate to do some caving, so when volunteers were requested to follow the water down [...] and set up camp, we leapt at it. [This was at the end of three days of rain, which had prevented any caving – we expected the cave to drain quickly] So by 8 we were underground, and it was wet, very wet. The entrance series was sopping but [...] it was no great problem. [...] Flat Iron – none of us had seen it before, and we didn't realise how wet it was. From the top, it seemed ok. So we descended, terrifying rebelay after rebelay, beautifully rigged out of the water until the last hang before the big ledge, where I hung in the freezing spray until Dickon pulled me over and I got off the rope.

'The ledge was Hell; stinging, freezing spray wherever you went, and a howling gale. [We had previously been told that the ledge was always dry in places; this, of course, was based on the Eighties weather] By the time Andrew got down, I was colder than I've ever been. We huddled under a foil blanket while Dickon did the only thing he could do – the quickest thing he could do. He rigged a nasty, rubbing 30m drop from a single bolt, and down we went. I was by then on the brink of hypothermia and not thinking straight – I saw the last rebelay as a hand line traverse, clipped in, and walked to the pitchhead, then slipped over just on the lip, going into the water and nearly being pulled over by the tacklebags.'

This was probably the scariest thing that's ever happened to me, but I was caught by my cowstails and made my way down Pregnancy Pitch more or less by muscle memory. However... we had been forced to descend an unsafe rope that would probably have been severed by the rubbing caused by climbing back up it, and had to wait at camp until the next team down re-rigged it. Though we knew another team would be after us the next day, we had no way of contacting the surface – the Nicola Phone was not yet set up. (Once established, it was a great aid on a later three-day camping trip when I was relying on accurate and up to date weather forecasts to let me get my flight home to my mother's wedding on time!)

As it happened, the following team had an epic of their own – they had intended to pick up the drill left at the ledge before Pregnancy by Tony and Paul. But the flood had left the drill entirely underwater. And so they came to the lip of Pregnancy and found what seemed like an incredibly negligent and foolhardy bit of rigging. Steph improvised a rope-protector from a tacklebag to prevent the worst of the rub. Callum managed to spot a 1980s bolt over the one side, too rusted for the hanger to screw in more than three turns. Making the best of a bad job, he improvised a rebelay to backup the pitch.

They found us at camp (which we had set up as per our 'mission', the silver lining of our epic) and bollocked us thoroughly before we could persuade them that it was the only viable option in the circumstances. We had a brew, and Dave cheered us all up with his legendary harmonica-playing, as we considered what we should do next. It was a genuine act of heroism on Steph's part that she, as the lightest, volunteered to climb the rope despite the dodgy rebelay anchor, and re-rigged it using the drill we had taken with us. We emerged to bright moonlight after thirty-four hours underground.

The 2011 expedition to Xitu has improved me in more ways than I can describe; caving places you in a situation where you are entirely dependent on your skills and the skills of your companions, an experience that gives you an enormous sense of responsibility and trust in your own abilities and limitations. From the point of view of the expedition as a whole, the visit to Xitu was a qualified success. The hypothesised link to 2/7 was not found, nor was the cave bottomed as a result of the terrible weather which made the cave hazardous for a few days. But all present agreed that it was an utterly fantastic cave, more varied and exciting than any in the region.

There is still a great deal left to find – deep leads from the 1981 expedition still to check out, and new shallow leads to be properly explored. A promising new cave has been found in the nearby mountains which deserves attention (and explosives). It was agreed to return to Xitu next year, and build on the great progress made this year.

*Ben Hudson will return to the Picos in 2012 as Expedition Leader.*

## **Vicky Lim: I caved, I saw, I conquered**

“Come on expedition!” they told me. “The weather and the mountains are beautiful; we’ll rig down to the bottom of one of the deepest caves in Europe; you can find virgin passages, untouched caverns, unseen wonders; and we’ll all have a great time together.”

They lied. It rained about eighty percent of the time and the view, while pretty, was a rare sight due to almost constant, impenetrable clag. We never got to the bottom of Xitu, nature and circumstance seemingly bent on denying us even the -1000m mark. The leads we had we either killed all too quickly, managed to lose without trace, or ran out of time to push. And we didn’t have a great time. We had an absolutely incredible time. Because despite the fact that I spent a month getting rained on, enduring setbacks, and being horribly harassed by cows<sup>7</sup>, it was one of the best months of my life, and next year, when we plan to do it all over again, I hope to be there even longer.

As it turns out, expedition isn’t about the sun and vistas, or the impressiveness of the cave, or even about the exploration. It’s the experience of being on a mountain with an amazing group of people, caving with them through frequently unpleasant, sometimes scary, usually knackered times, and emerging from it all wanting nothing more than to do it again.

I only started caving last October when, as an unsuspecting Fresher, I signed up for a trip to South Wales with OUCC. One weekend of splashing down sunless streamways, clambering up jagged climbs, and squeezing through muddy boulder chokes, and I was hooked. I started to go on as many club weekends as I could, including a memorable Yorkshire weekend during which we all camped in minus 7degC, two of us got temporarily trapped in Alum Pot when our ropes got iced over, and I got my hair trapped in my descender leading to a fifteen minute epic hanging in a very cold waterfall. None of it put me off. I had the caving bug and all the discomfort in the world could not dissuade me from the conviction that I had finally found a sport which I really loved.

---

<sup>7</sup> They would literally eat anything: tents, washing up sponges, waterproofs, thermal tops, even a very dubious pair of boxers which had been worn down caves but not washed for about four weeks. Cow patrol was an official job for people hanging out at Ario camp.

It was around February that going on expedition became a serious goal for me. Previously, out of the three regular student cavers in the club (including myself), none had planned to go. But then a friend, Ben, from my college started caving, with enthusiasm to rival my own, and a timely talk from Fleur, who would become our de facto expedition leader, and the infectiously excitable Dave Rose, one of the original explorers of Xitu, convinced all four of us that this was a cave well worth seeing.

In fits of anticipation we ordered our gear, arranged our travels, and trained, anywhere and everywhere, for the forthcoming trip. The crawl spaces under our college have probably never seen such heavy traffic, nor have the free climbs on the roof experienced such unrelenting traversing, and even the staircase we used for SRT<sup>8</sup> practice seemed unused to such treatment. On less clandestine ventures we did a rescue weekend where we learnt how to create potentially awkward situations by abseiling into someone's face, and discovered what 'being the turtle' in a cave stretcher operation meant.

***Right: Vicky learning how to rescue someone who has become immobilised on a rope***



At last, July rolled around. Heaving under a 20kg rucksack which threatened to literally bring me to my knees every time I put it on, and with what seemed like far too few clothes and far too much gear, I staggered to the airport, met some of the others on the same flight, and we headed to Spain. The first major test of my somewhat dubious fitness was the walk from Los Lagos to Ario. I'd been told of the path, of its steepness and length, of the sodiness of the sods, but had decided that it would just be a good way to get myself in shape before the real challenge began. By the time we reached the top of it for the first time, I felt about as in shape as a triangle might at a convention for quadrangles. Where the others had raced ahead, carrying all their gear, some food, and a fair portion of my stuff, I had lagged behind, bemoaning my stumpy legs, and underdeveloped muscles, and desiring nothing more in life than a strategically placed ski lift.

The clag, which would remain our tediously persistent companion for much of the next month, swallowed the breath-taking panoramas of the Picos, and by the time we got to camp, was engaged in blotting out any stars of the encroaching night. Welcomed warmly to the shelter by the vanguard of the expedition, Ben, Chris and Callum, we pitched our tents and headed to bed.

A couple of days later and I had got somewhat used to the clag, the cows, and the cooking, and was anticipating my first trip down Xitu with nervous excitement. The entrance series was mostly rigged so our plan was to acclimatise to the cave by descending the first couple of hundred metres, gaining Customs Hall, and seeing how far on we could get from there. The way into Customs Hall was described as a swing from the main route down, which ended in a blind pot, into a window on the

---

<sup>8</sup> Single Rope Technique is the method used by cavers to get up and down vertical bits of caves. It involves a lot of abseiling like James Bond on the way down and a lot of watching your predecessor's bum disappearing into the distance on the way up while wishing it wasn't quite such a long way.

right. Chris Densham, who was at the head of the party duly went along, looking for obvious passages going off the side of shafts. A few pitches down we thus ended up in a likely looking enclave that sloped off in a different direction, forking to the left and right after about twenty metres. Dave, our supposed guide, regaled us along the passage about the names and stories of various protruding stal, all of which turned out later to be fabrication, for in fact what we had found was brand new passage, just a hundred metres from the surface, and entirely unsurveyed or explored. It gradually dawned on us what had happened when the route stopped even vaguely fitting the description and Dave owned up that he had no clue where we were. After leaving an undescended pitch in the right hand passage, exploration fever then led us to a couple more pitches on the left hand passage. Untouched mud formations confirmed no one had ever been here, and a huge rift, opening out above and below us, defied belief when a stone thrown down took six or seven seconds to land.

It was unbelievable. My first ever trip on expedition and we had found a pitch which was potentially deeper than any I'd ever descended. It was with a great exertion of will that we tore ourselves away from the site to continue with our rigging mission. There would be time later to explore the upper passages, it was reasoned, but the descent to the bottom would suffer horribly if we got distracted from that aim. We found our way on, and after a few more pitches, decided to head out, get some rest, and continue the next day with more gear and more time.<sup>9</sup>

I missed the next rigging trip because Climax Rift (so named for the sounds a particular caver used to make while journeying through it 30 years ago) had proved something of a challenge for Dave Rose on the way out. Unable to wedge himself sideways along the wider section of the rift without sliding down and getting stuck while traversing along, he had eventually had to resort to standing on Callum's head to get out. This being a less than ideal situation, Callum, George (another old lag of incredible age and fitness) and myself spent a few happy hours in the rift the next day hammering in stemples and inventing the game of rift-jousting.<sup>10</sup>

The next trip I got back on the rigging front and we successfully cleared the Entrance Series, the Upper Streamway, and were just entering the Teresa Series when things went somewhat wrong. Climbing up to a ridge at about head-height, we had rested for a moment while others went ahead to rope the hole into the Teresa Series. Getting off that ridge, on hands and knees, onto a muddy ledge, my knee slipped, I had nothing to grip onto, and I fell. I hit a couple of walls on the way down, dislodged a boulder, and landed on my back in a gully in the floor, about three and a half metres below where I had been. I had been cursing and struggling with a tacklesack of rope the whole trip and this was on my back like a rucksack when I made my rapid descent. It probably saved me from what could have been a very serious injury. Two or three hours into the cave as we were, it would probably have taken a few hundred cavers at least a day or two to get me out if I had been immobilised. As it was, I felt fine, if shaken and winded, but my knee was aching and threatening to

---

<sup>9</sup> It was later discovered that the rift was unfortunately impassable and the smaller pitch to the right led back to the known streamway but that is another story.

<sup>10</sup> It requires two long wooden poles which are being taken through the rift to be sawed into stemples, a referee who waits at one end of the rift with the hacksaw (ostensibly for disassembling the poles but really to break up disagreements) and three very hyperactive cavers.

seize so Andrew and I left the rest of the group to go on and headed out. On the way, Andrew managed to get serious amounts of grit in his eye and was half-blind and crying for most of the trip. Nonetheless we escaped safely and went back to camp to await the others' return.

Unbeknownst to us, it had been raining severely on the surface the whole time we were down (although, given that this was an almost constant state of affairs, we could probably have guessed). The other four, Jamie, Chris, Callum and Dave, were rigging past the Teresa Series, on a pitch called Graham's Balls-Up, when a sudden thundering noise alerted them to an incoming flood-pulse. They, in true British fashion, panicked a little, then sat and made tea with the brew kit they had with them. When it calmed down a little (and the tea was gone) they managed to alter rigging to make it safe in such circumstances. It was a scary experience for them however, and our first indication that the weather that summer was not what we had planned for.

Scuppered by my knee for all but the more gentle trips, I languished on the surface and bemoaned the fact that I was missing my chance to rig and get fit enough for longer trips. Meanwhile occasional sunshine peaked through enough to inflict sunburn on the more traditionally pasty Oxford students, only to be chased away by the irrepressible clag or lingering rain. Many days were spent huddled in the old shepherd's hut which was our kitchen making odd combinations of sandwiches, playing with paraffin that had been accidentally brought up the mountain, and fixating on how to suspend our numerous plastic cups on a line strung from the beams.

After the week or two it took for my knee to be dependable enough for long trips, the rigging front had moved to over 500m down the cave, meaning any trip was likely to exceed ten or fifteen hours and may well be beyond my capability. Frustrated at my lack of progress, sick of being the slowest and weakest of the expedition so far, and upset that I had still got no further down the cave than the beginning of the Teresa Series, I jumped on a chance to go to the top of Flat Iron with Rosa, bring back the drill left there and to survey the pitches rigged so far for the topo.<sup>11</sup>

The trip went off really well: despite the fact that neither of us had never been through the Teresa Series before or down the pitches beyond, we found our way with only a few mishaps, and I finally enjoyed 'The Gap', an incredible pitch where a small hole in the floor opens into a massive chamber that was invisibly large with my small LED lamp. In a miracle which I still fail to understand, we both managed to miss the obviously placed drill at the top of Flat Iron, and we were on the third rebelay down before I decided that we had definitely gone too far, that the hundreds of metres deep pitch below me must be Flat Iron, and that we should probably go back. We duly pruissicked up, found the drill, exclaimed over how we had missed it, and muddled our way back to the surface, keeping ourselves occupied by my recount of the entire plot (plus some songs) of Les Miserables to Rosa. I honestly don't know how she made it.

Buoyed by my experience, and now able to confidently place myself on one of the deeper trips, we planned a trip that would be Jamie, Rosa and I going down to underground camp in the morning,

---

<sup>11</sup> A rigging toppo is a hand drawn survey of where bolts are, what knots and rigging has been used, and how far down rebelay or deviations in the pitch are. They're used to help future cavers find the right place to rig and then do so more efficiently. For us though, it mainly meant playing around with distance measuring laser beams and checking the properties of waterproof paper.

sleeping in the afternoon, relinquishing the beds to the team already down there for the night while we went to push leads, and then spending another day at camp sleeping before heading out. Hot-bedding, sharing camp with another set of cavers, was not ideal because it would require us to go to bed at 3pm and cave through the next night, however I was determined to make it work, and what with other calamities with the weather, it seemed unlikely many more opportunities to 'go deep' would present themselves.

We made it to camp in just two and a half hours, not bad for 650m of descent and a few tacklebags, and I settled into my first ever underground camp. It was bizarre having a tent in a cave, weirder to be cooking down there, and nothing but unpleasantness to have to deal with other functions, in such circumstances. However, once we were warm and dry in our cave pyjamas, fed and watered to repletion, and snuggled deeply into the many layers of sleeping bags and bivvy bags in the tent, we had a comfortable few hours of peace. I don't think any of us slept, we had, after all, only got up about eight hours ago, but we lay comfortably for about five hours and rested ourselves up for the trip ahead. We were to push a lead at about -900m down the cave, at the top of the Flyer pitch, where unexplored space held promises of new discoveries, and my mind was more than a little overactive in the hopes of what we might find there.

The team ahead of us, who had been pushing during the day, returned to camp that evening and, after they'd eaten and sorted themselves out, chucked us out of bed so they could sleep. They had been to Chunder Pot, the deepest we ever got in the cave, and the site where Dave Rose said he'd seen a passage 30 years ago which was an incredible promising lead in the cave. It had always been one of the major aims of the expedition to rig Chunder Pot and see where this dark space went, but when the guys had gone back there, they had been unable to find what Dave was on about. It was hugely disappointing, especially since timing and weather had already ruled out the possibility of us rigging to the bottom of the cave, another of our major aims, and this was the last pushing trip we would be able to do at that depth. All the same, no lead at Chunder Pot didn't necessarily mean no lead at the Flyer, I reasoned, and at the very least, a chance to get to -900m was not to be sniffed at.

We set off with Jamie as our guide, splashing through the Marble Steps, narrowly avoiding a dipping at PAFS Pot,<sup>12</sup> and gingerly stalking down the never-ending boulder slope of Pythagoras. At the top of the Flyer, we retrieved a drill left by the last team, and skirted around the left of the pitch-head to a rocky outcrop of ledges hovering over rifts, and slanting walls heading into blackness. Struck again at how incredible it was to be some of the first ever explorers of this part of cave, I eagerly started clambering around, looking for anything likely or interesting, or even just pretty. A call sounded for the distance: Jamie had found a small window beyond which was darkness and he wanted me to go through.

---

<sup>12</sup> PAFS stands for Piles Arising from Suspension after an incident which occurred with one caver when it was first discovered. One of the best bits of expedition was hearing first-hand from those who had been there how all the different parts of cave had been awarded their name. My favourite title is The Classic Numbers because the original cavers realised as they were halfway through the series that they must have passed -1000m, making it one of the deepest cave in the world at the time and making them the deepest ever British cave explorers.





***Vicky with formation in Hall of the Mountain Drawf, just below camp in Xitu***

Traversing as fast as I could around a large drop, I scrambled up to him and hastily ascertained that this small hole he had found was certainly untouched, looked very exciting, and was all for me. I wriggled through and found myself in another chamber, not that wide, but about six metres tall, and with what looked like passages heading out from it at ceiling level. The climb to these spaces was sketchy and, being particularly short and clumsy, I opted to call Jamie into the hole to try it first. As he headed up, I explored the chamber more thoroughly. It went for a fair way in a perpendicular direction to the rest of the cave, there was flowstone near the roof, and the blackness into which Jamie had disappeared looked deep and mysterious. I waited anxiously for his return but when he came it was with bad news. There was a section leading off but it choked and significant digging would be required to break through. This deep in the cave such an effort would not be justifiable, and with so much else to look at it was likely this little chamber would never be high on the list of priorities.

We climbed back out and headed back to Rosa who had been poking around near the huge rift below us in our absence. We had originally dismissed it as it headed in the same direction as the main way down and so was highly likely to join back up. Nevertheless, wishing to have done a thorough job, and to give me a chance to rig something, we decided to descend it and see what lay further down. My first attempts with the drill were erratic (I had to be reminded to keep my eyes open most of the time) and my efforts with the hammer were somewhat lame, however I inserted a few satisfactory bolts and lassoed a natural so that I could do a Y-hang down the enticing gap. Twenty minutes in the rift reassured us that it was going nowhere interesting and we decided to call it quits and make for camp.

The way back to camp was wet. The rain which had tormented our comrades on the surface was permeating down to punish us, and the Marble Steps and many other pitches became incredibly damp on the way up. Although we were never in danger in the streamway, there were times when we got thoroughly dipped into pools, splashed to the core by engorged waterfalls, and swung in and

out of sprays while ascending ropes. We arrived at camp utterly soaked and gleefully evicted the others to claim our beds.

The way out was smooth and surprisingly fast. I had been terrified for a long time that I would be horrifically slow on the ascents, not being very strong, tall or fit, but in fact I kept up a reasonable pace and enjoyed the way out in a way which I hadn't expected. Heading up Flat Iron is an intimidating feat, 120m of rope and rebelayes in a shaft where you can't usually see the floor, other walls, or ceiling, and I had thought it would be hell. Usually pitches of about 40m left me gasping and mentally composing letters to stair-lift companies to develop a mechanical aid for rope ascension, but Flat Iron, although at points utterly exhausting, forced me into a state of utter determination and rewarded me with a great sense of accomplishment.

When we emerged, forty hours after we last saw daylight, at 1am in the morning, I was exhilarated. It may not have been a very successful trip in terms of fulfilling targets or achieving aims, but I had done it. I, who had been caving for less than a year, who never did any other sports regularly (unless you count dodging cars on my bike), who was five-foot-two-inches tall and built like a sapling, and who had never been on a longer trip than fourteen hours, had done it. I'd camped underground, I'd got to -900m in a cave, I'd found an undiscovered portion of the underworld, I'd drilled and rigged an undescended pitch, I'd negotiated the lower streamway in the worst conditions anyone had ever seen it, and, most importantly, I'd made it back out. The thousands of stars in the cloudless sky were bright above my head, the world stretched out into limitless mountains around me, and below me was a vast and epic cave I felt I'd truly conquered.

In my last week of expedition, I did another deep trip, this time to help de-rig: carrying many tacklesacks out from underground camp and then caving the last few hours out on my own while the others handled ropes. Ben, also on expedition for the first time and a new caver, had managed similarly deep and impressive feats in his two weeks on the mountain. Old lags, who had been on the first Xitu expeditions and explored it originally had made it back and done some incredibly hard trips to depths that tested their physical strength (or size) to the limits. Everyone had done something of which they were proud, which they had loved, and which would be a story they would tell future generations.

Our expedition didn't do everything it set out to do, it wasn't all fun and games, and the weather was indefinably, abominably, loathsomely, against us. However, if success is measured in terms of enjoyment, of camaraderie, of enthusiasm, of experience, and of future intentions, Xitu 2011 was quite clearly a triumph.<sup>13</sup>



***Vicky leaving expedition after a final round with the Ario path [Sara Gregson]***

---

<sup>13</sup> Even if I didn't get to shower for over a month.



# My, Haven't You Grown?

*John Wilcock & Fleur Loveridge reflect on how things have changed for OUCC in 50 years.*

## ***Gender Roles***

In 1961 there were no mixed colleges, and in the mens colleges, it was officially necessary to get permission to entertain a young lady in one's room. College gates closed at 11pm (there were many "climbing-in" routes which improved rock climbing abilities) and your tutor's permission was required to be away from the college overnight or at weekends during term time. Perhaps as a result, the 1961 expedition was an all male affair. Now, with mixed colleges the norm, not only are there many women on the expeditions, but they even let women lead them.

## ***Transport***

Caving activities used to be hampered by the fact that no undergraduate could keep a car within the City of Oxford, and most caving meets required the arranging of coach transport. There were also few motorways and the Severn Bridge, a great help for getting to South Wales caves from Oxford, did not exist. In subsequent years OUCC has owned a series of vans and minibuses and it is normal for various members to use their own private transport on weekends.

## ***Caving Equipment and Exploration Techniques***

Old woollens or ex-Second World War uniforms covered by boilersuits were the norm for caving in 1961. Wetsuits were unknown and leather boots and fibre pile helmets were worn. These days we are all a bit softer, with fleece undersuits, cordura or PVC oversuits and the fantastic wellington boot. Proper helmets tested for impact loads improve safety.

Lighting has also advanced dramatically in recent years. Carbide/acetylene (stinky) lamps or ex-miner's lead acid cell lighting have more recently given way to light weight LED technology. This has facilitated solar charging on expeditions and has meant an end to carrying carbide rocks up mountains and down caves.

Thankfully we have also moved away from steel wire ladders (except for novice trips), although when OUCC first went to Spain the days of rope ladders were not long gone. The advent of modern ropes and SRT techniques has made truly deep caving possible. While this was true from the end of the 1970's, skill and technique within OUCC has clearly moved on substantially with the innovations of proper traverse lines and use of multiple rebelay to avoid rub points and just maximise efficiency of multiple people ascending large pitches.

## ***Getting to Spain***

Ex-army Bedford lorries, channel ferries, driving through France and Spain on badly-surfaced roads (no motorways); these were the challenges of expeditions 1960's style. The results of buying third-hand vehicles soon became apparent - a seized brake cylinder pitted beyond repair. However, a stop on a rubbish dump near Rouen in northern France sorted things out. Spares for Bedford army lorries seemed to be very readily obtainable there, probably because of the legacy of the war. The 1961 journey included a stop to see the famous painted caves of Lascaux 1, then still open to the public, as well as a complete refit of the three-ton lorry brake master cylinder. The absence of the correct

officials at the Hendaye frontier meant that an overnight stop was necessary, sleeping in or under the vehicles. In these days the journey was also extended as the metalled surface of the Lagos road stopped after the first farm out of Covadonga. On the return trip, the effects of 62-octane petrol from Galicia took its toll on the one-ton vehicle and turned its exhaust valves into split mushrooms.



***Left: the 1961 expedition leaves Oxford [Oxford Mail]; Right: slightly less fanfare in 2011 [Fleur Loveridge]***

In recent years all the expedition equipment has been transported overland, or via long-distance ferry, using vehicles owned by OUCC, hired, or loaned by sponsors. Individual members often use public transport. Motorways help speed the journey and using the longer ferry routes direct to Northern Spain saves time, and wear and tear on vehicles as well as being safer from a drivers perspective. However, some things never change and there is rarely a year that goes by without some vehicle problems. This year it was overheating on the way up and brakes (!) on the way down the Lagos road.

And once at Lagos there is still the same old walk up the Ario with a large rucksack of caving gear and food. Despite recent talk of helicopters, we are not quite there yet!

### ***Accommodation***

Based mainly around the lakes, the early expeditions used the verandas of the Refugio de la Vega de Enol for equipment storage, with people sleeping inside or in nearby tents. For the last few years, camping at Lagos has not been permitted and our base has been high in the mountains. Modern light weight tents have made this carry easier, but some people still choose to sleep in the refugio.

### ***Technology***

Once upon a time the only communications with the outside world were via the Lista de Correos in Cangas de Onis. It was a common task on shopping trips to go to the Post Office to pick up mail. Now we have mobile phones, Twitter and wi-fi at the refugio. Less flashy, but just as important is the use of the Nicola Phone with its batteries charged by solar panels. This magnetic underground transmitting device was born out of tragedy, arising out of a fatal cave rescue incident in the Gouffre Berger, but now helps us to prevent future accidents by providing reliable communications with the underground camp for the passing on of weather forecasts, reports of new discoveries and the scheduling of underground teams.

Photography is another technology which has evolved rapidly in recent years. The first Picos expeditions used film cameras with early colour film. Cave lighting was by magnesium ribbon or flashbulbs. The result was usually 35mm slides which were used for subsequent lectures, for example to the Cave Research Group of Great Britain. Now digital cameras have revolutionised cave photography with the ability to view your shot immediately after taking it. Lighting can be by flash bulbs, but is more often by “slaved” flash units. Or for those who can afford a Scurion headset this can often suffice for light painting with long exposures. Thousands of images result, making a headache for the expedition lecturer at the annual “Hidden Earth” conference, and allowing everyone to waste lots of time looking at them all on Facebook.



*Use of the Nicola Phone at underground camp [Ross Hemsley]*

### ***Publications***

This is one area where nothing has changed. The 1961 report was compiled by a few members of the expedition and finally issued several years later. Since then OUCC Proceedings has become renowned for its delays of years if not decades, being always “in preparation”. Let’s hope this report is only late by a few months.....



*John Wilcock carry out resistivity measurement on the 1961 expedition, and still an OUCC regular 50 years later.*

# Medical Officers Report

Thankfully, from a medical standpoint the 2011 Picos expedition was largely uneventful.

## Preparation

In line with university requirements, all prospective expedition members were required to undertake first aid training. Due to difficulties in contacting the OU First Aid Unit, we were reliant mainly on external organisations such as St John's Ambulance, with members organising their courses individually.

With all our cavers trained, I was able to further distract myself from impending Finals by provisioning and packing the numerous first aid kits (surface, underground camp, underground rescue, individual etc) which accompany us to Spain.

## Incidents

Life for the medical officer in the Picos was restful. The usual collection of knuckle-vs-rock caving cuts were treated with copious iodine, and only two cavers sustained injuries severe enough to restrict them (temporarily) to the surface.

The first accident occurred almost immediately upon our first forays into Xitu, with Callum struck down by an acute case of boulder-to-toe syndrome. Luckily Chris Densham was on hand to provide first aid, his improvised dressing triggering a new fashion craze for one-armed shirts.



*Nobel Prize Pending*

Callum's desire to get back underground as quickly as possible gave birth to another novel dressing. Searching for something which would prevent the toe from rubbing painfully against the inside of his wellington boot, I struck upon 'endurance' condoms: condoms lined with a mild local anaesthetic and plentiful lubricant. One awkward trip to the shops later, Callum was caving happily.

In the last week of the expedition, a caver dislodged a boulder whilst jumping across the surface karst. He fell awkwardly and the boulder landed on his leg with an ominous crack. Luckily, the medical officer was on the scene: I was the patient.

Panicked slightly by the noise, I was relieved and somewhat surprised to see that my leg had broken the boulder in half. I dragged myself back to camp, took a lot of tramadol, and limped around heroically for the rest of the trip.

James Jordan, November 2011



# Expedition Accounts

Compared to the original expedition budget the expedition made a surplus. This was due to the last minute attendance of a number of members of OUCC which boosted our income. As a result of this we were able to reduce the expedition fees for all attendees, but especially the student members. Expedition fees therefore became £60 for students or the unwaged and £120 for waged members. These revised figures are reflected in the summary accounts below, which essentially break even.

In the field all costs related to food, fuel and other supplies were recorded and later used to calculate a per person per day rate of £3 subsistence.

We have retained around £200 from the accounts for production of hard copies of this report for our sponsors and other interested parties.

Item	Income	Expenditure	Excess of Income over Expenditure
<i>Advance Items</i>			
Expedition fees	£2,747		£2,747
Personal equipment	£2,975	£2975	-
Personal insurance	£210	£210	-
OUEC Contribution	£600	£200	£400
OUCC equipment	£503	£503	-
Personal travel with the trailer	£350		£350
Ferry		£1248	-£1,248
Trailer maintenance & towbar		£350	-£350
Vehicle insurance		£150	-£150
Underground camp food		£350	-£350
Bivvy bag hire		£30	-£30
Communal caving equipment		£1341	-£1341
Fuel		£97	-£97
	<u>Subtotal</u>	<u>£7,186</u>	<u>£199</u>
<i>In the Field</i>			
Kitty contributions	£1,307		£1,307
Kitty costs		£1,307	-£1,307
	<u>Subtotal</u>	<u>£1,307</u>	<u>-</u>
<i>Outstanding Items</i>			
Allowance for publication of final report		£199	-£199
	<u>Subtotal</u>	<u>£199</u>	<u>-£199</u>
	<b><u>GRAND TOTAL</u></b>	<b><u>£8,692</u></b>	<b><u>-£0</u></b>

## Typical Individual Costs

An undergraduate caver on their first expedition would typically have encountered the following costs:

Expedition fee:	£60
Insurance	£15
Personal equipment	£500
Kitty (3 weeks)	£63
Personal travel	£200

**TOTAL £838**

This was partially offset by a grant from the A. C. Irvine fund of up to £250. Some expedition members also found other sources of funding including the Dorset branch of the Oxford University Society.