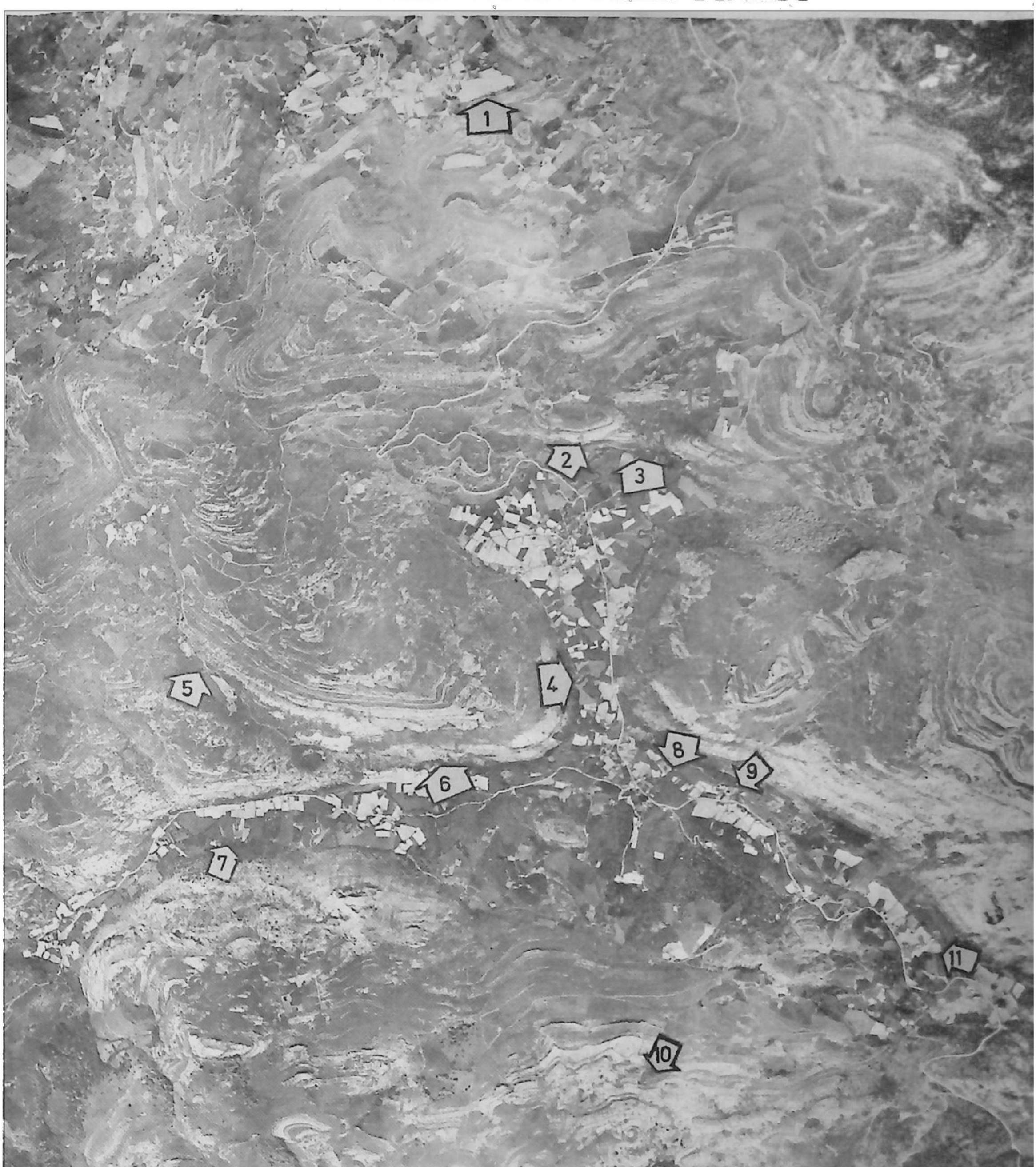
MATIENZO 1975

THE MATIENZO AREA



1 UZUEKA
2 EMBOSCADOS
3 CARCAVEUSZO
4 CUEVONA
5 LA CUBIJA
6 AGUA
7 RENADA
8 TIVA
9 TORCA DEL SEDO
10 CODISERA
11 ONITE

REPORT OF THE 1975 BRITISH EXPEDITION TO THE

MATIENZO POLJE, N. SPAIN

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Front Cover: In the entrance series of Cueva Uzueka.

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KEY

1. Area Survey (The Ozana Cave System).
2. Area Survey (The Caves of Monte Enaso).
3. Area Survey (Cueva Uzueka).
4. Area Sketch (Riano).

a. Espada (Resurgence)
b. Espada (Sink)
c. Riano I.
d. Uzueka.
e. Secadura Resurgence.
f. Cueva Elegante.
g. Draughting Holes.
h. Cobrantes.
i. Nacimiento.
j. Carcavueso & Seta.
k. Emboscados.
l. Volvo.
m. Cosas.
n. Torca del Sedo.
o. Concejo.
p. Cuatribu.
q. West Ozana Pots 1,2,3.
r. Coveron.
s. Mortiro (Sink).
t. Mortiro (res.).
u. Codisera.
v. 50 m. Shaft.
w. Renada.
x. Cabana.
y. Arenal.
z. S. de Cueta.
A. Riotuerto.
B. Agua.
C. Tizones.
D. Cuevona.
E. Sima Wendy.
F. Llorada.
H. Cuvia.

ACKNOWLEDGEMENTS

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For all the food, wine and goodwill during our stay, we would like to thank all the villagers of Matienzo – in particular, we would mention Angel and Rosa, their family and friends, Miguel and Angelina, Fredo and Carmen, Puco and Marina, Valeriano and our milkman Augustin.

Finally, particular mention must go to German, Cuca and family for their patience with the late night revels, requests for butties at 2 in the morning and pointing the last well oiled caver in the right direction for camp!

In England, the staff of Frank Peters Ltd., of Kendal for their patient, efficient work that was instrumental in the rapid production of this publication.

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J. C. Fernandez Guitterez -- La depresion cerrada de Matienzo. Cuadernos II Santander 1966.

Anon. – Matienzo 1974, The Report of the British Expedition. Kendal 1974

THE MATIENZO ZONE

Land below 200m. 100m. contours.

Roads

Rivers

Faults

Synclinal axis.

SCALE 1:50,000

SECADURA

SAN MIGUEL

MATIENZO

R. Ason

RIBA

Introductior

Several years reconnaisance in the *Matienzo polje* were brought to fruition last year when a combined group of Northern Cavers spent three weeks exploring and surveying in the area. In all, approximately 16 kms. of cave were found, but several entrances were noted and not explored and the pushing of several systems had to be left due to lack of time.

In view of the general economic climate in Britain, several members of the '74 Expedition expressed an interest in spending more time in Spain in 1975. So it was that in March this year a group of four set out on the Southampton - Bilbao ferry to enjoy the pleasant Spanish Spring.. As the ferry docked we eagerly looked out to watch the sun rise over the hills —not so! The sky was leaden and the hills covered in snow.

We arrived in *Matienzo* after the usual four breakdowns by Budda's Jeep, — including the pumping of half a tank of the worlds precious petróleum products over the main Bilbao-Santander road. The trees in the valley were dismal and dripping, the grass lush green and dripping. We soon began to realise why the northern coast looks so green and fresh in the summer.

For the first six weeks it rarely stopped raining or hailing and the sun was rarely seen. The campsite soon turned into a fair imitation of the Flanders trenches and even the Land-Rover was finding difficulty in four wheel drive. On one occasion after 36 hours of torrential rain half the valley was flooded. *Carcavueso,* the main sink, could not take the flow and the water rose more than 10 m. above normal level.

During the first weeks we spent much of our initial enthusiasm in surface surveying and re-surveying the *Cueva del Risco* system. In contrast to last year the *Pinto* gallery was a superbly clean streamway and during the surveying approximately 2 kms. of new passage were added. In the associated caves a further 4 kms. were found and the link forged between *Tiva* and *Torca del Sedo.*

"Approximately 30 man-hours were spent surveying passages, many of which I cannot even remember and would rather not talk about. Never before has the word choke been such a boost to moral".

Out efforts were then diverted to *Monte Enaso* — we surveyed all the known caves and although little new passage was found we were able to correct previous surveys and orientate the caves relative to each other.

The weather now began to improve, and many days were spent walking in the valley and associated areas in search of potential sites for exploration in the summer. The original group were gradually augmented as the weeks went by as redundant electricians, landscape gardeners etc. joined the flight to the sun. Indeed their scepticism was poorly hidden at our tales of woeful weather. Not surprising really because as each small group arrived the weather changed overnight with the sun blazing from a cloudless sky for days.

The locals at this time began to reveal their truly passionate interest in food and took it upon themselves to re-educate the unadventurous British into the delights of a high protein diet. Goats, Sheep, Donkeys, Snails etc. were rapidly dispatched and consumed, Cats and Badgers were mentioned but fortunately never appeared on the table.

While certain members went off to the coast for a 'holiday' the remainder helped with the hay gathering and were duly rewarded with further enormous meals etc. All the good living had to come to an end though, as the first members of the summer team began to arrive. .

First efforts were directed to two pots on *Monte Enaso,* there were soon explored and the team moved over to *Coveron,* here the original exploration had been stopped in May, due to lack of tackle, with additional ladder exploration went on apace and after digging out two blowholes and descending to the streamway approximately 2 kms. of cave were added. *Codisera* was the next cave to receive attention but two survey trips proved insufficient to finish the cave and efforts were unfortunately diverted elsewhere.

The first caving trip to the *Riano* area was made in early July its object being twofold; one party was to visit the draughting crawl off *Pigs Trotter Chamber* and the other to survey the "400 m. unsurveyed" passage off the near series — Baz and Wayne were successful in pushing the wet crawl into several hundred metres of passage to a draughting choke. The other party found approximately 100 m. of passage off the top of *Pigs Trotter Chamber* to a 20 m. pitch. They then went to survey the '400 m. passage'. The next party into Baz's choke included Alan — Boltons answer to the J.C.B. He mined his way downward into the miserable 'Punk in the Gutter' and then off into the unknown. The original party returned with tales of approximately 1 km. of big stuff. This turned out to be a wild underestimation. Over the next weeks the cave was surveyed and a party was lost for 17 hours — it all added to the interest.

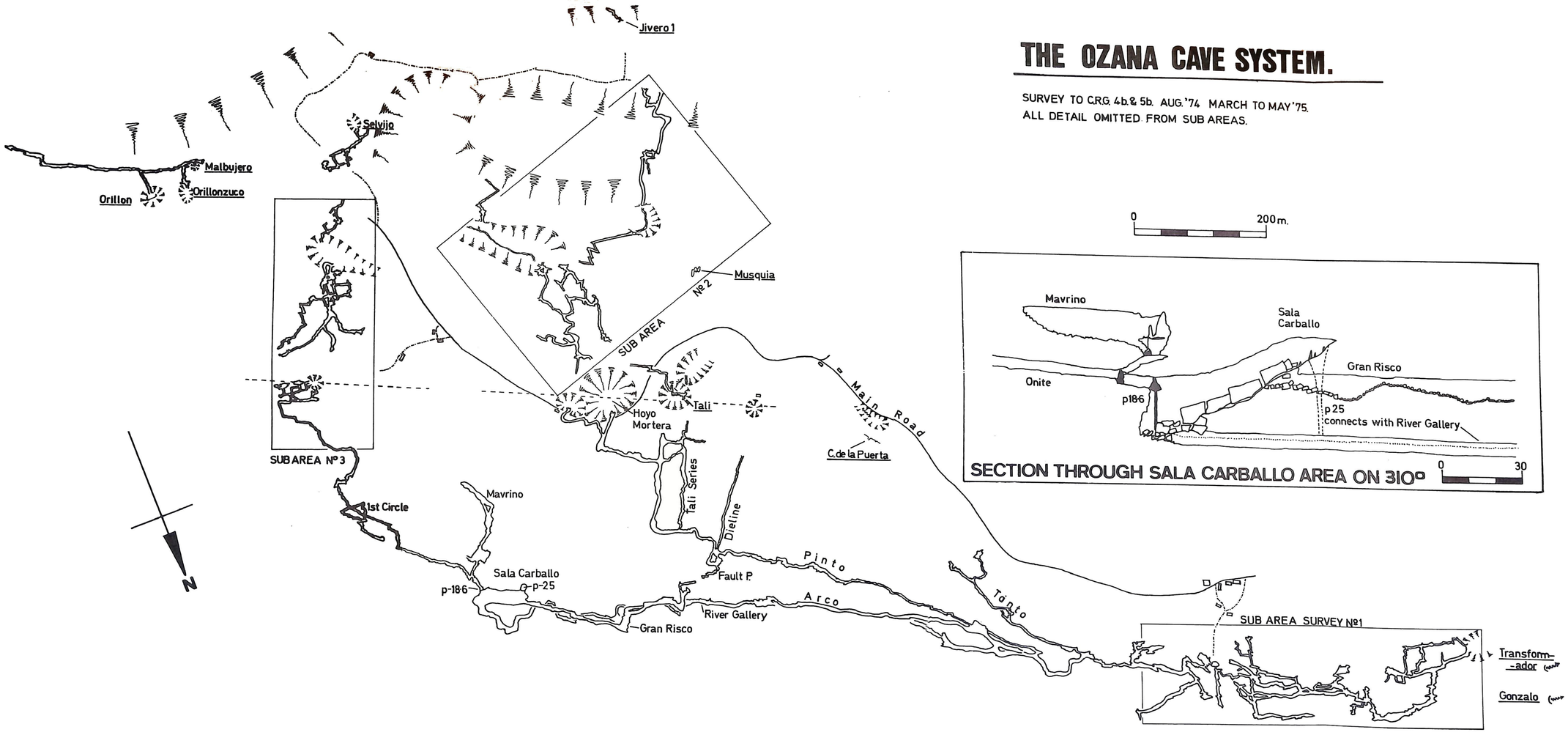
The diving team had now arrived and were taken off to various sites, it was pleasing that 2 of the 3 possibilities both went into substantial lengths of big dry cave. The *Renada* push was particularly pleasing as it involved a carry of over 3 kms.

The expedition ended with teams rushing up *Muela* to descend 'the big pitch' photographing in *Uzueka* and *Codisera* and surveying *Espada* and other relatively minor caves. As usual there are many ends left undone the *Carcavueso* sump was not pushed. This is now even more important as it almost certainly will connect with the far end of *Uzueka.* None of the many side passages and inlets were pursued in *Uzueka* and a multitude of other possibilities have had to be left unfinished.

Altogether the expedition probably explored in excess of 25 kms. of new cave — ignoring surface work, we have now surveyed more than 50 kms. of cave in the two years.

THE OZANA CAVE SYSTEM.

SURVEY TO C.R.G. 4b & 5b. AUG. '74 MARCH TO MAY '75.
ALL DETAIL OMITTED FROM SUB AREAS.



SECTION THROUGH SALA CARBALLO AREA ON 310°

CHAPTER I

THE OZANA CAVE SYSTEM.

INTRODUCTION

Of the three arms of the *Matienzo polje,* the *Ozana* branch has yielded the most complete and extensive system of caves. The reason for this is simply that unlike *La Vega* and *La Secada* sub poljes, *Ozana* has not eroded down to the impervious Wealden rocks and has therefore a greater area of limestone to utilise for cave development. Indeed with a few minor exceptions, these caves are the only ones within the depression that can be considered valley floor caves. The system has developed under geologically favourable conditions. With some licence we can view the subpolje as a circle, three quarters of which is occupied by massively bedded Urgonian limestones. The quarter between '3 o'clock' and '6 o'clock' is occupied by upthrusted Wealden rocks. Major lines of faulting run parallel to the line drawn from '6 o'clock' to 12 o'clock' and to a lesser extent lines of weakness run at right angles to these, following the dip. [1]*Ultimately the point of resurgence has been determined by two impermeable beds which have reached a conjunction in the segment of the circle between '6 o'clock' and '9 o'clock'. Here the water has finally cut down to the Wealden rocks after having been prevented from making any further progress towards '9 o'clock' by a near vertically bedded band of sandstone. The general pattern can be clearly recognised on the master survey especially in the main lines of vadose development which have naturally adopted the jointing, that here is exceptionally strong[2] It is feasible that in many parts of the main cave between *Torca del Sedo* and the *Sala Carballo* the jointing was so open that virtually no phreatic development has taken place , for even in the highest discernable parts of the *Arco* and similar galleries the passage form is vadose. Obviously the process of down-cutting has been extremely rapid. On the other hand the area of old and new *Tiva* demonstrates many phreatic features and in heavy water conditions large areas are still submerged for long periods. Similarly the feeder caves exhibit strong phreatic features. It may well be that these two zones represent now abandoned levels of stabilisation.

Such remarks are, however, only conjecture and should only be taken as such. The system deserves much more detailed study than we have been able to give. But its real and more immediate interest is as a group of fine sporting caves offering a wide range of trips in a variety of passage types.

* For Footnotes see Page 40.

DESCRIPTION OF THE CAVES

1) **Cueva Tiva** (see sub area Survey I) N.B. References e.g. (D9) indicate position on Sub Area Survey grids.

Like a three-dimensional maze *Tiva* is almost as impossible to describe as it is to map. The old part of the cave found by the S.E.S.S. represents an old resurgence level, now abandoned, except in heavy floods [3] Set at the head of a wooded gulley the cave presents two entrances — a large square one, to the left, and a smaller one on a ledge more or less straight ahead. Inside both passages run parallel connected at right angles by narrow rifts. The right hand passage is small and unexciting though like its larger neighbour it may once have connected with passages in the new part of *Tiva.* If so, it too, is now thoroughly blocked. If the main passage is followed instead, its clean roomy size, and floor of rounded stones augur well, but rounding two bends the water washed features vanish under the left wall in a low eliptical passage [D3] while straight on the passage becomes dusty, lifeless and littered with angular collapsed blocks. It is not long before a very definite choke is met, with large mud coated sandstone boulders barring the way [E6]

The explorer is thus forced back to investigate the low eliptical passage which sets off at right angles to the main gallery. While it maintains this direction, it is of stooping height until it turns right and again, runs parallel to the earlier galleries, where the vertical aspect becomes more pronounced and some narrow chimneys are met. On investigation they close down and one continues along the passage in the face of a strong draught until a muddy slope is reached. Here the floor slopes away down to a narrow water-filled rift [4] The rift is not, however, the way on, as the absence of any issuing draught indicates. Instead the draught comes from the higher level continuation of the gallery. The suspicion, intimated by the narrow chimneys, of a higher level, becomes a certainty when after some acrobatic traversing, we end up standing beneath another chimney, down which, howls a near gale[B5] . This 8m climb originally led to a small chamber with a digable choke [5] . This year the choke was forced to a low roomy chamber. It was only then that the explorers realized that they were in a gallery that was totally in sandstone.

This proved to be a mixed blessing as the nature of the rock made two more digs fairly simple affairs but, simultaneously, produced irritating dust clouds. The two digs in question advanced the exploration through a small chamber into a larger one — a mass of collapsed sandstone blocks. The exit from the sandstone series mirrors the entry, being a small hole in the right hand wall on the junction of the steeply inclined sandstone and the main limestone[B6] . It becomes apparent that the sandstone chambers are caused by the river coming to this conjunction and undercutting the sandstone with resultant collapse. The pitch requires only a short belay, for ample numbers of stalagmites are available. An 11m ladder drops one into what cavers dream of — a large dry sandy passage with the sound of a river in the distance. The gallery runs in both directions, but the sound of the river comes from the collapsed area below the sandstone band. Taking the open passage in the opposite direction, southwards, the sound of the river fades behind only to be replaced at the next junction by the sound of the river to the left[C6] . At this point a 'dry stream bed' of rounded stones is met, cutting into the sandbanks and petering out.

Ignoring this fine clean-washed and deserted streamway but, instead, keeping straight ahead to climb up steep sandy slopes, we swing left into a rift passage parallel to the lower 'dry streamway'. A short simple traverse and the right swings left again to run northwards over the 'dry streamway'. A hole down on the left connects with a lower passage that, from this point on, mirrors its higher twin and is connected to it by several chimneys. The upper passage ends in a muddy boulder choke, with an aven inlet off to the right[B8]. The trickle of water from this aven runs into the lower level where it drops into a sump in the floor. From this sump the lower passage runs back to the 'dry streamway' just beyond the junction at C.6. Having been diverted by these two less-than-inspiring passages, we are free to explore the more inviting 'dry streamway', which, from the increasing sound of water is not likely to remain dry for long. Indeed in periods of flood, it appears that the blockages that have split this new section of *Tiva* from old *Tiva*, also produce a backing up of water to a considerable height — sufficient in fact to flood most of the cave up as far as *Torca del Sedo* and to cause some to overflow into the sandstone chambers. Hoping that such a Noah-like epic was not close at hand the explorers pressed on through a low section to emerge in what amounts to a fair sized chamber[C8] with the river coming down a fine gothic passage before turning sharply and dropping down a short fall to run between banks of sand and mud into an impassable hole from whence it must run back on itself to reach the choke area (by the pitch). This area of sand banks and high choked rifts marks one of the entry points to the *Claro Series* which we shall discuss later. The main streamway can hardly be compared with the higher reaches in the *Risco* and *Pinto* galleries for magnificence, but it offers pleasant relief from the arid regions just left. Of generous dimensions, it offers no obstacles, only a vista of passages entering from either side at various levels. But all good things . . . . . and rounding a corner we came to a deep pool with the river emerging from a canal of no great proportions. The old passage, now deserted, bears off slightly to the right to end in a large boulder choke. It eventually transpired that this was the other side of what had been the downstream end of the Spanish explorations in *Sima Cueva Risco*[1]. In wetter weather it is probably an inspiring undertaking to pass this canal but normally it provides only a chilly interlude. At this point the non-aquatic caver can use the opportunity to investigate the side passages noted earlier. To start with there are a couple of inviting holes above the beginning of the canal, but, though only a few metres up they would be difficult climbs. The simplest point of entry to this level is up the deserted passage to the right of the canal where, after a short distance, a passage cuts across the roof. A narrow joint in the left hand wall offers a few holds which, augmented by a sling, prove adequate.

The climb at E.14 is easy. The series is comparatively short and forms a cross. As it is, we are heading roughly northwards until we meet a complicated junction with two passages running E-W, superimposed. To the left they run out into the roof of the river gallery at the start of the canal. To the right, they meet at the same choke. If we keep going northwards, we arrive at a point where the floor drops away and a pitch occupies the whole width of the passage. As well as passages below, a continuation beyond the pitch is obvious. To get across would be an extremely difficult task (and unnecessary for the continuation can be more easily reached from another direction). However, if the intrepid explorer makes the hypothetical traverse, he will find himself at a low sandy junction. The caver has arrived at the junction of the two main passages of *Blanco Series*[C13], though this is hard to appreciate as there are more than two exits. Straight ahead lies a choke[B10], left leads back to the river. Both of these passages are surrounded by a web of other minor passages, principally at the same level, but with at least one lower gallery. All are relatively short, most end in chokes which have been subjected to a great deal of fluvial infill. We shall concentrate entirely on the main passages as to attempt to describe the whole series would be extremely tedious. Firstly, we shall progress as near to straight on as is possible, through low chambers with sandbanks subdividing them. The way on then adopts a more definite form for a few metres, until a circular chamber with a small inlet is entered. The only exit is high up one wall and necessitates an untrustworthy climb up a face of mud-glued boulders.

Falls can be accomplished with only minor injuries, but this may not be an infallible rule. Care and a sling should be used. The reward for getting into the higher level is not immediately obvious. At this point the passage ceases to head away from the river and turns left to head 'downstream', though it is a long time since it saw any river. It is the highest part of the cave and has been subject to much collapse. The reason, if you look at the survey is obvious — the passage is on the same line as the Sandstone Series. Ultimately a choke is met, but before it comes the reward — for metre after metre of the right hand wall is covered with crystals that shimmer and sparkle as the light passes over them. That passage having been explored we can return to the lower sandy junction and head towards the river. Starting low, the floor drops gradually away and a rift begins to develop in the floor — eventually dropping into an oxbow off the river gallery. If the rift is avoided one can pass over into a zone above the streamway — the junction of several passages at various levels. The only passage of any significance is on the other side of the streamway. Having crossed, we arrive in a deserted canyon that roughly divides *Tinto* and *Claro Series*[D11]. Down to the left occasional holes lead to the river and if we were to look down them, we see that we are now heading upstream again. A passage crossing in the roof reminds us that we are in a relatively new level of passage [2]. Abruptly the canyon swings left and becomes narrower with darker limestone. Here one is forced to traverse for a short distance. More holes down to the left communicate with the river. The rift sidesteps right into the next rift, but it is not long before we cannot continue at this level.

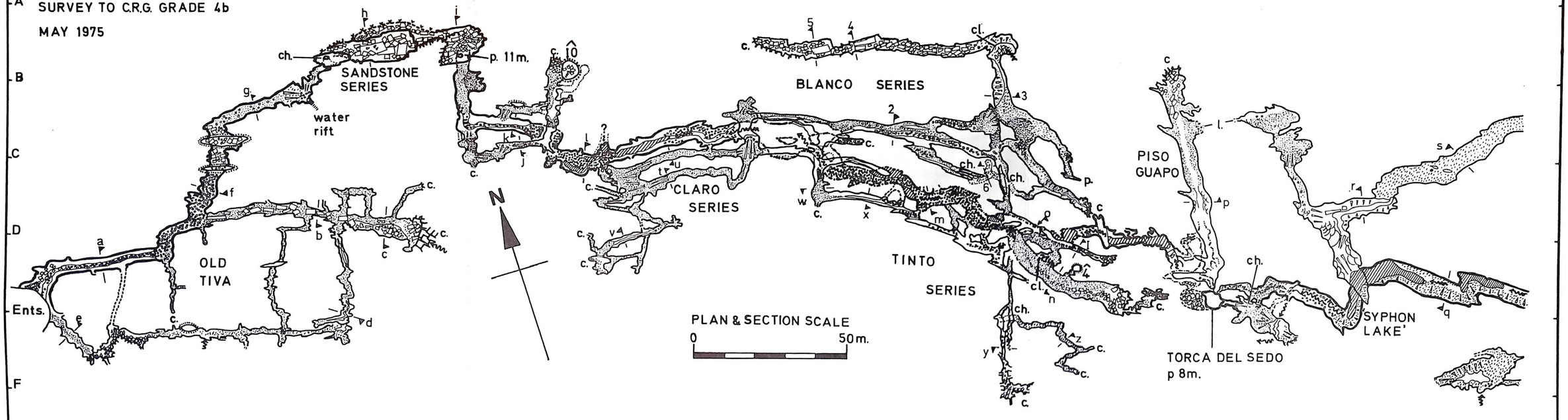
A balcony, 2 metres above the river, marks the end of the roomy dry passages in this direction. One can undertake an awkward muddy climb up into a higher level of narrow crawls, rifts and chokes but only the dedicated need bother. It is best, instead, to drop down into the streamway. Here the explorers will find that they have returned to within a few metres of where their upstream exploration ended at the entrance of the canal.

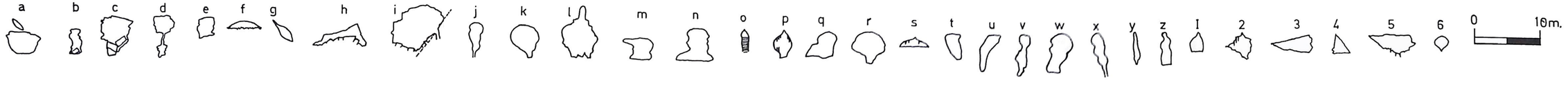
CUEVA TIVA-TORCA DEL SEDO

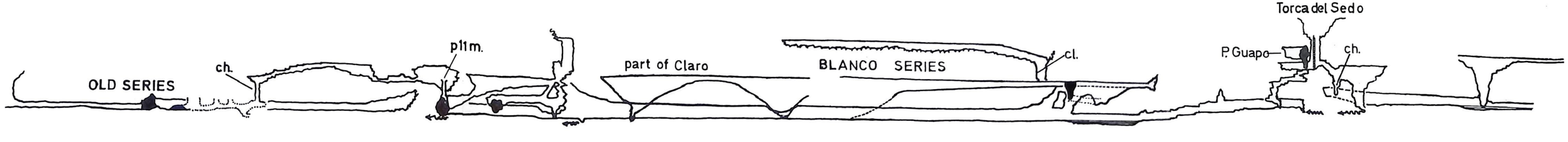
SUB AREA SURVEY NO.ONE

SURVEY TO C.R.G. GRADE 4b

MAY 1975







This then makes a good point for the 'aquaphiles' and the 'aquaphobes' to part company.

Firstly we should follow the 'phobes' back downstream to examine the last of the dry passages — *Claro Series.* The 'beach' we noted earlier (see page 2) is easily located on the left hand side of the river gallery. Two passages lead off up the sandy slope. Both are oxbows that run downstream, parallel to the river, to the point where the stream sinks. The only remaining passage sets off from this point and is a rather dull series of rifts culminating in muddy chokes.

This then is the new section of *Tiva* — in essence a series of parallel deserted galleries strongly joint controlled and now subjected to varying degrees of fluvial infill. Within a well-defined area the cave has developed almost every usuable joint to considerable sizes and only fluvial infill or collapse have subsequently reduced passages to uncomfortable proportions.

We can now return upstream to join the 'aquaphiles' at the end of the river gallery and the start of the canal. In the actual exploration of this section of cave, we first approached the canal from the *Torca del Sedo* end. Coming down the *Torca del Sedo* pitch one ducks under into a bedding to the right of the ladder and into a crawl to the right. From then on one ploughs through a sea of broken glass, pills, pitons and dead hens in pursuit of the draught until one meets the stream, just below where it emerges from a sump. This is followed down to the upper end of the canal where a short swim is necessary before one emerges in *Tiva.* The only distraction along the length of this sewer is immediately after one enters the crawl below the entrance pitch where a short narrow chimney leads up into *Piso Guapo* — a short length of attractively decorated gallery which, near its end, probably connects with *Syphon Lake Passage*

II) Torca Del Sedo

Standing at the base of the surface pitch of *Torca del Sedo* we are at the lower end of the *Risco* system as it was known before 1974. The previously complicated nature of the cave now evolves into a simpler pattern. Peering across the spray — filled shaft we can see a hole in the opposite wall above a slope of calcited boulders. Scrambling up into this and down the shallow ramp at the other side we are in a low wide chamber, with the floor dipping away to a pitch. Down this pitch is the *Risco* stream but this section can be ignored for only a short way beyond this point, in either direction, the way becomes impassable.

Instead, our way on lies back to our left down a choice of two short climbs into a small muddy gallery. Left is to a choke beneath the entrance shaft, while right the floor drops down over fluvial infill to meet the stream again. With the presence of water the passage takes on the appearance of an only partially-deserted phreatic zone and the wet mud that covers everything reminds one of the severe flooding that affects this section of the cave. The real danger point lies a short distance ahead where at *Syphon Lake* the airspace drops to less than a metre, in even the driest weather. Immediately before the lowest section a high aven cuts across the passage. If we were to climb the steep muddy slope on the left hand side of the lake, a much higher gallery is encountered — running roughly parallel to the river. To the left the gallery becomes smaller and turns away from the river to end in a couple of chambers. The other branch is larger but a step up a cut-away mud floor reduces it to an attractive hands and knees crawl, on dry mud, that eventually chokes the passage, just beyond an enlarged cross rift.

Back in the river gallery we pass on through the low wet section and the roof gradually begins to rise until we reach the junction with the *Galeria de la Bote* which enters part way up the right wall. From this point, until we arrive at the lower end of the Arco Gallery, it is obvious that there is a higher level in the roof that remains unentered. *La Bote* may be part of this, but it is so short as to be hardly worth mention, other than to point out that it is choked, with what is probably surface fill[F19]

Pressing on upstream, sometimes wading through pools, sometimes scrambling over greasy mud banks, one is eventually forced up onto an especially large mudbank on the right hand side. At the upstream end of this is a small hole, muddy and distinctly uninviting, that leads into an equally uninviting section of passage *Tonto Series.* Occasional aven inlets have washed away some of the mud but not nearly enough! This line of passage eventually runs up a slope into a choke, but just before this happens, another passage takes off to the right to connect with a stream. Downstream, to the right, remains virtually unexplored, but the water drains through to a miniscule passage inlet to the main river gallery. Upstream, the streamway ends in a chamber with some of the water entering from the roof and some from a minute sump[1].

If, once again, we return to the main river gallery and head upstream it is not long before we come to another parting of the ways where the river divides. The larger part from a low passage to the right — the bottom of the *Pinto Gallery.* To the left the flow is less but the passage dimensions are vastly greater. This is the result of a shifting drainage pattern both on the surface and underground. Originally the junction of both the *Risco* and *Pinto* Galleries was higher up both passages. Precisely where the waters used to unite is a matter for conjecture. Certainly the first 150m. of the *Pinto Gallery* are far smaller in cross section than the higher reaches and at various periods the *Pinto* water has crossed into *Risco* by different routes, though as yet these courses have not been identified.

At present, only one crossover passage is known. To reach this from the *Risco* streamway one climbs up the first mud bank to the right and up between large blocks that mark a collapse zone with a fault that has controlled the line of the *Risco Gallery.* Once up through these blocks one is in a huge and ancient gallery varying between 3 and 5 metres wide and roughly 15 metres high. This is the lower part of the *Arco Gallery,* which though it cannot be traversed for its whole length, runs from the *Sala Carballo* roughly to the *Risco/Pinto* junction before its course becomes uncertain.

Somewhere between the upper section [1] and the lower section it seems possible that it received a tributary probably from *Fault Passage*, off the *Pinto Gallery*. Unfortunately this will remain an enigma until someone manages to cross the chasm that connects *Arco* with the *Risco* stream, but effectively cuts off the part of *Arco* between there and the chokes in *Gran Risco*.

Coming down stream from the chasm in *Arco* the passage is a vast canyon showing little evidence of other than vadose development with only two traverses round blind pots providing any difficulty. Some isolated but excellent formations add a touch of decoration to the otherwise spartan scenery.

When eventually the narrowly converging lines of *Arco* and *Pinto* meet, it is in a massive hall formed as a result of the collapse of one wall of the *Arco* into the *Pinto Gallery* and the entry of two large avens of indeterminate hieght. From this hall, which marks the point at which the *Pinto* becomes noticeably smaller, the *Arco* swings away to head directly towards its junction with *Risco*. It does not, however, end here, for taking an easy and obvious climb up a rock slope, the passage continues at a higher level. In truth, it is only the upper part of the *Risco* streamway. For while it retains its independence because of the huge boulders that make up a false floor but soon the only way to progress is along a ledge on the left hand side, high above the river. At a point that must almost be directly above the *Pinto/Risco* Junction, the ledge ends. The roof tube continues into the unknown.

We can now return to the *Risco* streamway at the point where we left it to visit the *Arco*, and, leaving the *Pinto Gallery* until later, set off upstream. Almost immediately we are forced to leave the stream and climb a sand slope to a higher level. From here until we reach the *Sala Carballo* one is continually leaving and rejoining the stream as a result of either the stream meandering off into low beddings or because either fill or collapse block the lowest levels. While scenically the passage offers little, it does provide some sport.

The first real point of interest is the massive aven/chasm between the streamway and the higher *Arco Gallery* which if climbed on the upstream side, could lead to some new passage. Beyond the chasm a low wide bedding with some avens, and two passages entering from the right, marks the point at which the higher level of *Gran Risco* chokes. Not far beyond here a collapse has almost blocked the passage but one can either crawl through it or chimney up, nearby, into *Gran Risco*. One can follow either the upper or lower routes upstream to where they rejoin in the *Sala Carballo*

If first we climb up into *Gran Risco* and head downstream the passage is relatively complicated, being split vertically into two levels. The upper level ends in a mud choke, the lower swings left, a rift in the floor dropping down into the river gallery, splits, with the right hand branch choking at the base of a high aven. The left branch continues for longer but soon chokes within a short distance of *Fault Passage*. Water entering at this choke sinks down a rift in the floor and emerges in the river gallery via the inlet passages mentioned previously.

In all probability one would miss the climb up into *Gran Risco* and continue up the streamway until it seemed about to sump [2]. To get to the *Sala Carballo* one should come back some distance and, keeping to the right hand wall, begin to ascend gradually. The way is not particularly obvious but one should eventually find oneself in a deserted passage with a downcut rift meandering about the floor of the wide upper section. The whole floor is covered with decaying calcite forms and shattered rock. The passage enters the *Sala Carballo* through the boulders, near where the water sinks at the bottom of the chamber.

The *Sala Carballo* is a massive, steeply inclined chamber set, roughly, at right angles to the streamway. At its lower end a stream enters from the roof via an 18 m. pitch. At the higher end a funnel decorated with some fine stalagmites and flowstone leads to a vertical drop. A total of 25 m. of ladder is needed to descend to the floor of this spacious shaft. A small stream falls opposite the ladder and if followed down a thoroughly revolting passage it ultimately wends its way back to the *Risco* streamway near to the point where we left it.

III. Onite

The waterfall that enters at the lower end of the *Sala Carballo* is the *Onite Inlet*, first entered in 1974 from a shakehole at the upper end of the *Ozana Valley* the cave has already been described [3] and it will suffice to give only a brief resume of the main line, and a full description of this years discoveries.

Within 30 m. of the top of the pitch there is a 'T' junction with the right hand passage *Marino Series* that leads into a large fossil gallery — possibly an upper continuation of *Gran Risco*. The left hand branch is the main streamway and apart from some deep scour-pools and some minor climbs it is comfortable and sporting until one is forced to crawl. In the middle of this crawl one can stand up in a fissure that runs diagonally across it. From both ends, passages lead off at a higher level. The behaviour of this series is virtually inexplicable since it runs round in a circle, (hence the name - 'the First Circle') with one major passage running off to end in a bell-chamber, with a large static sump. The most notable points of interest are some superb gypsum flowers and a considerable amount of faeces belonging to at least two species of non-human animals.

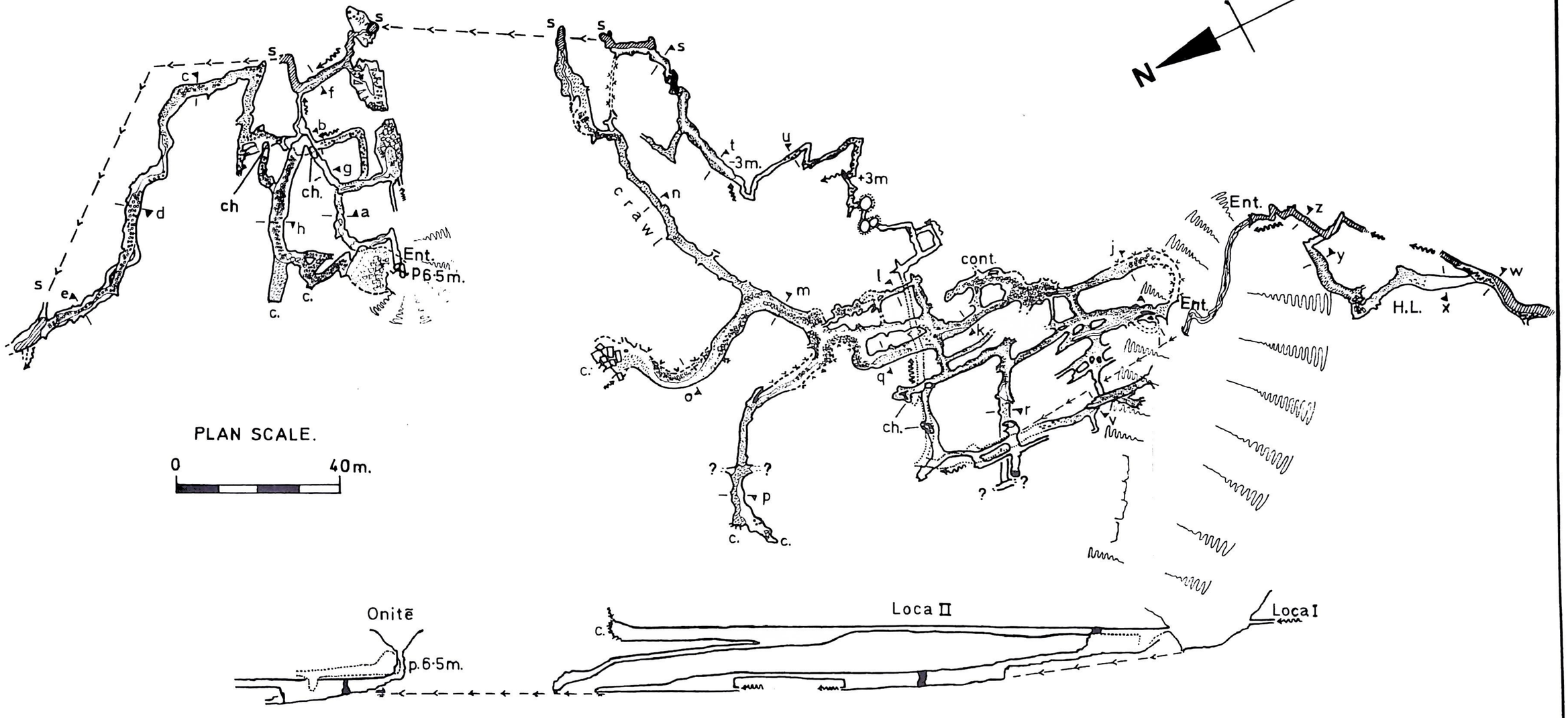
The next passage, with which we are concerned, is associated with the dry section of the main line, upstream of the point where the stream emerges from a low passage [4]. At an unexplainable point in this section, a body-sized hole [D4] in the low roof leads up into a crawl that runs up-dip to join a larger passage. To the right via a series of crawls one can get to within sight of daylight in the entrance shakehole. To the left the passage runs down dip, diminishing into a crawl before turning back on itself to where there is a hole in the floor [D4]. This drops down to the main passage which we shall see later. The upper level continues, increasing in size, until it enters a chamber [D5] that has developed on the same line as two others associated with the streamway (see footnote). A trickle of water enters from the roof, but there is no passable exit.

"A ladder was slung down the entrance pitch and then Buddha went down to retrieve it so it could be belayed".

THE LOCA CAVES

SUB AREA SURVEY NO.THREE

SURVEY TO CRG GRADES 4b&5b.
AUGUST '74, APRIL '75



To reach the two aforementioned chambers wermust return to the hole in the floor and descend to the stream. The climb is easy and brings us out at the point, where, coming down *Onite* one leaves the stream to enter the dry section of the main route. Instead we should follow the small flow under the opposite wall for a short way until it meets a larger stream entering from the right. Downstream is a sump. Upstream a crawl leads to one of the chambers (the other is up a short dry passage a little way downstream), where the water emerges from a small clear sump[B5] — the closest point to *Loca II.*

IV. Loca II.

Were we to dive the sump in *Onite*, we would be making the first crossing of a zone that splits the main cave from its feeders. Whether this zone is a fault, a number of faults on an intrusive rock or shale bank, is not clear, but it has certainly produced a very definite line cutting across the whole of the system, which we have not been able to penetrate.

If we entered *Loca II* via the sump, we should find ourselves at the bottom of a steeply ascending chamber or the end of a small streamway, for there are two sumps in close proximity[C7], though they arrive via lengthy and largely separate routes with only a short constricted passage connecting the areas near each sump. The streamway route varies in size according to whether the stream is present, or not. Some traversing is necessary and in some places higher up the passage, a number of chimneys indicate a close connection with the upper galleries.

Ultimately, water enters from under the wall but the rift-like passage continues upwards to a semi-choked entrance, the way out being a climb up the left wall, some few metres back from the daylight, into a crawl. This brings one to the edge of a rift in a roomy gallery within sight of the entrance proper.

Returning to the other sump to investigate the second route to the surface, we ascend the slope of the chamber until we are forced to crawl to the left over shattered rock into a slightly roomier bit of grovelling, with the connection to the other sump setting off down a crawl to the left. The main way on is an ascending mud crawl that emerges in a roomy gallery[E8]. To the right the passage has suffered from infilling and soon chokes — though from surface mud and boulders rather than from fluvial fill. Straight ahead is easy walking to an area where a good deal of flaking collapse has occurred[1]. Between here and the entrance every joint has been developed to one degree or another and it is an unnecessarily difficult task to try to describe them except to say that the main routes are easy going, and because of lack of enthusiasm two passages remain to be fully explored[G8& G11].

The entrance lies part way up one side of *Hoyo Frio* — a large shakehole by the *Matienzo-Riba* road. Below the entrance a stream sinks amongst pebbles within 20 m. of where resurges from *Loca I.*

V. Loca I.

Prior to this year's surveying trip the cave was a 30 m. long wet crawl to a sump, but this can now be bypassed by a crawl 13 m. back on the right. It emerges in a larger section that soon splits with the way on being to the right, between blocks, into a flat-out crawl to the streamway. This can be followed for 35 m. to where it becomes rather low, at which point the cave is not far from *Selvijo* where the water sinks[2].

VI. Selvijo.

If one could penetrate the few metres from *Loca I* one would arrive in a restricted wet crawl not far from the entrance, though the higher deserted passages extend nearer to *Loca I.* The cave is short and consists largely of rifts and crawls terminating in a muddy aven chamber. The water that enters the cave emerges from a small spring, at the top of the shakehole, that offers no prespect.

VII: Orillon.

The *Orillon-Orillonzuco-Malbujero* cave is the black sheep of the whole system and is only included here on the basis of a rather tenuous dye test [3] .and the fact that it is in the *Ozana Valley.* The other visible evidence suggests other possibilities. The cave has developed down-dip until it has hit a steeply inclined fault along which it has developed in a line almost directly away from the other caves and since the general dip in this area is towards *Hoyo del Mortiro* beyond the *Cruz de Ozana* pass to the south, (see Ch. 3) this has lead to speculation that *Orillon* may resurge here.

The cave has three entrances grouped in close proximity. Of the three names (mentioned previously), *Orillon* is used as the collective name though *Orillonzuco* provides the most convenient entrance since it does not require tackle. It is, however, a fair struggle just to get to the entrance, which is at the base of a cliff in a jungle-filled depression. At first the passage is reasonably spacious with choked rifts off to either side giving false promise of greater things to come. Inexplicably the cave degenerates into a low cleanwashed rift. This proves to be short lived for soon, a junction with a larger fissure runs parallel to the streamway connects it by a couple of narrow rifts.

The stream, running from right to left, occupies a passage of barely comfortable proportions which upstream accepts the short inlet passage from *Malbujero*, and then becomes a low, wet and eventually choked crawl. Some short-side passages at a higher level are even more choked, and prospects in this direction seem unhopeful Downstream the passage is high, narrow, straight as a die and, with a couple of short cascades, seems airy and sporting. Abruptly it hits a larger passage at right angles. From the left enters the high, comparatively wide rift from *Orillon* which, followed upwards over a slope of stones and boulders emerges at the bottom of the *Orillon* depression/ shaft. Downstream of the junction the passage immediately turns through a right angle to the left to resume its main line, which, with the exception of some short side-steps to the right is the course it maintains to the end.

The streamway is mostly easy walking following the stream down a couple of short climbs. The passage has been enlarged by considerable collapse associated with the faulting and in some places the collapse has been great enough to create chambers. Almost at the end of the cave, it becomes noticeably narrower before breaking into another chamber. The stream has now filtered away into the stoney floor and the way out of the chamber is dry but very small and soon becomes impassable, though it can be dug into another choked chamber[1].

Between some of the 'chambers' mentioned there are some short stretches of upper passage but in no way do these give any air of maturity to the cave, nor do they suggest any old high level series that might pass beyond the present end. Devoid of formations and owing most of this imposing cross section to the nearby fault, the cave presents an air of immaturity that does nothing to clear up the enigma of its genesis.

VIII. The Pinto Gallery (and its feeders).

We must now return to the point in the main system where the *Risco* and *Pinto* galleries met, and this time embark on a hypothetical trip up the latter and beyond into its tributory caves.

Its start belies the excellence of the rest of the passage for it is a lowish arch over a pool. However, only in wet weather would this be uncomfortable and immediately beyond the passage increases in height and width, becoming a fine stream passage. Soon the sound of falling water is heard ahead, and one is amongst massive boulders wading through pools and climbing a short cascade. Then up through the collapse where it bars the way and you emerge in the lofty hall that is the junction of the *Pinto* and *Arco* Galleries. Climbing down to the stream the caver is in a deep trench with a wider section of passage above him. By usual standards one would expect the roof rube to continue upstream for much of the gallery's length but, instead, investigations in the roof suggest that it simply peters out, though this is by no means a certainty. What is certain is, that while the passage remains of an accommodating size and is pleasantly sporting, its height is much reduced for a considerable majority emerging from in the roof or from impassable rifts. One can be traversed for a short distance, but non seem worth expending energy on.

At one point a bed of impermeable rock is met that has caused a cascade and above it, a short low section which is really the only land mark until one suddenly emerges into a high cross rift with the stream cutting across it, between high slopes of sand and rock[2]. Up to the left is *Fault Passage* which it seems may once have connected with *Gran Risco.* In its short length its main feature is the massive fault plane that in places seems to stretch upwards indefinitely.

Opposite *Fault Passage* is *Dyeline Passage* that, after its initally easy start, becomes a traverse above a small stream, on treacherously friable rock. Eventually one drops down to the stream and after another short crawl one is forced, first onto hands and knees, and then to flat out crawling before it becomes too low.

Back upstream the main passage is barely a metre wide but the roof is out of sight. Then, soon, one climbing steadily up cascades and rapids, the passage beginning to widen out. Suddenly up another casdcade and the passage swings through 90° to the right into a wide chamber, the stream, having slpit up, runs down both sides. A passage enters on the right hand wall, and though unexplored probably connects with a parallel gallery in *Tali Series* (see footnotes). The stream re-unites, emerging from a large, almost tubular passage that shortly, divides. One canyon carrying most of the water comes in from the left while a large gallery continues straight ahead. We shall follow this one first.

Immediately the passage is blocked by a massive mud and boulder collapse that has entered from the surface [3] but if one climbs part way up the choke then traverses back to the right, access can be gained to an obvious passage. After a few metres a 'T' junction is met. By now it hardly comes as any surprise when, turning right, we find ourselves standing at the top of a loose rocky slope looking down a large deserted passage running back parallel to the streamway. Scrambling down the slope we find another passage running back to the streamway. Signs of a heavy flow of water down here show its connection with the inlet passages that run off to the left at the last junction (see below).

Pressing on down this fine deserted gallery we come to a section where undercutting of one wall has led to collapse and for a while one is up and down over boulders until suddenly the passage narrows to a rift and descends steeply to the top of a pitch into the main stream again.

Returning to the 'T' junction at the start of this pleasant gallery and setting off in the opposite direction we are immediately faced with a pitch. This rather unexpected obstacle can be bypassed by entering a small passage on the right, straightaway dropping down a short rift, and turning back on oneself into the pitch chamber. The small passage we so prematurely deserted becomes a meandering rift until sandy infill reduces it to a crawl that eventually becomes very low beyond a hole, down into two small chambers. The pitch chamber/aven accepts a small stream that joins another which runs in small rift on the right of the chamber. Followed upstream this leads to a cascade chamber with an awkward climb up into another few metres of rift to a solid choke. Though in close proximity with the end of *Tali* (see footnotes) it seems we have again hit the zone that we met between the sump in *Onite* and those in *Loca II.*

a. Some of the fine gour pools in Cuatribu between cross section b & c (see p.11).

PHOTOGRAPHS OPPOSITE

b. An indication of the size of the deserted vadose canyon of the Arco Gallery (pp. 3-4)

c. Formations in the Arco Gallery are scattered in closely packed groups possibly corresponding with weaknesses in an overlying impermeable band.

d. A rather untypical cross section in Gran Risco (see p.4) This could well have been taken in the upper levels of Onite or Loca II.

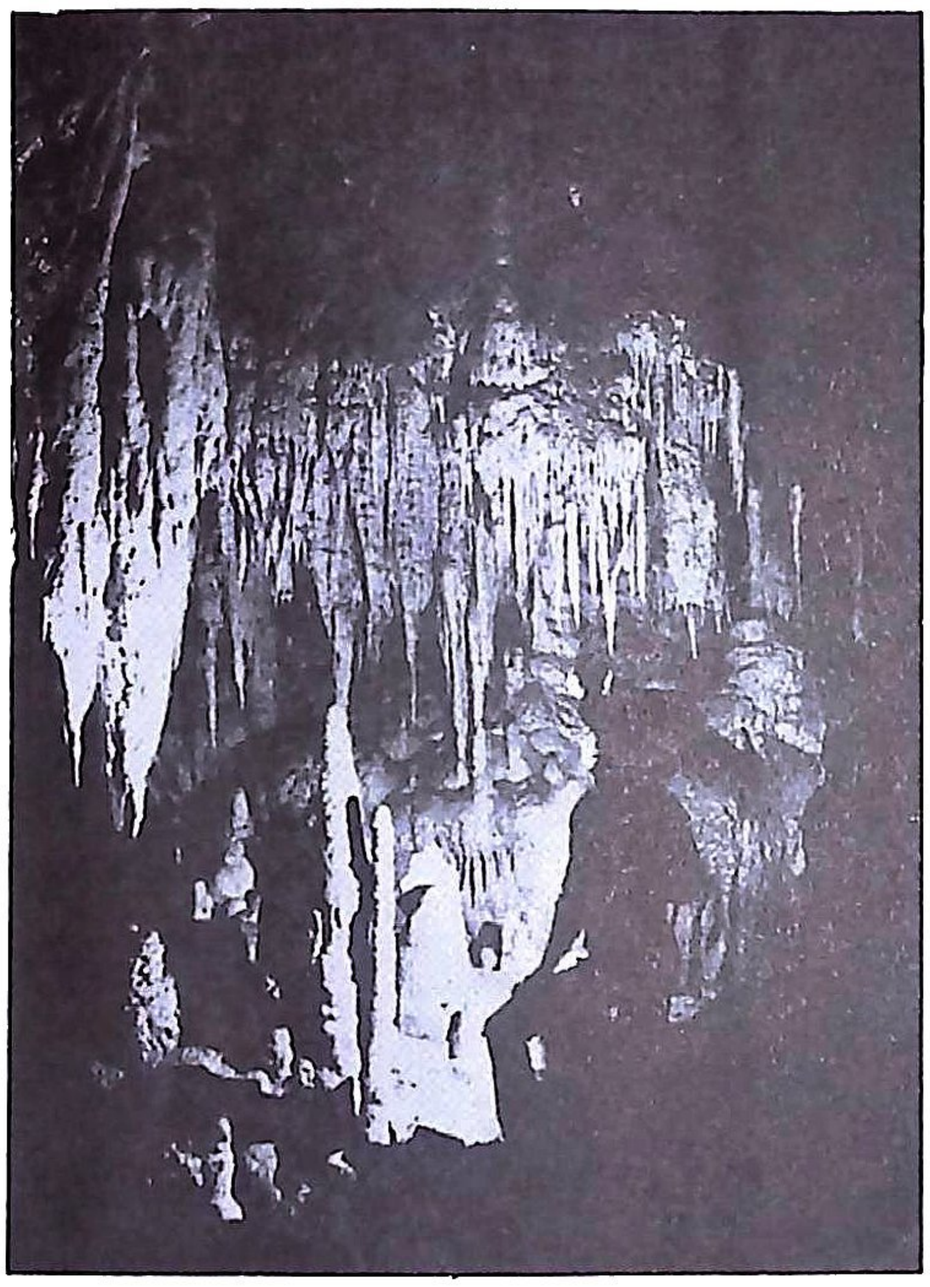
e. Far more typical of Gran Risco. The original passage form has been obliterated by massive collapse, some of it very recent.

f. An example of the way the inclined jointing has dominated passage shape in some parts of Risco.

A

B

C



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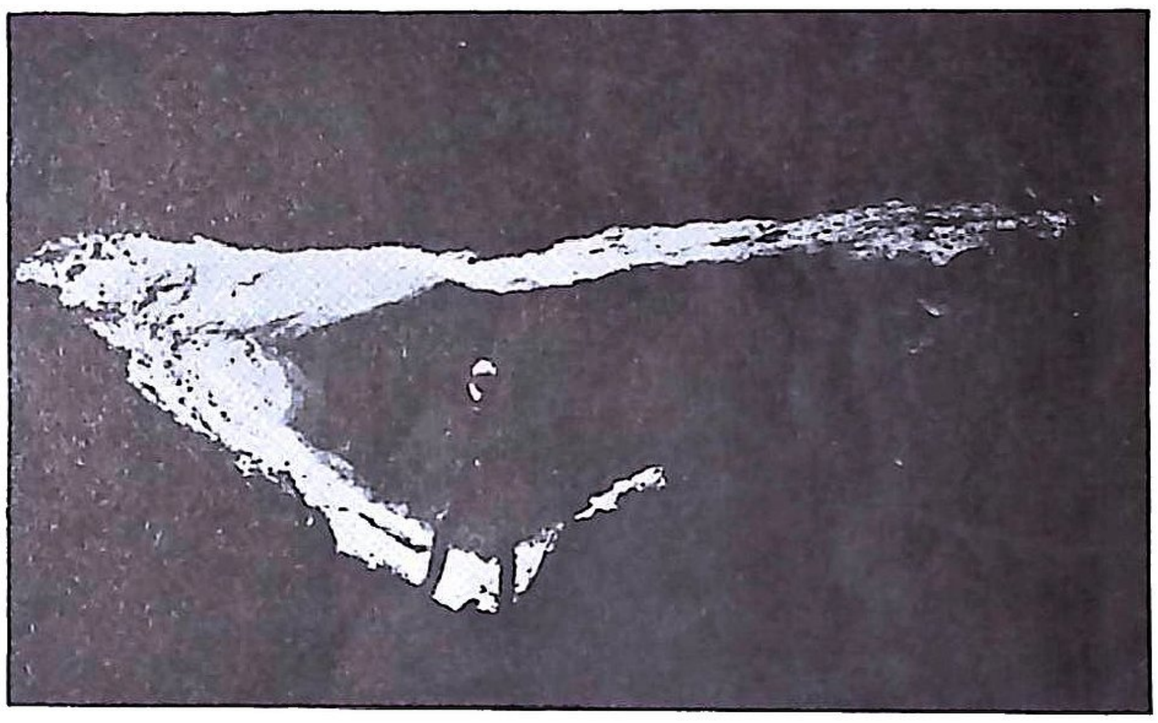

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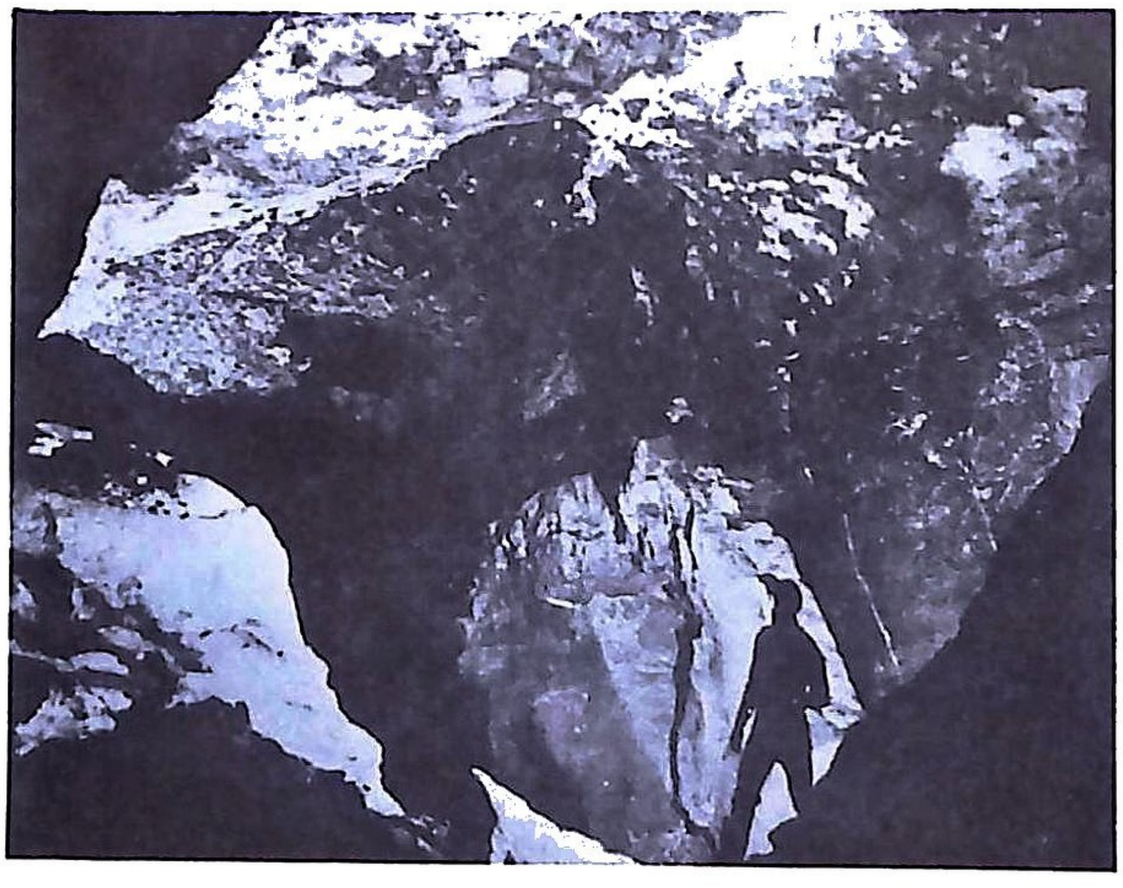

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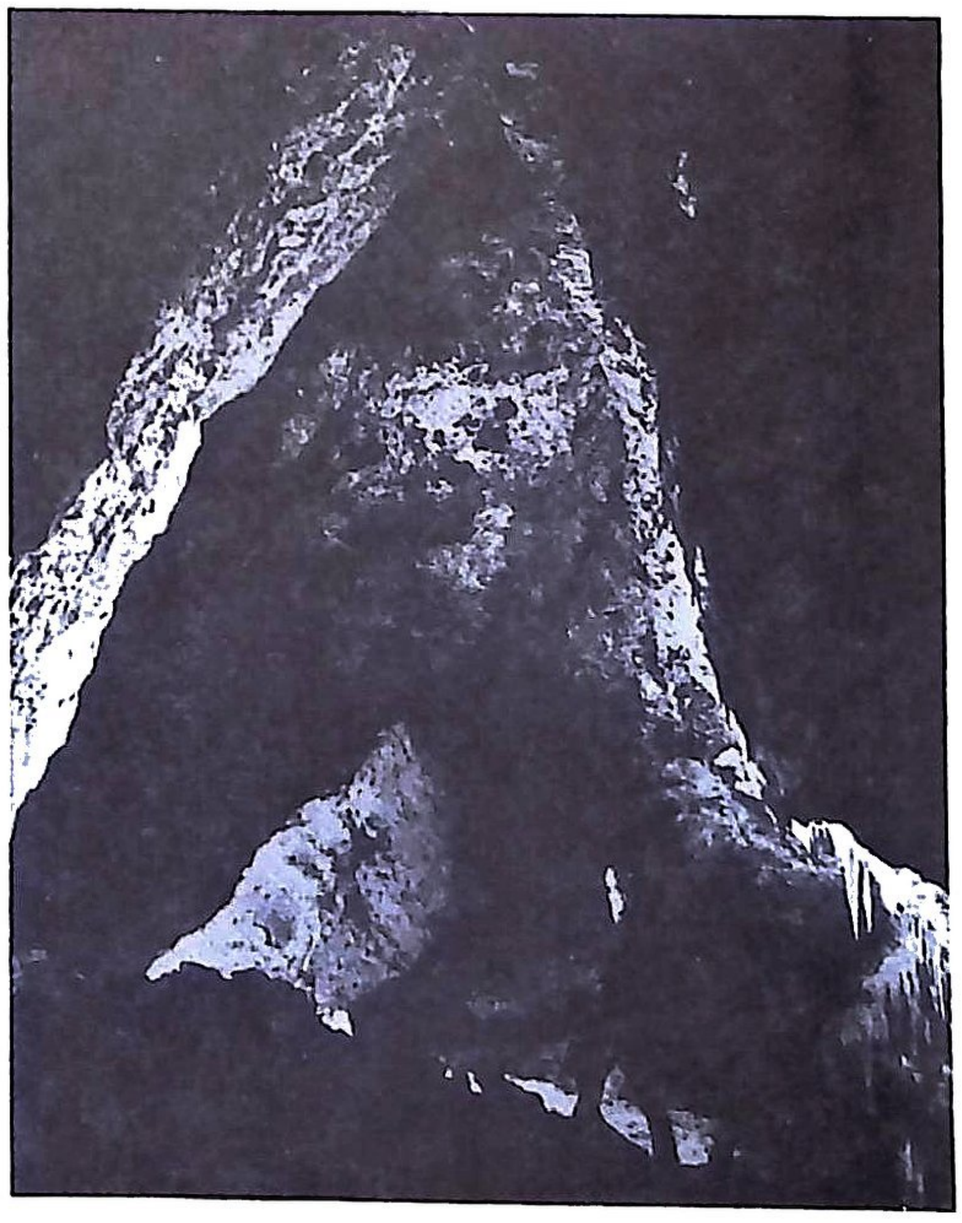


Back to the main streamway and this time following the canyon with most water upstream, in a roomy streamway with sandy fill banks entering from a choked passage on the right. The passage enlarges at what seems to be a washed out corner with the water emerging from a low bedding directly ahead and the passage turning sharply right to run straight and dry to a large boulder choke[1]. In fact the first metres of left hand wall are just fallow blocks behind which the stream passage continues. Now it is smaller, more meandering, and before long becomes a narrow snaking rift, with a wide bedding at floor level. Happily this does not go on for long but breaks out into a low chamber with water pouring from a rift in the roof and some entering from a rift that soon becomes impassable. We have thus come to the upstream termination and have now to cross the fault zone into the tributary caves.

IX. Anderal II (see Sub Area Survey II).

If we could pass across the fault zone from the upper end of *Pinto* into *Anderal II* the nearest point in that cave is the narrow rift at the end of *Toad Series*[L1]. This brings us to a high aven with a small inlet. Climbing out of the aven chamber over a bank of mud we are in a roomy flat-roofed passage with steep mud banks on either side of a small rivulet. Immediately to the right, up a very greasy slope, is a partially mud-filled continuation of this passage. Gradually the mud makes the passage too low – again close to *Hoyo Mortera.*

Progressing up the main passage an inlet enters from the right between boulders – the way out. However there is a small gallery setting off, at roof level, opposite, and the main passage itself carries on. Following the latter we are quickly forced down into a rift in the floor as the main section becomes choked. The rift too, becomes narrow, wet and too tedious to follow.

The small gallery is an altogether more pleasant prospect, when one scrambles up the bank and sets off up it, on hands and knees. What at first seem to be rocks embedded in the mud prove to be merely mud nodules and a comfortable crawl can be followed to a very definite end at a mud choke above a sump inhabited by a rather sick-looking toad[2].

Pursuing the main route out, the passage becomes lower as a result of increasing quantities of fill on the floor – mostly large rounded stones and gravel. Crawling soon becomes necessary and a long pool is reached, which poses a problem, for if we follow the pool as it curves to the right, into a low canal, we missed the way out which was up a low bedding on the left hand side of the pool[H3]. It is, however, expedient to continue our explorations in this new direction.

The canal is held back by some fill, and beyond this barrier, at the base of an aven, the passage degenerates into a short crawl before hitting a lateral gallery of walking size. Left is a cul-de-sac ending in two avens[H4]. Right trends uphill over sand and gravel with a crawl off to the left to a high aven. The main passage meanders on, varying in height according to the amount of fill. At one point the right hand wall becomes collapsed blocks and a rift in the roof becomes apparent. Skirting round this collapse, and ignoring the obvious way on, which soon stops, one has almost turned completely back on oneself. This passage starts unpleasantly and gets steadily worse - low, muddy and with a couple of squeezes. Eventually the floor drops away to the left into a pool. The passage continues at this lower level even nastier than before – now as a low canal. Fortunately the end is near, or to be more exact, the excuse for making an exit is at hand, for with no draught and the available airspace becoming less and less there is little reason to carry on[L4].

Checking our compass we would find that this canal was heading erratically back towards the *Pinto Gallery* in other words we have been heading round in a circle, and have come back to the fault zone. If we were to dive beyond the end of this canal we would find the missing piece of the jig-saw for we would emerge in the upstream canal in *Tali I. (The description of Anderal II continues in subsection XI).*

X. Tali I & II.

The diver would notice little improvement on arriving in *Tali I* for this canal is a narrow stooping affair in deep water and then becomes a matter of swimming for a while. It ends abruptly where it becomes a larger passage of pools and mudbanks. Again it becomes lower for a couple of metres then rises again to comfortable walking size. At the end of this short section one can climb up into a higher short passage and then again up an awkward chimney to the surface.

Carrying on down the cave involves crawls and squeezes in rough reddish rock with the only redeeming feature being a slab of calcite crystals below which one squeezes down into a miserable crawl which, blessedly soon arrives at the base of a boulder slope, up which, one crawls into better things. This is a section of an old passage of reasonable dimensions, but so short as to be no more than a chamber. A small stream runs across from left to right. It emerges from a choked tube that if possible to follow would connect with the insignificantly short *Tali II.* Across the chamber the water sinks in a series of interconnected rifts that run into the right wall. The way on is impassably tight though only a short way from the cascade in *Tali Series.*.

XI. Anderal II (continued).

We must now return to the pool in *Anderal II,* where we took the wrong turn, and now head outwards. If the explorer thought that some of the passage he had already traversed, was bad, he would find that they paled into insignificance by comparison with this crawl. It is foul – mostly flat out and largely in liquid mud. The only points of light relief are a scattering of avens. Happily it is not desperately long and as the mud floor gives way to stones so the passage height grows and widens as the left wall recedes into what amounts to a large sandy alcove. In reality, it is more complex than that. A number of passages, all choked, run off from this space, adding to the complicated nature of the entrance area. The main way runs on, almost immediately reaching walking size and the sound of water can be heard. Obviously the stream has sunk in several different places that have been choked and the water which has now cut down to a lower level, can only be seen, from time to time, down rifts. A comparison between the water inside the cave and that outside shows a distinct discrepancy in quantities – the flow inside being much larger. Though no dye tests have been done, it is assumed that this increase is explained by the meanderings of the *Jivero* water beyong the sump in *Jivero III.*

Thus *Anderal II* marks the junction of two major streams, but before progressing further up either of these feeders we have to examine *Anderal III.*

XII. Anderal III.

As can be seen from Sub Area Survey II *Anderal III* is superimposed upon II and is roughly 30 m. higher. Its low rectangular entrance is well concealed by bushes but is easily reached along a wide ledge. Immediately inside it forks with two low passages running off – but leading to a low bedding. The left hand goes by a blind pitch and is off the main route. Straight on arrives in the bedding via a squeeze and one turns right to follow the draught through a flat out section to a 'T' junction. The right hand branch leads to a further junction, going into two choked passages – the right hand evidencing surface collapse.

Turning left, back at the first junction, a hands and knees crawl arrives at another blind pot, around which one traverses to the right[G5] and continues traversing along greasy calcite ledges and over false stalagmite flooring to another small blind hole, across which one straddles into a squeeze over a mud bank. It comes as quite a relief to slide down into a reasonable sized gallery with an absolutely flat roof; whole sections of which lie in thin slabs across the floor-rift. Swinging right the passage becomes lower as the floor comes up towards the roof and then splits in two. Right, the crawl is choked with sand; left leads througn a low bedding to a climbable pitch in extremely sharp fossiliferous limestone. This leads into two interconnected avens in the second of which is a blind pot about 3 m. deep. Again the way on is to follow the draught through a low crawl feet first onto a climb into a further aven chamber. At the base of this climb is a very low crawl that soon becomes too low. At the other end of the chamber a climb up in an unpleasantly sharp alcove reaches up to a higher level close by a choke. The only way the explorer can continue is back over the passages he has just passed along. The gallery turns left and left again to run back to another choke but on both corners passages run off. At the first corner a body-sized tube runs back into the roof of the first aven chamber[H4]. At the second corner a low sandy crawl sets off to run round to a narrow pitch which has not been descended. Part way along this sandy crawl the first explorer came across a hens egg – hence the name of this series.

We can now thankfully return to the surface in *Hoyo Anderal* and follow the stream upward to *Anderal I.*

XIII. Anderal I.

A sizeable dry entrance belies the size of the passage inside. The stream is soon met sinking in a rift in the left hand wall and for a few metres the passage is pleasantly roomy. Rapidly it becomes lower and turns right where an inlet enters in the roof – apparently from the surface, in view of the number of bottles and boots. A dry crawl leads back to the stream that can be followed for som distance until it becomes extremely low.

XIV. Jivero III.

To return to *Anderal II's* entrance series and make the hypothetical journey upstream to the sump in *Jivero III,* the caver would find himself in a narrow rift with deep water. Gradually the water becomes shallower but maintains it narrow cross section as it zig-zags erratically upstream before running for most of its length in a straight line, to an entrance that is out of proportion with the interior.

The stream that is the largest single feeder of the Risco system runs for only a short distance on the surface before it emerges from a fine cave entrance in a small cliff.

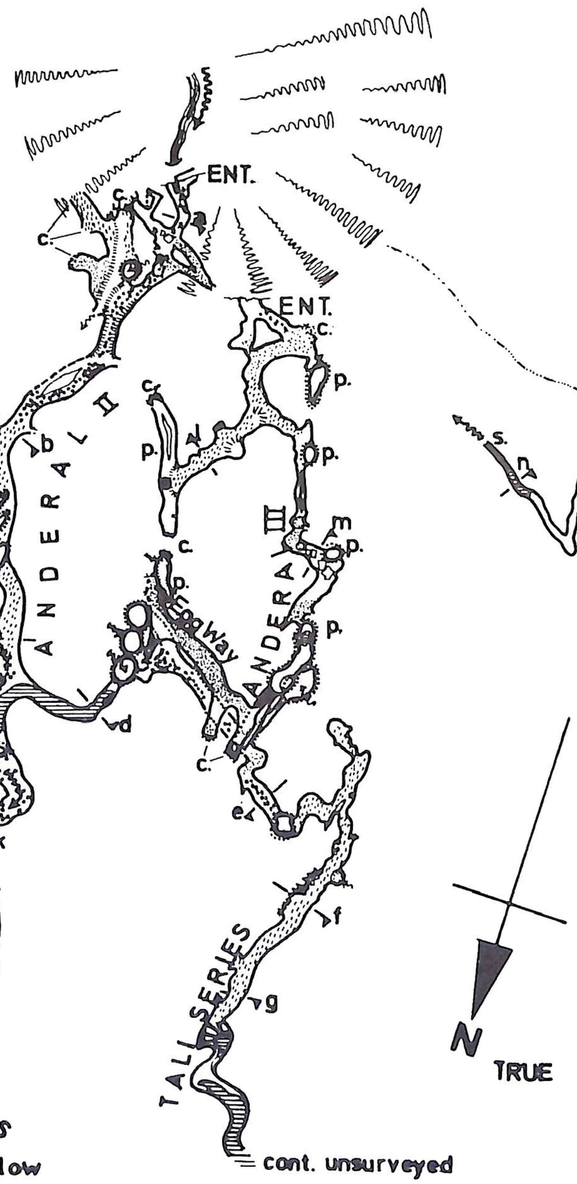
ANDERAL II & III - JIVERO II & III

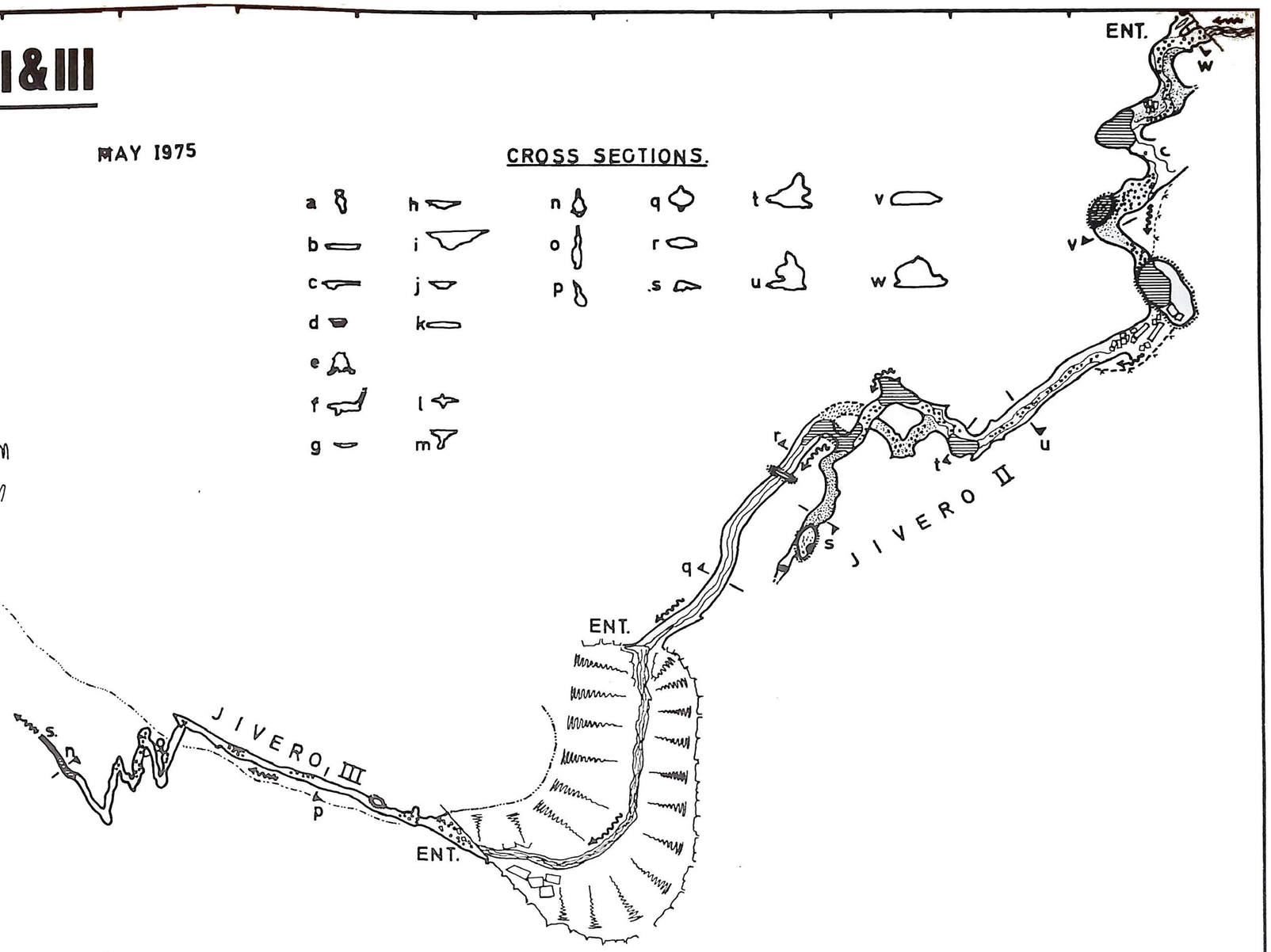
SURVEY TO GRADE 4b.

MAY 1975

0 50m.

CROSS SECTIONS.





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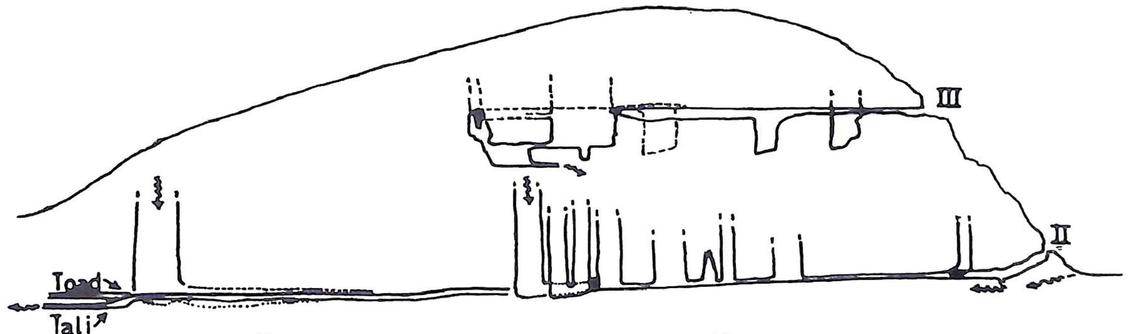
S-N CROSS SECTION THROUGH ANDERAL II & III.



XV. Jivero II.

The water from the entrance pours down a cascade into a deep pool. Up the cascade the passage is a beautiful phreatic tube that continues as such as it meanders gently upstream. At one point the passage turns sharp right through a rift with a half-choked oxbow on the left. The rift is only a couple of metres long, to where the streamway turns at right angles to the left and a dry gallery goes off to the right. Following the latter, it is mainly easy sandy crawling until it reaches a large column around which one can squeeze, only to find that beyond is too tight.

The streamway continues onward, comfortable in dimensions, with the odd oxbow, and passes under a high aven into another oxbow. This whole section, in contrast to the bare lower regions, is pleasantly decorated. When the stream is met again the passage splits, with a dry passage running straight to a semi-choked entrance. The streamway itself meanders on for a little longer before it arrives at the twin upper entrances.

XVI. Jivero I.

The only significant remaining cave in the system is *Jivero I,* which lies further upstream across a large depression. It is short, being largely walking or wading until a sump is reached. Above the sump is a choke and from the choke emerges a strong draught.

XVII. Miscellaneous Small Caves.

a. Torca De La Musquia.

A fine clean-washed shaft of c 18 m. drops into a parallel aven from which a crawl leads to a further aven chamber. The pot has no obvious connection with the rest of the caves.

b. Sima De La Mortera.

A Pot of 17 m. in *Hoyo Mortera* mentioned in Fernandez, (p. 53) it could not be located this year and it would seem that the entrance has collapsed.

c. Small Cave.

Situated by track across fields behind *Casa Morteras,* the cave consists of a crawl about 10 m. in length which splits in to two. The right hand branch draughts strongly and requires digging.

d. Cueva De La Puerta.

A couple of short choked rifts above a small sink. Could be dug.

e. Refugio De La Guerra.

A minute choked cave immediately on the left of the road, roughly 200 m. above the water tap by the road below the *Torca del Sedo* entrance.

"The rest is a familiar story. He dropped his carbide lamp in the water. He fumbled for the flint and covered the jet in mud. He tried to prick the jet, but the pricker snapped off inside. All his efforts failed, so he had to remove himself up the pitches in the dark, fumbling for ladder and lifeline".

CHAPTER II

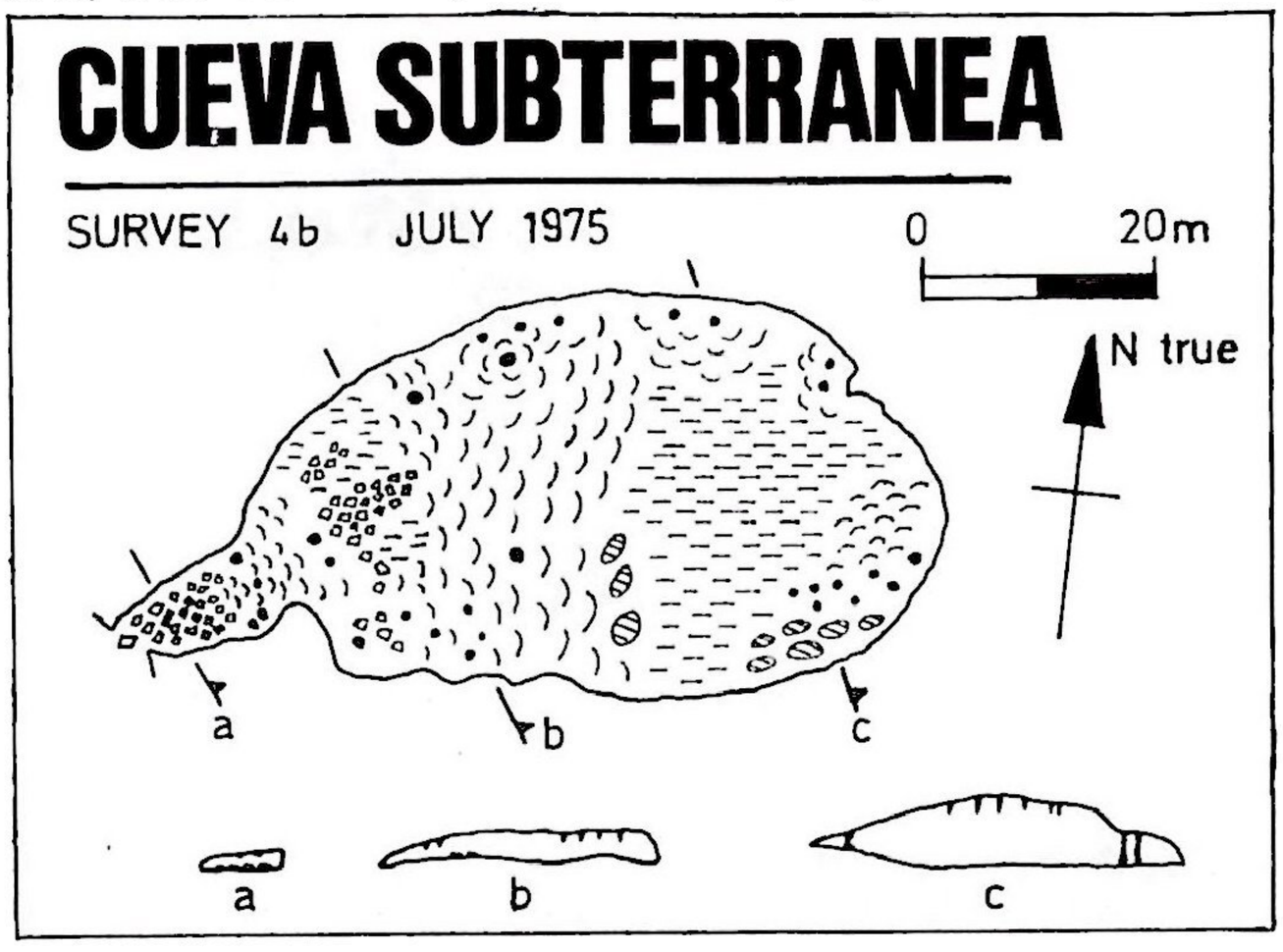
THE FOSSIL CAVES OF OZANA

I. Cueva Subterranea. (Altitude c. 450 m.)

This cave can be found reasonably easily, by looking for the highest tree on the side of *Mullir* opposite the massive shakehole of *Hoyo Mortera.* (See the survey of the 'Ozana Cave System' and the area geological map.) The entrance is a few metres below this tree, well hidden by bushes.

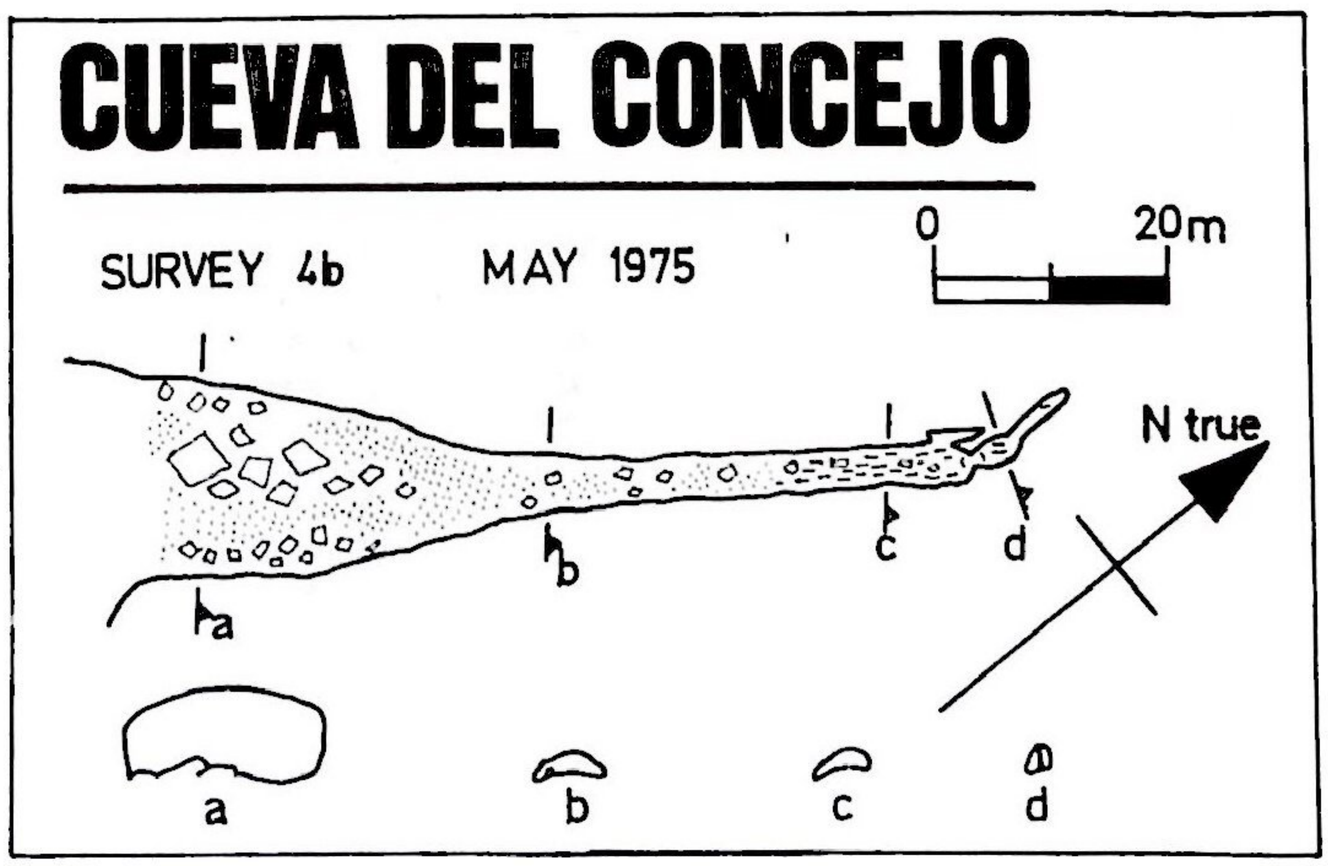
The cave consists of one chamber, increasing in size, from the entrance, to over 30 m. wide and 6 m. high. There is a gentle slope of gour pools down from the entrance to the floor of the chamber which is made up of muddy, decayed, calcite and several pools. Unfortunately these pools are of fresh water and not salt water as local legend has it! Around the sides of the chamber are many columns but they are now, dull and inactive.

It is difficult to ascribe any definite role to the cave within the process of the formation and drainage of the polje for obviously it has no relationship to the present topography or hydrology of *Ozana.* The same applies to the following two caves.



II. Cueva Del Concejo.

Seen from the road above *Hoyo Frio* (see the survey of the *Ozana Cave System*) *Concejo* is one of Matienzo's most impressive entrances. Again situated high on the side of *Mullir* it is somewhat lower than *Subterranea,* and to the right of it. However, the entrance leads into one of the valleys least exciting caves. Starting from a size of 15 metres wide by 8 metres high, this rapidly diminishes to a passage 3 metres wide by 2 metres high. Altogether the cave is 80 metres long in one straight line. Obviously it is fill which has so reduced the passage size and there can be no doubt that the cave played a fairly important part in the early development of the Matienzo polje, but has long since been deserted by any stream and is now an enigmatic problem.



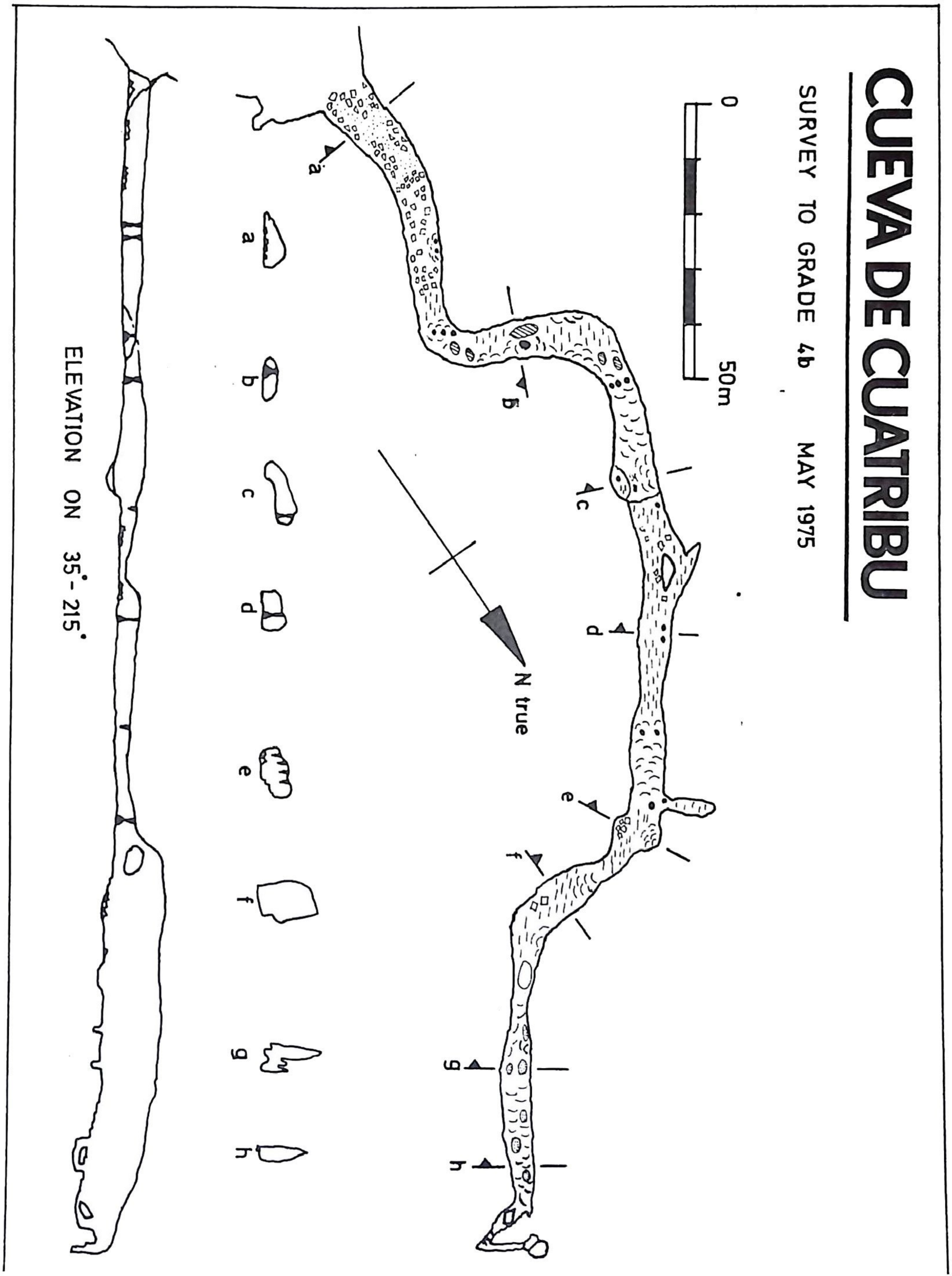
III. Cueva De Cuatribu (Altitude c. 400 m.)

The cave is situated in the *Hoyo Hondo,* a thickly wooded doline to the south-east of the *Ozana* polje. The entrance is fairly high up on the north side of the doline, well hidden by trees. Indeed it is almost impossible to find.

At the entrance the passage is 9 metres wide by 4 metres high but after 50 metres it is necessary to stoop as the first group of stalagmite columns and gour pools is met. For the next 110 metres the passage is an attractive succession of columns and gours with the gallery varying from a comfortable 7 metres wide by 3 metres high to a few points of stooping or crawling size. Then the passage breaks into a largish high chamber and from here the cave changes character as it becomes developed along a rift 15 metres high by 4 metres wide. It descends gradually along this rift with some holes dropping down and passing under the calcite flows and gours that make up the floor. After 50 metres of this the passage turns into another rift to the right. A crawl under a large block leads to a climb into 15 metres of narrow passage, ending in a blind pot of 6 metres. This last length of passage is particularly notable for some fine, if inactive, helictites.

At the large chamber mentioned previously there is a passage high in the roof which connects back with the cave by an aven after 12 metres.

The cave contains many bones, among them remains of the cave bear. Also it is remarkable for deposits of charcoal , equally distributed over the floor, boulders and ledges. This is apparently not uncommon in Spanish caves, but it is still difficult to explain. *Cuadernos II* suggests that it could have come down the avens. Another idea is that it has been spread about from fires lit in the cave, but again some concen trations in the various hearths would be expected. However, the remains of an old wall inside the entrance show that the cave has been used by man to a certain extent. Perhaps the best explanation is that a forest fire has caused a fire storm, blowing the charcoal into the cave and spreading it equally, but again the greatest concentration would be expected near the entrance which is not the case.



CHAPTER III

THE HOYO DEL MORTIRO AREA

"Its not like that – everything goes. 'Eliminate the lot!'.
A small cross † (God forgive, for I know not what I do)".

I. Introduction.

To the south of the pass of *Cruz Uzano* the main feature of the valley running down to the village of *Riba,* is a huge flat-bottomed doline – the *Hoyo del Mortiro.* Across this flow two streams from choked resurgences. They join short before they sink into an open cave – *Mortiro,* which ultimately resurges down by the *Rio Ason.* Upstream, only one of the springs has known cave behind it, and we are still not sure which it is, for the narrow streamway of *Cueva de Coveron* which runs from the pots west of *Cruz Uzano* ends in a rather ambiguous position and has not been dye tested. As far as we can tell *Coveron* drains the western flank of the valley up to the surface watershed with the Matienzo depression. Originally we had though that there was a connection with *Codisera* but increasingly this seems unlikely, in which case its (Coveron's) collection area is relatively restricted and this leaves the question of where *Codisera* goes to, or went to, open.

II. The Caves.

a. Mortiro.

If one follows the unsurfaced track that runs down the northern bank of the *Rio Ason* from the bridge at *Riba* (or *Riva*) one eventually crosses a small bridge over a wooded streambed which, if followed upstream, leads to a low cliff from which the stream resurges. The entrance is a narrow rift and the cave continues as such following the same joint for some way. This lowest section of the cave is the most difficult with some narrower parts necessitating awkward moves and some small climbs but beyond the passage grows larger, with some decoration and a number of semi-oxbows bypassing canals. While the stream is not large the whole length of the cave is occupied by pools and canals and, at one particular cascade, one necessarily gets soaked through, in low water conditions.

Generally the whole cave is roomy and attractive and while wet, is very sporting. The only real difficulty arises when we encounter a deep pool, at the opposite side of which the passage closes down into a sump. However one is still aware of a draught, and listening carefully the sound of water falling can be heard up ahead. A quick search reveals a small hole just above water level, through which both sound and wind are coming. It then becomes apparent that the sump is only short, and a quick feel about below the water reveals that the depth is only about 1 metre before the roof lifts. There is plenty of room underwater and the duck is simple.

At the other side of the dive the caver emerges at the end of a large canal, along which it is necessary to swim for about 10 metres, before it becomes possible to walk again. There is no obvious reason for the existence of the duck. The cave is large on both sides and there are no obvious impermeable bands, or faulting. Upstream the cave continues with comfortable demensions, though with much wading, until a surface collapse is met, here one climbs above the stream, over boulders, to a point where one can either climb up to the surface or descend back to the stream to traverse the last few metres to the upper entrance in *Hoyo del Mortiro.*

b. Coveron.

To continue the hypothetical procedure used in Chapter I and enter the nearest point in Coveron, upstream of *Hoyo del Mortiro,* we would arrive in a narrow streamway just above a calcite blockage. The observant caver would note two points. Firstly, that a strong draught was blowing towards him into a small hole, beneath the calcite choke and secondly, that the walls were covered with a thin film of wet mud, suggestive of recent flooding.

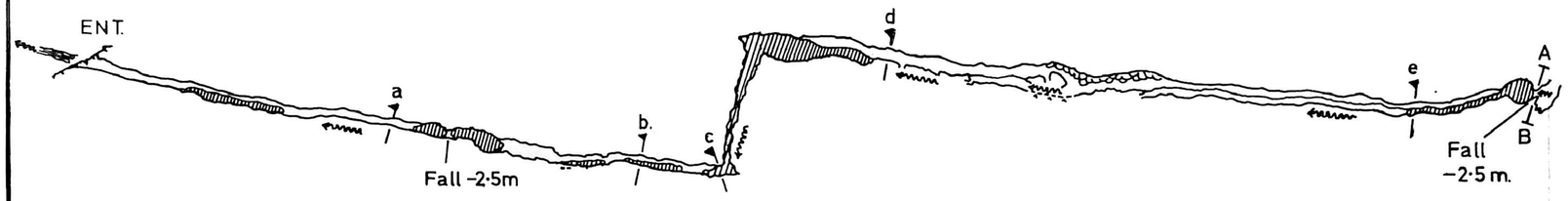
Heading upstream the passage is high but narrow – usually necessitating sideways shuffling until another calcite flow blocks the way and one is forced up a greasy climb and down an equally greasy descent, on the other side. More snake-like rift and one arrives at the first indication of better things to come – two large avens of at least 10 metres in height. However, the excitement is premature, for the passage reverts to its former dimensions and meandering nature and even seems to be degenerating, for soon the passage splits. The stream course follows a low crawl that becomes impossible but to the left an awkward oxbow is at least negotiable and before long the sound of water falling heralds the rejoining of the stream just below a difficult little climb.

Above the climb the passage pursues its high, narrow and drunken course but now is prettier with deep gour pools and pristine white flows. The next obstacle to present itself is a further climb over another calcite barrier but, in the section that we have just traversed, lies an extensive roof series and the way out to the surface Naturally the caver would have already traversed part of this series and would have a ladder hanging down the 17 metre pitch into the stream. But from below there is no indication of the higher level for the rift is too contorted to allow the roof to be seen. We shall return to the higher galleries later.

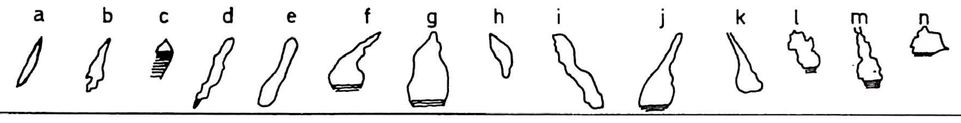
CUEVA DEL MORTIRO

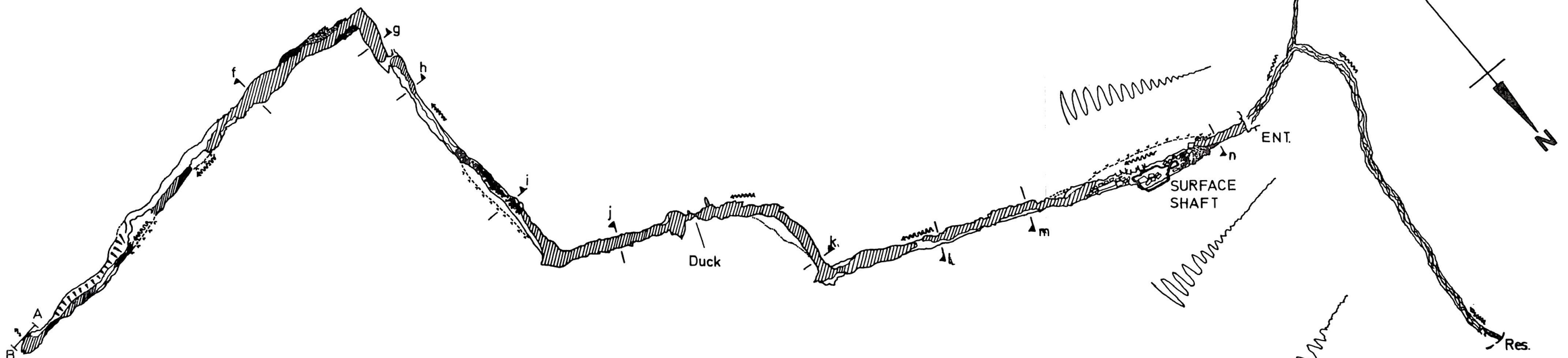
SURVEY TO C.R.G. GRADE 4b
JUNE 1975

0 PLAN SCALE. 50m



0 CROSS SECTIONS 20m.





The latest climb we have encountered is roughly 4 metres high but is a simple matter and again one drops back into the stream. The presence of these calcite barriers would seem to indicate that the flow in the cave is never very great, for little water can pass under them and, apart from the one at the bottom end, none of them appear to cause backing up. The next calcite block is an altogether more formidable obstacle, presenting a face of slimy calcite some 16 metres high (The 'Hump'. see Survey). This can be approached best by climbing up a few metres back down the passage, where it is possible to place a couple of runners as protection. Nevertheless as one nears the top, the climb becomes more difficult until one can traverse horizontally onto a large ledge. This still leaves a smooth calcite wall about 3 metres high to be negotiated. A couple of pitons are definitely useful to get one to the top – revealing a few metres of large calcited oxbow. The relief is momentary for straightaway the calcite floor slopes off to the edge of a pitch of 12 metres back down into the stream.

The winding rift is now climbing more steeply and soon the wider roof area becomes accessible and, indeed, as the rift sharply narrows at some points, it is necessary to resort to the higher level. An awkward waterfall can be bypassed by a further oxbow and the passage becomes noticeably straighter though some of the bends become distinctly sharper. It is not far now to the twin aven chamber that marks the source of most of the caves water. Neither aven seems worth the trouble of climbing for the passages at the top of both are visibly very small.

The draught, however, is emerging from a passage at lower level and this can be pursued tortuously through very rotten rock for about another 80 metres before it becomes very tight. This then marks the upstream limit of exploration at the moment. It seems unlikely that significant extensions will be made upstream for the cave has consistantly split and reduced in size ever since we left the point where the route from the entrance met the streamway, to which point we must now return.

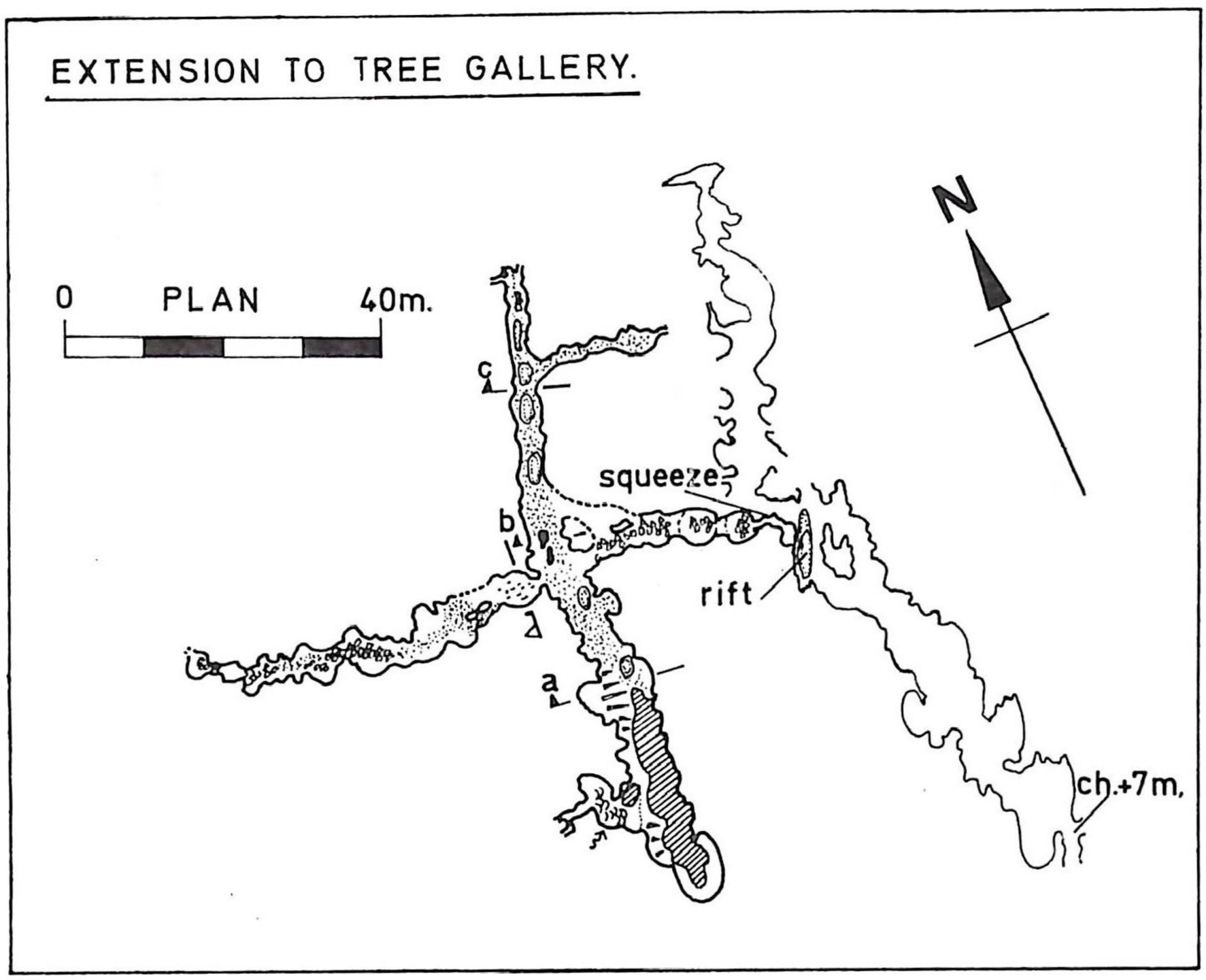
Ascending the 17 metre pitch the caver reaches a ledge above the canyon, at the furthest point one can comfortably reach in an upstream direction. Heading downstream on these ledges and crossing to the other side, the ledge becomes wider and sandy and passage set off. The first of these leads through some nicely decorated passage to a very low squeeze into which blows a very strong draught and this connects round with the second of the passages that sets off from the ledge. Originally this provided the incentive to continue pushing the cave for at one point the passage closed down to a hand-sized hole through which blew such a gale that, even used to such phenomena, the explorers were convinced that it was a river. Draught or river it was sufficient to merit several hours of cold awkward work with a hammer. From either direction it is an awkward little obstacle. Heading out it is slightly simpler and one is soon in walking passage again. The way out is comparatively obvious and one soon reaches the chamber which, on the way into the cave, is at the bottom of a 20 metre inclined pitch. It is, neverthe less worth noting the route on the way in, for the zone has been so phreatically developed that a maze of tubes and chambers criss crosses the area and can delay one, without much difficulty. *(Marked on the survey as Minimaze, this is in fact far more complicated than is shown).*

Returning to the finely decorated 20 metre pitch chamber and ascending the easy climb we arrive at the top of the 'ridge'. From here we must descend a steep slope below the elongated dome of a huge solutional pocket. The slope turns into a vertical drop of 5 metres that provided the first obstacle in exploring this new section of cave and we are now back in the previously known part of *Coveron.*

From the moment we emerge from the deeply incised vadose stream, the phreatic nature of the upper level becomes evident. It now becomes overpoweringly obvious. Running parallel to the stream, the old cave is a series of massive phreatic domes, the largest of which has approached the surface so closely that the roof has collapsed and a huge boulder slope up to the surface is the result. Coming from the section of the old cave, up to the entrance slope, through a squeeze, we can choose from three routes. The first is up to daylight, the second is to the left, up a rock slope and down a fissure into *Nuts Passage* – a series of tubes and small phreatic chambers, which exudes a strong draught that is lost further in. The third route is a continuation of the phreatic domes that is reached by climbing part way up the entrance slope and dropping back into an elongated dome almost the same size as the entrance chamber.

The chambers become progressively smaller but more perfectly formed and better decorated, though most of the formations are dead. The previously known end comes at an apparent dead-end. On more careful examination there is a small eliptical hole at roof level above a calcite flow. There is now a 7 metre tree available for would-be maypole men. A little squeeze leads into a long chamber that provides a number of surprises, the first of which is a lake at nose-level as you pass through the squeeze. The next surprise is to the left where there is a second large pool about 3 metres, lower than the first, – to the right a rift descends for about 5 m – an interesting comment on water tables and the permeability of limestone.

From this last mentioned rift to the next, the gallery heads off, sandy floored and dome-roofed. Again across the top the passage continues, then divides with both ways choking in various places – either with sand or with flaking rock. As an alternative one can slide down a hole at the base of the rift into an awkward tube that leads into a lateral gallery. Left leads to another lake and ends in a bell chamber. Right becomes lower with holes in the fill floor. The last of these holes, just before the passage peters out, drops some distance into what seems to be a chamber, but the pitch has yet to be descended, as it requires some persuasion to widen the top. *(This extension was made late in the expedition when the main survey had been completed and sent back for printing – hence it appears here separately.*



There are other passages of minor importance within the system but none appears to offer much prospect of extension, though to say so is to invite future derision since the phreatic idiosyncracies of the system defy normal explanations. There can be no doubt that the original extent of the phreatic section of the cave was greater than is presently known but again the cave (apart from the streamway) is out of phase with the present surface topography.

All that now remains of the area are the west *Ozana Pots* which we shall visit next.

"Not being satisfied with the immense efforts of the previous day, a section of the 'British Expedition to the Cantabrians' spent almost the entire day, in the bar. Never before such energy expended; such will power! Expeditionaries of future generations will look upon this feat and exclaim 'This was their finest hour.' It is indeed difficult to describe the feeling in my soul as the very fibres of my body battle with the second glass of vino. Why did I do it? Because its there! The bar is there, the vino is there, the scene is set, the wheels set in motion etc, etc, etc.

Sorry!

The West Ozana Pots

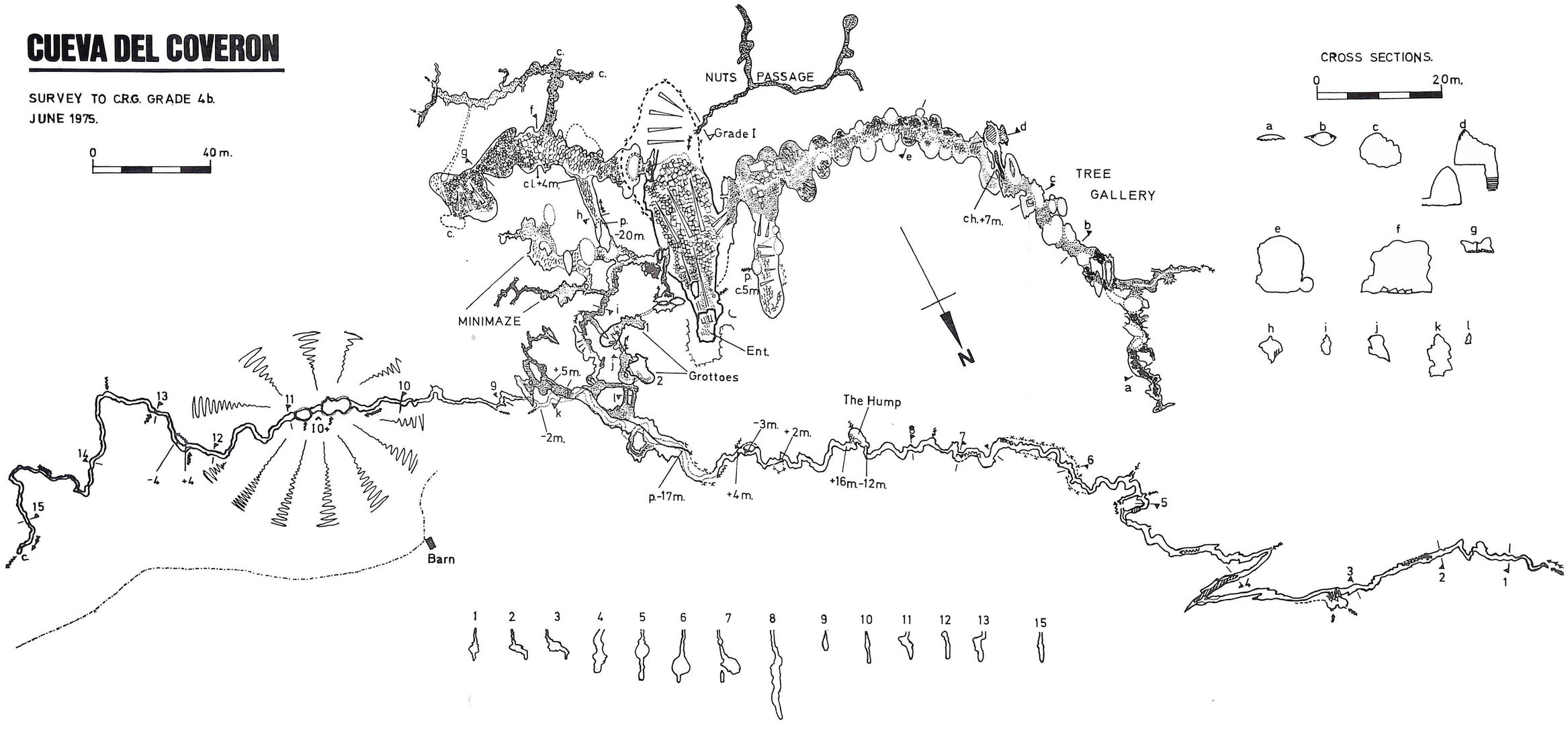
Between the end of Coveron and the scarp slope down into *Matienzo* depression the eucalyptus woods are pockmarked with large depressions that extend westwards into a massive jungle filled dry valley running from the area of the *Codisera* system (see below) down towards *Riba.* In the north west corner of the wood and beyond on the open moor, we descended 5 shafts all but one of which choked. The one that does not, is a fine 60 metre shaft *(West Ozana I)* that drops down to a rift in white massively bedded limestone. Unhappily after only 10 m. it narrows to a slot that requires blasting. Beyond the passage is larger and a slight draught is present.

These pots have been grouped with *Coveron* but there is nothing definite to suggest that they could not drain into the lower undiscovered regions of *Codisera.*

CUEVA DEL COVERON

SURVEY TO C.R.G. GRADE 4b.
JUNE 1975.

0 40 m.



Codisera.

The horizontal gash of the *Codisera* entrance is easily visible to the West of the *Ozana* pass, above the cart track that meanders up to the high pastures on the south flank of the *La Vega* valley. That it played a major role in the drainage patterns in the early stages of the valley is obvious, even from a distance.

Standing in the entrance the fact is even more obvious, for winding off into the distance is a truly enormous vadose canyon that increases in size as the fill, that has been deposited at the entrance, slopes away. The layer of cloud that often hangs in the passage and the rattling of the bells of the goats, high on ledges, add to the aura of vastness.

As time and shortage of equipment did not allow us to study the cave properly or to effectively force a continuation to the passages known to the Spanish cavers, we cannot justifiably spend much space on it. However some effort must be made in order to gain a clearer picture of the area.

Originally we felt that there might be some connection between *Codisera* and *Coveron* but quite obviously the vadose forms in the two systems bear no comparison. There is always the possibility that the phreatic zone that formed the upper galleries in *Coveron* was fed by the *Codisera* waters but such would be very tenuous speculation.

To us, *Codisera* remains an enigma and its present and past resurgences, a mystery. The best that we can do is offer a brief factual description.

For roughly 200 metres from the entrance the passage remains high and wide with a number of avens that provide water for a few intermitant pools and a quite large lake. (In summer this drains away to leave a wide mud basin). Just beyond the 'lake' a passage sets off in the roof. Reached by following a ledge round the left hand wall it accounts for about one half of the cross sectional area of the entrance passage. Fill, collapse and calcite rapidly reduce its size until it reaches the top of a c. 90 m. shaft. The S.E.S.S. cavers have made the fairly awkward traverse round this pitch into another section of passage and have also descended the pitch into a narrow stream passage that probably provides the water we will encounter near the end of the other 'main' passage.

Returning to this gallery, the floor slopes away to the edge of a pitch of 25 m. into another large level that both carries on downhill and also runs back under the entrance series, to a calcited choke. Heading on down a boulder choke one drops into a smaller passage and then into a strongly draughting bedding and even when this breaks into bigger stuff it is apparent that somewhere we have lost the massiveness of the earlier galleries. Almost certainly a higher level waits to be found.

Even so the passage is still large despite some fill, and the end comes as a surprise. Sliding down a scree slope at the end of a sizable chamber the only exit is via a small streamway. The stream emerges from beneath the scree, presumably from the passage down the 90 m. pitch, but the dimensions of the streamway are far less than those of the passages just navigated. The draught too is negligable and within a few metres a solid looking choke is met. A tight 'letterbox' in one wall allowed an emaciated caver through into another short length of passage but it is obvious that the real way on has been lost.

The cave demands much more study and certainly harder pushing for certainly much passage awaits discovery in this section of the valley.

"One half of the team was not quite with it, due to a drinking bout on the previous evening culminating in an assasination attempt on our noble leader."

CHAPTER IV

THE UPPER LA VEGA VALLEY

I. Introduction.

"Its far easier surveying than running about."

The title of this chapter covers a multitude of separate caves and shafts that have no single common link but as yet do not justify detailed individual examination. In other words this chapter is a hotch-potch of odds and sods that we are only tentatively beginning to fit into any sort of scheme. A whole host of problems of the most exciting nature remain to be solved. Solutions we felt that we had arrived at, last year, were often brought into question again this year. For example *La Cubija (Riotuerto)* which we assumed drained to *Auga* may well not – its direction and size seem all wrong and a resurgence up valley of the *La Vega* chapel may well account for its water and might also drain those pots like *La Grasial* to the west of the *Riotuerto* valley.

The area managed to consume a disproportionate amount of our time in relation to the discoveries made, though last year it provided c. 6 kms. of passage in the *Renada* system and its associated higher level – *Torca de la Cabana* This years reconnaisance work unearthed a seemingly endless number of goat occupied caves often of impressive dimensions but no length and large numbers of shafts, not a few of which remain undescended. One party expended untold hours in reaching a violently draughting choke about 100 metres down a pot between *Renada* and *Cabana* only to find that it had been explored by an expedition from Barcelona. Several interesting shafts remain unexplored in the area between *Codisera* and *Cabana* because of too little time and too much blistering heat.

II. The Discovery of Renada II.

The prime objective in this area had been to try and push *Renada* beyond the sump and to answer the tantalising question of where the river came from. To this end parties visited the area in the next valley south (around *Bustablado*) where it was felt the water might sink. The geological pattern seemed to fit the theory reasonably.well but nothing was found that offered the chance of entry. The stream above *Bustablado* does sink and it may be the source of the *Renada* water but the sink is unenterable and remains to be tested. Then the scaling pole arrived. After an attempt to bypass the final sump by climbing and scaling had failed a large party was formed to carry two sets of diving equipment to the far end.

The divers found the sump descended sharply to a depth of 8 metres to enter a large sculptured tube. Turning to the right through an eeriely green environment the divers surfaced after 30 metres in a large lake. A sandy shelf provided a suitable place to de-kit after a return journey through the sump to collect footwear.

A roaring streamway confronted the explorers, along which they made quick progress, despite being hindered by debris from roof collapses. Soon a massive run-in on the right extended up into the blackness of *Giga Hall.* The size of the place is reluctant to reveal the many magnificant arrays of straw stalactities but there is an impression of a roof 60 metres above the srream. From here the passage descended back to the stream at the start of a superb vadose canyon with deep, scoured-out potholes in the floor. The *Rub-a-dub- Dubs* come, probably, 3 to 4 metres deep. This passage ends where the stream turns left at *Into the Tub Corner* and into a phreatic tube. With this down-dip trend the inevitable sump soon follows and a branch tube on the right failed to provide a bypass also ending in a sump.

Back at the turn a swim across the 'Tub' is followed by a difficult climb out of the water and a steep climb up a collapse to a large dry passage above, *Bedtime Series.* This is string of sleepy chambers the walls of which, are dulled by a dried mud coating. It has an atmosphere reminiscent of the upper levels through *Lancaster/Easegill.* These chambers are formed by massive block collapse associated with a sandstone bed seen later in the passage at another large chamber.

'Upstream' from the climb the passage continues from the collapse chamber to easier going over a pleasant sandy floor. The end is a massive choke where some progress was made by following a strongdraughtbut two firmly wedged boulders prevent entry into a higher chamber.

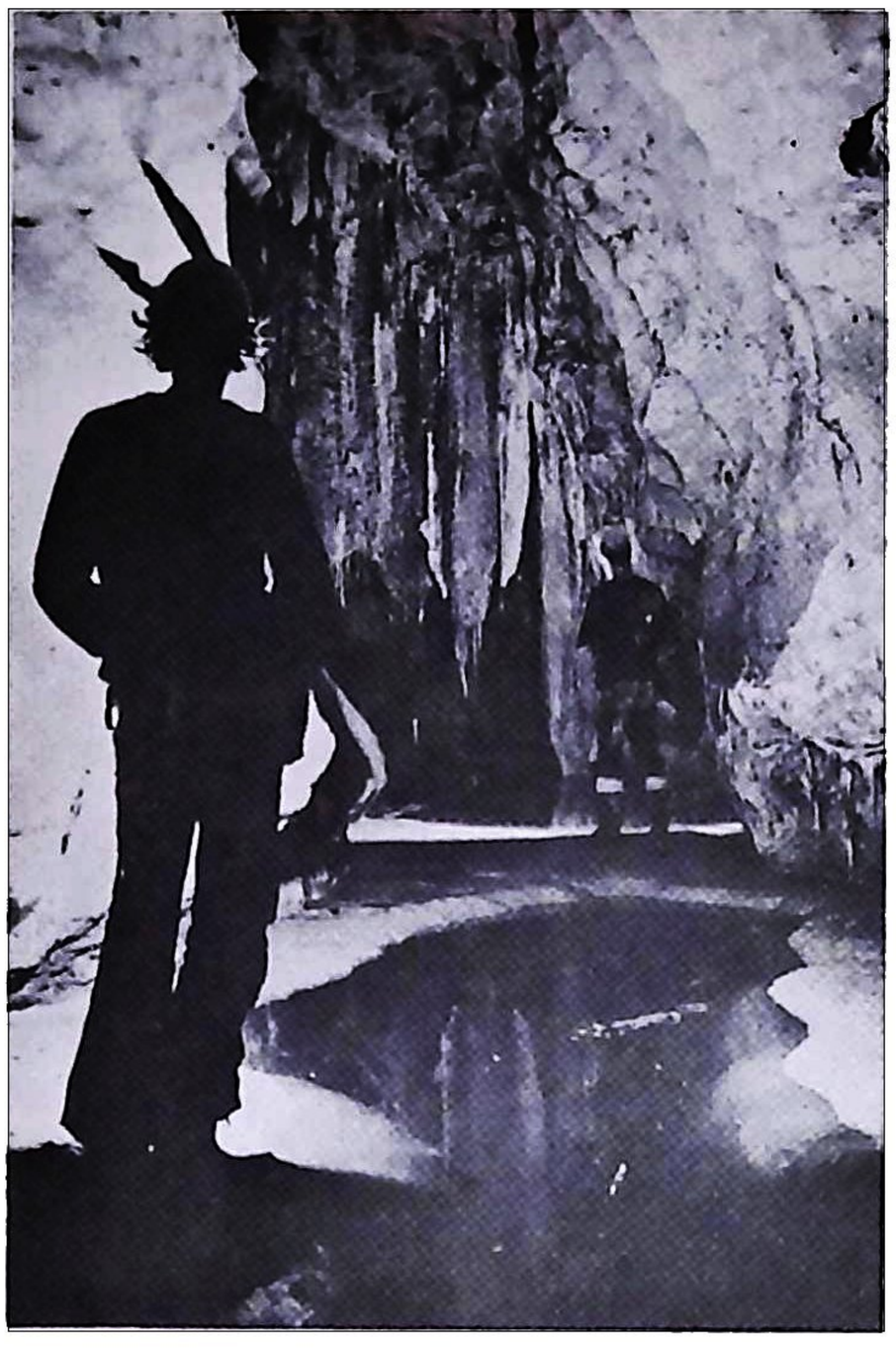
A short distance back from the choke is a climb down a boulder ruckle to where *Bedtime* reaches its largest dimensions in a flat roofed hall. Here two branch passages lead off on the south wall. One at floor level descends to a stream which chokes downstream. Upstream it meanders between sand banks in a 5 metre diameter half-tube to end at a run-in beneath the choke in the main passage.

The second passage is half-way up the wall. It is of phreatic origin, the water having been forced up-dip by the previously mentioned sandstone bed to spill out into *Bedtime,* hence *Wet Bedtime.* A miserable sump finalises this development and judging by the amount of mud around it must still gloop its way up to the main passage.

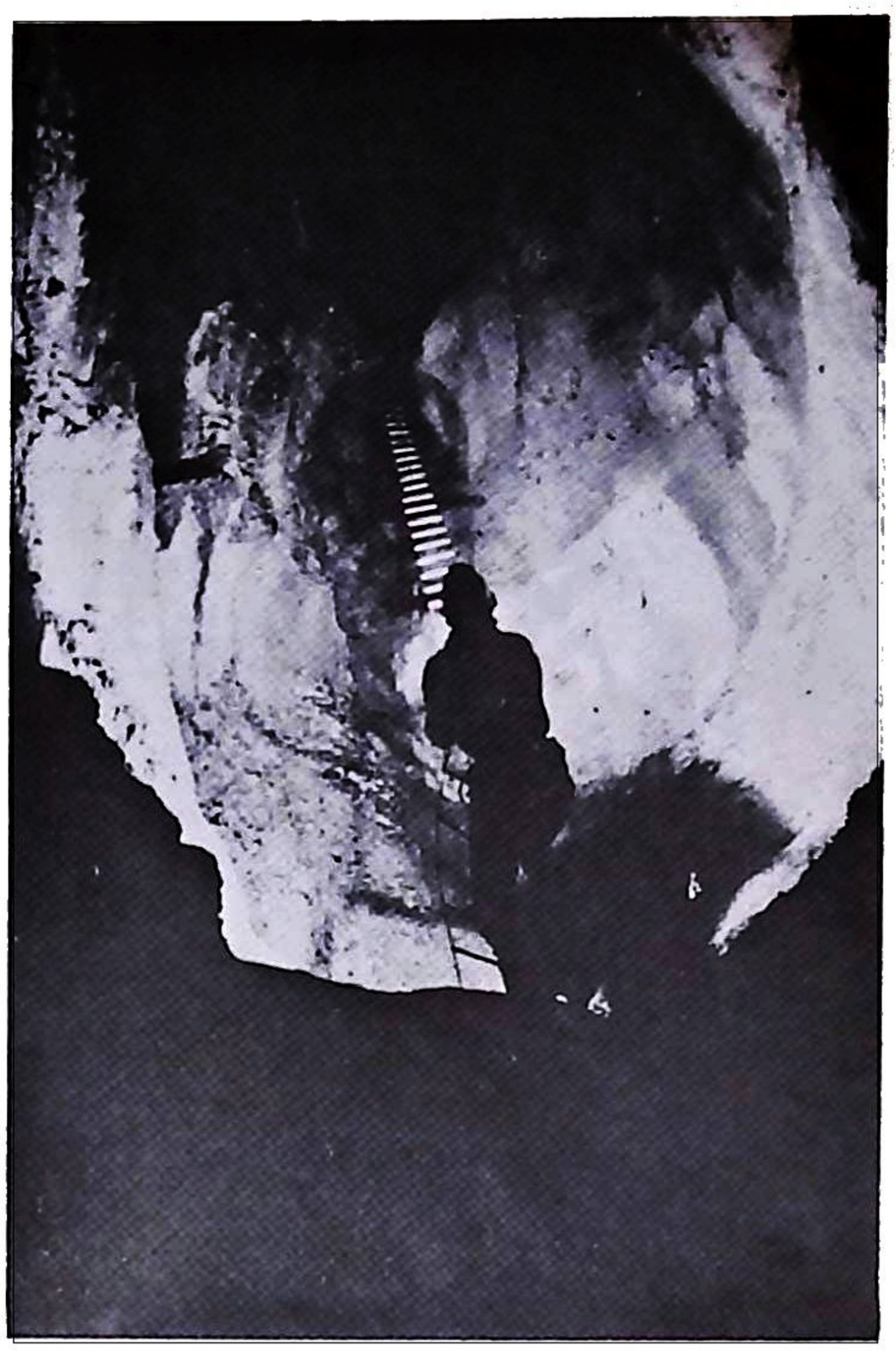
The only remaining piece of exploration in Bedtime was 'downstream' at the climb above *Into the Tub Corner.* A short length of low, wide bouldery stoops brought the explorers to the base of a run-in from the left, *The Wooden Hill.* Climbing up the Wooden Hill consisted of steamy scrabbles up slides of sand and scree. A final choke was reached in the last of three interconnecting chambers.

The divers returned through the sump to find that the carrying party had been unable to control their creative urges during the long wait having added a 3 metre long sand castle to the cave architecture.

Renada II has added a kilometre of passage to the system but has not lived up to the speculations of 1974. It has failed to cross the base of the syncline beneath *Beralta,* still wandering along the strike on the up-dip side. Therefore the source of its waters remains as uncertain as last year.



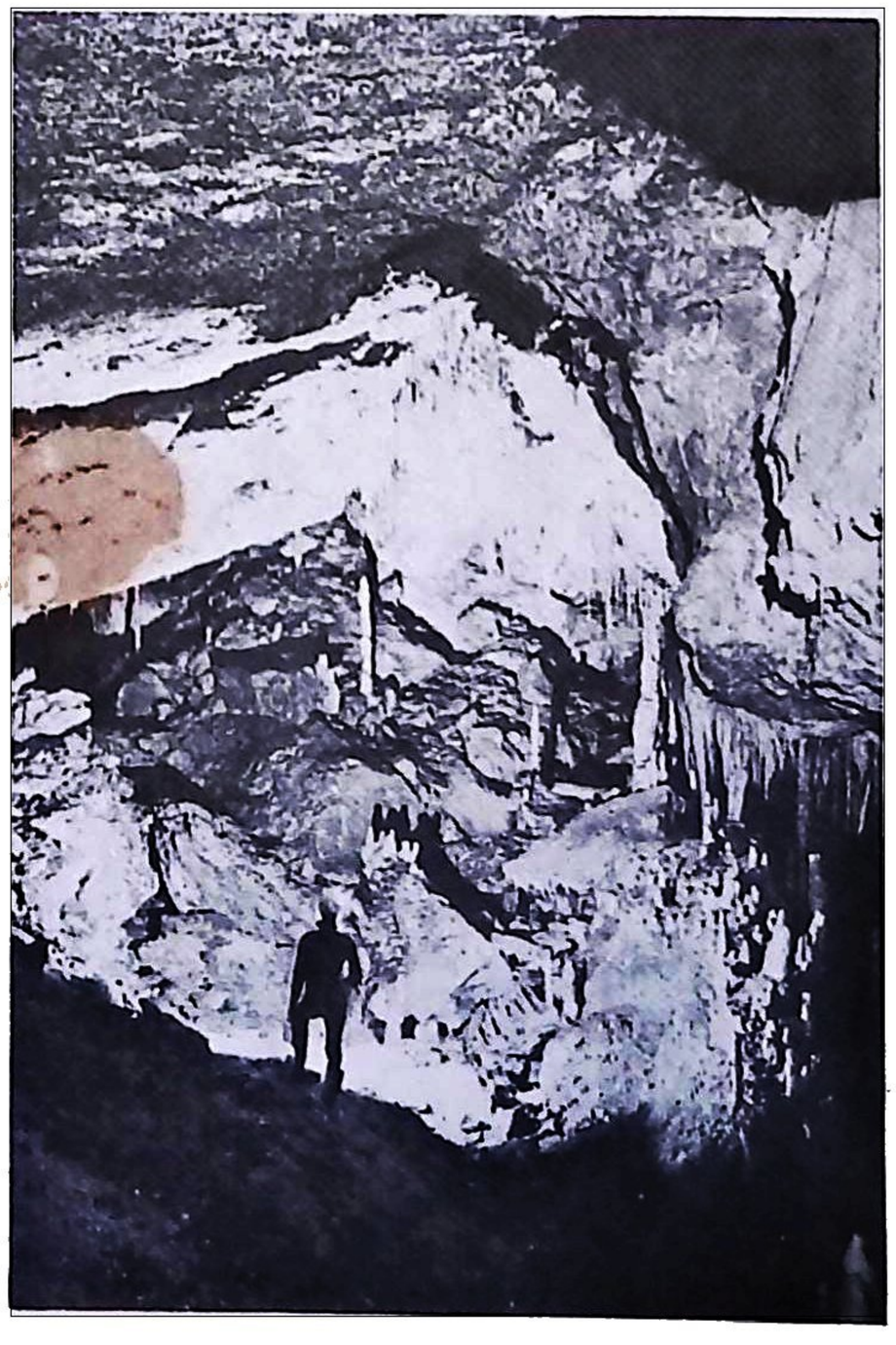
1. Tree gallery in Coveron the scalloping indicates a flow towards the entrance.

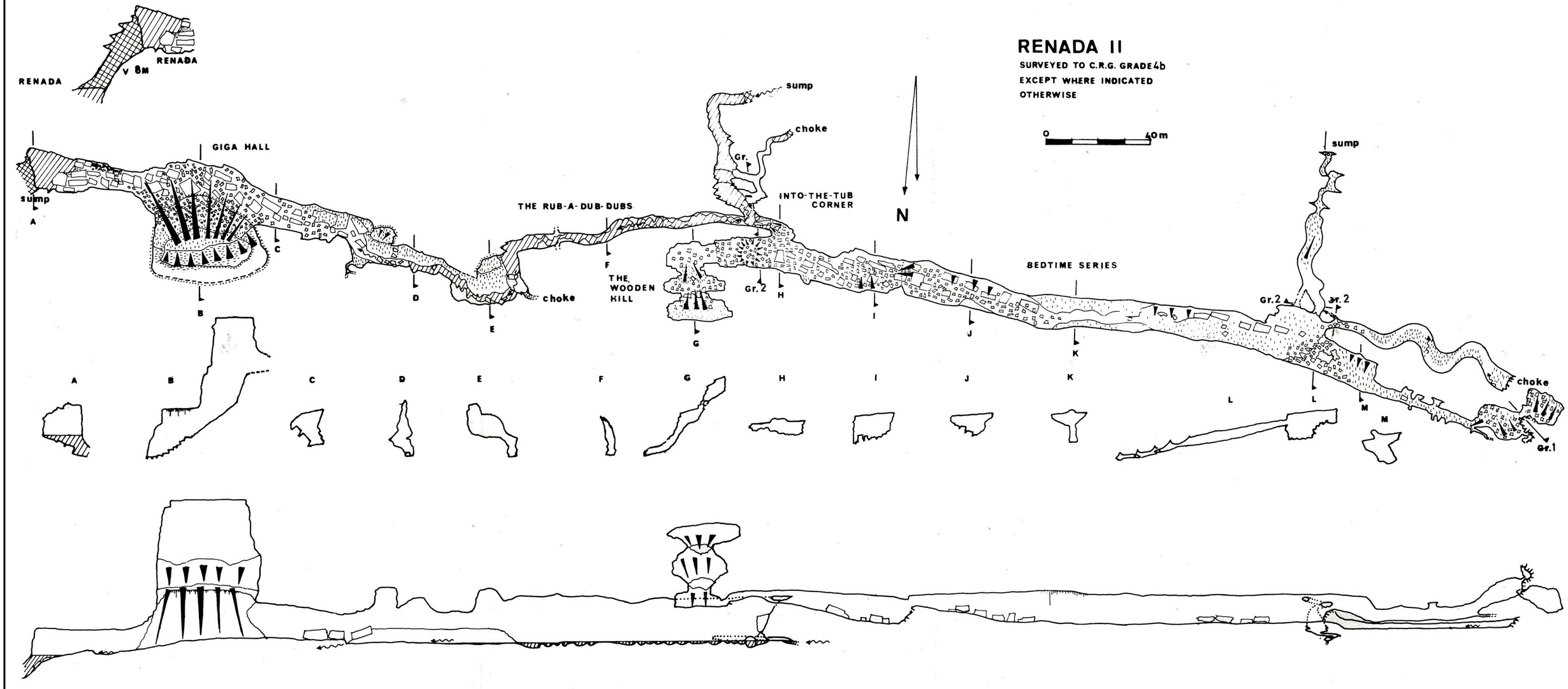


2. Descent from the ramp in Coveron.

3. Jivero II, the half tube and vadose trench are clearly seen.

4. Off the Sala Carballo, Cueva Risco.

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III. Arenal and the Head of the Valley.

Driving up the road from *Renada* to the head of the valley one becomes aware of the potential size of the area that *Cueva Arenal* may once have drained. Certainly as one approaches the entrance its importance is obvious Set well above the valley floor and the present springs there are three entrances, sitting on a broad ledge, below a cliff. All are of comfortable size but only the middle is of interest as the others choke straight away. The draught from the eliptical cave mouth blows ferns about, some 30 m. away, and, walking down a shallow slope of fine white sand you come to the edge of a pool. Blowing through an arch about 1 m. high by 3 m wide the wind creates waves on the surface of the pool. Off to the left of the pool a hideously wet and muddy bedding was found that led up to a 'T' junction with short unstable chambers in both directions.

Normally the bedding would be underwater and one would carry on up beyond the pool into a small chamber with chokes off to the left. The passage continues ahead, now more phreatic in appearance with holes down to the right into a lower tube heading in the same direction. Both of these end in much the same place — a solid wall of boulders from which some of the draught issues. Some more comes down an aven, just back from the choke which has been climbed to a descending body-sized tube blocked by a boulder.

Such a result is bitterly frustrating, for a cave of epic proportions must lie beyond if the draught is any indication. The chokes are extremely solid and it would seem better to concentrate on the shafts above. Those we have descended have all been choked as was the 70 m. deep *Sima Reguilion* explored by S.E.S.S. It may be that the key lies over the ridge in the enormous *Sima de Cueta* that has been descended for 300 m. by the French.

IV. Riotuerto.

Heading back down from *Arenal* along the southern side of the *La Vega* valley the most important feature before we reach *Monte Enaso*, is the hanging valley of *Riotuerto.* Just to the west of this tributary valley a number of small but interesting pots were descended. We can offer no great theories about them, so simple descriptions will have to suffice.

a. Sima de los Oyos.

The location offers no difficulties. It is a large shaft surrounded by trees on the left hand spur looking up the pass of the area *Cubija*. Proceed up the pass to an electricity pylon in a lush green area and turn left up the slope *until large shakeholes are encountered, of which the Sima* is one. Belay approximately 23 m. of ladder to a tree on the west side of the shaft. A straight descent lands on a boulder slope down to the left and into a large and well-decorated chamber. Back to the base of the shaft, skirt the boulder slope and from a low bedding emerge into a large and high chamber. On the left is a scree slope rising up to the roof and to the right a wide bedding continues for several metres until crawling is necessary and progress is impossible, the whole being well-decorated with active stal. The floor is mainly hard-packed mud or clay and the passages of wide, arched, phreatic nature. It is possibly the floor sediment which prevents further progress in any direction, although a route about at the top of the scree may pay dividends. No draught was detected.

b. Torca de Arnilla.

This torca is situated on the north side of the *Sel de Suto valley* roughly opposite *Torca de la Cabana,* but lower down, in an obvious valley containing many shakeholes. There is at least one other shaft in the valley, so there may be one of greater importance than this which turned out to be a straight shaft of 20 m., developed along a joint so that it was never more than 3 m. wide and 7 m. long. The only items of interest at the bottom were lots of bones and a large frog. No passages whatever.

c. La Grasial.

Location is not easy — up the *Cubija* pass and turn right up on the *Enaso* mass although the exact location is impossible to describe. It is, however, at the approximate level of the *Areniscas* band.

Belay approximately 15 m. of ladder to limestone phenomenon and landing is in small chamber. Only possible way on is down through slot for final 5 m. of total depth to absolute end. This final 'pitch' is constricted and sharp.

". . . and on emerging into the right hand series, I stopped. It was like looking out into a vast cathedral! No - it was like standing on the threshold to the Kingdom of Heaven.
I cross, and, after recovering my scientific faculties, investigate" — Ardillo.

In the *Riotuerto* valley itself we know of three caves, of which two are just chambers. The first, which is well decorated lies close to a pylon just at the point where a wall first appears on the right of the track. The second is above the farm half way up the valley. It seems there are only two farms in the valley and, by the one at the top, the stream sinks in wet weather down a tube, amongst boulders, that we have not looked at in caving gear. In dry weather the stream filters away higher up. In really wet weather it may well contribute to the periodic flooding of *Cubija.*

d. Cueva Cubija.

This cave takes its name from the valley in which it lies. It is situated a few metres away from the 'Jeep' track, which, much to Buddha's disgust, also manages to accommodate Landrovers and Fiat500's. The track sets off from the main road to *La Vega* and passes close t › *Cueva del Agua* before rising steeply into the side valley of *Riotuerto.* The track then gently descends past a large depression on the left, but this appears to have no cave associated with it. A few hundred metres further on is a house and, a little further on just before the track begins to rise again, is the entrance to the cave. A group of large trees marks its location and an easy descent of the steep-sided shakehole is possible,down the boulder slope on the east side. In n ormal weather the sand and boulder-strewn stream bed is dry, but it is obvious that it takes a large flow in wet weather.

The actual entrance is not large — walking is only possible for the first few metres and very soon the explorer is forced to crawl. The cave is formed in a very impure limestone with much sand and this has led to the formation of much pocketing and irregularity of cross-section. 40 m. from the entrance is a climbable pitch of 4 m. and above and to the right is a small passage which leads into two interconnected chambers, one of which has an aven, up which daylight can be seen. Down the 4 m. pitch is a short squeeze into better going, but this lasts only a few metres and soon crawling over mud is necessary. The next hundred metres or so are alternate walking and crawling until a short, flat-out crawl is reached and the passage splits. Once through, the passage turns sharp right and walking is possible. It also becomes obvious that the split was only an oxbow. The short passage on the left soon chokes and the main passage continues until it suddenly enlarges dramatically. To the right a large passage leads into a series of small chambers separated by short crawls until it ends in a muddy choke after 50 m. To the left a slope leads up and, at the top, a short walking passage is followed to a shrot climb down and then a steep slope in a large chamber littered with large boulders. Water obviously flows across the floor as there is a well-defined stream bed, though this was dry when we explored the cave. It is possible to follow this into a small tube at the furthest end of the chamber, but this chokes with well-rounded stones after approximately 20m. The way on is a climb up to the right of this tube and then a short traverse into a large passage. To the right is a 10 m. pitch which connects with the tube below, but the continuation is to the left: two very slippy and awkward 3 m. climbs over flowstone lead, after a short squeeze, to the base of a very slippy and dangerous 4 m. climb, again on flowstone.

At the top of the climb, the passage, a higher deserted level, runs in both directions. To the right, it immediately arrives at the top of a steep slope back down into the last chamber we passed through. To the left, it runs between curtains of stalactities into a small chamber with a lot of collapsed calcite floor. The whole area is heavily solutionally pocketed and, passing through a narrow section, the draught disappears somewhere into the honeycombed roof and walls. Almost immediately the gallery is blocked by mud and calcite and the continuation has evaded us, despite a careful search.

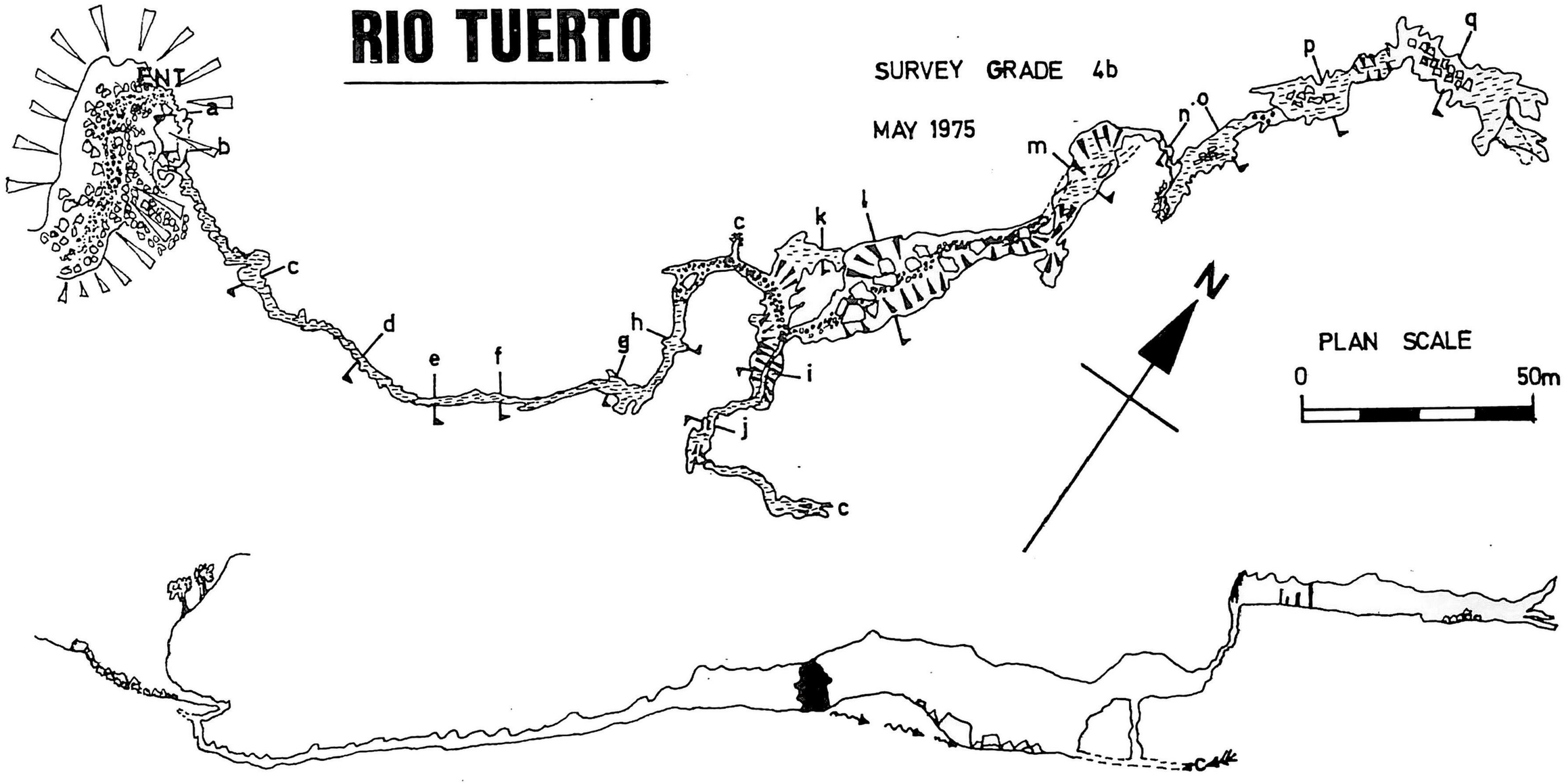
We have always assumed that this cave might connect with *Riotuerto* inlet in *Cueva del Auga* — hence the name — but, if it continues its present trend, it is heading under *Monte Enaso,* away from the inlet and any other known resurgence.

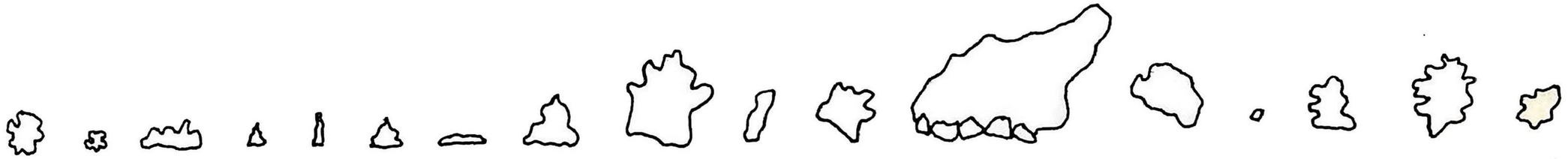
"Helped Fredo lift grass cutting machine onto cart climbed aboard and set off 'This is better than the Jeep' I said 'Thats right' said Fredo pointing at the horse. 'Its got eyes and ears and finds its own way home when you're pissed!"

RIO TUERTO

SURVEY GRADE 4b

MAY 1975





CROSS SECTIONS SCALE 0 20m

CHAPTER V

THE CAVES OF MONTE ENASO

I. Introduction.

The active drainage pattern of the caves is relatively easy to understand. The *Cueva del Agua* water can be followed right through the mountain to its resurgance at *Cuevana.* The *Tizones* water emerges at *Tresfuentes* below *Cofresnedo.* (Tested J.C. Fernandez 1965). The destination of the water which sinks in *Cueva Cubija (Riotuerto)* is enigmatic, it seems unlikely that it is a feeder to the Agua system and another resurgance must be found. One possibility is a spring near the chapel in *La Vega*, but as the cave was dry at the time of exploration this could not be positively proved.

The inactive 'fossil' caves are much more difficult to explain. The drainage which formed them was obviously associated with surface features which are no longer present. We will not speculate then, other than to point out that there is clear evidence in the Vega valley of several levels of karst development and the caves are associated with these levels.

II. The Caves.

a. Cueva del Agua.

A brief description of this cave was given in last years report but we feel this sporting trip deserves some amplification.

The entrance is easily found by following the *Vega* river downstream until it sinks just beyond a ruined mill. The entrance is large being some 4 m. high and 12 m. wide. A causeway has been constructed along the left hand wall for 30 m. and we assume that it was used by visitors in high water conditions. Presumably this large entrance chamber was a fine sight with the river lit by candles etc.

At the far end, the passage swings left and it is necessary to wade through a waist deep pool for a few metres until rapid progress can be made on shingle banks. The passage increases in height to 10 m. and soon further wading is necessary, though again only up to the waist. The next lake soon followed and is chest deep although there is a by-pass for the cowardly on the right. The cave increases in size at the next lake and swings sharp right. If the left wall is followed round the lake however, the very strongly draughting *Riotuerto* inlet is found. This passage is easily described though extremely difficult both to explore and survey. We originally thought that its origins were in the *Riotuerto* valley but it now seems certain that the drainage from *Cueva de A.B.I. (Avel Bism Invannina)* and *Torca de Jaime* have produced this tight and nasty passage. The cross section changes little along its entire 600 m. length — being less than 1 m. wide and typically 10 m. high with occasional deep pools and restrictions.

At these points the strong draught becomes a howling gale sufficient to extinguish carbides. The passage ends in several small crawls which were abandoned as 'not of Spanish proportions' by the surveyors.

If we gratefully return to the start of the passage and continue down the main river gallery we see a fine set of formations both in the roof and at floor level. The river soon starts to cut a trench in the floor and the next 100 m. are an interesting struggle through out ofdepthpools, over rock barriers and through the occasional mass of tree trunks 'poly-bags' etc. An alternative route high on the left by-passes these obstructions but is not recommended as the rock is very slippery. In the next 100 m. there are two large lakes both of which are out of depth and necessitate either a swim or the use of a dingy. The passage now becomes narrower and this forces the river to occupy the entire width which means the caver has further wet passage to traverse before he reaches the first of two cascades. This is only of 1 m. but as the water on the other side is well out of depth it proves interesting on the return. The second cascade follows within a few metres and it is fairly easy to traverse round to the left and avoid the full force of the water which flows off into a scum covered sump pool. There is a continuation on the left through which can be gained by a short climb and then descent to yet another lake. This involves swimming for approximately 30 m. to where a landing can be made in a large boulder strewn chamber. Route finding is not easy as the way on at floor level is impractical and the boulders are large and steeply inclined.

On the other side a large passage is noticed on the right. It needs a fairly difficult climb on the left to gain access but once up the first 10 m. the rest is an easy walk up steeply sloping flowstone cascades which luckily are not at all slippy. At the top of this 50 m high ramp is a beautiful clear pool which appears to be at least 10 m. deep. There is no way on so we must return to the river passage.

This continues downstream high wide and impressive to the next obstacle which is a canal with very deep water. Here the caver has to be a good swimmer or use a dingy, as the next 100 m. have only two landing places. The canal continues for a further 100 m but it is possible to climb out up on the right hand bank. The passage is lofty and wide and the sound of a cascade can be heard invitingly in the distance. The cave swings sharply left when this is reached, though a passage continues at high level.

If this passage is followed we find ourselves climbing gently up a calcite slope for 50 m. until a complete calcite blockage is reached. A short passage on the right just before the end leads into a chamber which is extremely well decorated. Its floor is covered with calcited snail shells and small bones which indicates its close proximity to the surface. Indeed, a small cave is found on the surface, only a few metres horizontally away, though more than 30 m. vertically above this point.

Back at the cascade in the main passage the water flows down a steep slope into a sump pool. This has been dived to the resurgance *Cuevona* some 50 m. away. The passage continues to the right of the pool up a parallel ramp to that just described. This is very well decorated and contains some fine glittering flowstone. The passage ends in a choke of calcited boulders and although the surface is again only a matter of metres away, it is necessary to return through the 1.3 kms. of the main streamway to regain daylight.

b. Cofresnedo.

The entrance to this cave is situated at the top of the obvious curve of trees visible from the school at *Cubillas.* It is locally well known as is obvious by the large number of candles hidden near the entrance and 'America free love' scrawled on a calcite slope some way into the cave.

The entrance is not very high (3 m.) but still remains impressive with its 25 m. width. Immediately inside the floor slopes away and this means the passage height increases correspondingly. The whole of this entrance area gives the impression of being a perfect prehistoric site and indeed pottery and flints have been found in a very superficial dig — undoubtedly a more careful study would reveal more.

The cave descends gently for the first 100 m., the floor gradually changing from stones, sand and earth to large dry gours. At this point the first of the caves huge stalagmites can be seen and although dry and long-since inactive if is still impressive with its 15 m. height. The passage now begins to level out and more and more 'stal' are seen on all sides, sometimes nearly blocking the way on. At 150 m. from the entrance, the floor begins to ascend and continues up a calcite slope until the end is reached when this slope reaches the roof.

We originally thought that this cave must have had some connection with the 'calcite ramp' in *Cueva del Agua* — acting as the primitive resurgence. This now seems unlikely as is obvious from the area survey. We must still presume that it was the primitive resurgence for *La Vega* but from a sink long since obliterated.

c. Cueva de las Perlas.

This small but extremely well decorated cave is situated in the *Areniscas* band above *Cofresnedo.* The entrance is very small and it is quite easy to walk within a few metres and miss it.

After squeezing down the entrance it is possible to stand up in a chamber c 3 m. high. To the left are some excellent straws and helicitites and on the floor several pools with cave pearls. To the right the slight draught can be followed to where daylight can be seen from another very tight entrance.

d. Torca de Jaime.

This pot is located high up on *Monte Enaso* and is difficult to locate. An entrance pitch of 8 m. is almost immediately followed by one of 5 m. which leads to a sloping rocky tube to the head of a 30 m. pitch. The last pitch of 10 m. lands in a small chamber with no way on. Total depth 53 m.

e. Torca de A.B.I.

The entrance is situated c 30 m. from *Torca de Jaime* in the next shakehole. This strongly in-draughting hole was dug out by a very fragile Blair. An initial very tight squeeze leads onto a boulder slope which drops down steeply into a large and very chaotic boulder chamber. The whole floor is covered in large breakdown blocks and it was not possible to find a way on.

f. Cueva Asiul.

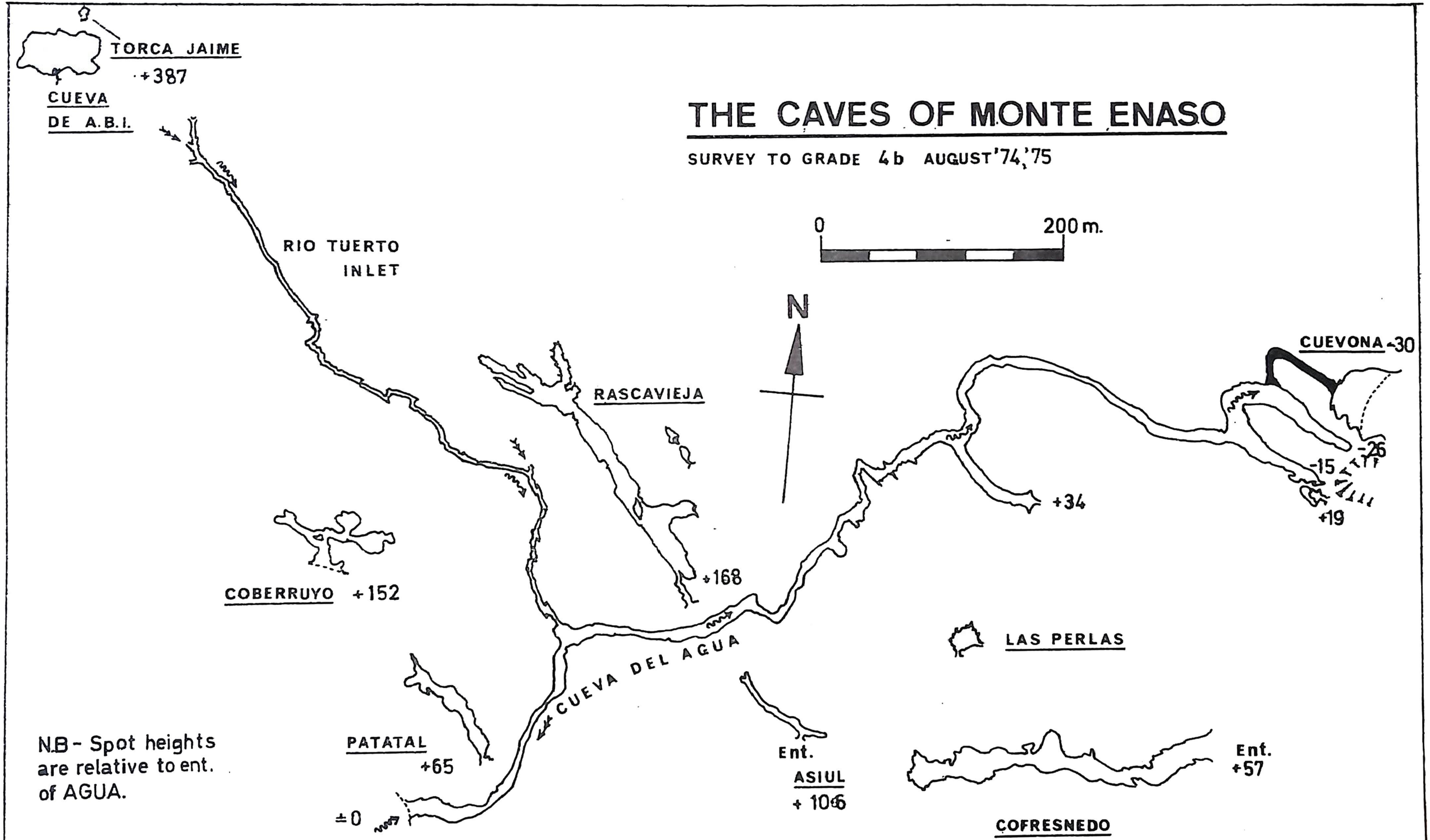
A very difficult cave to find. Its small entrance is approximately 60 m. below that of *Rascavieja* near a large limestone boulder. The entrance gives access to a shallow slope and one is immediately in a joint controlled passage running parallel with the *Rascavieja* system. The cave is not as large as its neighbours but none the less is well decorated along its length. The end is found where flowstone has blocked the passage.

g. Rascavieja.

The entrance is easily located above *Cueva del Agua.* It is situated at the base of the very obvious cliff, in an alcove formed on the joint along which the passage is orientated. The entrance is not large being 4 m. x 4 m. but after 20 m. a steep slope drops away to the left and the passage enlarges dramatically. The slope is not difficult to negotiate and once safely at the bottom the full size of the passage can be appreciated. The slope continues down to the right for a further 20 m. until it chokes. To the left and through a squeeze a bedding plane was followed for a few metres more until it too choked. On returning the lone explorer was surprised to see a human jawbone and on closer examination, parts of the skull and other bones were recognised. These were left in place and the Museum of Prehistory in Santander informed. Back at the foot of the entrance slope the passage continues high and wide with blocks on the floor and a calcite slope up to an aven on the right. Straight ahead the passage becomes small and a steep sandy slope has to be ascended. At the top the passage again increased dramatically in size and continues down a slope of boulders for 150 m. to where a passage enters from the right. A climb down of 2 metres and a steep slope leads to a small chamber. On the left a strong draught blows out of boulders on the floor and to the right a steeply ascending sand slope rises for 20 m. to where it chokes.

THE CAVES OF MONTE ENASO

SURVEY TO GRADE 4b AUGUST '74, '75



N.B - Spot heights are relative to ent. of AGUA.

The main passage continues for a few more metres until it splits again. The right branch almost immediately chokes, the other passage continues for 50 m. to where it becomes lower and limestone boulders seal the way on. A strong draught blows out of this passage. There is also a high level passage which was maypoled into but this too choked.

The whole of the cave is formed in the *Areniscas* band situated below the superior limestone beds. The rock is a calcareous sandstone and it seems particularly easily eroded. Presumably the calcite is taken into solution and leaves large amounts of easily removed sand. The possible function of *Rascavieja* in the past is problematical, presumably it acted as a sink for the *Vega* valley but where it could have resurged if it continued its present trend is unknown.

h. Cueva Coberruyo.

An apparently very large entrance to the left of *Rascavieja* and at the base of the same cliff, leads to an insignificant goat shelter where it is difficult to leave the daylight.

i. Cueva Patatal.

This cave is located at the top of a green field slightly to the right and 60 m. above the entrance of *Cueva del Agua*.

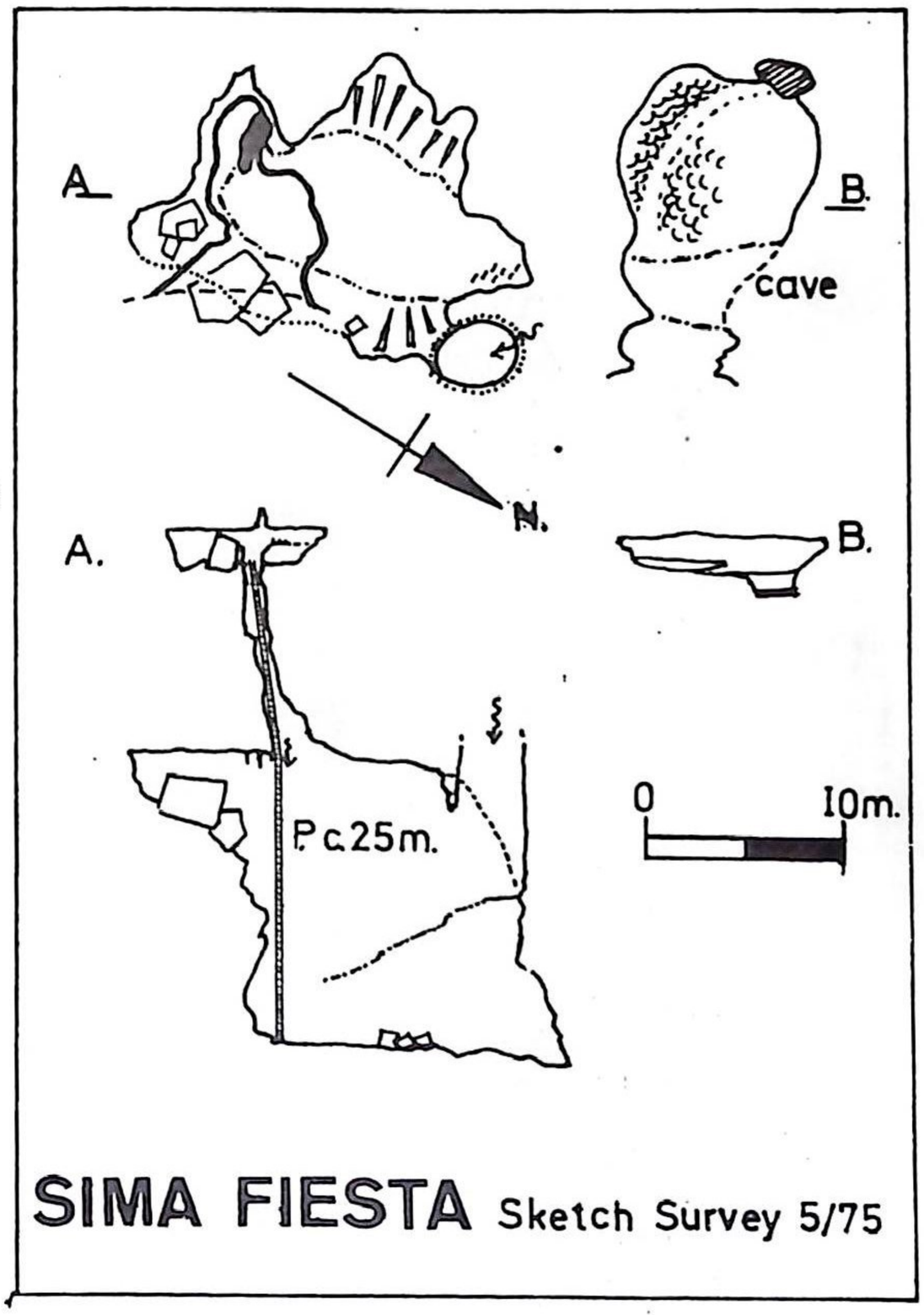
From the entrance a steep boulder slope leads down for 30 metres and the passage increases in size to approximately 20 m. square. For the following 60 metres and to the end the cave is well decorated, several of the stalagmites reaching over 15 m. in height. The cave ends in a calcite slope which completely blocks any way on. It is difficult to give a role to this cave either in the present or past drainage, though a possible relationship with the higher levels of *Cueva del Agua* seems most likely.

j. Sima Fiesta.

Situated behind the highest Cabana associated with a field on the northern slopes of Monte Enaso this pot consists simply of a 25 m. pitch which drops into a 20 m. diameter chamber with no way on. Several avens also enter – one at least probably associated with the small cave in the next shakehole.

k. Sima de la Chova.

Very difficult to find but easy to fall into – this pot is in the areniscas band just below where there is a small hawthorn tree on the limestone band above. The pot is infested with choughs which fly about and generally cause some fear when descending the ladder. The chamber at the bottom was so full of smoke (used in an attempt to frighten the birds out) that it wasn't easy to search for a continuation, however the lack of draught indicates the pot holds little potential.



SIMA FIESTA Sketch Survey 5/75

"Massive dynamic climb up ladder to impress locals proved useless as they had gone home to eat."

l. Miscellaneous Pots.

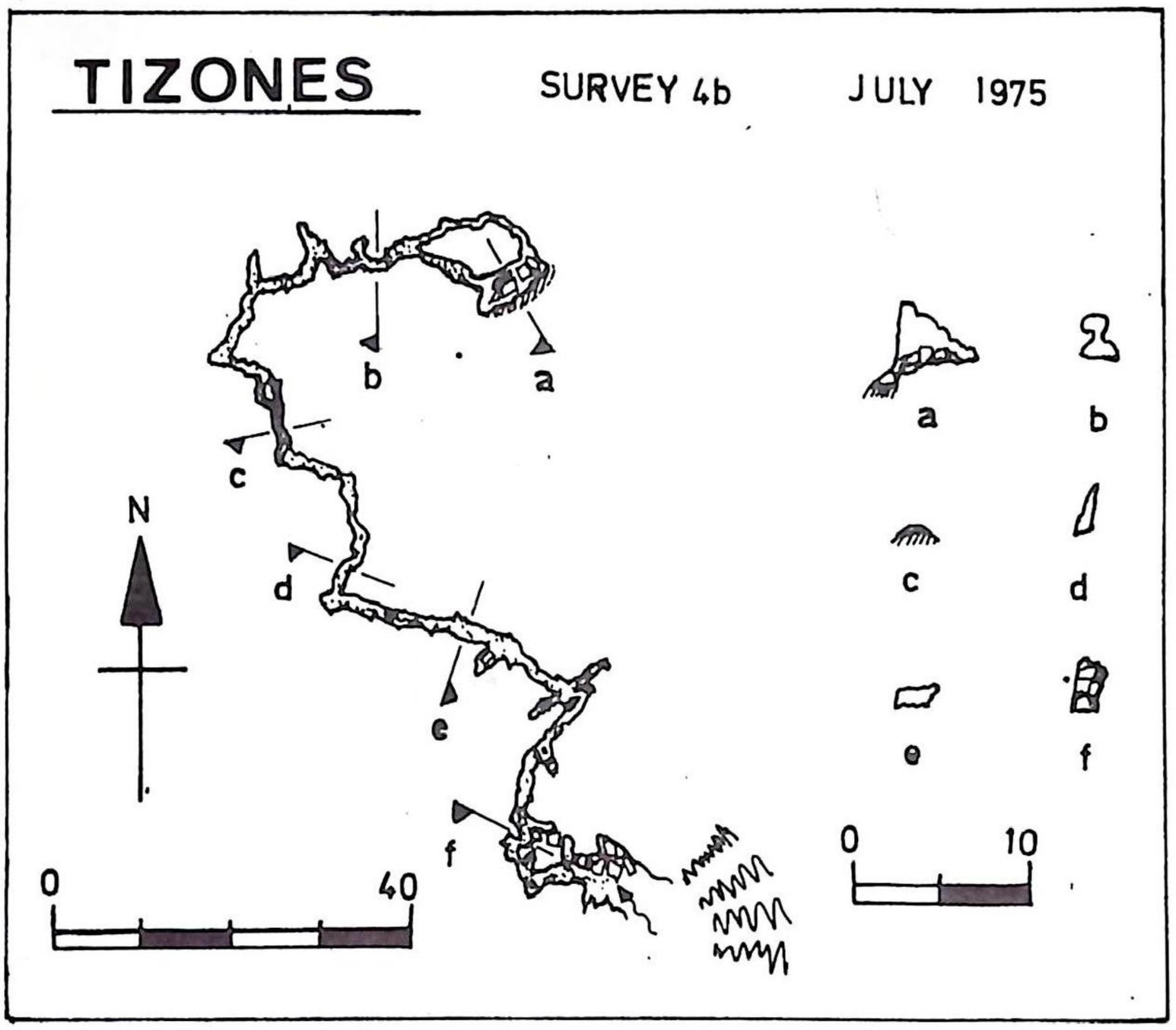
On the top of *Enaso* within the triangle formed between *Rascavieja, Cuevona* and *Torca de Jaime* lie a number of shafts of varying sizes but of no great interest being mostly overdeveloped clints and all being draughtless and choked.

m. Sima Wendy.

To the left of the track over from *La Secada* into the top end of *Riotuerto* a path heads off at the highest point to run towards the summit of *Enaso.* After roughly 200 m., to the left of the path, there is a shaft with a large rock bridge. A pitch of c 10 m. drops onto a floor of rubble and a squeeze down in one corner brings one into a well-decorated 'L' shaped chamber with no exit.

n. Small Shaft.

Continue on path from *Sima Wendy* to water trough then head down hill into second shakehole where there is a small entrance to a 10 m. shaft with a further tight slot down another 3 m. The pot draughts but is heavily choked.



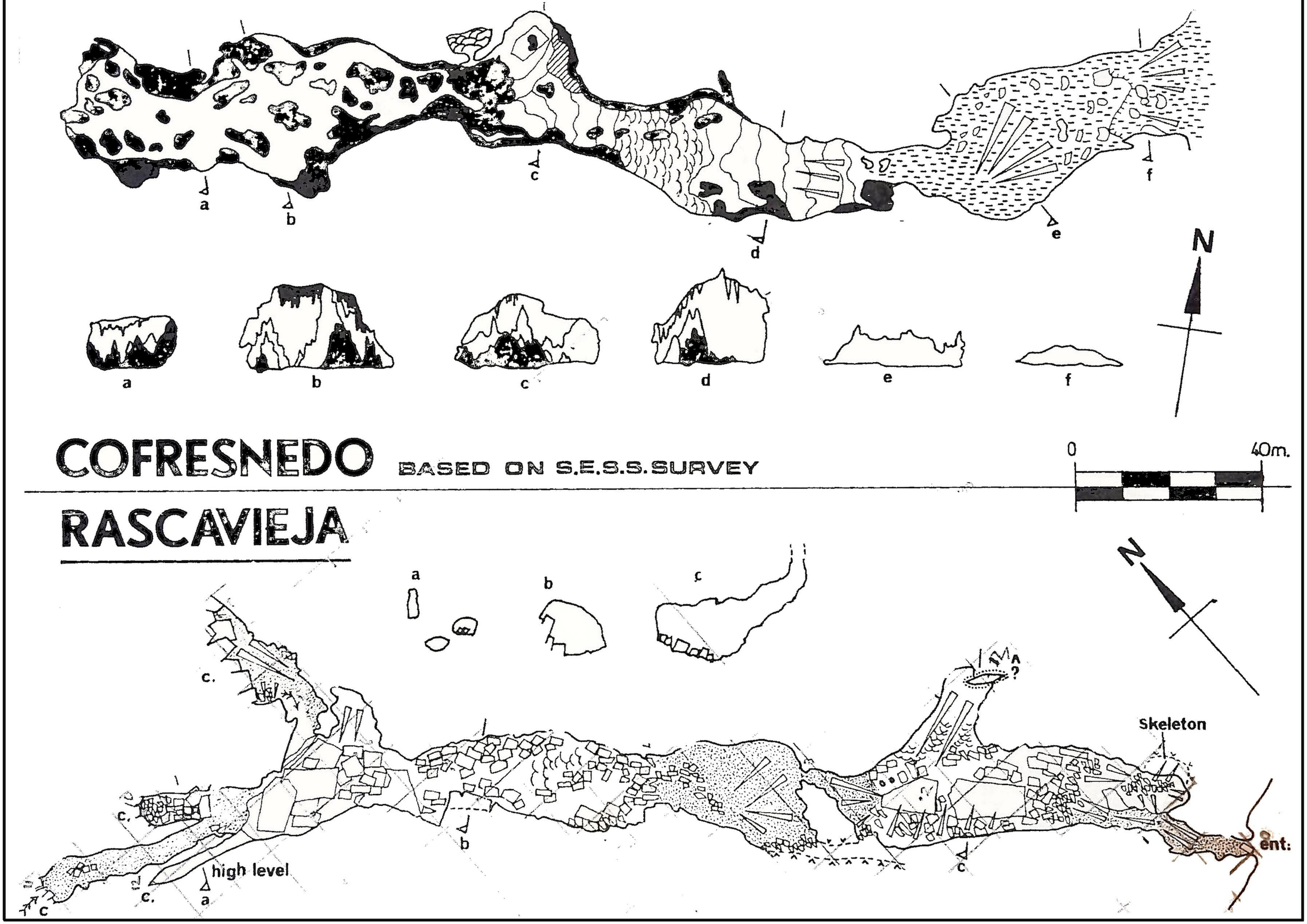
o. Cueva de los Tizones.

The entrance is found by following the small stream bed which runs under the *Sel de Suto* road, shortly before the fork off to *Agua.* The entrance is obvious and filled with large boulders which make the way on not so obvious. The route taken is at stream level through a narrow passage at the left hand side of the entrance and the boulder choke is re-encountered. 'Squeeze' over a large block into a short section of crawling and then the way on is mainly walking until the 'syphon' is reached after 75 m. This is the limit of the Spaniards exploration. The 'syphon' is, in fact, a short duck of minimum air-space which possibly sumps in damp weather. Walking passage is again encountered on the far side and after a short, wet crawl, or dry alternative ox-bow, the way opens into a collapse chamber. The water sinks under the boulder floor and progress is brought to a halt by a large block in relatively deep water. No draught could be detected in the cave and the resurgence is approximately 350 m. distant from the present limit of exploration. Not very inspiring prospects. The cave is basically joint controlled, phreatically developed with evidence of immature vadose down cutting in places.

COFRESNEDO

BASED ON S.E.S.S. SURVEY

RASCAVIEJA



p. Torca de la Barbosa.

This is encountered in a group of shakeholes 'half'-way up the *Cruz de Llorada,* and not far from the first hair-pin bend on the main road out of *Matienzo (to Santander).* That is, up the pass from the hair-pin. It is a small entrance in scrub. Belay ladder (20 m.) to convenient bush. Constricted entrance, in fact the whole shaft rather small in dimensions and slimy. Choked immediately with wet nasty calcite etc, etc.

q. Torca de la Cruz de Llorada.

Entrance is just over the summit of the *Cruz de Llorada,* and at the topmost point of a small depression. Obvious eliptical shaft with small hazel growth on the perimeter. Belay 22 m. of ladder to fence post on north side of shaft. Nice descent. Boulder slope down to small hole in corner — entrance to second pitch. Belay to rock directly above hole, 18 m. of ladder. Landing in chamber, boulder floor slopes down and eventually chokes*. Upstream — short passage of calcite which is blocked solid.

* Would make an easy dig.

r. Torca de Bosmartin.

From *Torca de la Cruz Llorada* follow stone wall west up over shallow pass and descent to small tree, on perimeter of shaft. Belay 13 m. of ladder to rock clint (obvious). Large ledge part way down. Lands on boulder slope, descends through bedding passage and continues (only a matter of feet) to head of 8 m. pitch — chokes with calcite. Alternative descent to the right — 6 m., also chokes.

"After gloating over the bloated body of the pero (I hope it was the one which bit its way into my tent). I was unfortunate enough to loose my carbide in the pursuite of a serpent of the deep — actually it was a light coloured snake about 25 cms. long which I found in a log jam".

CHAPTER VI

THE FOSSIL CAVES OF LA SECADA

I. Introduction.

La Secada is the most northerly part of the *Matienzo polje,* and it is to *La Secada* that all the water of the depression drains, to sink and leave the depression by the cave of *Carcavueso.* However, in this section we deal with the old, dry fossil caves, some of which may have been important in the early formation of the polje.

II. The Caves.

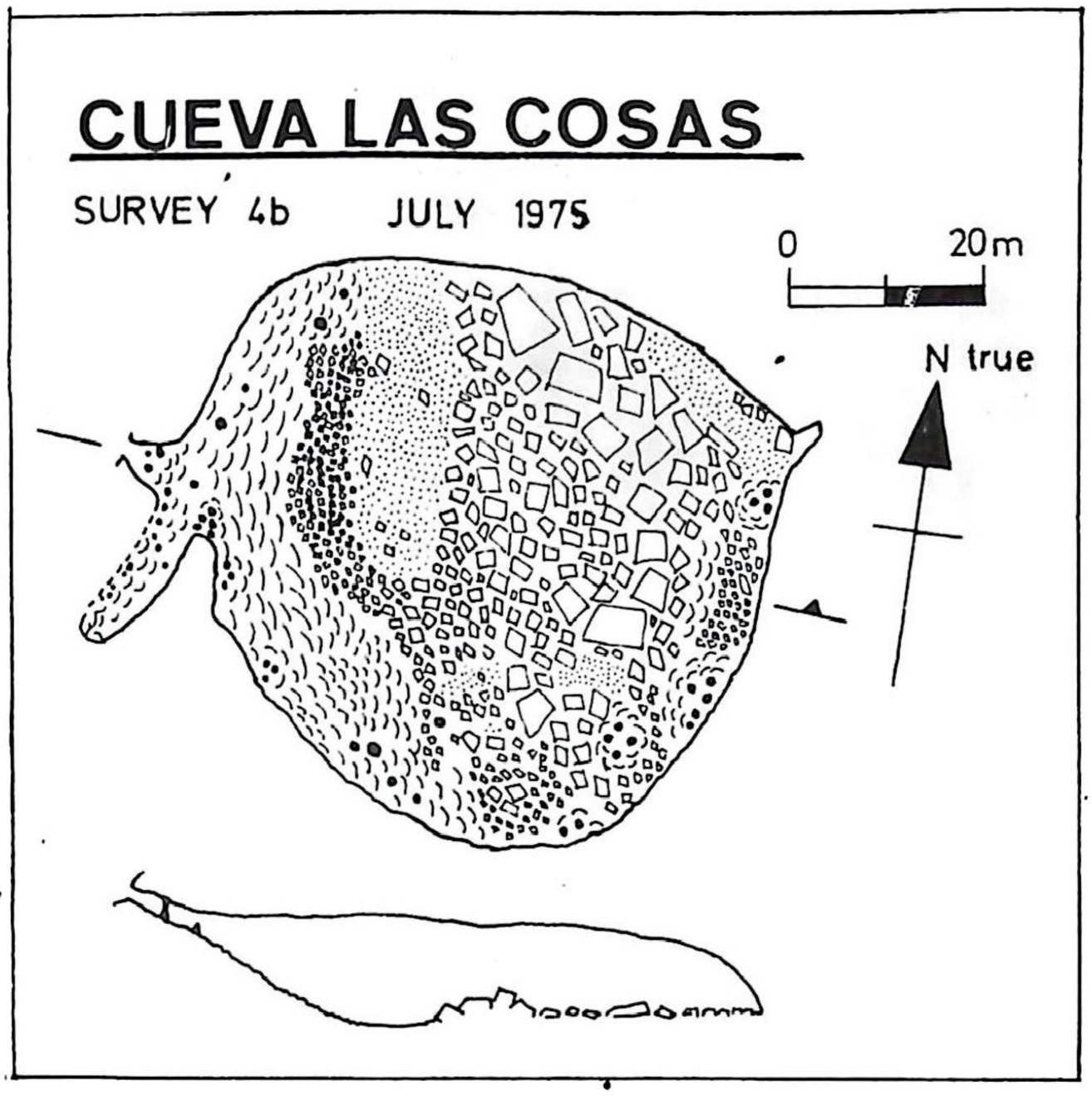
a. Cueva Las Cosas.

The entrance of *Las Cosas* is difficult to find as it is quite small and hidden by the vegetation of the lower eastern slopes of *La Secada.*

However it is well known to the villagers and it must be one of the most frequently visited caves in *Matienzo.*

Immediately inside the 1 m. wide entrance the cave enlarges in size and a slope leads down past numerous stalagmites and columns to the floor of a chamber 60 m. in diameter. The lowest part of the floor is covered with sand across which small streams meander from time to time. Most of the chamber, however, is floored by a pile of large boulders and groups of stalagmites many of which have been broken.

There is no other way out of the chamber and its origins now appear to be inexplicable.

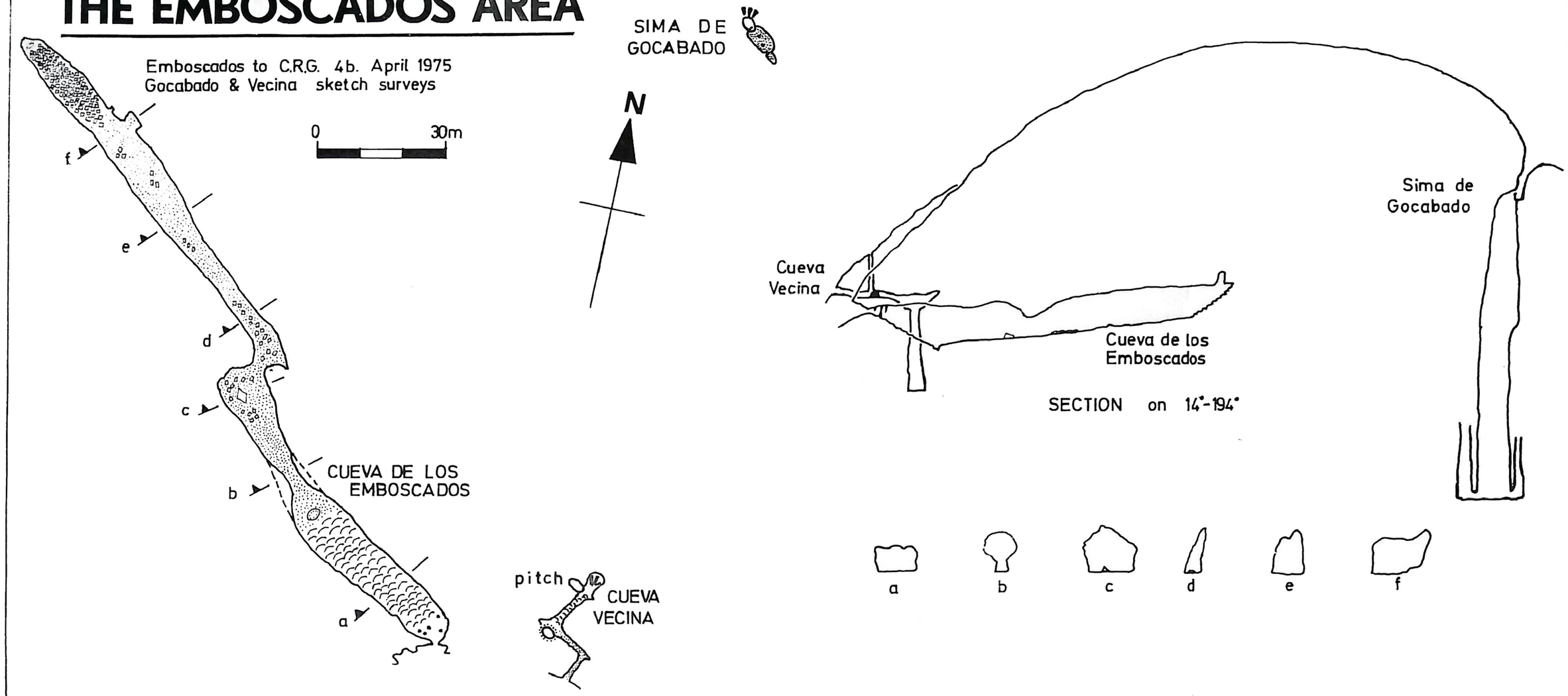


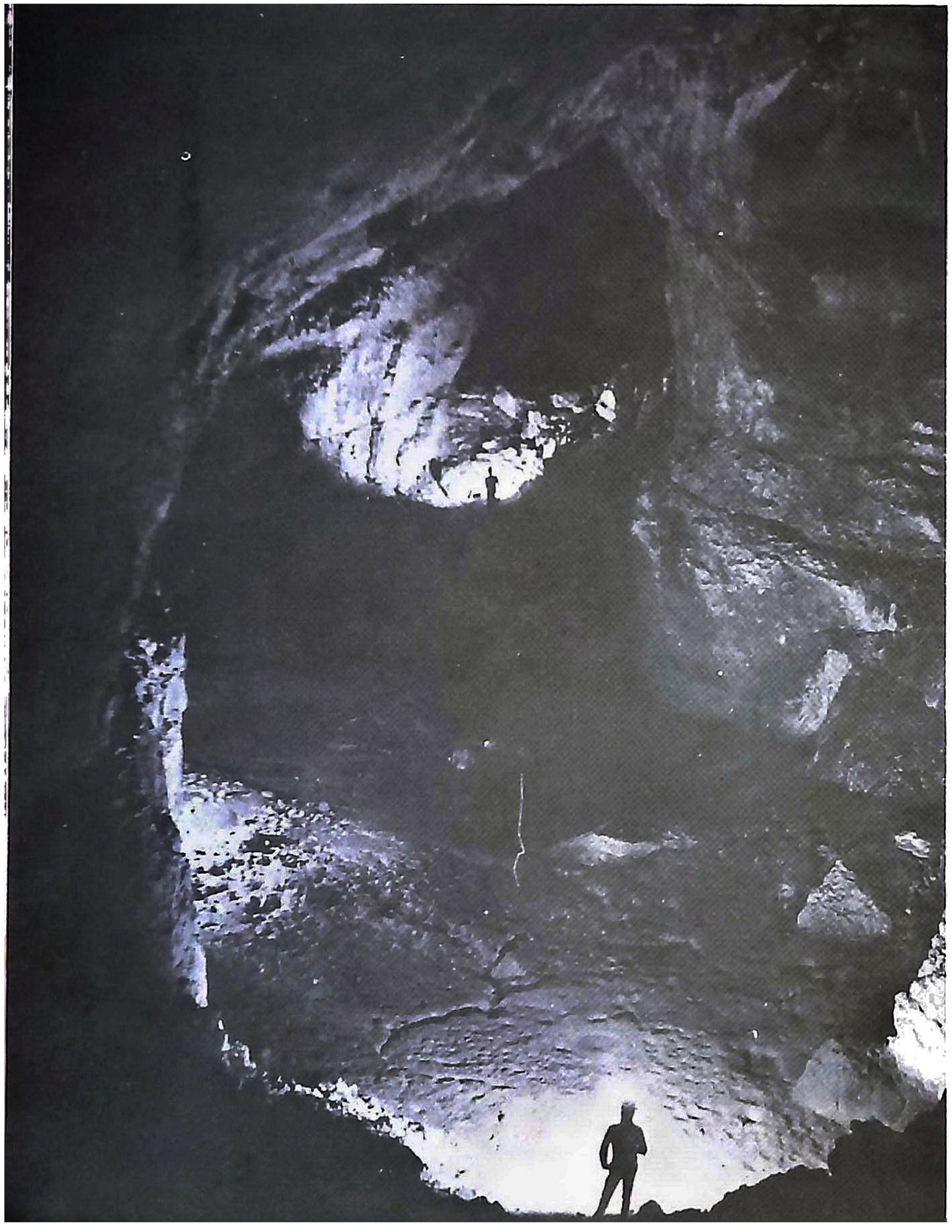
b. La Cuvia.

In contrast with *Las Cosas, La Cuvia* is quite easy to find. The entrance can be seen from the Bar, under the tree below the farm on the eastern side of the valley.

Like *Las Cosas* it is well known as at one time hay used to be stored in the entrance chamber. A pile of rotting hay still lies in the back of the chamber which also contains two water troughs, a wooden bench and a set of stone steps down from the entrance to the floor of the chamber.

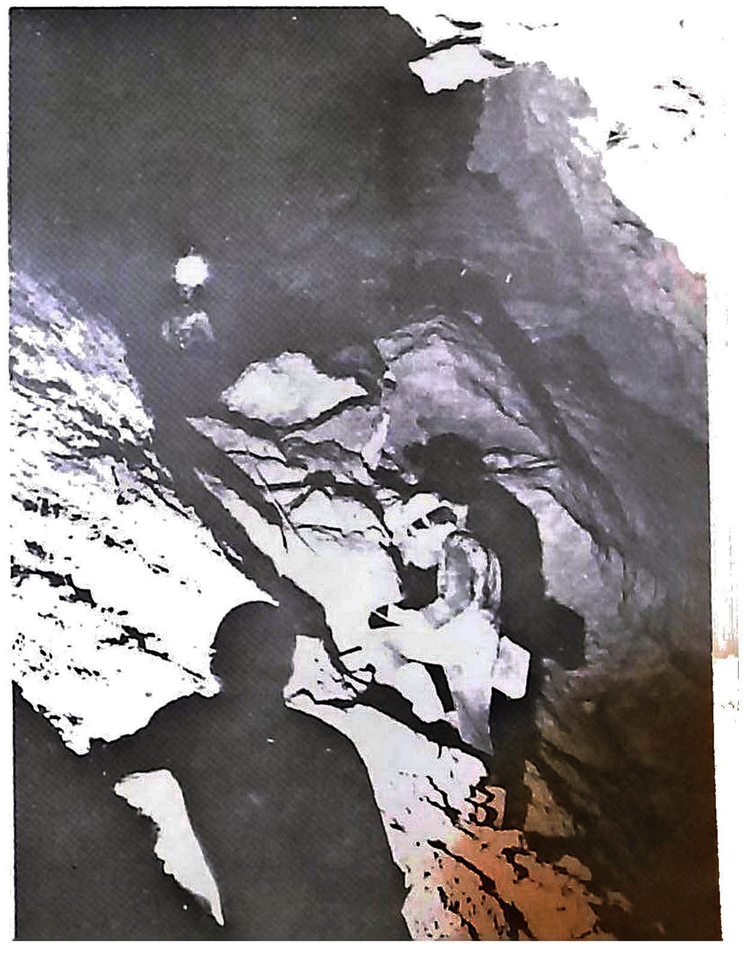
THE EMBOSCADOS AREA





1. The impressive entrance passage to Codisera — the area in front of the first figure becomes a lake in wet weather.

2. The first blowhole in Coveron — notice the calcite deposits on the left which have been distorted by the strong draught.



3. Surveyors at work in Renada.

Behind the grass there is a large block,down the side of which,is a climb to a short section of passage ending in a choke. On the left of the chamber an obvious passage leads, after 20 m., to a junction. The passage to the right, which at first appears more like a mine, closes down after 24 m. The main passage continues straight ahead to a crawl, which also seems to have been dug, and this breaks into a well-decorated chamber and a pitch.

The pitch is 13 m. deep and drops into a largish chamber with one superb column 7 m. high. From here there are a further two chambers followed by 30 m. of passage to another large chamber with a fine group of stalagmites and a floor consisting of large boulders. Beyond this,passage size diminishes and there only remains a couple of smaller chambers seperated by crawls between columns. The cave ends in a further choke of boulders and stal.

Although nothing can be proved, it seems quite possible that *La Cuvia* once served as an outlet for the *Secada* doline in the early stages of its development, the water passing towards the valley of *San Miguel de Aras.*

c. Cueva de Los Emboscados.

This cave is situated in the northern slopes of the valley, in the obvious group of trees part way up the hill to the west of *Carcavueso.* The entrance is only of crawling size but it gives access to a large passage 12 m. wide. Immediately inside the entrance there are several stalagmites and columns but beyond these the passage slopes down for 40 m. by a succession of gour pools. At the bottom of the slope there is a small circular pot and on the other side of this the passage changes into a key-hole cross-section. After 10 m. this leads into a large chamber and the passage side-steps to the right into a second joint-line. The final 100 m. of the cave is dead-straight along this joint, terminating in a boulder choke with a small aven above it. At the choke, as at the entrance, there is a noticeable draught outwards.

Like *La Cuvia, Emboscados* may have served as an outlet for the water of *Secada,* in this case carrying the water towards *Riano* or *Secadura.*

d. Cueva Vecina.

This small cave, first explored in July, 1975, lies a little higher and to the east of *Emboscados.* The 1 m. high triangular entrance gives access to 15 m. of passage to a small chamber with an aven reaching the surface. From the chamber a narrow calcite fissure leads to a 20 m. shaft, draughting, but chokes at the bottom.

e. Sima de Rocabado.

Please Note — the incorrect spelling on the survey!!

This pot is situated on the opposite side of the hill to *Emboscados* and *Vecina.* The entrance is surrounded by small trees on the boundary between meadow and scrub-land.

The ladder is belayed to a tree for the first 8 m. descent to a false floor. The next pitch is up through a window in the right and out into a large eliptical shaft (with the ladder belayed to the previous ladder). At the window an inward draught can be felt, which gave hope of a connection with the outward draughting *Emboscados.*

After the first 5 m. the ladder hangs free from the wall and a small ledge is encountered 30 m. down. The total length of the pitch, first descended in June 1975, is 70 m. The floor is mainly silt, and it is through this that a small amount of water sinks. However, the rift on which the shaft is placed soon closed up in both directions and there is no trace of the draught. As there are no obvious passages going off at any point on the shaft the loss of this draught remains a mystery.

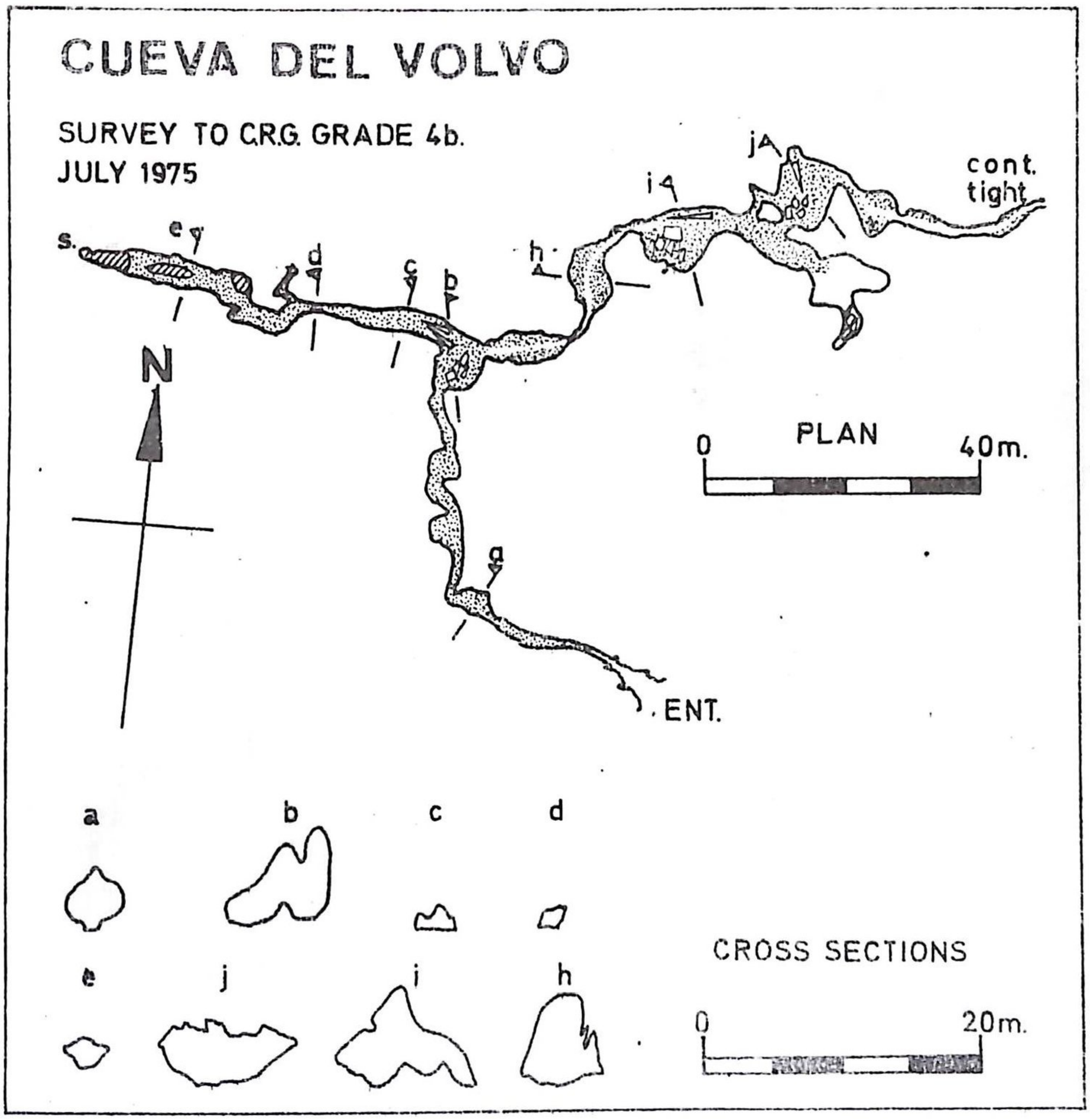
The total depth of the pot is approximately 76 m.

"Jim prussicked back up pitch and puked up breakfast — far too much vino and anis the night before."

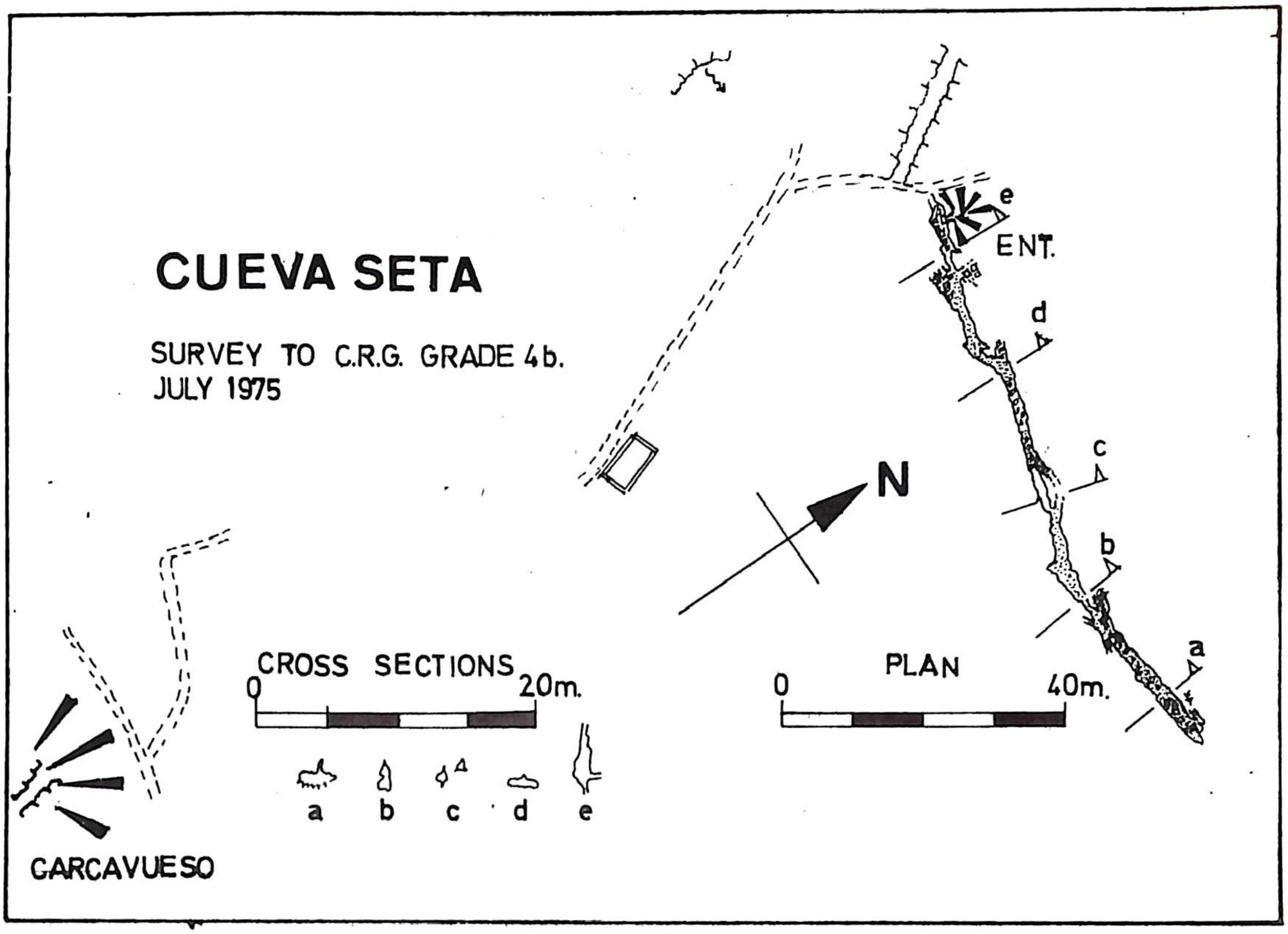
1. Cueva del Volvo.

The entrance to this is below the road a little higher than the Kilometre 21 stone. *The* descending rift of the entrance leads after 25 m. to a small chamber. Here the cave is underneath the road and cars can be heard passing overhead. The passage turns to the right and after a couple of crawls leads to a further chamber. To the left a passage slopes down to a sump. Just back from this a draughting bedding-plane was dug in 1974 but with little success.

However, by turning to the right at the chamber a party was able to find a succession of further chambers in July, 1975. This series also contains a strong draught, but it still has not been possible to find out the cause of these draughts. The cave is active in wet weather as a resurgence so there may be an extensive phreatic network behind the known cave.



"Fredo stormed into the cave. His gear included a beret for a helmet and carpet slippers for boots. As I fumbled to light my carbide he was shouting for a light – not having one himself."

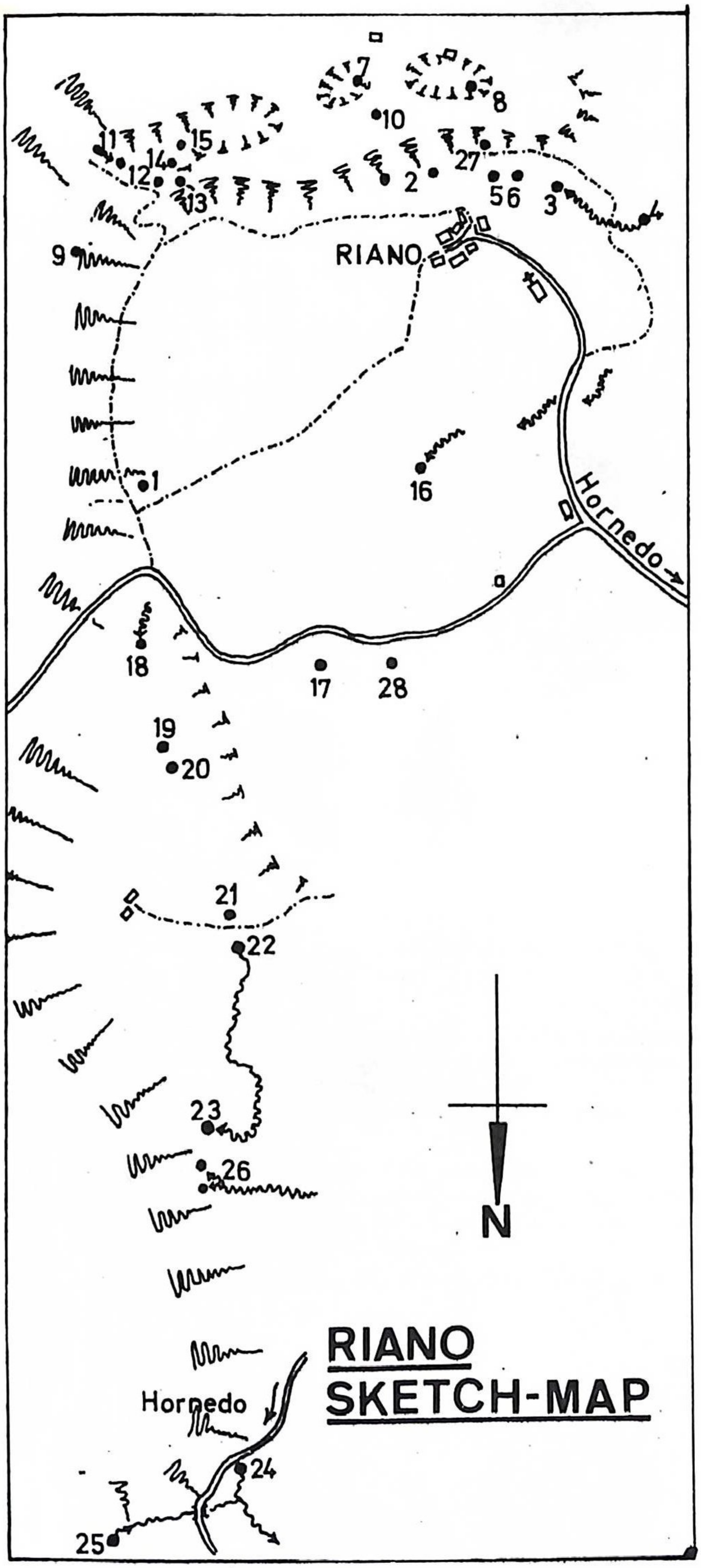


g. The entrance of *Cueva Seta* is to be found approximately 150 m. due north of *Carcavueso* entrance. It is set in a group of trees and is associated with a small resurgence, sink and narrow canyon. The entrance itself is an unobtrusive slot in the bottom of a small shakehole.

The tightish entrance crawl leads immediately onto a 9 m. pitch in a narrow double aven. The way on is a small tube some 1½ m. above the occasional streamway. This breaks into a low boulder chamber with a further (drier) inlet to the left. From here the remaining 75 m. of passage is fairly constant in character, consisting of crawls over sand and boulders until a narrow sand-choked rift turns sharp left out of the final small chamber and stops further progress.

The cave with the exception of the entrance avens is phreatic in origin being a joint enlarged by water collecting along a sandstone bed. The modern drainage using the cave is apparently very small as the cave, when first explored was choked with sand and clay, leaving only a 6 cm. x 6 cm. triangle to transmit an interesting outward draught.

There seems a good chance that with more excavation *Cueva Seta* may join *Carcavueso*, downstream of the 'terminal' sump.



KEY

1. RIANO I
2. UZUEKA
3. Choked Sink.
4. Resurgence with digable rift nearby.
5. Large choked cave entrance.
6. Small choked cave entrance.
7. Large choked shaft in doline.
8. 6 m. deep rift on side of large doline.
9. Small resurgence at junction with sandstone band.
10. Small shaft in gorse at top of ridge.
11. Impenetrable spring and sink.
12. CHESTNUT CAVE.
13. 3 m. deep rift.
14. Small sandy cave.
15. Choked overflow sink in bamboo grove — draughts strongly.
16. Digable small sink.
17. Rubbish Dump Cave.
18. Choked muddy sink — draughts.
19. Large draughting rift, c 30 m. to calcite choke.
20. Choked draughting hole.
21. Depression with large sump pool.
22. Sumped resurgence (for RIANO I).
23. CUEVA ESPADA.
24. Small resurgence.
25. ESPADA RESURGENCE.
26. Choked sinks.
27. Small cave spring above water-trough.
28. Draughting hole blocked with stone wall.

RIANO
SKETCH-MAP

CHAPTER VII

THE RIANO CAVES

I. Introduction

This area immediately north of *Matienzo*, visited by last year's expedition produced roughly 5 kms. of new passage in two caves — *Riano I* and *Uzueka (Riano II).* Neither cave was either pushed or surveyed to its limits in 1974, nor was the resurgence found. However, 1975 did not see any great initial enthusiasm for visiting the area. The reconnaisance group spent one day there and noted some 20 - 30 entrances or possible entrances including the (presumed) resurgence for the region. Downstream of this a further sink cave was tentatively entered for c. 150 m. and a resurgence located some 500 m. from the sink. With nothing of any great potential immediately visible our attention wandered elsewhere. Nevertheless, when 'reinforcements' arrived a return trip was made to *Uzueka* to tie up the loose ends and photograph. On this trip a low draughting crawl, in the vicinity of the low downstream sump, was looked at with a bit more vigour than in 1974 and was forced to a junction.

II; The Caves.

a. Cueva Uzueka.

Although fairly interesting, this new discovery was not expected to reveal any major length of passage as it was felt that it would only go to one of the unpushed inlets in nearby *Riano I,* or, taking the right fork at the junction, it would head back under some of the 1974 passages. The latter assumption proved correct, the former wildly wrong. We shall leave the latter series *(Sima Baz Series)* until later and first examine the more exciting galleries that lie to the left of our junction.

It was a matter of considerable luck that a way on was found in this direction. At first the path lies through a series of phreatic chambers, sidestepping across the prevailing joint pattern, and between each chamber only very small holes remained, above the infill. In each case the strong outward draught gave the explorers the impetus to dig out the gravel floors and push on into a respectable section of 'coffin-level' sized passage that zig-zags towards a choke. Again fortune smiled and the solitary loose boulder, in an otherwise solid mass, acted as a trap door down into a low muddy crawn that, without the draught and the sound of falling water, might well have led to a retreat to the nearest bar.

The crawl, only a few metres long, joins a larger passage at the lower end of a low canal that is presumed to run back, under the passages we have just explored, towards the downstream sump in the 1974 passages.

Following the stream down past a low aven that provides the sound of falling water, the passage increases in size with massive block collapse on the right.hand side with the stream running through shallow pools and across a floor of rounded stones. Shortly the stream has to be left where the block collapse has barred the way, and one climbs up right into a wide, low, angular chamber where the roof has dropped in massive rectangular chunks. Again, the way on has been almost obliterated and only a thin downward slot allows one to progress. The drop of about 3 m. brings us into a fair sized piece of passage, just above and to the right of a low canal, into which one is forced after 50 m., of roughly stooping size in knee-deep water, which sets the scene for the next kilometre and is fairly described by its name — the *Gorrilla Walk*. Any gorrillas contemplating the trip should wear wet-suits, for in various parts the water occupies more of the available space than the air does.

The first explorers were now convinced that they had arrived in *Riano I,* never having visited that cave before. Heading on a roughly north-east course, even though sidestepping right, it seemed likely that it would not be long before the easy walking passage in *Riano I* were met. Some doubts began to arise when the explorers met another stream coming from the right (subsequently found to emerge from a low sump some 50 m. upstream). Nor were the doubts allayed when the combined streams (First River) sank into the right wall and an area of phreatic tubes, to the right of a collapse area with some high avens, was met. Beyond this chaotic region, the passage reforms to become low and wide. Then a 'T' junction surprised the first party. To the left, they thought, might be the entrance passage of *Riano I,* for a strong draught was blowing into it and it started off low, awkward and fairly unpleasant, which quite fitted in with descriptions of *Riano.* However, when it broke into a large, sandy passage, it became apparent that this was not the hoped-for passage and it was left for a later party to push some metres further on, through a choke, to a flat-out crawl that the wind shistled into, but which required at least 10 m. of digging.

Thwarted, the party turned downstream again, though unable to follow the water itself. Instead, they were forced to climb over a considerable pile of boulders that had slumped in from the left hand side of the now much-enlarged passage. Once over this obstacle, the explorers found themselves in a gallery of fine proportions; roughly 10 m. wide by 5 or 6 m. high, with the stream running in and out of a bedding under the right hand wall[1]. Still fairly sure that they were in *Riano I,* the party picked its way slowly downstream under, round and over large blocks and over banks of fine, soft sand, cursing the ineptitude of the *Riano I* surveyors.

By and large, the cave is deep under the hillside, and, as the limestone is interspersed with impermeable bands, there is little percolation water and formations are few, though such as there are are very fine. One of the most notable is a fine column beneath a high aven, down which has grown a stalactite of equally continental proportions. With a powerful beam it is possible to detect what might be a higher passage — the only point in the 1975 passages which suggests there may be a much higher level.

Meandering on the first explorers missed a junction (Obvious Junction) off to the right that was later to lead to even more exciting discoveries (see below). Shortly the passage began to swing further to the right and the sound of falling water spurred on flagging feet. It turned out to be no more than a one metre cascade over a bed of fine sandstone. Getting larger though the passage was, massive blocks made progress very time consuming. Standing high on a sand bank the explorers checked their compass. Ahead of them a massive black tunnel bored off southwards into the mountain and towards *Matienzo!* But with only two lamps with one fill of carbide apiece it semed like a good time to go home.

The disappointment suffered by the next party can well be imagined when pushing a few hundred metres further the roof dropped vertically to within a few inches of water. Ultimately the 'sump' was explored for another 50 m. until the diver could no longer squeeze the top of the snorkle into the available airspace. The sump must, in fact, break, for it does draught strongly from time to time but it seems likely that the water connects with the Fourth River at Sandy Junction. At the time the Third and Fourth Rivers had yet to be discovered.

Obvious Junction — Third and Fourth River Series.

The first survey party into *New Uzueka* split into two groups. One started from the wet crawl at the end of the old series and surveyed into the new stuff, while the other group went to the 'sump' at the end of *Far Stomps* to survey back towards the entrance.

From the 'sump' which has very little airspace, the going gradually gets better until walking is possible. The roof is perfectly flat and the floor covered in shingle through which the river meanders. After 250 m. the roof suddenly lifts and the passage size increases dramatically. Although littered with very large boulders progress is easy along the right hand wall, and after a climb to the top of the chamber the impressive dimensions of the *Far Stomps* can be appreciated fully. For 250 m. the passage is rarely less than 30 m. wide and 20 m. high. At a 1 m. cascade the passage suddenly decreases in size. The reason for the reduction in cross-section is presumably due to the sandstone bed over which the cascade falls. After 30 m. the smaller passage swings sharp right and the river runs against the left hand wall. On this bend is a strongly draughting inlet which has not been pursued. The main passage increases in height and soon a very clear enlarged joint can be seen in the roof 30 m. above. The cave now swings sharp left and there are two alternatives available. The higher level is a bored phreatic tube 2 m. in diameter which dog legs back to the main passage. The other is under the left wall and a short climb down boulders leads to the same place. The continuation is in a large chamber then back to the stream. Originally we decided not to survey in the water, but went up into an 'oxbow' on the left which we presumed would rejoin the main way further upstream. When 50 m. had been surveyed the passage reduced in size and we noticed that the draught was blowing out strongly — if we were heading towards the entrance it should have been blowing away from us. We decided that this was a side passage, so left a note at the junction to inform the other survey party so that they would not continue downstream.

The passage soon degenerated to a low crawl, but the strong draught could not be ignored so J.C. was sent off to investigate. After half an hour he returned with the usual stories of vast passages and rivers so we continued surveying. Cross-over Crawl lasts for 50 m. and after a final squeeze it is possible to stand up in a passage 10 m. wide by 4 m. high. The reason for these changes in passage size defy explanation. The passage soon slopes down to the 2nd River Streamway, which can be followed both up and downstream.

Going upstream the gallery curves round to the left and gradually decreases in height until one is crawling sometimes through pools backed up by infill. Exploration ceased just beyond a high aven chamber where the available airspace was spread rather thinly over too much water.

Downstream the passage is well decorated, and the stream meanders between shingle banks until an inlet is met on the right. Straws Inlet continues more or less in a straight line for 150 m. to a calcite choke. The stream has cut under the left wall and is rarely visible, the only notable feature in the passage being a solution pocket which is beautifully decorated with 2 m. long staws.

The main passage increases in size, becoming higher on the next bend where three very high avens cut across the roof. The passage soon swings right, and on this bend a draughting passage was noticed but not pursued. The next 200 m. of large passage — *Las Playas* — is extremely easy, being beautifully sand floored. A clearly defined rift joint can be seen and this lines up very well with the one noticed in the passage between Far Stomps and Obvious Junction. At the end of *Las Playas* the main way on is choked but two other ways are possible. To the left the passage is 3 m. high and 1.5 m. wide, and has been followed back apparently parallel to the main passage for about 100 m. where it continues with a strong out draught. The other way on from Diversion Chamber is to the right down into a smallish passage with deep water. (B. Road).

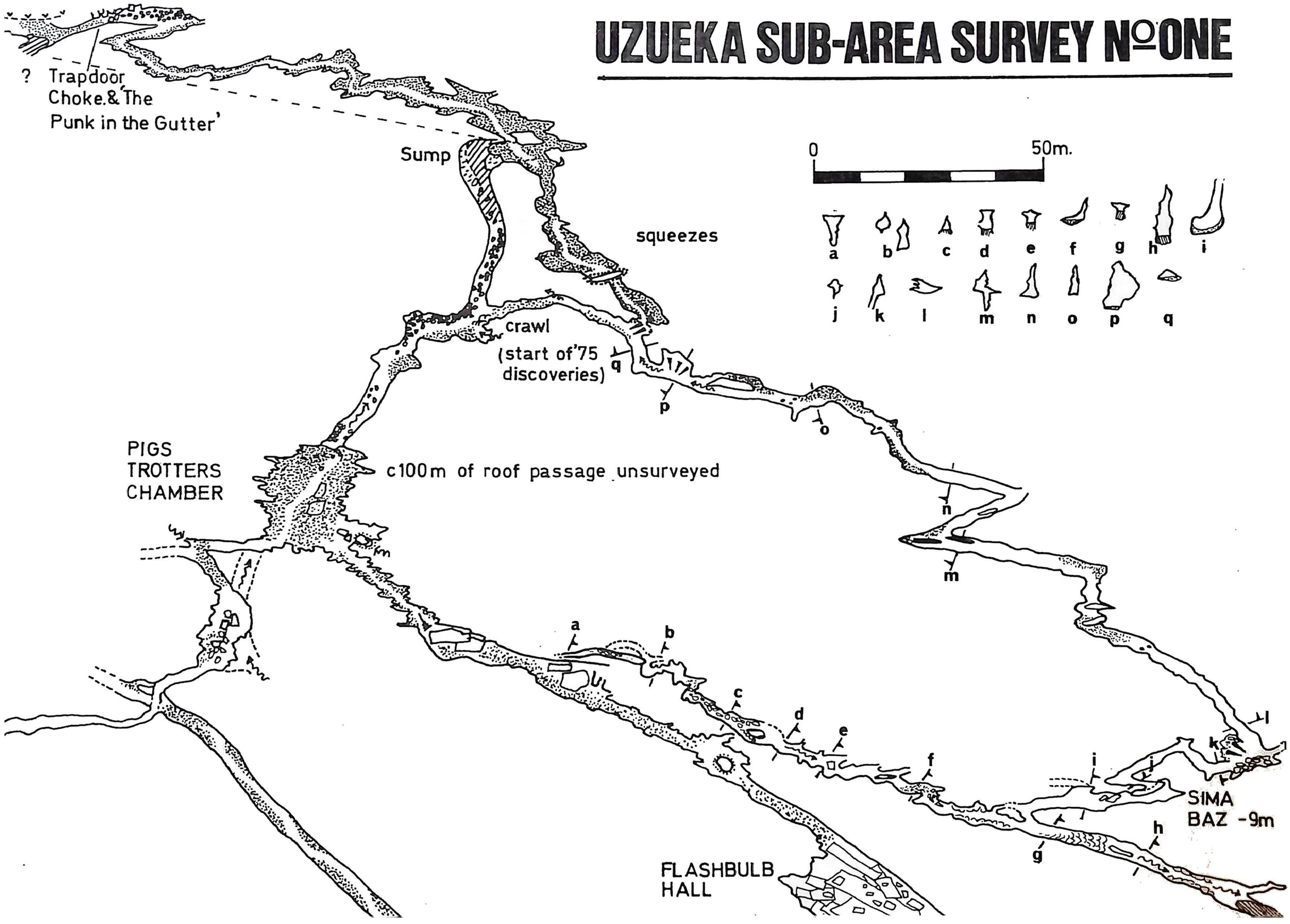
CUEVA UZUEKA.

SURVEYED TO GRADE 4b.
JULY-AUGUST 1975

RIANO I
UPSTREAM INLETS

2ND RIVER
NEAR STOMPS
OBVIOUS JUNCTION
'Phreatic' zone
sink
Crossover
FAR STOMPS
2ND RIVER 'SUMP'
CHESTNUT HOLE
3RD RIVER INLET
GORILLA WALK (1ST RIVER) No2
STRAW INLET
LAS PLAYAS
Diversion Chamber
Ent.
start of 75 series
S.
Sandy Junction
ARMAGEDDON
Choke zone.
B. Road
Subarea survey No1
sima Baz 9m.
Astradome
Matienzo
PLAN.
0
200m.
TORCON
95 Inlet
4TH RIVER
44 Chamber
Pass of Fuente las Varas
N

UZUEKA SUB-AREA SURVEY NºONE



With its many phreatically enlarged joints it is obvious that the choke in the main passage has only fairly recently forced the water to take the lower route. It continues 2 - 3 m. high and wide, with water up to 1.5 m. deep for 200 m. or so until it emerges from the right hand wall of a much bigger passage. To the left the passage goes back towards Diversion Chamber and chokes, presumably the other end of the same collapse. The main way on continues high and wide and is easy going over sandbanks to a sharp bend to the left. Another large stream joins here from a passage to the left though this has not been pursued. The right hand wall of the main passage now consists of massive boulder collapse and this continues for the next 200 m. The first party stopped approximately 100 m. along it, ate their surveyors chocolate and an orange, and made a cairn — hence, Orange Peel Junction. They then returned surveying back to Obvious Junction where they met the other surveyors and the combined group left the cave.

Unbeknown to the dining surveyors they were sitting within a few metres of the cave's finest feature, for turning left off the main river gallery the next survey party traced the draught up a short dry gallery to a fantastic aven, perfectly circular (25 m. in diameter) and with the walls running parallel up into the darkness. Shouts echo up for what seems like eternity. The draught comes down the aven following a small stream and if the aven is ever entered from the top it could be a pitch of up to 300 m. Two passages run off the far side of the aven in the direction of Diversion Chamber but rapidly close down.

Down the 4th River from Orange Peel Junction the way becomes increasingly awkward with the stream cutting under the left wall and the shattered right hand side spewing boulders down into the stream. After a short distance of such undignified grovelling the way at water level is blocked but up to the right one can climb up into a collapse hall. Thinking mistakenly that the chamber marked the junction of a number of passage, the surveyors inscribed the number of the survey station, hence - 44 chamber Threading their way through the boulders the team dropped back to the streamway and immediately found a small passage entering from the right. In its paced length of 95 metres, 95 Inlet zig-zags back on itself to a low sump pool,

Carrying on in pursuit of the stream offers few obstacles but also little to excite the explorer for the passage is trivial by comparison with the earlier galleries. It was disappointingly obvious that we had lost the big stuff though 54 chamber provided a few moments of hope. The aspect increasingly seems phreatic and some low crawls and the lack of much draught made expectations of a sump run high. It came as quite a surprise, then, when a wide sandy junction was met with another stream entering from low arches over deep water. The conclusion that we drew from the survey that this was the Second River water led to a certain lack of enthusiasm for leaping into this dismal puddle. Neither this inlet nor the collapse area above it were explored as the team forged on with the scent of master caves strong in their nostrils. They remain unexplored.

The new found fervour soon turned to gloom again as the right hand wall became more and more broken up the the passage ever smaller. When floor, walls and roof disintergrated completely things were looking a bit grim but the intrepid pair out ahead make a spirited, but fruitless, attempt on the hanging death all around them. It seemed that the cave had finally hit the fault that we have hoped would take us all the way to the resurgence at *Secadura* but instead was going to halt us. Eager to sample the delights of surveyors chocolate the team headed out, surveying as they went, to meet the second survey party and announce the (good?) news.

Nevertheless it was decided that another assault would have to be made so a few days later three happy comrades arrived at the choke and disappeared in various directions. Some time later a few well-chosen old English phrases announced that a route had been forged and the three chambered up through the floor of a chamber that left them quite awestruck. Comparisons with the Berger were bandied about, carbide lamps turn up to full and line abreast the team teetered off into visions of glory. The stream emerged from under the boulders and for a few meters the going was idyllic. With vast areas of blackness on either side and the broad stream rippling over a bed of gravel, lesser men could easily have become hysterical. Boulder piles were scaled in every direction as the explorers progressed but gradually the way forward become increasingly awkward as giant boulders piled one upon the other barred the way. Ultimately the party were forced up towards the roof where a solid wall barred the way forward and the floor was made up of collapse with deep crevases between the blocks. Undoubtedly a way on exists for a noticeable draught follows the river but it seems that a ladder or a rope will be necessary both here and in a dry side passage noted just back from the end of these chambers that at least make a fitting, if temporary, end to an intriguing and exciting system.

The reader may feel that the exploration of parts of the system had been scarcely thorough. He would be correct but we would like to make a few excuses. Primarily the distance and time involved; a six hour trip would be motoring to get to the end and back, let alone start exploring anything. The system is within the same sort of class as Langcliffe Pot and the limited number of experienced surveyors available were just not up to consecutive days of twelve hour trips. Especially on a diet of wine and egg butties!

Nor was the far end of *Uzueka* the only area receiving attention, for extensive work was being carried out in *Old Uzueka* and in *Sima Baz Series* (see Sub Area Survey No. 2). Nor does this exhaust the work within the *Riano Area* as the notes below on Chestnut Cave and *Torcon* but we must deal with *Sima Baz Series* first before going on to them and eventually dealing with the rest of the area.

Sima Baz Series.

This section of the cave is entered after passing the wet crawl by following the small stream responsible, to the right. The passage immediately becomes walking size and proceeds through a small chamber to a 3 m. climb. Hence the stream emerges low on the left and the upper, dry passage continues as a sandy rift 2 - 3 m. high by 1½ m. wide. This section and indeed the whole of *Sima Baz Series* are controlled by two sets of joints on 65° and 210° approximately.

The following 100 m. of high level passage is characterized by alternating sections aligned to these joints with occasional pots and avens. Progress is temporarily halted by a boulder run-in. However a squeeze up and to the left gives access to a 1 x 1 metre tube formed by phreatic enlargement of the recurring joint pattern. The tubes though not tight are awkward due to sharp nodules and the occasional squeeze past stal. flows.

The crawling is abruptly halted by a 9 m. pitch into a roomy aven. The pitch drops into a short downstream passage of a small inlet entering via a parallel aven. The mud-coated walking passage rapidly degenerates into a muddy sink in boulders and an equally greasy rift at a higher level.

A squeeze just above floor level accentuates the slight outward draught felt throughout. After 5 m. a canal is entered. Following the barely perceptible flow downstream in a passage averaging 1½ m. x 2 m. a sump is soon reached. A tight draughting rift to the left gives no hope of further progress.

Upstream the low trench-shaped passage has been followed for 150 m. to where it is seen to continue as a narrowing rift which is starting to rise presumably to a sink near the *Riano* scar. The passage contains a noticeable outward draught.

The most notable feature of the otherwise thoroughly forgetable stream passage is the way in which it has been superimposed on an older calcite-floored rift and, having cut down some 30 cm. now leaves narrow calcite margins to the stream.

Chestnut Cave.

The entrance to this cave is found on the 'plateau' to the left of *Uzueka* entrance towards *Fuente Las Varas.* An obvious track leads from the village of *Riano* and passes between maize fields before zig-zagging its way up through eucalyptus woods and then onto flatter fields. The entrance is just beyond the first barn in these fields in a depression full of chestnut trees.

The complicated entrance is difficult to describe as there must be at least five ways in. They soon unite, though, and the way on is down a pitch of 9 m. A short upstream section at the bottom chokes, but downstream, continues as a walking passage for 30 m. to where it becomes obvious that the only way on is down a climb of 7 m. The next 50 m. are in a fairly narrow seasonal streamway involving occasional thrutches down short climbs and wading through deep pools. There are occasional choices of route but they eventually all unite in a large passage. Immediately on the right at this point is an inlet which can be followed as an 8 m. high walking passage for 60 m. to where it ends in two high avens. Downstream from the junction the passage assumes grander proportions being 20 m. wide and 15 m. high. This lasts only for a short distance as the passage turns sharp back on itself and reduces dramatically in size. It soon becomes necessary to crawl on hands and knees and after 100 m. to crawl flat out. There is a strong outward blowing draught, but it has not been pursued to a definite end.

It would appear that this cave has some connection with *Uzueka,* certainly there are inlets downstream of the Gorilla Walk in that cave which could account for the flow of water in Chestnut. Perhaps exploration from that side of the crawl may connect the two and make an easier entrance to the Stomps.

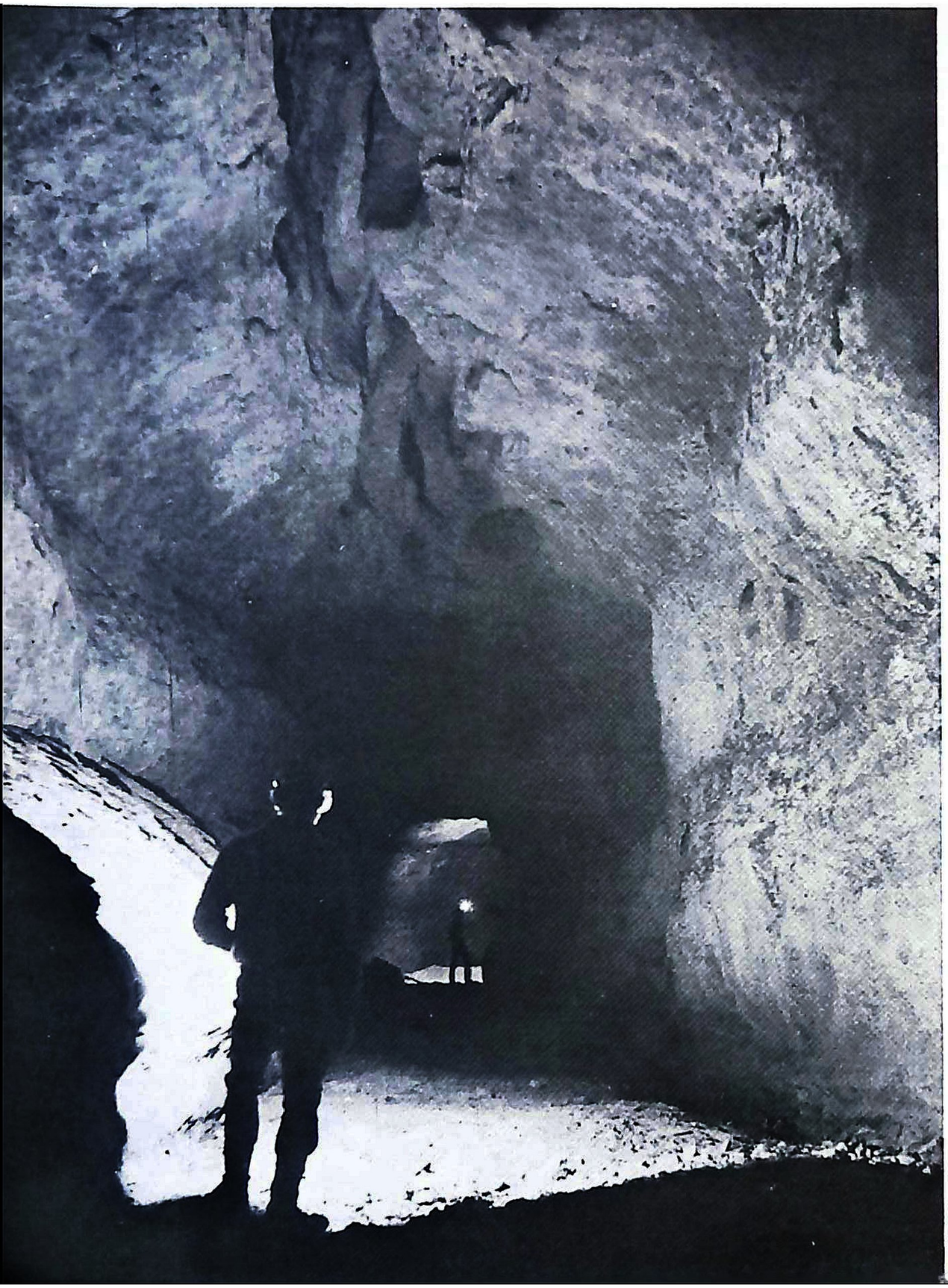
b. Torcon. (see both individual survey and Uzueka survey)

The entrance to this large shaft is found near to a semi-derelict, but still inhabited, farmhouse on the side of the dry valley which runs from below *Fuente Las Varas* towards *Riano.* It can be reached by a track from *Riano* itself. The entrance is a large, sloping right which precedes the first pitch of 3 m. A small stream of water cascades over this and comes from a pipe in the side of the wall two thirds of the way down the entrance. A ledge precedes the overhang of less than 2 m. which is followed, almost immediately, by the main pitch of 91.5 m. Although this is free-hanging one cannot avoid the water falling down it. At the bottom is a small pool less than a metre in depth and floored with boulders. The way on is obvious and to the left are a few large boulders. One drops down out of the chamber into a vadose rift which chokes upstream after about 20 m. Downstream, it continues as a meandering rift, no more than 1.5 metres in width and in places considerably less. This diverges after about 30 m., although one continues in the water as the right hand passage chokes after a few metres.

PHOTOGRAPHS OPPOSITE

1. The dry sandy tunnel at the start of Quadraphenia in Uzueka, the joint along which this passage is orientated is clearly visible in the roof.

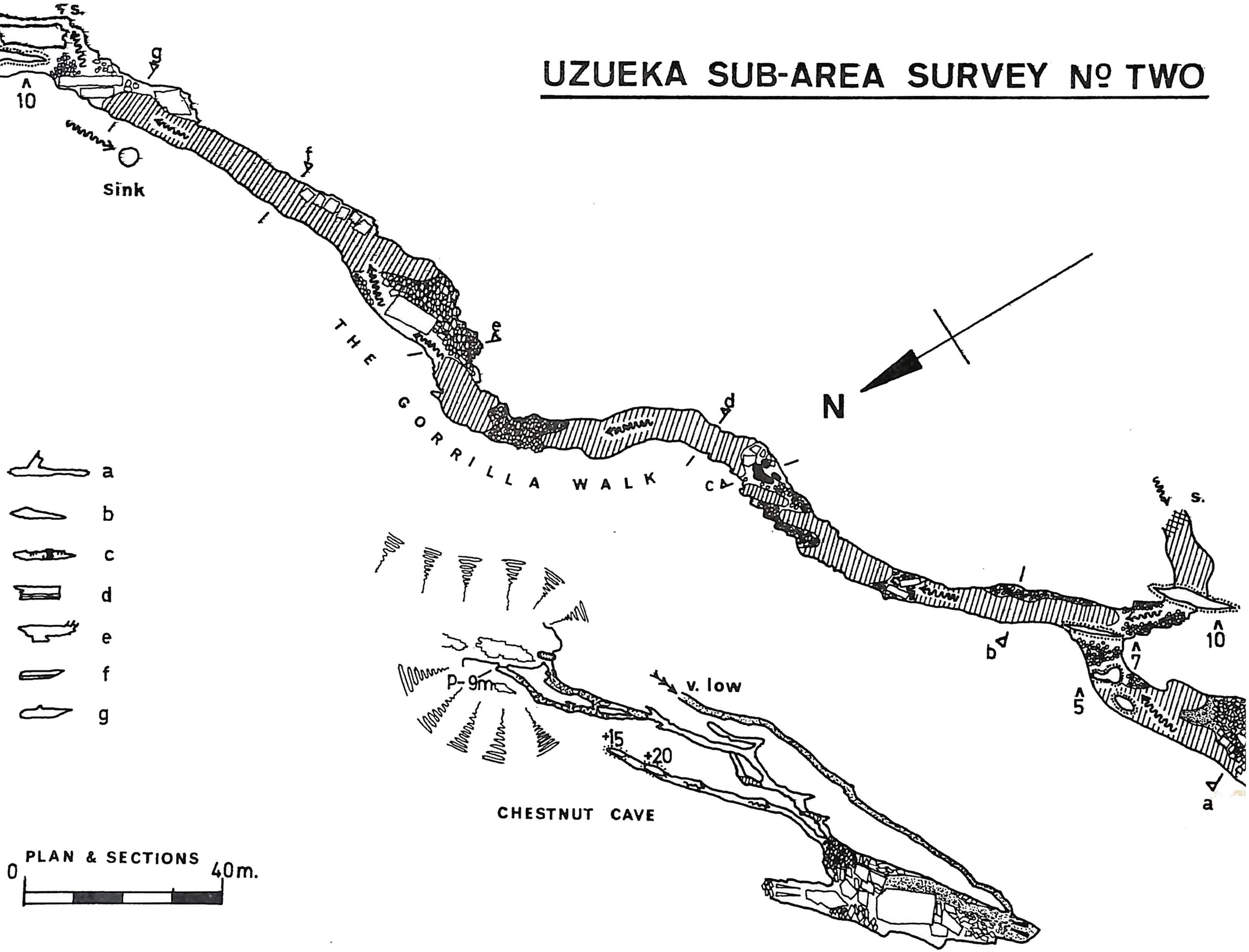
2. The stream at this point cuts under the right wall and leaves the dry high level passage much reduced in size.

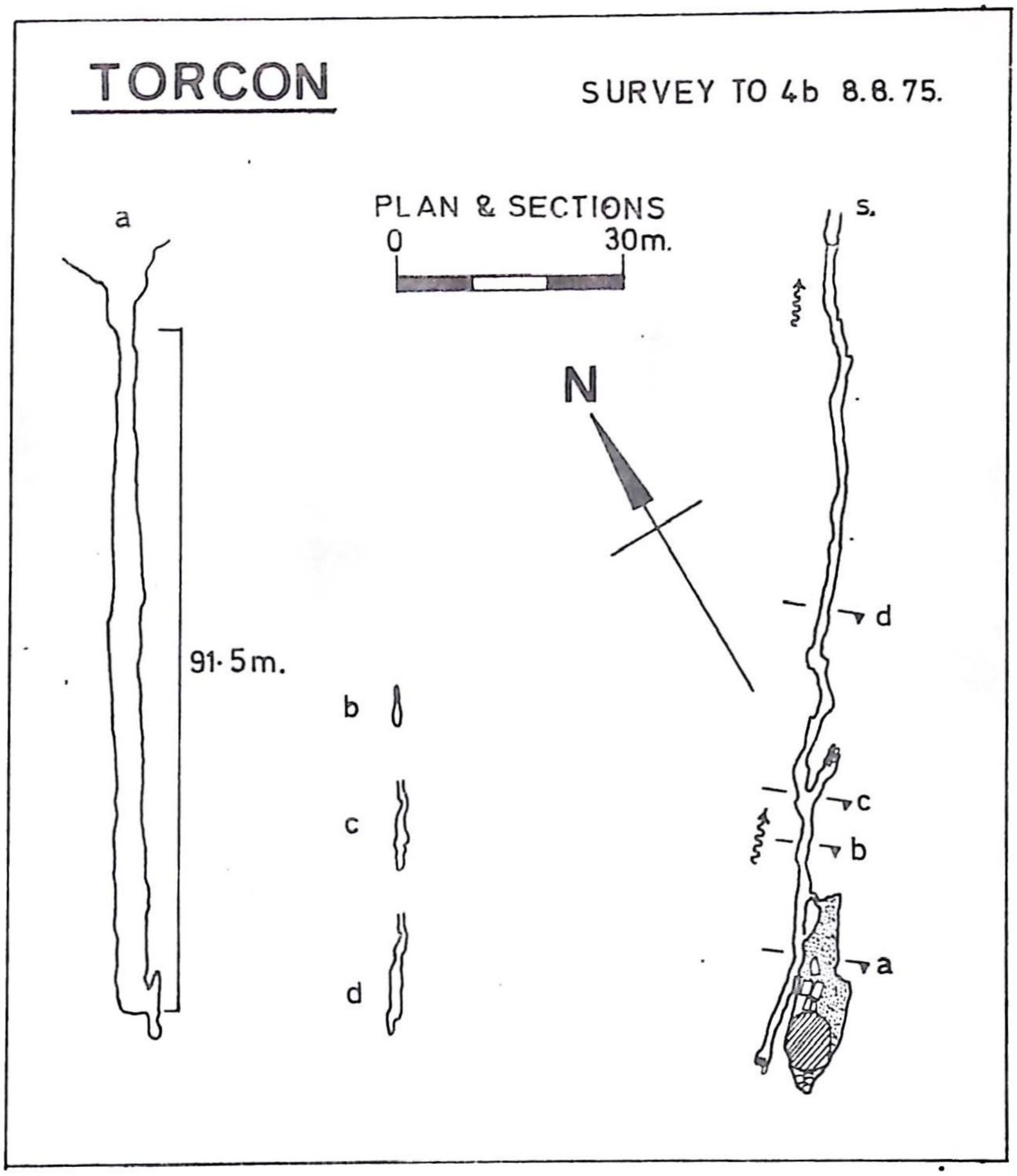


←1

2→

UZUEKA SUB-AREA SURVEY Nº TWO





One continues past some good calcite formations and evidence of a false floor. After about 100 m. from the main chamber a sump is reached. A dry way over this continues for a few metres but becomes too tight to go on, although it is observed to drop down back into the water. No draught is felt, however. The sump itself appears impassable as the way on at floor level is also too tight.

Riano area drainage.

The Uzueka drainage is difficult to describe as only two surface stream sinks are known in normal weather (3 & 11) Under ground there are more e.g. at the base of *Sima Baz* and *Sima Dave*. These join the water from 400 m. passage and the near series to produce the first river. Other inlets are difficult to speculate about until further survey work has been done though their source is doubtless in the area of dolines on the plateau behind *Uzueka* entrance. *Torcon* obviously drains to *Uzueka* probably joining it from the upstream sump in the Gorilla Walk.

The real surprise from this years work though has been the size of the total water flow and its direction. Unfortunately although we were provided with enough fluoresien to test the river detectors were more difficult to come by and a dye test was not undertaken. It seems almost certain though that this water will join that from *Carcavueso* (The main sink for the Matienzo valley) and resurge at *Secadura* approximately 2 kms. from the present end of the cave.

Following the discoveries in *New Uzueka* the drainage in the rest of the area now appears to be more simple than we at first believed. It seems certain, though it has not been proved, that the water in *Riano I* drains with that from S 18 and in association with caves at 19 20 to the large collapse sump at 21 and then to the resurgence at 22. The river then remains on the surface for several hundred metres before sinking into *Cueva Espada* entrance at 23. Two further sinks at 26 join the water in the cave and resurge from the other end of *Espada* at 29. A quite large stream resurges at 30 but its origin is unknown. The combined flow of these two streams flows down valley and no further karst development takes place as the stream is flowing on the Wealden impervious beds.

A further important sink at 16 cannot be entered and this must join the *Riano I* water between the sump in the cave and the resurgence.

An unnamed cave at 17 approximately 150 m. long was explored to a draughting crawl which was not forced. Another draughting entrance at 28 was also not entered. (It was blocked with a stone wall to stop animals entering). These two caves seem the best possibilities to enter this unexplored branch of the *Riano I* system. Upstream in *Riano I* was not visited this year so no further speculation can be made as to the source of the stream. Sinks around 11, 12, 13 and 14 must be fairly high on the list of probabilities but if so this will bring the cave remarkably near the *Uzueka* system.

Cueva de la Espada.

This cave was so called because a bronze sword (possibly 2000 yrs. B.C.) was found in the cave by the present expedition. The actual site where it was discovered was the canal just before one emerges into the dry exit passage going downstream (N.B. references to climbs C1. on the survey are assuming a downstream exploration and the description follows a similar trend).

The cave was fully explored and surveyed in August 1975 and a through trip of about half a kilometer forged as the survey indicates. It is situated near the village of *Hornedo.* Behind the church, a path leads through maize fields to a cliff where the resurgence for *Riano I* sinks, after traversing two fields. The lower entrance is found below the sharp, right angle road bend ½ km. from the last house in *Hornedo* on the way to *Entrambasaguas.*

At the sink for the sink for the cave there are two entrances. The dry entrance to the left of the wet sink is preferable and almost immediately the main stream-passage is met. Upstream from this junction and up a large passage on the left, a small stream of unknown source emerges. From the survey it seems likely that this was once part of the streamway and that later a lower sink developed.

Back downstream beyond the junction the passage continues in comfortable dimensions with the stream cutting along the right hand wall. Eventually large black rocks are encountered and it is easier to climb over them rather than attempting to follow the stream.

A small passage was pursued on the left until it became too low and wet.

In the same area it is possible to descend to the main stream down on the right, but its course is obvious and so the old abandoned route is taken. One soon reaches stream level again, but, after a few metres, the stream-passage becomes low and choked, the water reappearing further on in the cave.

The way on over this obstacle is found back along the passage in the form of a cross rift. This is ascended on the right (C1. + 4 m.) and a stooping passage heading roughly downstream is followed to a slot in the floor — a descent of 4 m. One drops down into deep static water, but can immediately climb out over a block and again one is in dry walking-size passage.

Here two sandy inlets run off from the right hand side which are soon intersected. Then continue again on their individual courses. The right hand branch ends in an aven, the left choked by sand. On the opposite side of the passage a slope ascends to the base of an aven, continues and finally chokes. There is nothing of any great significance here.

From here the cave gradually increases its dimensions and the explorer is again accompanied by the stream until forced to climb up round a mass of boulders. This is no real obstacle and the stream is soon met again in a passage of similarly impressive size. After a good stretch a sandy ramp is introduced on the right and this is pursued until an upward boulder choke is encountered. Go no further!

Back in the stream the way on assumes a low wet bedding-controlled nature, but is soon relieved by a damp inlet on the left. This is a stooping or hands-and-knees type crawl with a further dry passage on the left which simply reconnects with the main stream. The damp inlet eventually chokes.

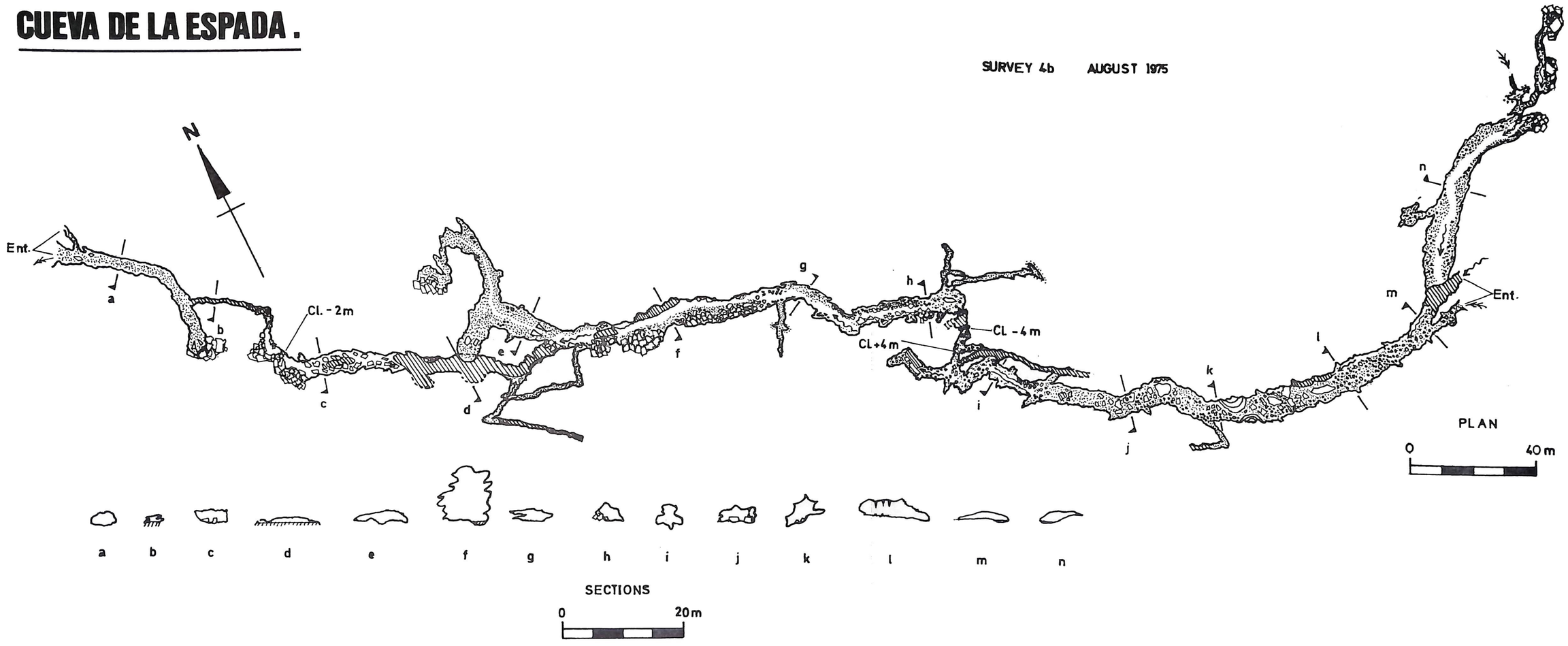
To return to the main through route, the bed wetting soon gives way to comfortable walking passage and the stream disappears under the left hand wall. Within a further short distance, a large boulder choke confronts the explorer. Crawling to the right brings one to a descent through boulders (C1 - 2 m.) and then continue through the choke to more comfortable regions. This is short-lived, because one is again forced to consider the draught-indicated route through boulders. A flat out squeeze extrudes the explorer into a canal, and, after several unpleasant meters, one meets up with the old dry passage again. (The water is not encountered again, but seen to resurge just to the left of the exit).

Following the old dry passage to the left, up a ramp to where a boulder choke terminates that direction. It appears from the survey that this choke is associated with the one further back, thus representing the old abandoned route. To the right the final stomp runs in almost a straight line to the exit, where one emerges in a field just below the main road to *Entrambasaguas.*

This then concludes the description of our work up to present around *Riano* where in two years we have found roughly fifteen kilometres of cave passage in an enormous variety of forms. More remains to be found but certainly if *Uzueka* is to be pushed to its conjunction with the waters from *Matienzo* and then on to *Secadura* it will require an efficient and sustain effort by an expedition concentrating solely on that system. Working on the known ratio (in *Uzueka*) of passage to straight line distance then the potential of the *Riano — Matienzo — Secadura* system must be in the range of 30 - 40 kilometres. Nor does this estimate allow for the fair possibility of a connection with some draughting holes we dug at the head of the valley of *San Miguel de Arras.*

CUEVA DE LA ESPADA .

SURVEY 4b AUGUST 1975



CHAPTER VIII

SECADURA

The large river which resruges in *Secadura* now appears to have two sources. One is the main river sink at *Matienzo (Carcavueso)* which has been dye tested through in 9 hours. The other, although not certain, would seem to be the drainage from the *Uzueka* area.

The resurgence itself has been investigated on several occasions and although it draughts in many places no way on has been found. All dry ways end in boulder chokes and the divers report little prospect of progress. underwater. Although no actual dive has been attempted preliminary work with mask and snorkel indicate that boulders block the way on.

Cueva Elegante.

During one of our excursions to the *Secadura* resurgence a rather excitable local became interested in our activities. He seemed most unimpressed by our attempts to find a way into the main resurgence declaring that there was no cave there but he knew where there was a most elegant cave. We followed him back down from the end of the road to a right angle bend where there was a washing trough. The water was fed from a small trickle resuring from a tiny cave and the entrance to *Cueva Elegante* was above and to the left. Stuart was the only member of the group with a wet suit on so he was assigned as explorer in chief.

A stooping height passage lead after 50 m. to better going but deeper water followed and this gradually increased so that after 150 m. the water was out of depth. The streamway then sumped in a crystal clear pool the way on being to the right over beautiful calcite flowstone. Access was too difficult though due to the slippy nature of the rock. On the return a draughting chimney was climbed into and a large dry well decorated passage found which went off in both directions. 'Upstream' it was followed for 100 m. without reaching the end and the downstream continuation was not entered.

The next day a reinforced party returned to survey, but by the time they had changed a local had arrived and indicated they should not enter. They assumed that the water supply to the clothes washing trough had been dirtied by the previous days efforts.

Unfortunately then, the cave was not fully explored or surveyed. A pot in a depression above the cave mentioned by a local may however, offer an entrance which avoids problems with the water.

"Can yer gerrus another ladder? Its too deep' So off went the survey team thro' hell and high water to get ladder. Gorrit, purrit down and off they went — Mutter-mutter 'they'll be back in half an hour and illbe — 'Cor, winner, superb goesfermilesweerofartna" half an hour later they are back 'Goesfermilesweerofartna!!" —

CHAPTER IX

THE SAN MIGUEL DRAINAGE AREA

The *Nacimiento del Rio Clarion* is the resurgence which drains the wole of the *Mullir-Muela* range. We have so far done little work in this undoubtedly important area as only one shaft of the 20 or 30 known has been descended. Large areas of limestone on the eastern slopes towards the resurgence have not even been looked at.

Torca de Yusa.

This shaft is situated on the south west edge of the enormous *Hoyo de Yusa* approximately 30 m. down from the edge of the depression. This 'shakehole' is certainly the largest we have ever seen, its long axis being[almost a kilometre and narrower one over half a kilometre. With a depth of over 200 m. it dominates the topography of the area and must certainly have dramatically influenced cave development. To the east a series of smaller depressions lead away towards the *San Miguel* valley.

Torca de Yusa was first noticed at the end of the '74 Expedition. With an estimated depth of 100 m. it was far in excess of what was possible with either tackle or manpower at that time so the first descent was attempted in '75. Jeff Clegg managed to borrow 110 m. of rope suitable for S.R.T. and after a false start — the party couldn't find the pitch the first time — the descent was made and the end of the rope reached with approximately 20 m. further to the bottom. With no further suitable rope available Jeff had to return to England without bottoming the shaft. Very near the end of our time in Spain, a contingent from the E.P.C. arrived and became enthusiastic at the prospect of a deep pitch — Most of our gear had returned to England but they did manage to reach the bottom using various ropes knotted together. At the base of the pitch was a fair sized chamber with a further pitch estimated at 35 m. Various suicidal possibilities were suggested for getting down this with the extremely inadequate tackle available but thankfully Phil Collett arrived on the way back from the *Picos de Europa* and had a decent length of rope with him. This made the job much easier and the choked base of the second pitch was reached without incident.

The Spelio Club de Dijon working to the south in the *Ason* area have found several of the worlds deepest systems in this same limestone band and it seems likely that with a potential depth of 750 m. interesting caves[will be found near the *Hoyo de Yusa* in the future.

Cueva de Cobrantes.

The extremely large entrance of this cave is visible from *Nacimiento del Rio Clarion.* Although we have not yet visited it the cave is well documented as many prehistoric remains and several cave paintings have been found in it. It appears that after 200 m. the very large passage is completely blocked with calcite deposits. Its position suggests it probably functioned as an ancient resurgence for the *Hoyo de Yusa* and associated area.

Nacimiento del Rio Clarion.

Our attention was first attracted to this and nearby springs by its close proximity to the massive, now abandoned resurgence of *Cobrantes.* We presumed that *Cobrantes* and *Nacimiento* represent past and present risings for seepage water from the 200 m. deep depression of *Muela (Hoyo Yusa).*

Nacimiento is approached byturning right off the *Matienzo-Laredo* road in the village of *San Miguel.* A tributary valley to the *Aras* is followed to a point where the stream subdivides. The right hand branch leads directly to the low arch of *Nacimiento.* By following devious routes, a Landrover can be backed right into the entrance to serve as a useful belay for the divers' line.

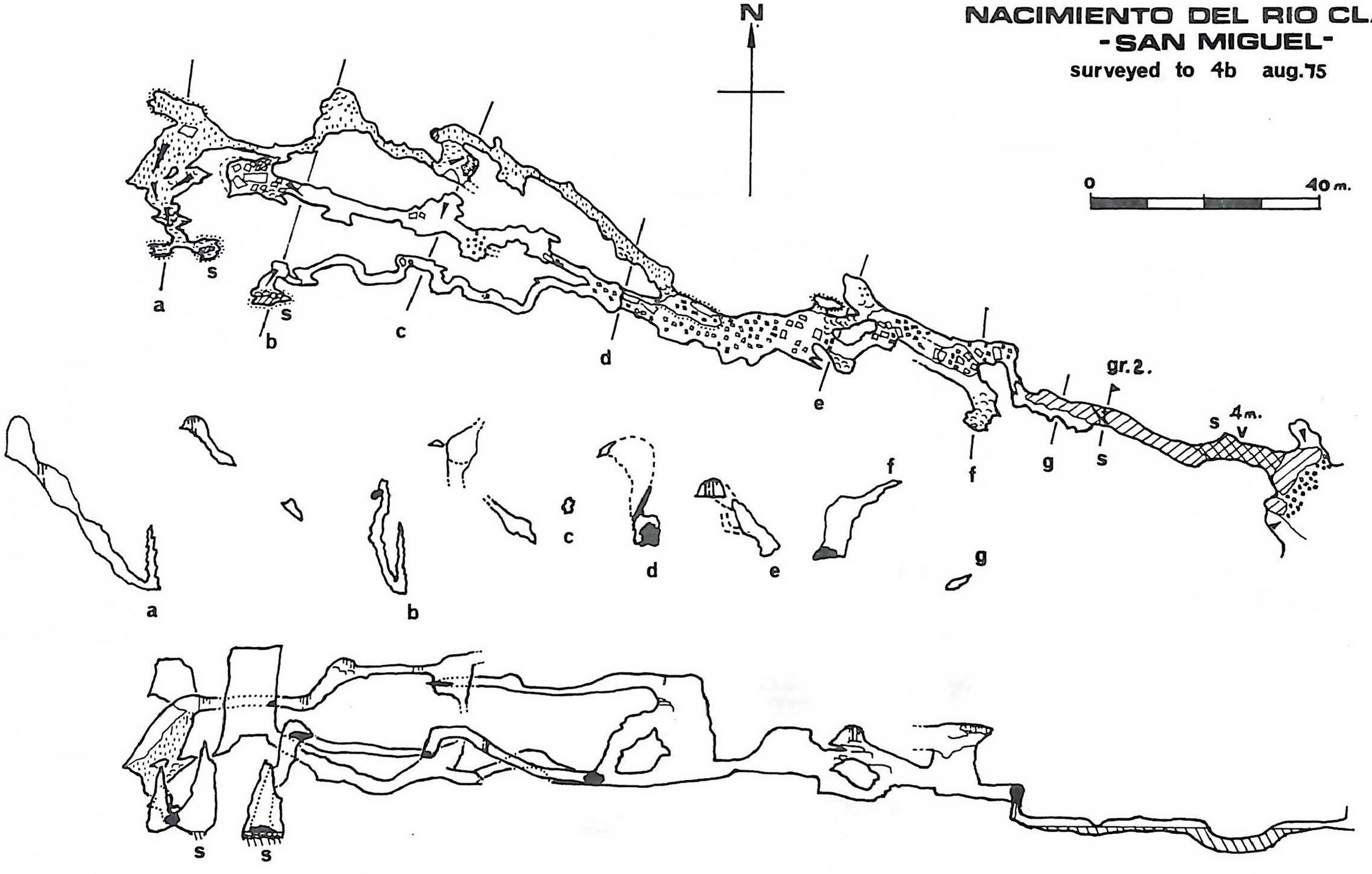
At the time of exploration, no water resurged from the entrance, but the locals reassured us that the site was very forthcoming in spring . In summer the active spring is 200 m. to the south, where water issues from a bouldery stream-bed. Just behind this is an enterable cave which will be described later.

Inside the entrance of *Nacimiento* is a crystal-clear sump pool, revealing a steeply descending submerged boulder slope. Stuart passed this sump on the 5th August after 12 m. of 2 m. deep passage. He surfaced in a well-decorated canal and belayed the line before returning. Stuart and Geoff returned two days later passing a second 2 m. long sump after a short section of canal. That day they explored enough to feel that wet-suit socks were insufficient for the job in hand.

A further trip was organised with Buddha taking up cave diving for the occasion. The three divers and masses of scaling gear were assembled at the far side. A short climb up from the canal leads to a fine piece of passage 13 m. high. This was the first site for our climbing-cum-scaling attempts. A climb up flowstone revealed a short length of high-level tube choked with stal. Back in the main way, three lengths of scaling pole were dragged over boulder-strewn floor.

NACIMIENTO DEL RIO CLARION
-SAN MIGUEL-

surveyed to 4b aug.'75



. A lower route to the left avoids climbing up and down greasy flowstone and through magnificently decorated column chamber to the right. A climb up from the lower passage reunites the route which opens into a further sizeable chamber 20 m. high. A tantalising black hole in the roof saw poles being thrust upward again, enabling climbing to begin 8 m. off the floor. This later proved to be a useless occupation, as easier access can be gained further along the lower route.

Geoff reached the top and disappeared to explore. About 50 m. of generally low but well-decorated passage brings exploration into a window looking into a sizeable chamber. A short descent, a traverse round holes in the floor, followed by a short climb up leads to the continuation. After a further 50 m. of similar passage a large sloping chamber is entered at roof level. This can be descended through a few constrictions, to a small uninspiring looking sump pool beneath a high solutionally enlarged joint. Returning to the top of the slope and 20 m. back down the passage, on the right is a second window. A climb down enters an aven adorned with flowstone. The descending route now doubles back on the high level. An up and down passage over well-washed pebbles and shattered rocks suddenly brought the explorer back to the bottom of the scaling pole.

This left one problem unsolved. On the previous trip, Stuart and Geoff had followed the left hand lower route from the base of the scaling pole. They had explored a section of up and down phreatic tube, with spikey characteristics, to the top of a pitch. This was found to be 16 m. deep and sloping in part, ending in another constricted and evil-looking sump. In times of floods, water must be forced up the pitch before it can resurge, but, during our stay, there was no sign of any flow.

The present flow can be found in the cave mentioned at the beginning of this descrption. It is situated in a grassy hollow above the main rising. A steep boulder slope hurtles down into a deep sump. These immediate impressions were confirmed by diving. The submerged passage descends steeply to a depth of 8 m. at roof level. The roof was followed over a deep rift for about 30 m. until it became obvious that the only way on was downward. The divers descended a further 4 m. from where they could see, in the crystal visibility, another evil blackness 22 m. below, making 34 m. in all. The thin-ness of the line and the lack of bouyancy meant that "Peter Plummet" would have to be left for another day.

"My Spanish must have improved — last year I asked for two beers and got an orange."

APPENDIX I

SURVEY WORK

a. Equipment.

As with last years' expedition, this years was equipped with Suunto compasses (4) and clinometers (3) and Rabone Chesterman tapes — 1 x 100 m. open reel
1 x 30 m. open reel
2 x 30 m. closed reel
2 x 20 m. closed reel
of the tapes only 1 x 30 and 1 x 20 closed reels were not supplied, completely free of charge, by Rabone Chesterman. That we recieved the generous gift of four tapes was an extremely welcome event, especially in view of the criticisms we made after last year. We still retain reservations about the design and materials but without Rabone Chesterman's generosity our considerable surveying programme would have been severely curtailed. Cave surveyors may wish to note that open type seem, to us, to be far better for wet and muddy work. It should also be said that the tapes did work more than one would normally do in several years in England and under conditions that were generally worse. In the end three of the tapes were virtually destroyed and the others were well on their way. Two of the clinometers were useless for most of the expedition because of water penetration, and some of the compasses suffered imilarly for shorter periods.

b. Standards and Grading.

Previous experience has shown us that for the standards we require (of accuracy), back-bearings are superfluous and this, allied with a shortage of surveyors led to the general use of two-man survey teams aiming at grade 4b on the C.R.G. standard (1 compass, 1 clinometer and fibron tape, taking main line with occasional width and height offsets). Grade 2 (compass and paced measurements) were used for some minor passages. Grade 1 (sketch from memory) was used where time or circumstances demanded (see below). We appreciate that such gradings or standards may not be quite what the armchair surveyors of the caving world may demand but for that we make no apologies. The B.C.R.A. gradings have not been adopted for the sole reason that we have no intention of adopting them ever.

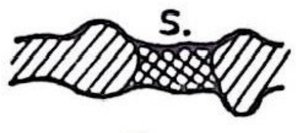
c. Drawing Up.

Almost all the drawing up was done in Spain on a bar table using protractor and ruler. Verticals or true horizontals were worked out either geometrically, or by slide rule or by electronic calculator depending on availability. With a number of surveyors drawing up, discrepancies have inevitably arisen, but the following symbols have been generally adherred to — not all of which are precisely the same as those in British Caving.

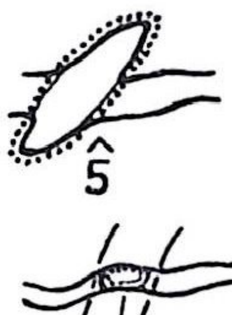
d. Symbols.

Sand, silt, gravel (including small stones). Heavier areas denote banking.

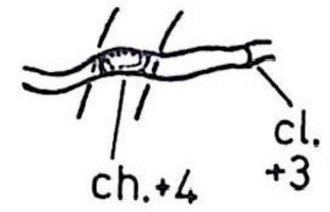
Mud, clay or earth.



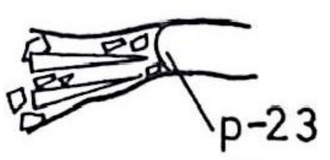
Pools with sump.



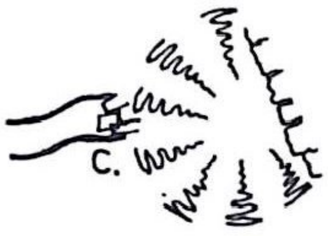
Aven with height in metres.



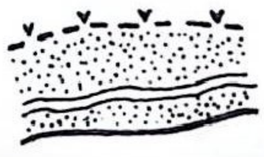
Chimney and climb. + or — in relation to the route in.



Boulder slope down to pitch.



Choked passage approaching surface depression with cliff on one side.



Passage with rift in the floor and one indeterminate wall.

All other symbols should be self-explanatory.

Finally two points:—

Unless otherwise stated all surveys are orientated to true north and, secondly, the scale in most cases has been kept to a standard of 1 cm : 10 metres.

Unfortunately the three largest cave systems have had to be reduced (by hand) down to 1 cm : 40 metres simply because costs would otherwise have been prohibitive.

APPENDIX II

SOME NOTES ON ARCHAEOLOGY AND PALAEONTOLOGY

None of the team members were in any way qualified as archaeologists so all incidental finds were dispatched to the Museum of Prehistory in Santander or workers came out to view them in situ.

Cueva de Emboscados.

A neolithic hand axe was found near the left hand wall at the first right bend. It apparently was a large iron ore nodule and had been chipped at both ends.

Cueva del Risco.

At the end of the Pinto Gallery at the point nearest the Tali shakehole on the surface, the Spanish cavers had encountered a skeleton of Cervus Megacervus with antlers complete. On our visits we could fine little evidence of this, only a few bones in a very bad state of preservation were evident. On a shelf to the left, just before the boulder choke a small passage was seen to run off. This was followed for a few metres till it became rather too small. At this point a number of animal bones were noticed and one particularly which appeared to have been shaped. On closer investigation it turned out to be an arrowhead beautifully tapered to a sharp point. It was carefully wrapped up and removed in an ammo box and later given to the Museum.

Rascavieja.

On the original exploration trip into this cave, human remains were discovered at the point marked 'skeleton'. The easily removed jaw and parts of the skull were taken back to Santander by workers at the museum, the remaining bones were left for study in the future. The excellent state of preservation of the jaw, complete with most of the teeth, apparently indicated the owner was young, a boy of about 12 was suggested. The remains were probably of Bronze age and a tentative dating was given at about 1000 B.C.

Cueva de la Espada.

This cave has taken its name from the bronze sword which Dave L. found approximately 100 m. from the lower entrance. The position was in the streamway to the left of the first boulder choke. The sword was sticking up vertically with its handle end buried in gravel and the rest submerged in water except for the tip which was above water. Dave assumed it was a calcite flake until it moved when he touched it. It was removed from the cave as it was then thought it was an old scythe blade. On later close examination, we realized it was bronze. Only in the last few days of the expedition did the sword find its way to the museum so as yet, we have no further information. We can be fairly certain though, that it must be some thousands of years old.

FOOTNOTES

Page 1

1. The dip is by no means constant either in angle or direction, but in general there is a favourable dip from the various sinks through to the resurgence(s) which has been a major contributor to passage formation.

2. The rocks in this area form part of a half dome at the termination of an anticline and have as such, been faulted under tension.

3. The present day resurgences of *Lisa* and *Transformador* are springs on the junction with the Wealden base. In dry weather *Transformador* can be entered for a few metres before it sumps.

4. In flood, water, obviously, emerges from this rift with considerable force, pushing large rounded stones up the slope, rising 5 — 8 metres and flowing down the entrance passage.

5. See Matienzo 1974, p.2.

Page 2

1. See J. C. Fernandez Op. Cit. pp. 57-58.

2. The roof gallery can easily be entered. To the left it drops back to the river down a deep rift and beyond the rift it chokes. To the right a sandy gallery heads to a drop onto a sandy beach where several other passages rejoin the river gallery.

Page 3

1. In general it seems that the passages that make up *Tonto Series* originate in the area between *Refugio de la Guerra* and *Cueva de la Puerta* (see baloe) but this has not been proved.

Page 4

1. Known as *Gran Risco.*

2. *Gran Risco,* between this point and the *Sala Carballo,* where it emerges near the top, between huge blocks that form one 'wall', is a straightforward walk through a vast passage that has been subject to considerable collapse.

3. See Matienzo 1974, Op. Cit. p.17 et seq.

4. See Sub Area Survey III for the following plan references

Page 5

1. This type of flaking of, roughly, discus-shaped pieces of rock is a common feature throughout the whole system, but is especially heavy at this point.

2. Positive dye test see J. C. Fernandez Op. Cit. p.43.

3. See J. C. Fernandez Op. Cit. p.41.

Page 6

1. This crawl was dug out in 1974 and has since rechoked.

2. Just back from this point some galleries take off above the stream, but are either just oxbows or are choked.

3. See Notes on Archaeological and Paleontological Finds for details of an arrowhead found near this choke.

Page 7

1. This is in close proximity to the huge depression of *Hoyo Mortera* (not to be confused with *Hoyo del Mortiro* mentioned in sub-section VII).