

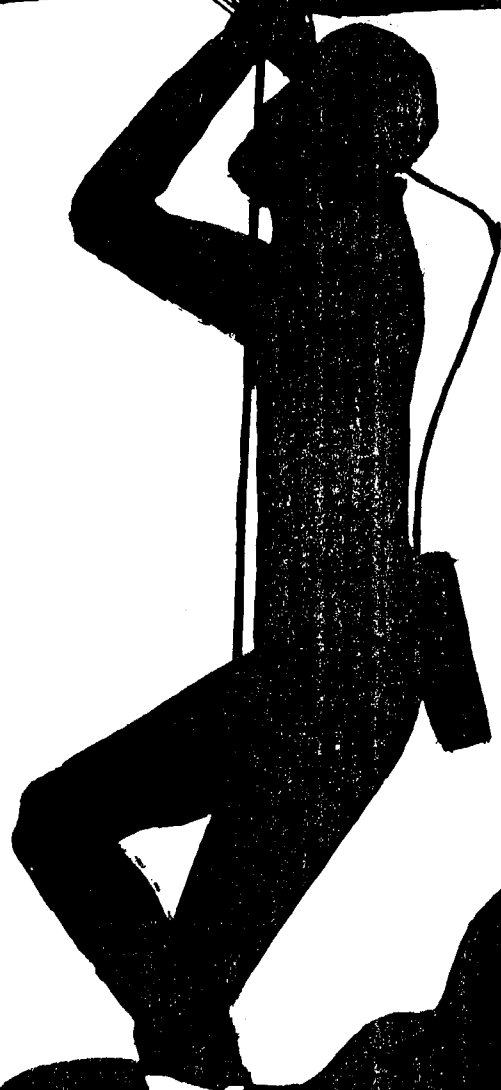
FORCAU

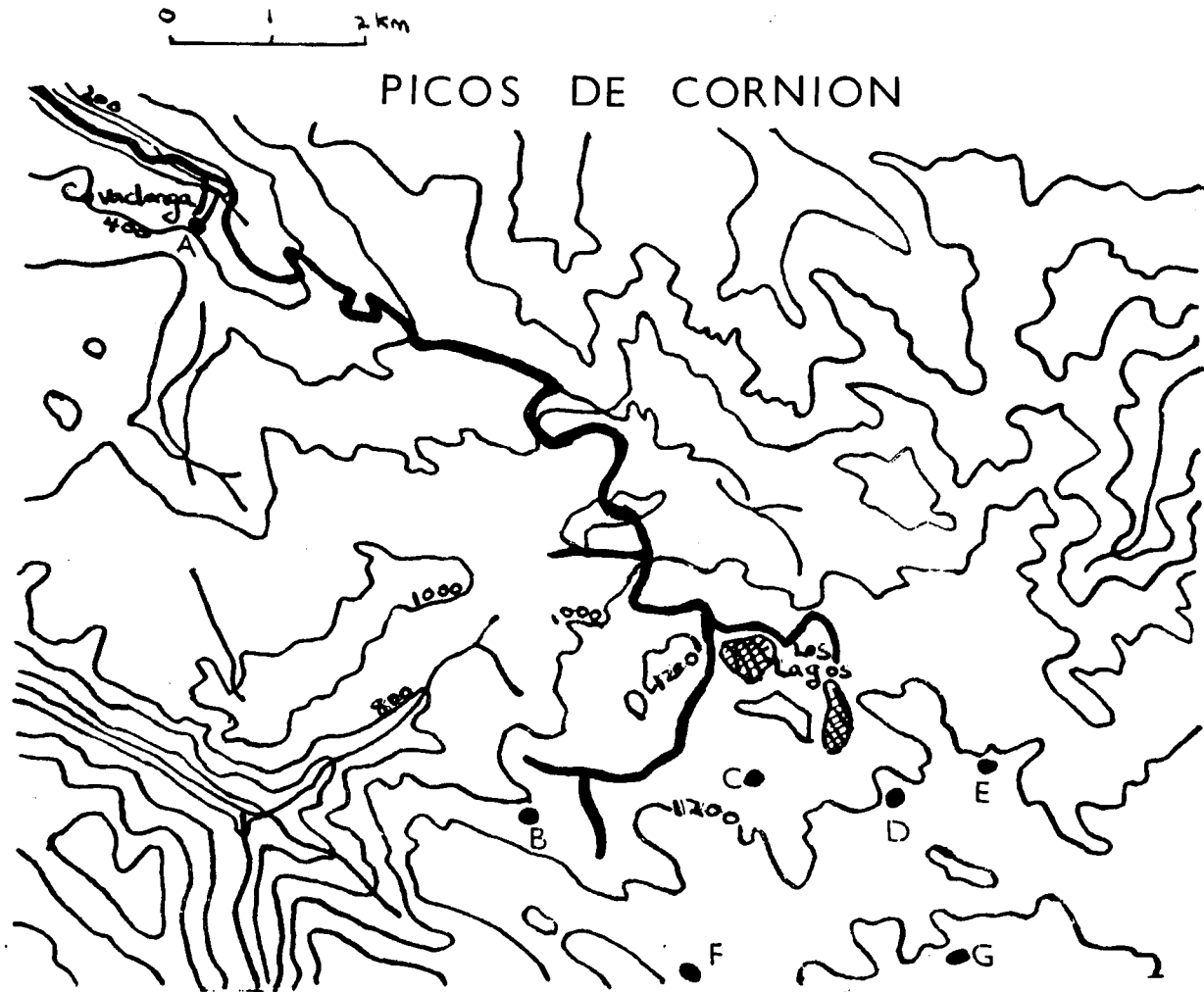
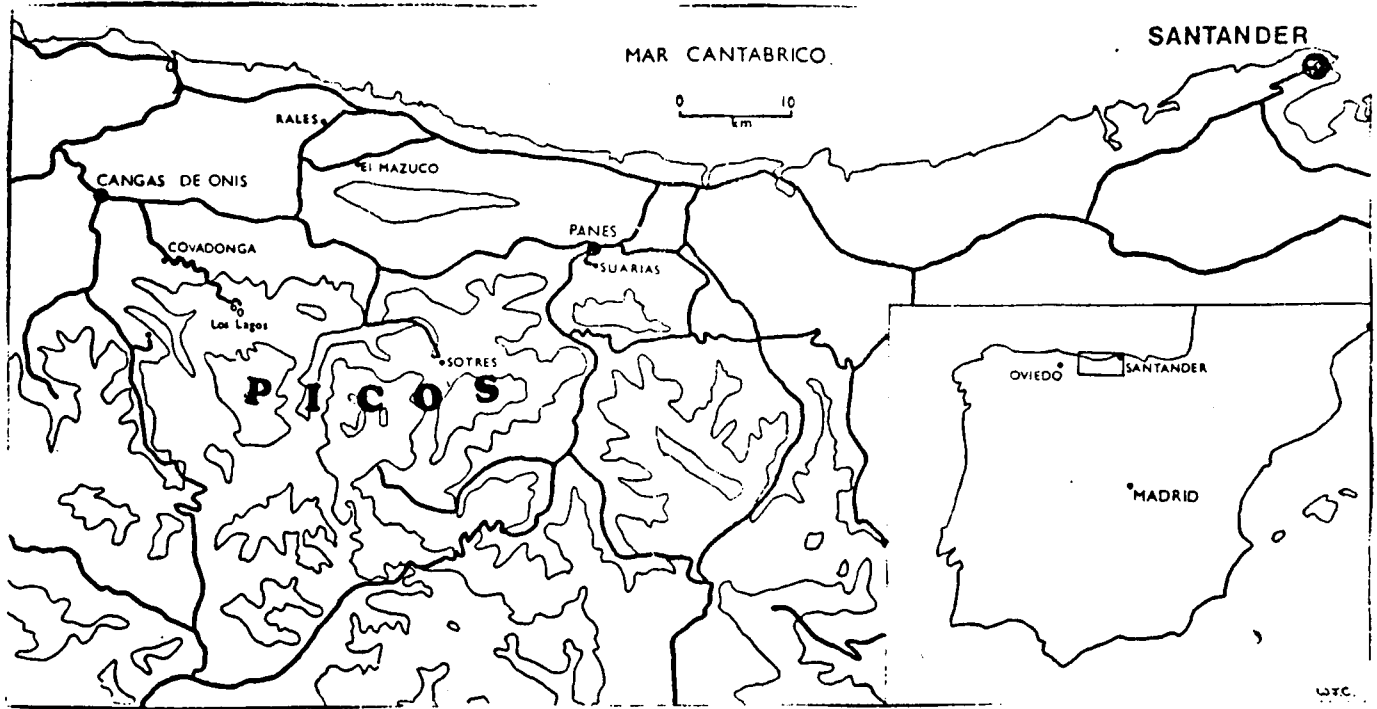
'76

OXFORD UNIVERSITY

CLAVES

PROCEEDINGS 8





A — Cueva Campana

B — El Burdio de la Pena

C — Pozo Palomeru

D — Cueva el Osu

E — Pozo la Texa

F — Cueva del Viento

G — Pozo de Vega el Forcau

FORCAU '76 - The Expedition

Members:

M.Laverty (Brasenose) Leader
W.J.M.F. Collis (ex Balliol) Secretary
D.J. Kelsey (St.Edmund Hall) Treasurer
M.F. Cowlshaw (ex Birmingham Univ.)
Equipment Office.
D.Toft (Brasenose) Medical Officer
S.P. Tarran (St.Edmund Hall)
J. Clements (Exeter)
A.R. Moulton (St.Catherines)
B.D. Matthews (ex Worcester, Leeds Univ.)
M.T. Moylan (Somerville)
H.A. Worth (University Coll., Buckland)
M.D. Wilbourn R.N.

Organisation: Planning began in September with submission of preliminary plans to the Sports Council for grant purposes and first contacts were made with Spain and the Spanish Embassy with regard to permits. Many firms were then circularised with a view to sponsorship - unsuccessfully - and the plans were approved and recognized by Oxford University Expedition Council. Travel was arranged to combine the cheapest possible routes with the availability of members, bearing in mind the expected reliability of the cars. Three vehicles were used - a Viva (MFC), a Reliant (WJMFC) and a Triumph Herald (JC). Ferry details appear in the financial report.

An advance party set out on 29th June and began the rigging of Forcau, being joined on 6th July by a party of three, with most of the remaining tackle. Forcau exploration finished on 8th July with the discovery of the final sump, but the surveying continued until 22nd July. The remaining vehicle arrived on 9th July after a serious breakdown in Normandy, which delayed them for three days.

Exploration of Cueva Campana and Pozo La Texa occupied the party until 25th July (two members having departed on 16th July). Several trips were also made to other caves in the area - Cueva el Gueya Reinazo, Cueva Trumbio, Pozo Palomeru - there were several unsuccessful attempts to find Hoyo la Madre resurgence and walking expeditions searching for any new pot-holes.

The campsite was then changed from Lago de la Ercina to the village of Rales, where the local cave was enjoyed by all. For people left on 1st August, the final expedition member arriving the next day to become involved in the exploration and surveying of Cueva la Huelga. Cueva el Osu was visited at this time and Hoyo la Madre was finally located - too late. The remaining six people left Spain on 9th August, three by car and the other three independently.

Equipment Notes: Much more rope and ladder was taken than was finally required, other equipment in anticipation of an extensive and deep cave exploration - including portable telephones - was also taken.

All but one pitch in Forcau, and all other large pitches descended, were tackled by single rope techniques, using 10mm 16 plait terylene rope made by Marlow. All pitches in Forcau were bolted for a free hang and had back up bolts and traverse lines. The bolts were Whitworth 1/16th inch thread, made by Troll. Pozo Palomeru was also bolted. However the bolts were not greased and hangers were removed, so care should be taken if anyone plans to use these. A portable generator proved very useful for charging electric lamps while we were camped in the mountains, but elsewhere in Spain charging can usually be arranged with a bar, or the local carbide can be used.

Survey Notes: All surveys were performed using Suunto compass and inclinometer. Leapfrog techniques were used in preference to follow-through when this was possible. Readings were taken to the nearest degree and 10cm. with handheld instruments, and noted on plastic (permatrace) pads in pencil, which is easily erased. Calibration was not up to BCRA Grade 5, but sightings on mountain tops ensured no gross errors. Thus Grade 4 is claimed, although most Grade 5 requirements were met.

Data was roughly drawn up in the field to check for obvious errors and was subsequently processed by a network solving computer program to calculate coordinates, resolve loop misclosures etc. Another program laid out the master line. The Forcau survey was drawn up on 'permatrace', the others on tracing paper.

Report Articles: Those most concerned with the following articles are:

Pozo de Vega el Forcau: Bill Collis, Steve Tarran, Mike Cowlshaw
 Cueva la Huelga: Dave Kelsey, Martin Laverty
 Cueva Campana: Martin Laverty
 Pozo la Texa: Steve Tarran
 Cueva el Osu: Martin Laverty.

All articles were written in the field and have been subsequently edited.

Pozo de Vega el Forcau

The major objective of this expedition, this pot at 258m deep and 1.6km long is one of the largest systems so far explored in the Picos. It is very varied with both large and small shafts, smooth and spiky walls, wet and dry, clean and muddy passages changing character from Mendip to Yorkshire to Continental types. The destiny of the water last seen in the flooded shaft of the final sump is unknown and the system probably still holds many secrets. A worthwhile cave, but not to be taken lightly.

Location: From the bar at Lago de la Ercina follow the W. side of the lake and follow the causeway to the foot of a gully, which is ascended to a hut by a stream. Follow the stream to the left and up to another hut in a damp, large, flat-floored valley, continue across the valley to the next ascent up grass to another hut. Here turn sharp right (S) and follow a good shepherd's path up grass, then rock over an impressive saddle to a col, where the Vega el Forcau is entered. The pot is about 150m almost straight ahead, slightly to the right of some ruinous walls. The small entrance is identified by a rock with the letters SIE emblazoned in red.

Previous Exploration: The first exploration of Pozo de Vega el Forcau was carried out in August 1964 by the Speleo Club Alpin Languedocien. They discovered the stream sump at - 150m and then reached the top of the 8th pitch, where a scratched set of initials and dates was found this year. They named the cave Cento Cenal and did not return to descend the pitch until 1975, when they had only a vague idea of its location. Meanwhile a shepherd had shown the Barcelona group ESIEC the entrance in 1974 and their exploration reached the same point. At Easter 1975 the same group, despite a considerable access problems due to surface snow conditions, spent 35 hours underground, exploring and surveying down to the inlet before having to leave.

July 1975 was arranged for the next Spanish expedition to the cave and several English cavers were invited to join. In the end the arrival of the Spanish group was delayed and the English group determined to inspect as much of the pot as they could, in conjunction with the SCAL group (Montpelier and Lund sections) also camped at Lago de la Ercina, searching for Cento Cenal. A 15 hour trip, - much time being spent bolting all the pitches for SRT - allowed exploration to proceed almost to the 8th pitch. The identity of the pot was not realised by SCAL, who continued searching for their pot! Renewed plans were made for a large Anglo-Spanish expedition in July 1976, but the Spanish informed the British contingent that they could not arrive until August. By this time bookings had been made so Forcau '76 became an almost entirely Oxford University Cave Club venture!

Description: The entrance is a shaft of 11m, about 1m across. A snow plug was found at the bottom in early July, but would probably have gone by August. A short boulder slope leads to the second pitch of 7m into a boulder floored chamber. A short traverse leads to a convenient point for rigging the 3rd pitch, 11m, free. The next pitch (6m) follows immediately, two short climbs then lead to the top of Acrobat pitch. This was originally named because the positioning of the bolt to ensure a free-hang necessitated certain acrobatics at the pitch head, the name was later justified by the antics performed penduluming into an opening a short way down the shaft. The cave opens here into a very impressive, airy shaft landing in a chamber sloping down to the 6th pitch, which is in 3 sections (totalling 37m), and lands at the foot of an aven with water falling into a pool in which it sinks. So far the cave has been dry, with walls encrusted with powdery cave popcorn, but the foot of the 6th pitch reveals brecciated rock and the next passage contains much fill.

A loose and rather muddy section of passage with occasional small chambers leads to a light and spiky rift, the stream joins the passage at floor level, which is too narrow for progress. Traversing is possible at various levels, only one of which gives easy access to the 7th pitch. This is a 7m drop and is best laddered, it is tight at the top but opens out into a pleasant stream chamber, with a cascade upstream and a narrow winding, pleasantly clean passage downstream. A climb over a rock fall heralds the next stretch of passage, possibly developed in dolomite which has given rise to an awkward, spiky section of cave with occasional rock bridges. Near the end of this, a short duck enters a small chamber with what looks like an inlet sump underwater. The succeeding streamway is superb - clean, scalloped walls gentle winding, about 1m apart. The cross section then becomes less simple and climbing out of the stream gives access to the oxbows. The stream carries on to a series of low ducks before it sumps.

The oxbows form a figure-of-eight, the two small passages to the S are about a metre lower than the larger, typically phreatic sections to the N. The walls are covered with mud and several fill stages are evident in pebble and mud deposits, some slumped and some calcited over. A single dry passage leads back to the streamway, emerging about 4m above the floor of a narrow rift, midway between a sump and the lip of the 8th pitch. This dry passage has a small slot in its mud floor cut by a minute trickle of water. The 8th pitch can be rigged dry by climbing into an oxbow to the left of the stream at the pitch head. The chamber reached by this forms the head of a 37m 85° sloping pitch, which is very pleasant. Climbing over some rocks at the bottom into a sloping rift, where a handline is useful, leads to the final pitch of 8m. Varied, sporting passages continue the route, usually with smooth, scalloped walls and frequently in sloping rifts. Progress is made mainly in the stream by walking, climbing cascades and occasionally by crawling. At one point the stream route is impassable and a traverse is necessary to attain an oxbow which regains the stream. A chamber with notable fill deposits marks the inlet, which has a small stream originating in the several avens at the end, some of which have well decorated



Calcite growths
in the spiky rift



Decavated grotto
about the 8th pitch



POZO DE VEGA EL FORCAU

Asturias, Spain.

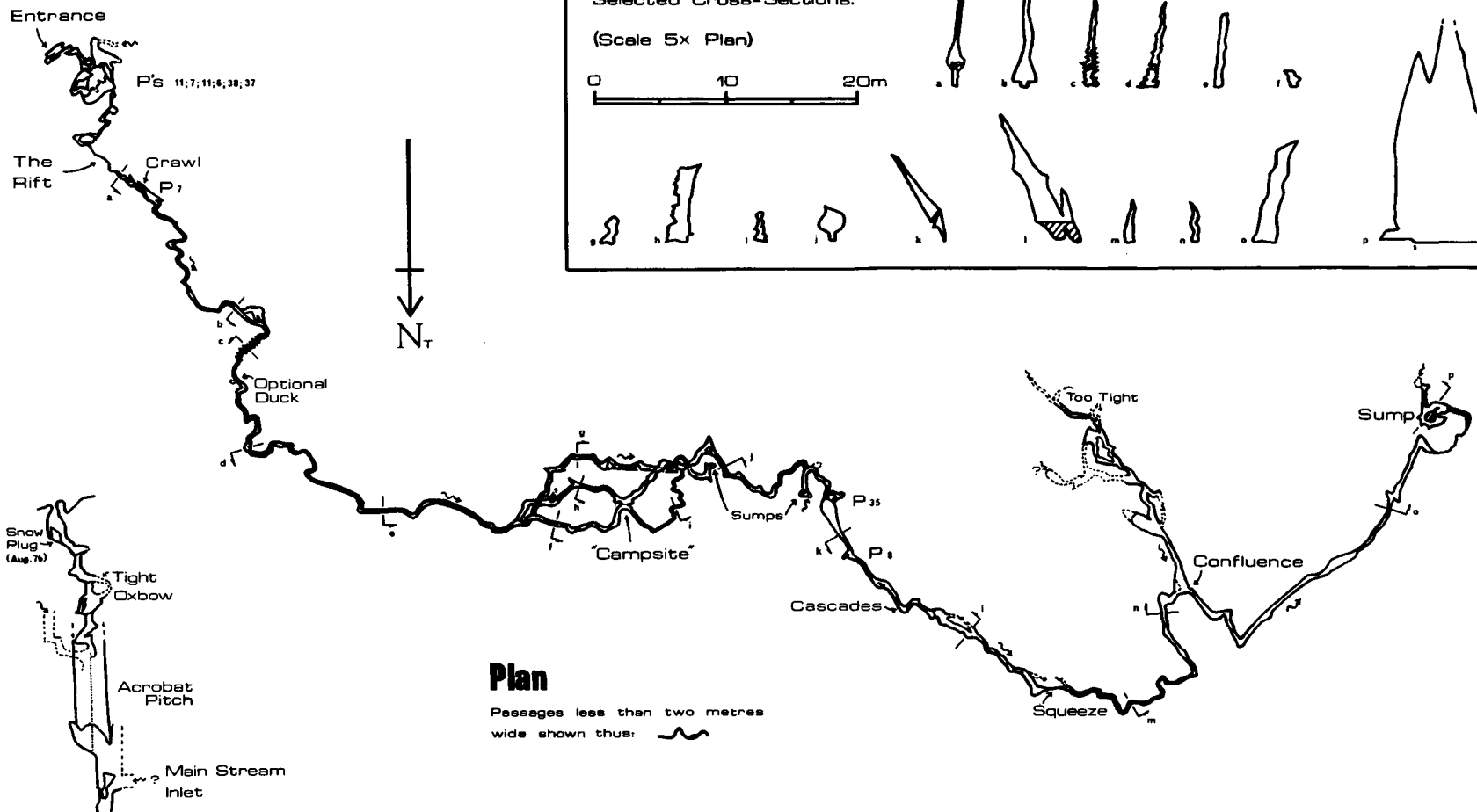
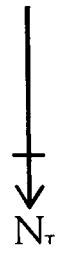
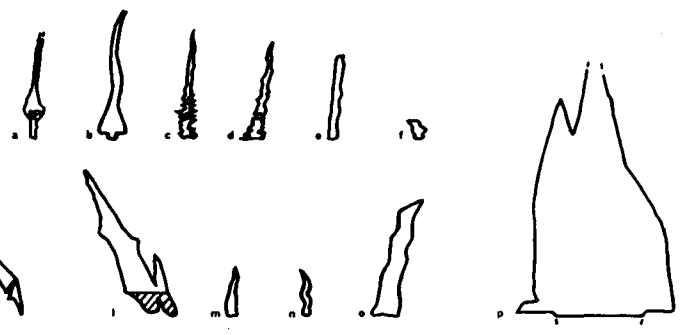
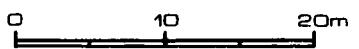
43° 14' 47" N,
1° 16' 44" W (of Madrid).

Surveyed by members of
the Oxford Expedition to
the Cantabrians 1976.

BCRA Grade 4b
Closed Loop Errors 1.3%

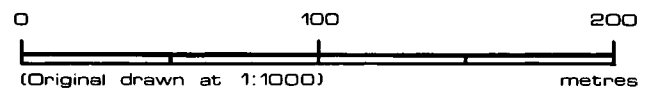
Surveyed Length 1569 m
Depth 258 m
Altitude 1460 m

Selected Cross-Sections:
(Scale 5x Plan)



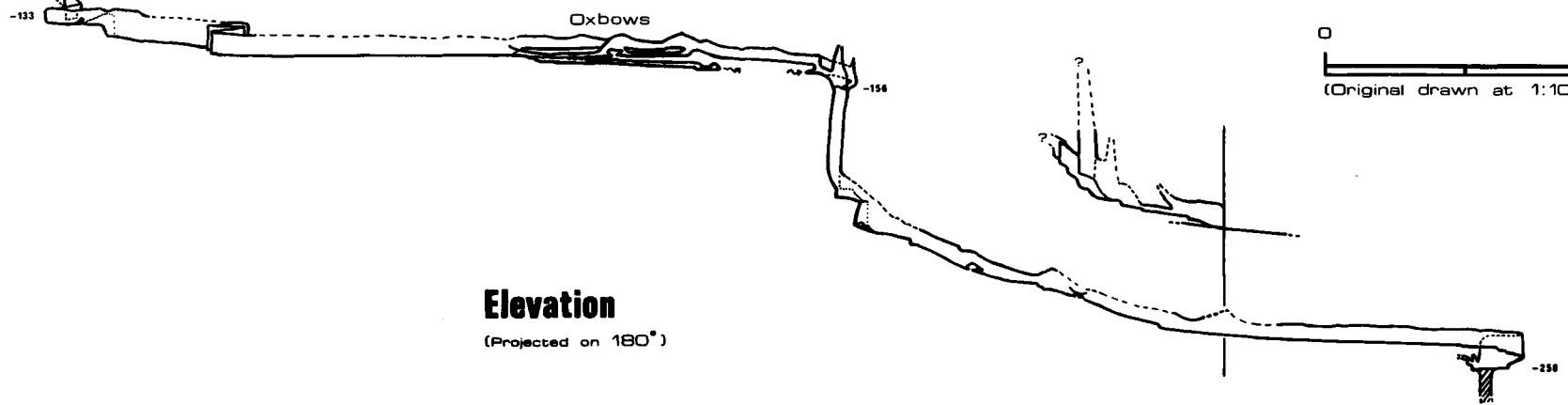
Plan

Passages less than two metres
wide shown thus:



Elevation

(Projected on 180°)



grottos near the bottom. The passage to the sump provides easy walking, there is evidence of several different water levels in its numerous false floors at different levels on the passage sides and a stalactite immersed in water to a depth of 30cm in a deep pool. The passage then narrows and steepens, a final cascade entering the sump chamber. This has a clean flat floor with about 10cm of water all over, except where the vertical, fluted walls of the sump disappear downwards for at least 10m. There is a small perched sump giving a second inlet to the sump chamber - this appears to be short, air having been felt with feet, but the dive would be very tight and extremely cold.

No water-tracing has been done, to our knowledge - in this cave, and so the resurgence is unknown. Bearing in mind the general trend of the cave, it seems fairly likely that it may resurge in the Rio Pomperii.

Survey: All cavers on the expedition were involved in carrying out the survey at some time, in all 1569m of passage were surveyed with a vertical range of 258m. Closed loop errors were 1.3% comparison with the ESIEC survey supplied to us in 1975 is very interesting:

1. Whereas the entrance series of pitches agree almost exactly with our survey in depth, shape and scale, the dry oxbows are drawn in the same shape as ours, but to a different scale.
2. There are gross inaccuracies in the streamway bypassed by the dry oxbows, the path taken by the stream is completely different to that indicated by the ESIEC survey and a through-route is shown on that survey, with no indication of the two sumps found by us.
3. Below the 6th pitch the depth of the system is consistently and greatly exaggerated, the Spanish survey implies a depth in excess of - 360m, we calculate the depth to be - 258m.

It appears that the surveying techniques used, at least in part, by the ESIEC were certainly capable of producing results as good as, or better than, ours. However, faulty and/or imaginative drawing together with inadequate surveying in the lower (admittedly arduous) reaches of the pot unfortunately casts doubt on the entire survey (and hence, by default, other similar surveys).



Entrance to Pozode Vega el Forcau

Cueva la Huelga

A rather complex cave providing a through trip on two main levels, the lower apparently active in winter. Some work might well yield an active system of rather more interest and much greater potential here, several indications of its existence having been found. Engravings and drawings in the upper series show frequent habitation, but probably only since the time of *Homo carbidensis*.

Previous exploration: This cave was explored by the 1965 British Speleological Expedition to the Cantabrian Mountains, who found only the upper entrance but also discovered a short active stream passage not located by us. Numerous villagers from Cardes and the surrounding places are acquainted with the system, a local boy showing us the through trip. It appears from a trench dug near the upper entrance that some archaeological work may have been done here.

Location: From the village of Cardes (first turn to right off the road to Covadonga after the junction with the Cangas de Onis - Mestas de Can road) take any one of the several paths which cross a stream and then ascend the opposite hillside to an extensive area of fields in the polje drained by the cave, where the upper entrance is located at the lowest point under a 15m cliff face. The lower entrance is a well vegetated valley below the path used to reach here. Villagers will prove helpful in locating the entrance!

Description: A dry stream bed enters the arched upper entrance and the passage continues fairly high, wide and boulder strewn to a 10m pitch on the left into a deep pool which is near the flood streamway of the lower series. Keeping to the right a smaller passage leads to a muddy series of walking size with rock pillars, many choked crawls and remains of a false floor which chokes with mud just beyond the presumed archaeological trench. The main route on is in a fairly large passage which includes some old stal and gour formations before reaching a chamber where the route to the lower series is to the left. To the right, the passage continues under a rock bridge to a 6m rope pitch into a choked chamber. A small passage is descended from the previous chamber to reach the lower series, the first hole in the floor being ignored except by those wishing to explore a very muddy 6m pitch into an even more muddy chamber with sound effects reminiscent of roaring underground torrents coming through a millimetre scale oriface.

The 1965 explorers attempted to dig this, but the lack of results is not very surprising when the site is seen. The aforementioned hole in the floor requires a rope for its descent and the pitch head so reached is also accessible from further along the route to the lower series by a bedding plane crawl. Back on the main route, an ascent leads to a chimney down to a low chamber with two holes in the floor (connecting to each other and the muddy 6m pitch by short narrow rifts below), which one crawls between before crawling up to a small pebbly chamber leading to the descending rift and steep mud slope to the flood streamway.

Turning right at the junction leads upstream, via several water filled potholes, which can be stepped over, and two small holes revealing a lower passage which is impenetrable to where the main passage chokes. However, a crawl to the right leads to much flood debris - mainly twigs and branches - to a fairly large and high chamber. A considerable stal slope can be climbed to reach a point giving a good view over the pool at the foot of the 10m pitch near the upper entrance. From the chamber several other passages connect back to the main route just described via climbs and another hole can be descended to an uninteresting muddy crawl.

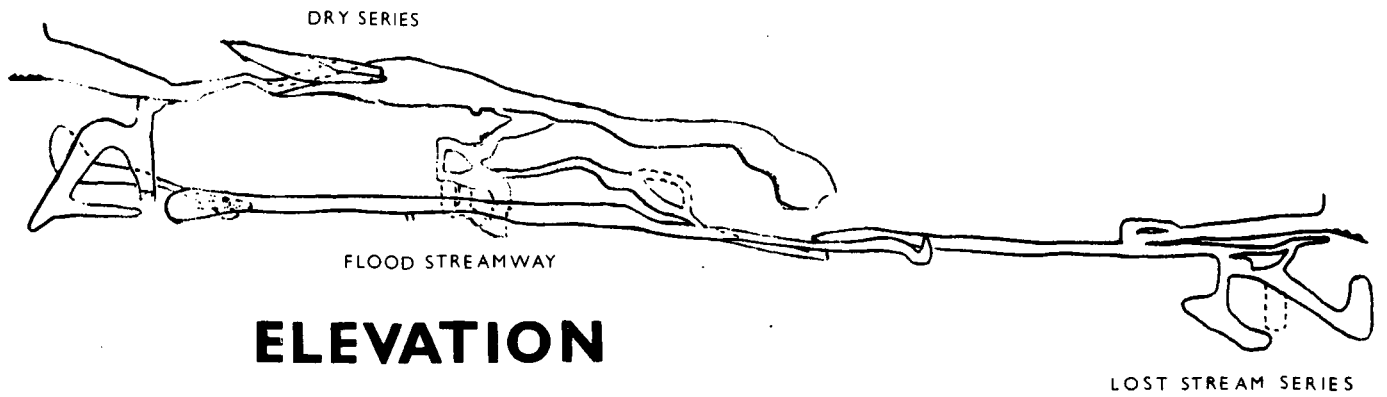
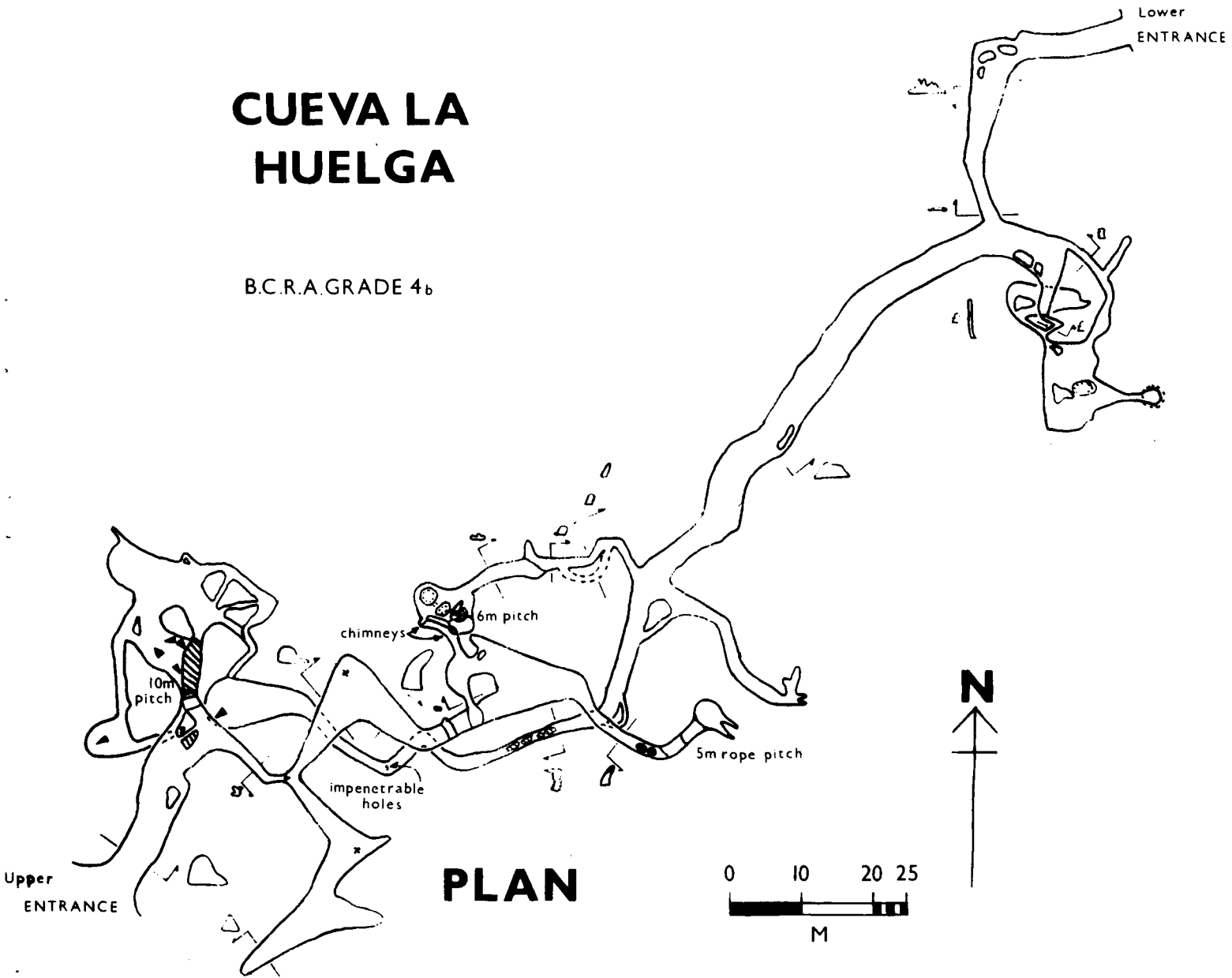
Opposite the junction of upper and lower series is a short, hand-and-knees crawl, while left leads to easy walking or stooping on cobbles until a sharp right hand bend is reached, where the route to the lower entrance is disguised as a flat out crawl into a wide, mud-banked passage of stooping height leading to the flood resurgence. Continuing on the main passage one is soon confronted by an abrupt change of passage size and form and it is necessary to chimney down into and along a high, narrow, greasy rift. To the left at the end of this is a muddy, slanting chamber with a passage leading to the flood streamway just before the rift, while climbing down to the right leads to a sloping rift.

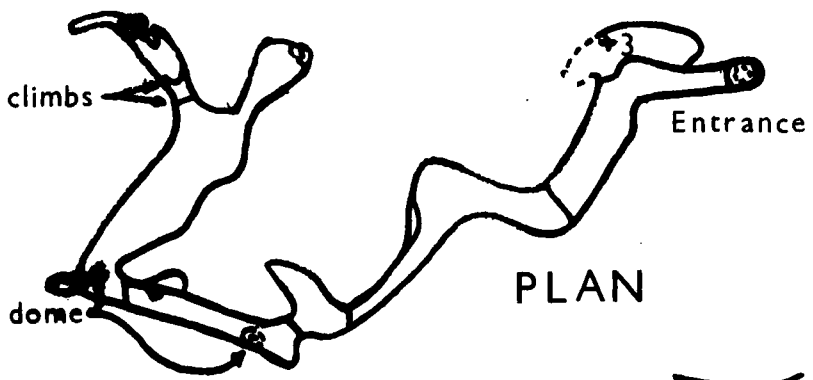
Survey: This was carried out simultaneously by two pairs - M. Laverty and M. Wilbourn surveying the upper series from the upper entrance and S. Tarran and D. Kelsey working in from the lower entrance. Incredibly good timing enabled the two pairs to meet at the junction of upper and lower series and at the 10m pitch, giving a large loop for testing the survey data. Closed loop errors averaged 1.6%.

Comparison with the 1965 survey shows reasonably good agreement except for some details of passage width and cross section and, more importantly, in the amount of passage found at the two ends of the flood streamway. We discovered much more passage near the foot of the 10m pitch, while we did not find the section of active streamway discovered at the lower end of the flood streamway, apparently reached via the sloping rift which was the lowest point we reached. 730m of cave were surveyed with a verticle range of 31m.

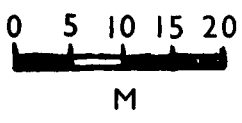
CUEVA LA HUELGA

B.C.R.A. GRADE 4b

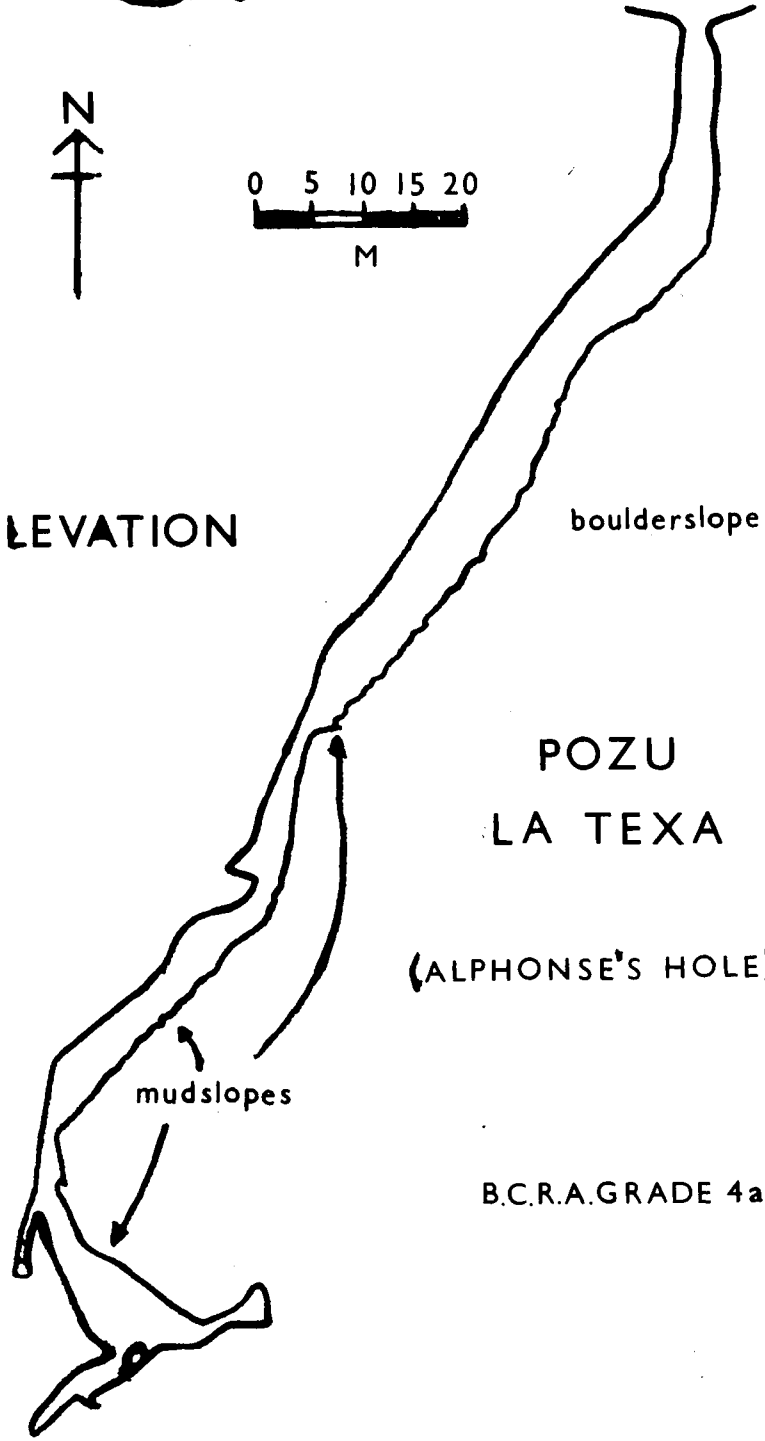




PLAN



ELEVATION



boulderslope

POZU
LA TEXA

(ALPHONSE'S HOLE)

B.C.R.A. GRADE 4a

Pozo La Texa (Alphonse's Hole)

A 136m deep pot probably with its most pleasing aspect being the view from the entrance, which also provides the only pleasant pitch. A last resort for ladder equipped parties.

Location: From the bar at Lago de la Ercina follow the good path towards Ario along the E. shore of the lake. At the spring at the far end bear left past a group of shepherds huts and ascent the hill to the immediate left of the Ario path. On the top there is a series of depressions and a reasonably obvious path. The hole is located to the right of and above this near the third depression. It is not obvious unless you can persuade a shepherd to guide you, your approach then being heralded by the accumulation of masses of rocks in the shepherd's arms destined to impress the bottomless nature of the hole on your mind!

Previous Exploration: The 1963 Oxford/Derbyshire Speleological Expedition to N.W. Spain explored this hole on being shown it by a shepherd called Alphonse, after whom it was named. Our guide, Angel, gave it the name used here and our exploration was to check that the hole was indeed what we suspected, and to provide a survey. Litter in the cave testifies to extensive visits in the past, presumably by Spanish, and perhaps French, groups.

Description: An approximately 2m square entrance gives access to a pleasant and prehanging 20m pitch landing at the top of a long boulder slope interspersed with short climbs. Towards the bottom of this, a left turn leads to about 15m of pitch, almost vertical at the bottom, where there is a chamber. A muddy hole then leads to a calcited mud dome and a 30m mud slope to the next vertical drop, again about 15m, which leads into the final chamber. This is littered with muddy boulders and includes a chamber with a stal flow and a climb into a rift which can then be descended to a series of extremely muddy passages which become too small. Above the last vertical on the main route is a small decorated chamber.

Ladders are recommended for use throughout the cave due to the mud, although the entrance is quite suitable for SRT. A handline should suffice on the first boulder slope but ladders are needed on the mudslopes.

Survey: Carried out by S. Tarran, T. Moulton and B. Matthews, the survey agrees well in all but one detail with D. Judson's description of the cave and gives a total depth of 136m.

Cueva Campana

Glowingly described to us as 'leading to a pitch beyond which $\frac{1}{2}$ km of streamway leads to a barrier impassable by dinghy' this cave attracted our avid attention in connection with the nearby Cueva Orandi and Cueva Santa systems. In fact, it does very little of what we expected and is merely a short phreatic system with a pitch and a few pools, ending in a chamber with a draughting squeeze in a partly choked rift.

Previous Exploration: Certainly explored by Spanish groups, identity and time of other explorations are unknown, except for the local group OJE who have left their initials on the wall of a chamber.

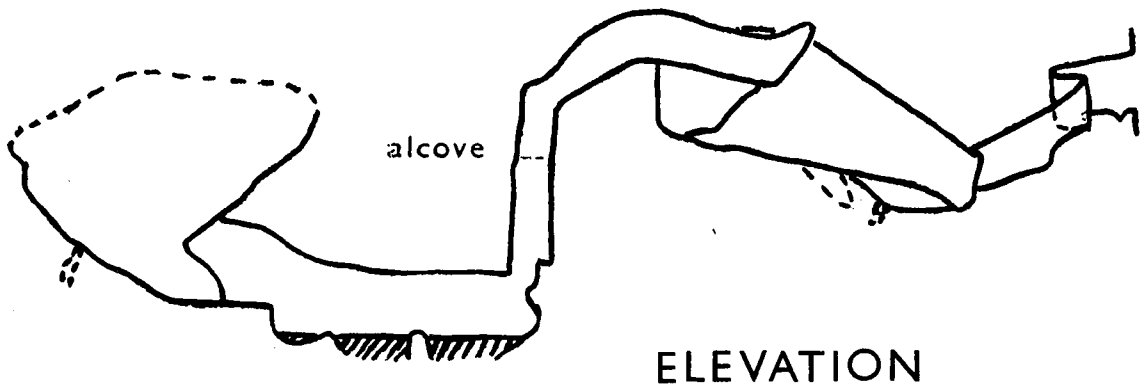
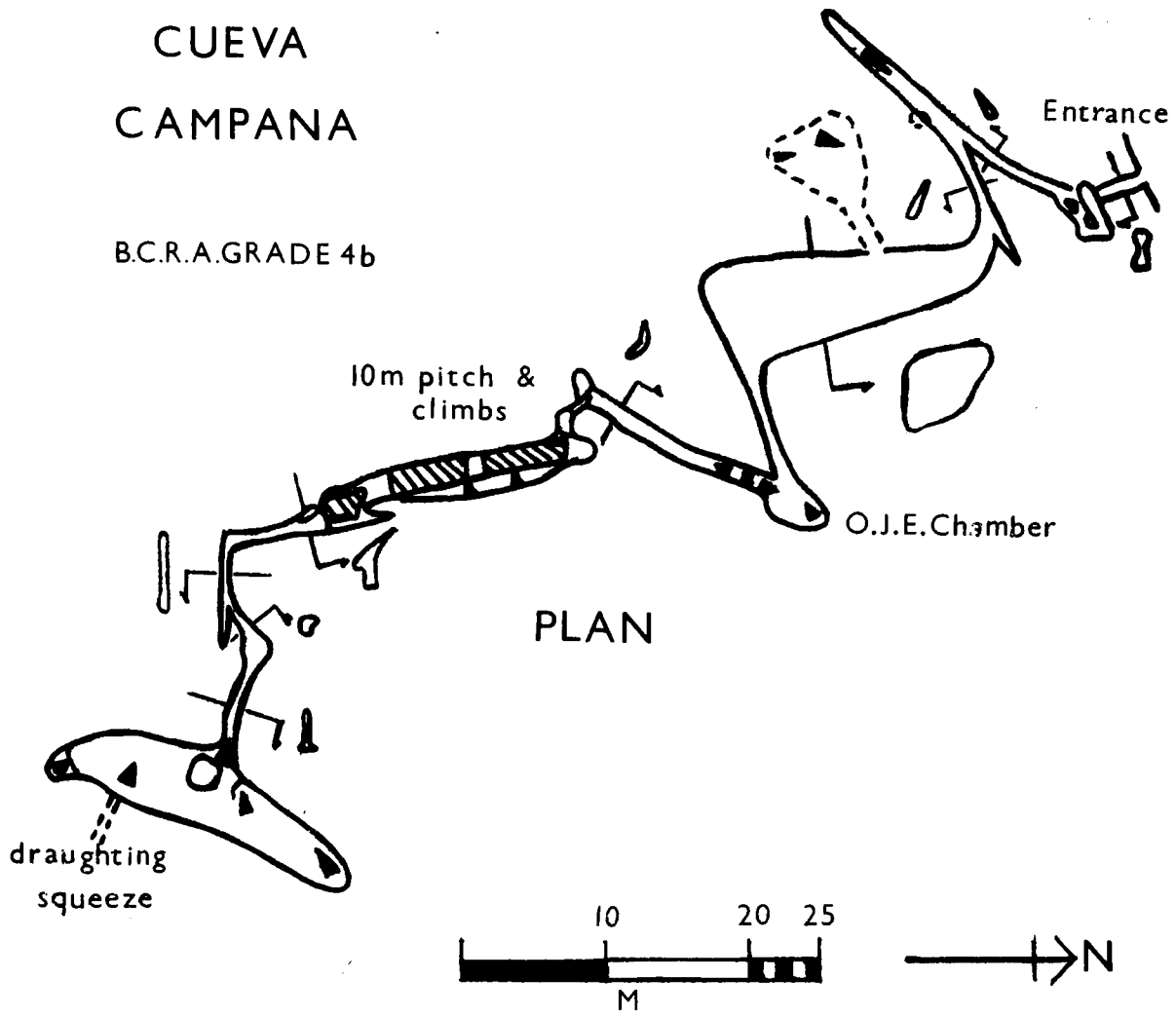
Location: The cave is about 30m from the bar near the Guardia Civil post at Covadonga. The fine, keyhole shaped entrance is situated in the cliff-face immediately behind a bell tower and may be floodlit at night.

Description: A simple, muddy, phreatic system of rifts and chambers leads to a 10m pitch just beyond a calcite column formation. This pitch is climbable with care and has an alcove opening off it about halfway down - a ladder is recommended. At the foot of this, climbs lead to the three static pools with abundant flood debris in the form of twigs and leaves. The first two pools require swimming and are separated by a rock barrier, which can prove awkward to get over on the return. The third pool is shallow and leads via rifts to a fairly large chamber where a narrow rift with jammed boulders indicates the way on by means of a draught, however the route is too tight to follow:

Survey: M. Lavery and D. Kelsey surveyed 187m of passage with a vertical range of 19m.

CUEVA
CAMPANA

B.C.R.A. GRADE 4b



Cueva el Osu (Cueba el Jaeda).

A very pleasant trip is extensive, easy passages, with one large pitch.

Location: Situated about 20 minutes walk from the Bar Maria Rosa at Lago de la Ercina. Take the path to Ario along the E. shore of the lake until about 50m beyond the spring near the shepherds huts, where an indistinct path crosses the stream and ascends the hillside to a plateau. The cave entrance is located at the tree line, and is marked SIE and named inside. The shepherd who showed us the entrance gave the alternative name noted above.

Previous exploration: Certainly explored by SCAL in 1964 and subsequently by several Spanish groups, including SIE and Grupo Espeleologica de Gyon. Cox notes a cave of this name as being located near Burdio de la Peña cave above the Ario de Pomperii which was partially explored by Spanish biospeleologists in the 1950's. Almost certainly, this is that cave and the location has been mistaken.

Description: The small entrance often draughts strongly and contains large quantities of leaves. Several passages lead off from the entrance and choke fairly soon, except for one reached by going left down into a chamber and out again by a small passage at roof level on the right. This rapidly reaches a short climb down in a rift to 2 rope pitches of about 5m each which enter a fault zone in which the 40m main pitch is situated. Belay points here are slightly dubious and a bolt would prove a useful replacement for the present antiquated piton. The pitch lands on a large rubble pile, through which a route leads to the floor of the chamber without needing to rig another pitch. A rift passage leads past a side passage to a high chamber and reaches a T-junction. Upstream soon becomes low and was not pursued on our brief visit. Downstream is easy walking in phreatic passages with occasional decorations and chambers for more than 1km, when the passage ends in a sand choke. Pools and a trickle of water indicated that this passage is active in wet weather, but we visited the cave after a dry spell.

Reconnaissance

The area around Forcau was combed by Tony Moulton for cave entrances, the only result being a 30cm square hole giving access to a 10m x 3m chamber with a sloping floor via an 8m pitch.

Martin Laverty looked at the wooded plateau to the South of Cueva el Oso and again found nothing very significant, although one or two features did imply that this area might repay a more intensive search in the future.

Steve Tarran found the Hoyo la Madre resurgence towards the end of the expedition and reports a large stream emerging part way up a cliff, which would require tackle to enter. He also reports several 20m and deeper shafts in the area South of the path to Ario, and claims to have found a cave full of cheese!

On a walk up the mountains via the Vega Pedanda refuge many more shafts were seen, some clearly explored before by French or Spanish groups.

Clearly there are still many unexplored caves in the Picos de Europa but a major problem is the patchy coverage by most groups working in the area and the almost total lack of communication or coordination between them. Hopefully a way will soon be found to overcome this.

Caves of the Venta de Fresnedo Area.

One of the objectives of the Forcau '76 expedition was to explore the caves of the Venta de Fresnedo area in the Sierra de la Collada. However, the Santander caving authorities were not willing to allow us to do this. The sketch map shows such details as are known of cave entrances and names in this promising area, discovered by Bill Collis at Easter 1976.

Expedition Accounts

<u>Income</u>	£	p
Grants: Sports Council	200	
O.U. Exploration Club	150	
Drapers Company	110	
2 articles for Bradford Telegraph and Argus	50	
	<u>510</u>	
Personal contributions	498	94
	<u>1008</u>	<u>94</u>

Expenditure

Travel: Ferrico Soton.-Santander (4 people)	82	80
So'ton-Bilbao (3)	83	00
Ramsgate-Calais (4)	27	00
Le Havre-Portsmouth(2)	40	30
Calais-Ramsgate (7)	68	00
Soton-Le Havre (lost deposit)	14	70
Petrol	174	10
Vehicle Insurance	102	80
Wear and tear	71	50
Repairs to Triumph Herald	151	24
Equipment	15	40
Correspondence	17	20
Prospectus	3	60
Dried Food, Mars bars, glucose	31	90
Report	120	00
	<u>1008</u>	<u>94</u>

In addition all members bought their own food and paid for petrol used during the stay in Spain, as well as getting adequate personal insurance.

The totals of these costs are estimated as:

	£
Petrol	90
Food etc.	530
Personnal Ins.	<u>100</u>
	<u>720</u>

Thus average personnal contributions to the expedition were £45.36, which must be added to additional personal contributions of £65.45, to yield the total average personal contribution of £110.81.

Acknowledgements

Grateful thanks are due to many individuals and organisations, especially:

Nos gustaria agradecer nuestros colegas y amigos por todo su interes y asistencia

Grants:

Sports Council
Oxford University Expedition Council
Drapers Company
The Bradford Telegraph and Argus

Assistance in organisation:

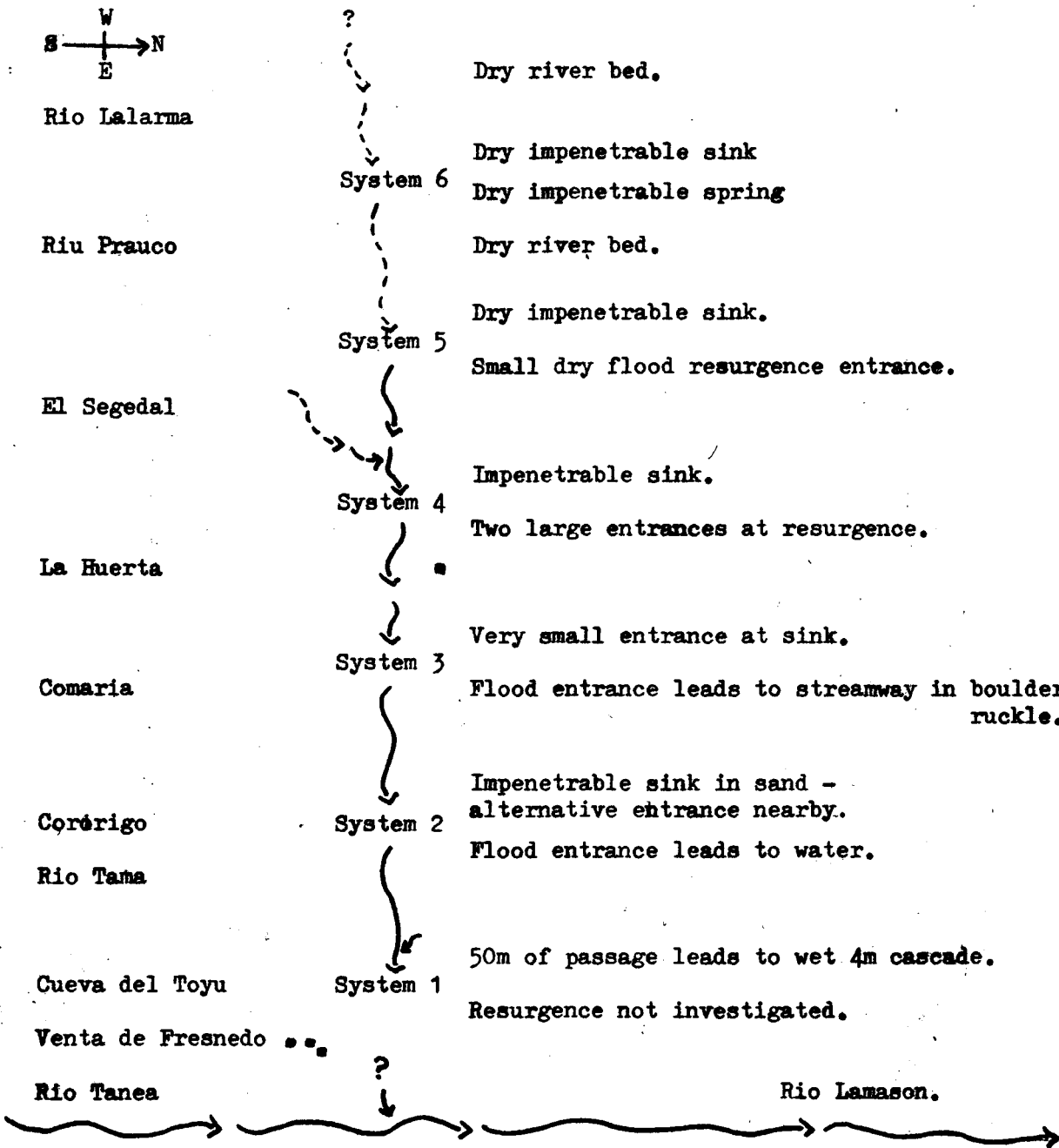
Mr S. R.G. Newton (who sadly had to withdraw from the expedition in June, after being secretary).
Mr. A. Fuller (Home Agent)
Dr. J. Walsh)
Dr. J.D. Wilcock BCRA) All of whom acted as referees.
Dr. J.D. Bell)
Dr. M.M. Sweeting)
Sr Alcalde D.P. Corao
Sr D.J.L. Garcia (Presidente, Seccion de Espeleologica Sautola de Santander).
Sr D.E. Romeru (Presidente, Comission Nacional de Geologica).
Sr D.J.M.S. Diaz-Estebanez (Presidente, CAEPE).
M.P. Altairac (Speleo Club Alpin Languedocien).

Provision of free or reduced price food and equipment:

Mr. P. Cardy (telephone wire)
Troll Products (bolts etc.)
Mr. C.D. Westlake (Material for tackle bags)
Prestige Ltd. (pressure cooker)
Tate and Lyle Ltd. (sugar and syrup)
Van den Burghs, Jurgens (Margarine)
Batchelors Ltd (soups)
Weetabix Ltd (Alpen)
Bryant and May Ltd (matches)
Royal Geographical Society (clinometer and altimeter)
Mr. R. McHaffie (portable generator)
Johnson & Johnson Ltd)
Ciba-Geigy) Medical supplies
Dr. Jueb Jensen.)

Much of the above was obtained through the Oxford University Exploration Club joint application scheme for expeditions.

Sketch map of the caves of the Venta de Fresnedo Area.



N.B. The sketch is not drawn to scale. It is a diagram only.

--- = dry stream bed. ~~~~~> = river.

Only the caves connected to the Rio Tama are marked. There are a number of other cave entrances and potholes in the area. 'Flood' entrance implies that the actual resurgence proper is impenetrable.

There is a certain amount of inconsistency in the use of local names which may be confusing. Sometimes the spanish name refers to a cave system, or the river flowing from one resurgence to the next sink.