

LOGBOOK

Year: 2003

Season: summer

Logbook pages scanned to jpg then combined into a pdf file using <http://smallpdf.com/>

Juan Corrin, January 2015



PRESENTACIÓN. Un momento del acto. / ROBERTO RUIZ

La Guía del Paleolítico se presentó ayer en el Ateneo

El volumen persigue difundir el patrimonio rupestre de la comunidad cántabra

REDACCIÓN SANTANDER

El Ateneo de Santander acogió ayer la presentación de la 'Guía de Cuevas de Arte Paleolítico', obra de Peter Smith, con la que se pretende difundir el patrimonio rupestre. El consejero de Cultura, Turismo y Deporte, Javier

López Marcano presidió el acto. El volumen ha sido editado y coordinado por la 'Asociación Cántabra para la Defensa del Patrimonio Subterráneo (ACPS)' que se fundó en 1978 para tratar de proteger las cavidades de la región y sus valores: espeleológico, arqueológico, biológico, etcétera.

Subj: **peter plummet dives**
Date: 10/07/2003 15:55:30 GMT Standard Time
From: rupert@skorupka.freeseve.co.uk
To: juan.corrin@matienzo.org.uk
Sent from the Internet (Details)

Hi Juan, after some 4 abortive attempts, due mainly to poor diving conditions, things finally slotted together on a trip in June that myself and Julie made to cantabria. After a few set up and familiarisation dives, I reached my old limit at -72 m in the shaft. Continuing downwards, a definat floor was reached at -81 m on a slope of silty boulders. Following this led downwards into a gallery of modest proportions with a snaggy boulder floor. Only a short amount, about 20m of line was laid to -83 m, due to the difficulty of manoevreing with the side mounted 20 litre cylinders in the poor vis.

The cave is definately continuing downwards though. I have passed this info on to Josep Guarro of the SIE for their cave diving website. I have invited any Spanish divers to continue pushing this sump, but I would be most surprised if they get anywhere as it is a truly daunting prospect. It is unlikely I will return as having invested £5k in a rebreather system I would like to find a site where it fits !

I have also made a couple of dives in Comediante this year. This is a very complex and large sump, the vis is usually not good enough to search passage of this size. However, Im gradually building up a feel for the place and Im nothing if not persistent. We will probably have a couple of dives here this august, conditions permitting, and see what we find. Hope the info is of interest, have a good summer, Rupert.

Some things to do:

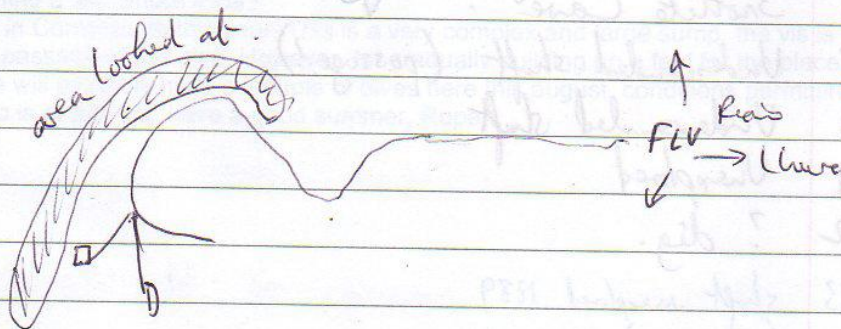
- 50 Serruco - 2 pitches undescended. ✓
- 580 Unexplored parallel shaft - Terry?
- 413 Mega Mill shaft - complete re-exploration + survey
- 1817 Shaft requires enlarging above chamber 15m below.
- 116 Torca de Tusa - exploration and survey of system (117m pitch).
- 1887 Draughting digs near 1514
- 1874 Snottite Cave? ✗
- 1888 Undescended shaft (passage?)
- 1914 Undescended shaft
- 1919 Unexplored
- 1922 ? dig.
- 1893 shaft mapped 1889
- 1876 (1877 + 1878) 10m v/d.
- 1875
- 187
- 188 GET PISSED.
- 189 DO IT AGAIN.
- 190 OK JUST ONE MORE SOL Y SOMBOKO VALLINE (Downstream sum)

24th July.

Juan wandered up to Tres Niños to try to inspect holes on the cliffs below. Shant, brambles, thorns, etc don't mix.

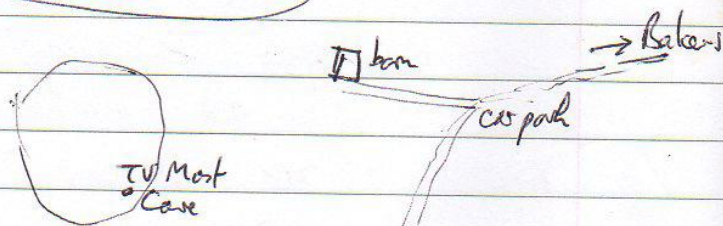
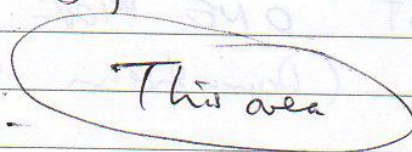
25th July.

Juan, Penny & Jen walked to end of Frente las Vayas track to investigate lack of holes on map. No holes found.



27th July

Phil, Hilary, Juan, Penny, Jenny up to TV Mast area to continue logging new holes, explore, etc.



1920: Removed cover. Juan down 4m narrow shaft Rat chokes

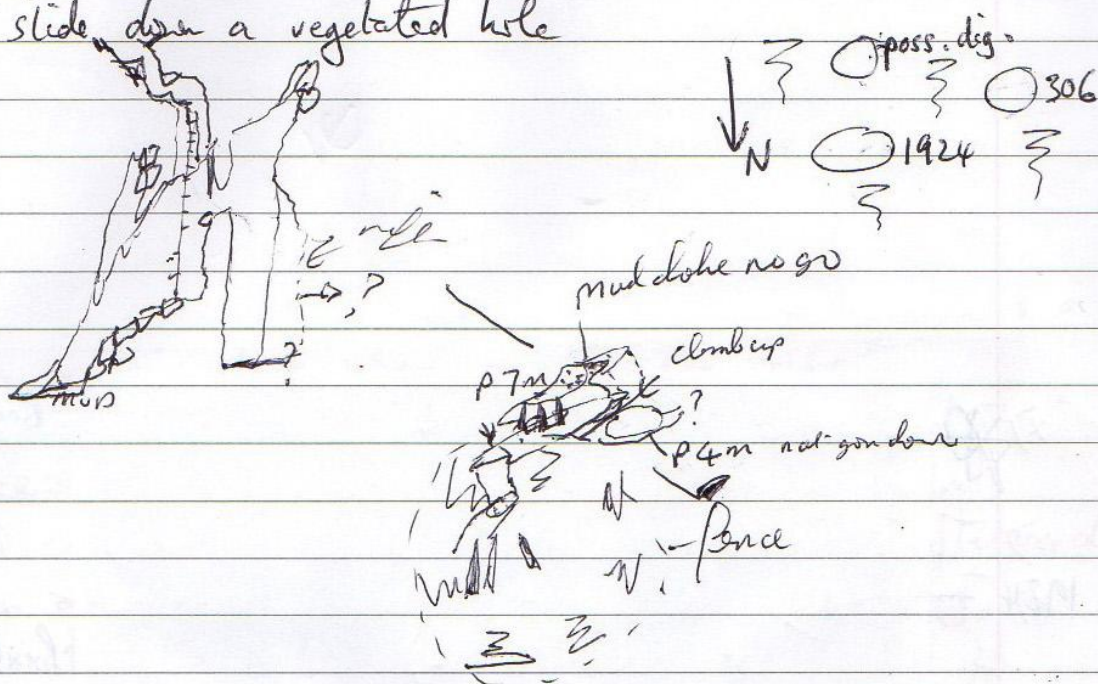
1923 ^{NEW}: At base of 4m high limestone face. A 4m wide cave entrance that enters a 7m long crawl Rat chokes all round.

1918: At end of cave is a narrow slot with a good draught. Poked video spy camera down to reveal a slot to the

left through which the draught might be coming.
A possible "high tech" dig.

306: Then got to Torca de la Llana del Cuto which Pete and Nigel explored on 19/8/81. Phil went down on one ladder to check out. The shaft was 25m deep.

1924 ^{NEW}: Then down hill to the east (20m) where Phil slide down a vegetated hole



1925 ^{NEW}: 3m drop down soil slope to a small choked chamber

1917: Removed 2 planks. Then down 4m shaft to a slot through into "chamber" that sloped down to a choke.

Total depth ~ 9m.

1926 ^{NEW}: A small pleatzi tube that has a 5m drop in a narrow rift just inside the entrance. It may enlarge

1927 ^{NEW}: Just below track past TV mast depression. One hole is boulder-covered. Others need investigation.

1923	30T	451677	4795044
0306	30T	451662	4795118
1924	30T	451684	4795115
1925	30T	451589	4795101
1926	30T	451583	4795050
1927	30T	451707	4794928

30/7/03 Serruco - Dave B, Dave T, Nick

We arrived yesterday, we leave tomorrow!

So we went to Serruco to look at the bottom lead. This turned out to be a 35° slope of loose rock leading down. After a bit it was choked, but a little digging opened this out and a continuing passage with an overhand draught was created. However shortly after the rift closes briefly and the Squeeze is just that but too awkward (and sharp) to attempt today. Passage beyond beckons - echo is good and there is a "black space" about 5m or in the rift.

Squeeze needs either the right hand wall Hilti - capped away, or all the sharp bits flattened with a hammer, or a smaller cover (say, a bit like Pete Egn). Not difficult.

Ropes left in place.

Note - the last bolt on the "entrance" pitch series needs a second nut added to it because the knot rubs!

The route through the cave is effectively "roped" - the start of the second roped section is on the opposite side of the main chamber about 5m above where you come in.

Watch out for the slime - it will get you!

DRB

31/7 Some info about Drills

B315

The new Hitachi drill is about 30% quicker than the Bosch with the metal bracket on it. The old Bosch still works, but seems to have lots of wear on the gearbox, so is about 30% less good again.

The Hitachi charger will charge the batteries in about 1 hour.

The large box with the knobs and meter is a charger - here are the instructions:

- x) Make sure that all 4 knobs are turned fully to the left (anticlockwise).
- x) Turn it on (small blue switch)
- x) Turn the leftmost knob (Voltage - Course) fully right (clockwise)
- x) The CV light should go out and the CC light should come on. The voltage indicator should go to 70V
- x) Attach the battery
- x) The voltage indicator should fall to the voltage of the battery (about 26V)
- x) Adjust the current knob (right hand set) to the desired charge current
- x) Wait

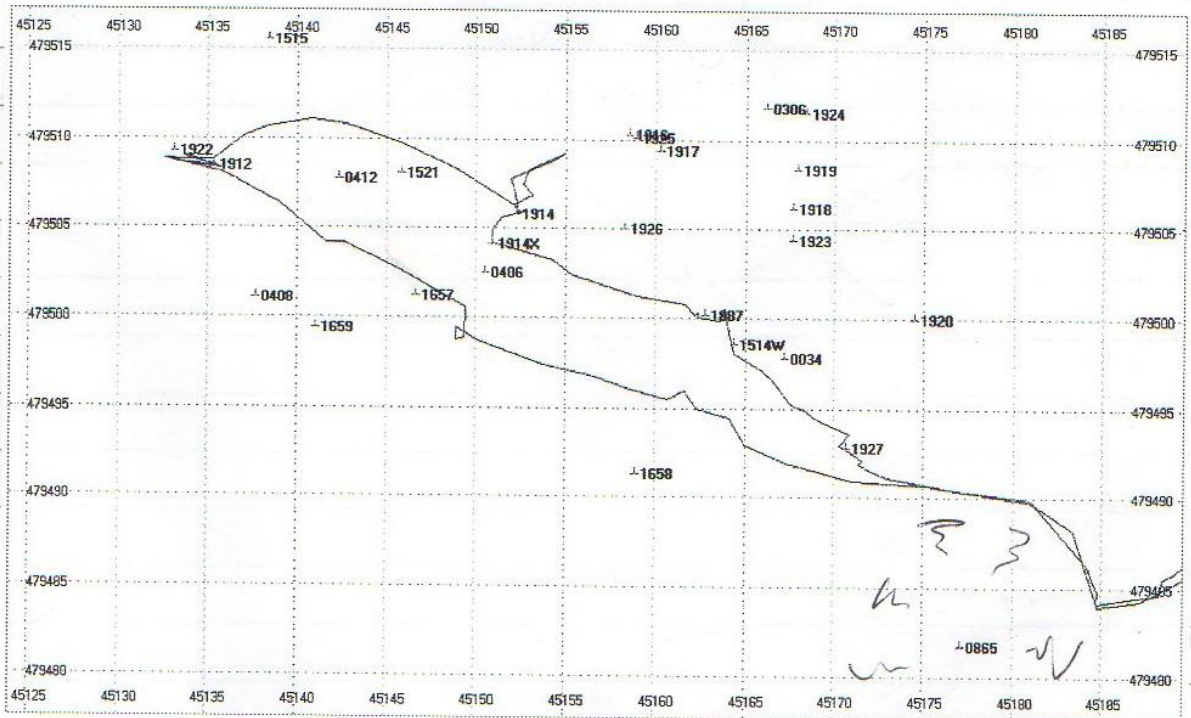
The small Bosch battery is 1.2 Ah the Large one is 4.5 Ah

So, using this charger you can charge the big

9

If you use a high current rate you must make sure you pay attention the how long it is on for and how hot it gets!

30/7/03 Phil, Helen, Joan, King, Jen back to area below and to the west of TV Mast Care. (See 27/5).



1927: Removed some boulders in rift, but appears to be filled for 4m.
No draught. Other holes nearby are well-choked.

1887: Dug at right hand end of this for about an hour.
Removed loads of ancient animal droppings and clay.
Probably Pete Egan size now. Cool, ~~but~~ weak draught.

Then to find 1914 at the base of a cliff - GPS gave position with no visible limestone. Cliff was 20m downhill with a cold draught coming out of rift. Needs hilti caps to remove large flake.

Up to site 1922 on side of large shalehole. Phil dug to enter top of descending rift that is currently too tight. Hilti cap job again. Good draught.

29/7/03 Cefrudes. Ali, Kef Sachsen, Zoe Sanger.

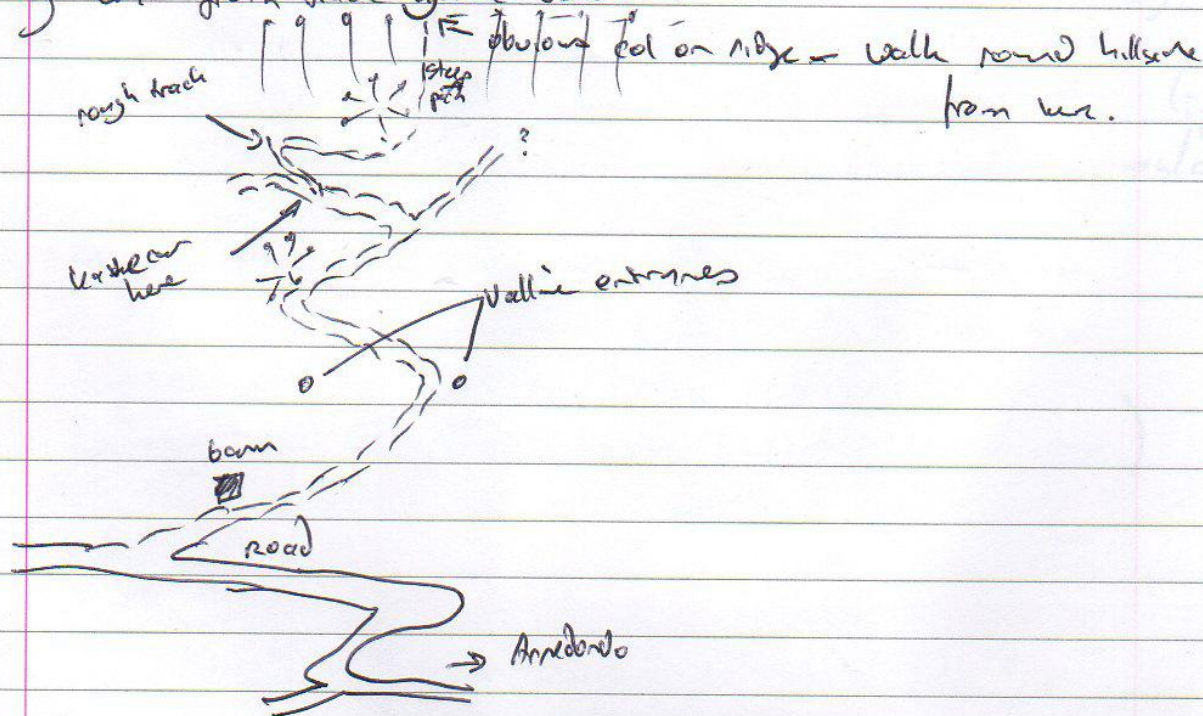
Bit of digging in R.H. Dig (up core) ~~at~~ towards Hidden Hole.

Still very claggy so not much progress. Slight draught.

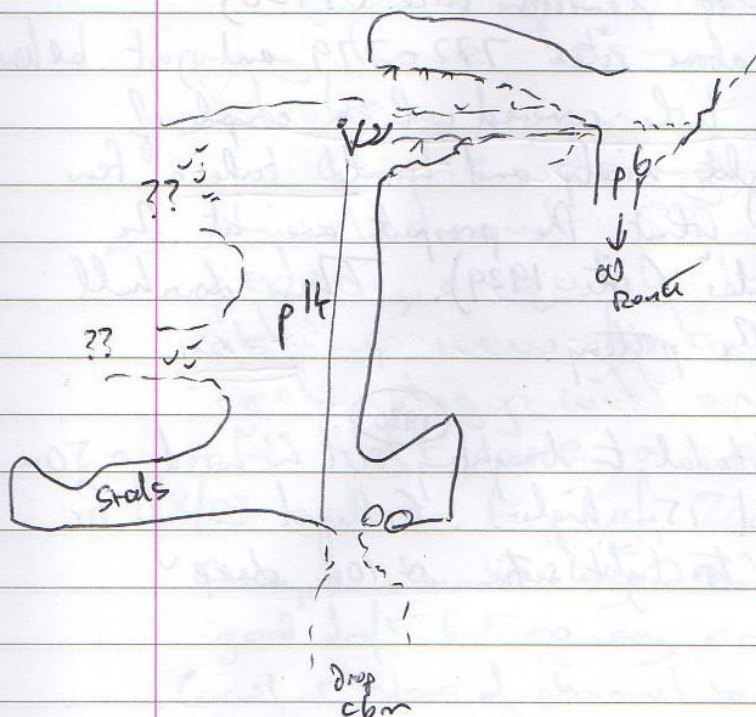
30.7.03. Vaccinator. Kef, Ali, Sane

1128

Easy walk from track above Valline:



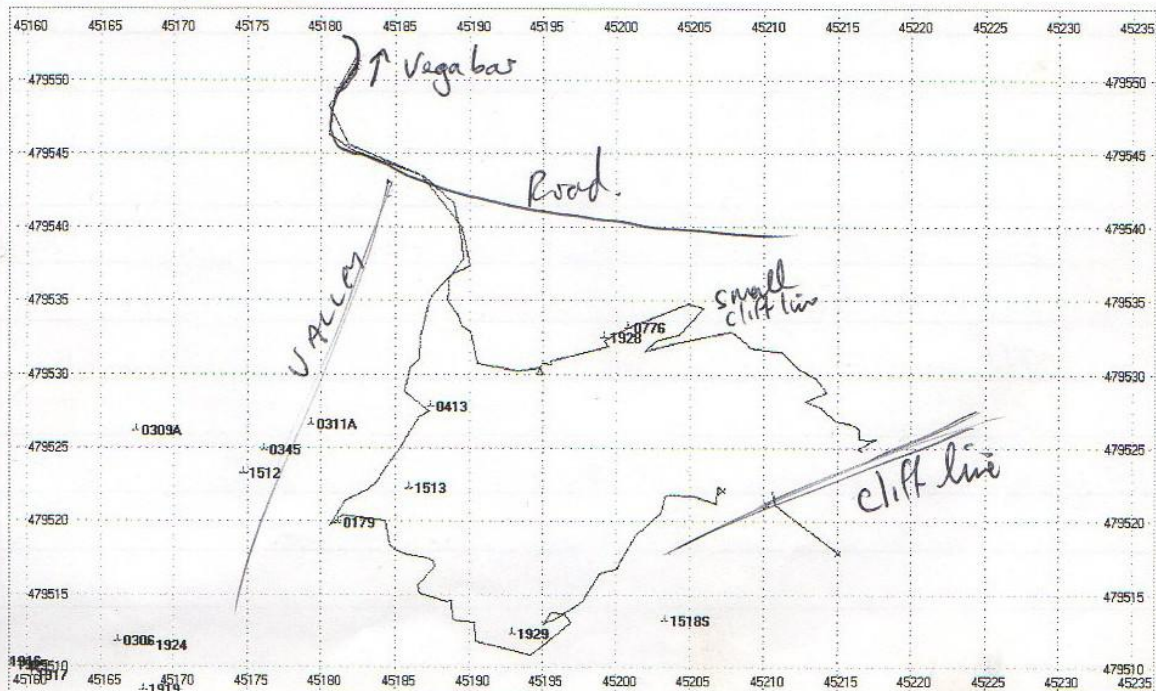
Rescued pit in side passage over top of Run Road/Ab,



H:

31/7/03. Penny + Tran went for walk above and to east of mega mill shaft (413)

Plot of 030731SVega.txt 02/08/2003 11:28:29



Scale 1:4860

to west of
Just ~~before~~ 776 (full of slit) is a small 2m shaft
(climbed) against E wall of limestone face. (1928)
Around from cliff line above sites 777-779 and just below
level of bon is a small hole covered with a couple of
sandstone blocks. Draught nicely and would take a few
minutes digging to see what the prospects are at the
back of a small "chamber" (site 1929). Then downhill
to visit 179 and see the pottery.

1/8/03 Hesk, Phil, Tom to Cavadal to draughting ⁽¹⁹³⁰⁾ slot in wood ~ 50m
from the sink and 15m higher. Enlarged enough for
Hesk to descend to too tight section ~ 10m deep

Sketch

Then to main ⁽⁵⁵³⁾ sink which was draughting well. Surveyed
came to tight squeeze. Video.

Then GPS of various sites. 1725, possibly 768 (D on GPS) and
915 Porqueria. ¹⁷⁵⁵²

1/8/03 Draughting rift at head of gully trending left from
Cavadal sink. 3m rift followed by the rift at 80° to
constriction. Constriction passed but followed by
impenetrable rift with strong draught. Constriction
needs removing. - Jean, Phil & Hesk.

2/8/03 Rancavieja Pete S + Pete E + Ali, Jen + Carol + Helen
Went to photo skeleton, which
may have been a wolf then visited
choire.

Choire draughting well Pedro + Peter
chiseled out SQ but too small for
pedro, a quick look beyond revealed
nothing new but a further visit with
technology will open SQ out easily.
All left cave, a good trip. ME

1/8/03 Ualline. Ali, Kai, Zoe.

Sumped chamber beyond end of channel in Tgo level -
good left but no way on - Jodi
Crawl at start of channel to undersanded drop into chamber

2/8/03 Seruco. Pacey, Tonga, Steve "O" et al
P.P.; Eskik; ~~Tonga~~ - Helong + Teon in support.

Porto split, Pacey + Tonga went to drop shaft in top passage
rel- to "glory" at bottom. Easy trip to bottom of
steep rift on right of main chamber (looking down slope)
this rift ends in a blank wall, pass way on may be
under boulder floor, but no sign of it. To right is a
high rift with a route through at floor level - this is
the squeeze that needed work. We used two Hilti
bongs a lot of hammer work to get through. As soon
as you drop through you see a high narrow rift with
much caliche, at floor level round the first corner
is mud & this lower section backs up in wet wetter
mud due to a caliche dam in front - NO Gp at
floor level & no draught. Spent 2 hrs climbing up
rift to see if any levels would go - none did

the rift - is some 10m. high & narrow at about 0.5m, but - heavy calcite makes progress very difficult. Best way seemed to be new top, but a calcite flow blocked way on. A few feet more progress may be possible for a very thin person, but - as you can see the rift is narrow for much more than this, any progress would need a lot of Hilti work over many days! No chance of progress ~~any~~ at all.

This would seem to be the end of it, except - you can hear water(?) flowing/falling at bottom - long way off but it is clear, - not easy to hear where it comes from.

Surveyed out - & also surveyed Pacy's top passage this did not fit in with old survey - reason my compass was 120° out - very odd as it was OK two days before - must be due to the heat!!!

Pacy's pit's & passage →

Track

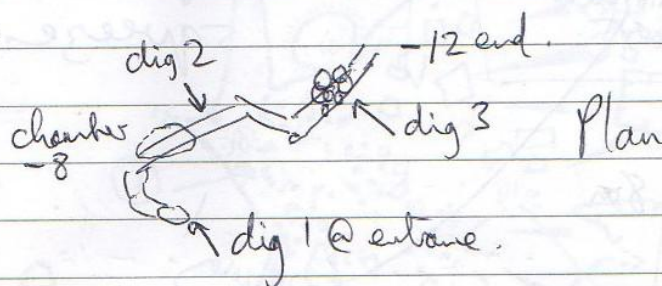
top rock

Traversed over undecorated

shalt and entered a continuation of the high level passage. Much glacial pebbles and gours (very pretty). Passage developed into right ending in a calcite choke. Descended shaft 9/4 (10m) pitch, wagon at the bottom very small, continuation. Right right. Noted another hole, again 10m into a large passage and another pitch of 10m. Made a visual connection with the shaft series going down from the entrance series.



3/8/03 Side 1847. Pete had previously opened up this muddy-floored area to reveal a bouldery rift down to a crawl. Juan + Pete descended to crawl and dug it out to enter a low passage to a boulder choke blocking the way on. This was dug out for 3m to allow Pete to squeeze through to where the flat out crawl turned into a two-narrow rift.

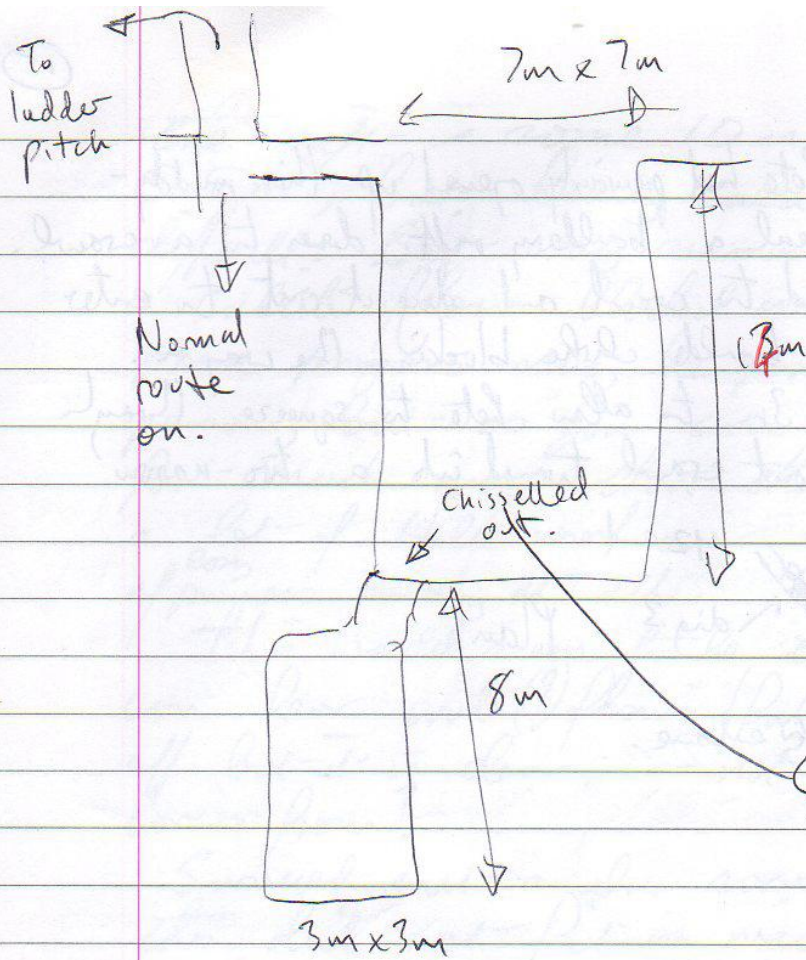


3/8/03

The Vaccinator

Pete Egan, Keith Jackson, Ali Niell

Decended previously rigged pitches to approximately half way down, descended pitch close to normal route down to a small hole seen two days previous. Some chiselling allowed access to 8m pitch going nowhere at the bottom. Derigged this and continued normal route to bottom to attempt siphoning wet crawl. Siphon tube worked but head was too small to produce good flow. Frantic bailing did little to lower level. One or two other digs investigated, some drafts but not carry way on. Derigged leaving siphon tube in place. Should anyone need 20 foot of hose pipe, it will still be there.

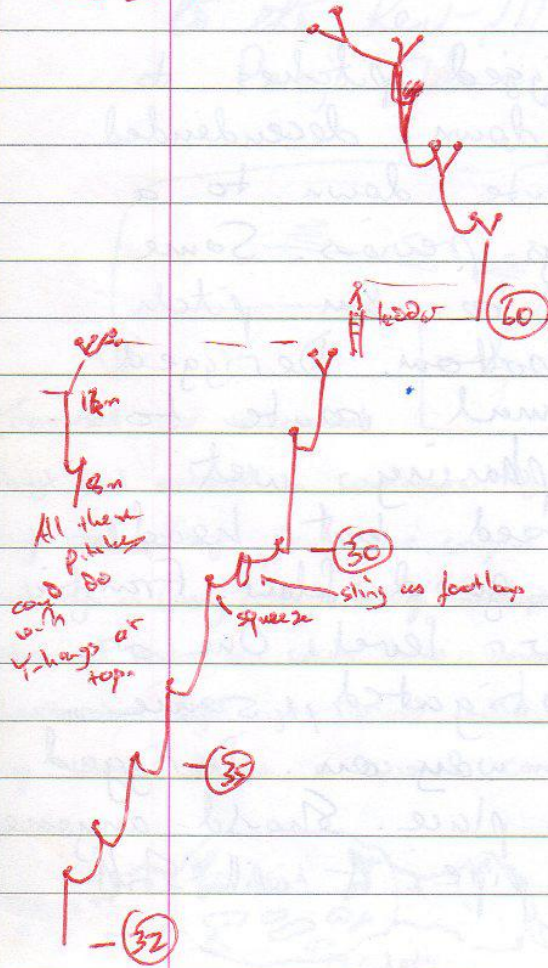


Vaccinator

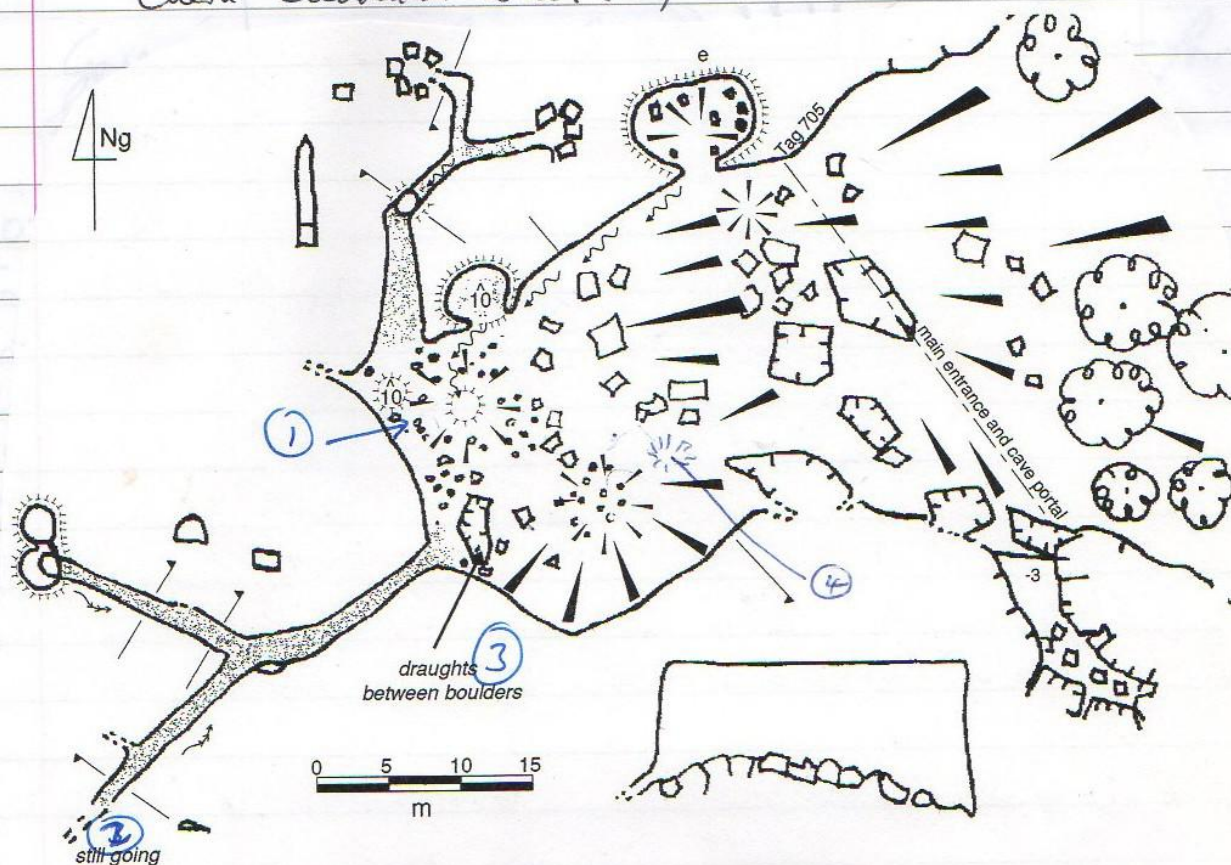
Pitches investigated
after laddered
squeeze.

Spelling!
See Me.

Rigging for Vaccinator.



5/8/03 Terry, Juan + Penny to Cobadal to eyeball
Cueva Candenosa area. (681)

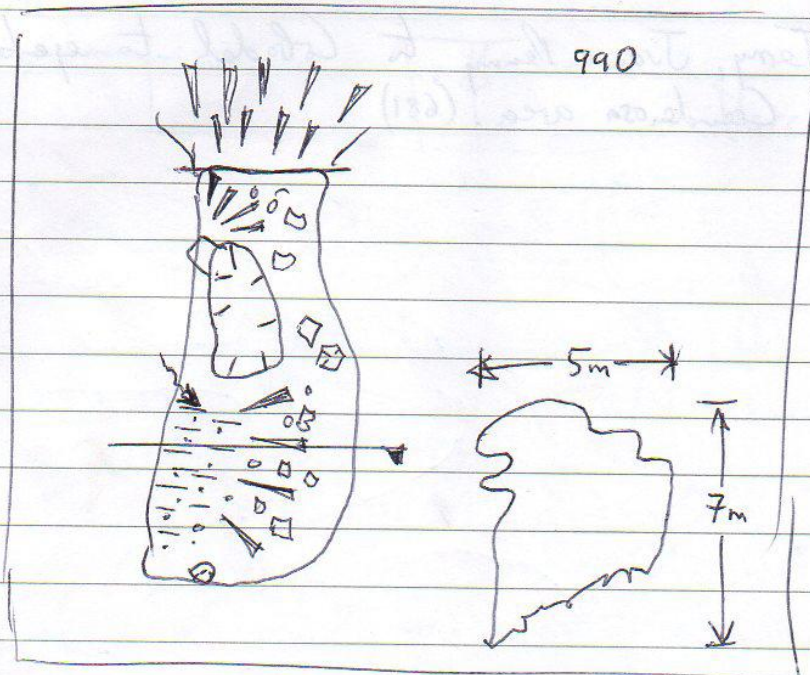


Site 681: Cueva Candenosa
Cobadal VN49259810 Alt: 270m
Surveyed 1987 to BCRA grade 5c (h-s)

PLAN
Length: 120m
Drawn by TW

Rift ① Good draught - can be chiselled out to meet
water sinking in sandstone boulders nearby.
Passage ② Slight draught. Sediment dig in small passage.
Boulders ③. Drop down to boulders. Floor under large
blocks. Good draught.
No apparent archaeology.
Photo of Torca Candenosa (682).

990 Also upstream of track in valley is another deep shalehole
containing a blind cave. Water in streambed drops over
uphill side of shalehole to drizzle into entrance. Sinks
in sandstone inside. Terry's sketch over:



6/8/03 Cruz Llorada area - PP; Eski; Steve 'O'; Hilary^{*Jean}
 Walk in 35°C heat, Steve 'O' with bike!

1932 ① elev 538m (GPS) 451042 : 4798562

Small shale hole on ridge line, resembles fire hole & small depression around - about 3m deep - mud floor - not decorated, but does not look very good.

② 931 Location is wrong
 near where it should have been is

1933 :- 5031:9807 1m wide 6m long choked rift -
 some 4m deep - Pic in Hilary's camera - does not look good

9 Possible 931 true location: - 5029:9821 (alt-461m^{GPS})
 rift-10m (ish) deep, pass way on in boulders - but did not descend into cave - No drought - entrance capped with large slab & two boulders - Pic in Hilary's camera.

1934 4495:9825 - Eski's dig - Shale hole with

Hazel nut-tree - ~~all~~ walk down to 3m long 50cm
width rift - closes down - no draught. Pic in Hilary's Com.

Gave up walk due to sun + heat - a man-for
even at Riva.

5.8.03 Valline - P. Egan, Helen, Santi, Hugh + Irish, Al.

Top to Bottom Rough trip - rigged first pitch for pull-through

Crack at start of Channel led to drop into chamber with no passable way on.
Pit at far end of Channel on right - c 20m deep, blind.

No way on in chamber beyond Channel found.

Passage opposite Hole in Wall explored c 30m to choke & over.

6.8.03 Rusiceogin. Al: Santi, Hugh + Irish.

(Climb over wolf skeleton attempted, but rock v. dodgy so ran away.

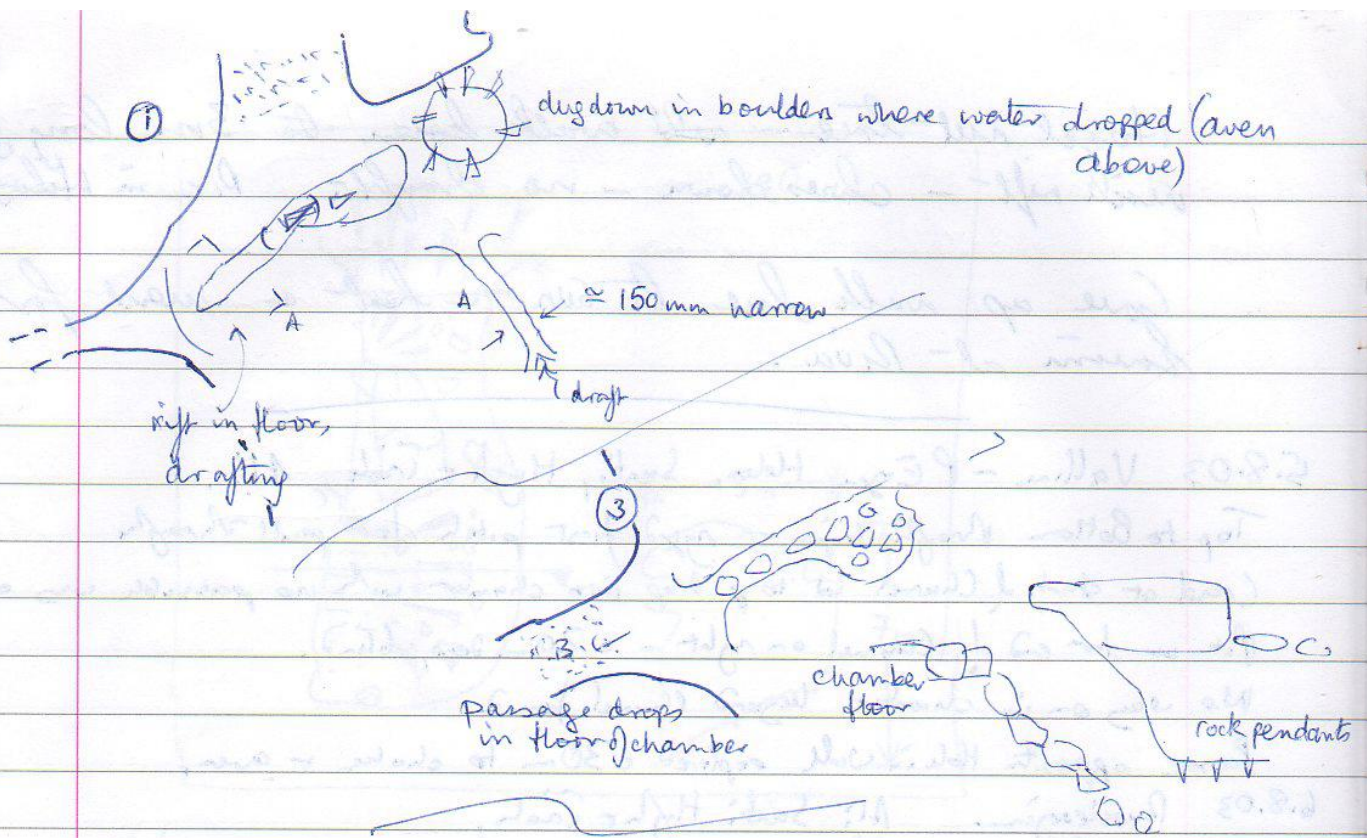
Choke beyond wolf 2m draught - draft comes out through impossible
choke in chamber beyond.

Center - lie survey of old part of cave.

7/8/03 Pete, Carolina, Jenny, Nigel, Andy Q. Valline to survey
about 30m section beyond La Riba. Andy climbed up
and laddered climb for rest of party. At end, climb up to
right led into unsurveyed section. Surveyed out. No obvious
way on. On way back, diverted through Sala Pin and
surveyed section to include bottom of climb being bolted by
Catalans in clean washed shaft.

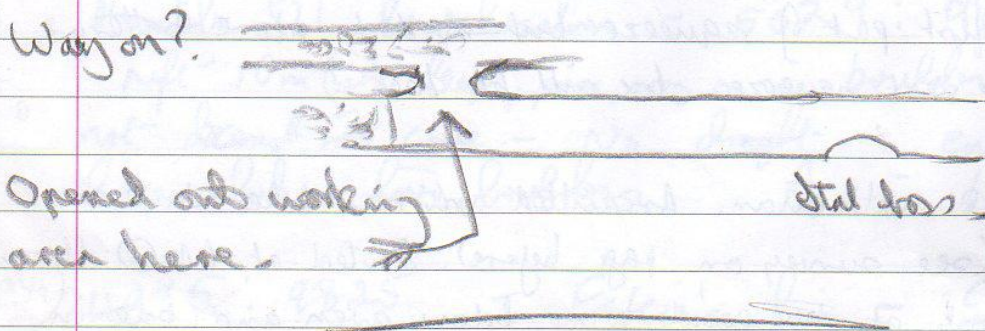
7/8/03 DCC to 489. Tried to enlarge route to final chamber.
Enlarged first part of squeeze but needed more battery
to enlarge next squeeze. We will be back!

8/8/03 DCC to 681 with Juan. Assaulted various holes in main
chamber (see survey on page before). Started at hole ① throwing
boulders out at two points - one below aven and one in



(cont...) drafting rift. After thrutching around for awhile, rift turned out to be no more than 150 mm wide although drafting. Potential to bypass tight bit by digging straight down. Moved on to number ③ which is more promising. Removed a lot of boulders and got into clean washed area with anastomosis roof. Potential of slope cleaned up to remove more boulders. Also dug at area ④ creating new crate in chamber where part-time stream descends. Loose roof. Potential for site: - reasonable - need rope and bucket plus spade. Also worth looking up sandy crawl ② with a spade and tray.

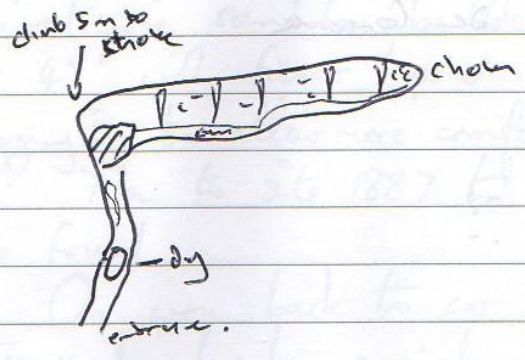
8/8/03 Buena de la Befata? # 0042,
Hugh & Jirina to Ali's dig.



7/8/03 Cobadad - Heski Phil Juan Pedro Gene D. Niki

Cave Pepper Cave 1931 - dug into continuation, stream flowing out over sandstone floor, no steel choke

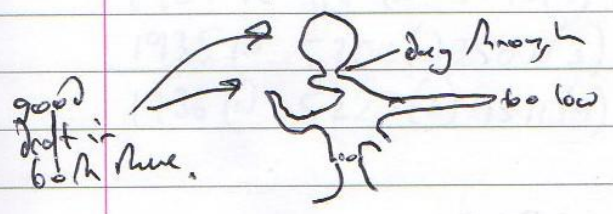
Surveyed + video



Heskie + Pete capped in sink.

8/8/03 Vallin - Heski, Santi, Ali (also with PP + Steve 0" see below)

Chambers to right at junction of Lapham Bypass + Roads to Nori - ? on survey - squeeze thro' steel into chamber with a dig thro' steel into chamber with good draft



Been just after the Canyon - dig through starts to even + maddy drifting inlets which got too tight.

Heski went down hole beyond canyon - to simple passage + connection to Canyon. Between the canyon + Road to Nowhere a 4m wide passage with howling draft followed to squeeze into Canyon pushed at several points + continues tight.

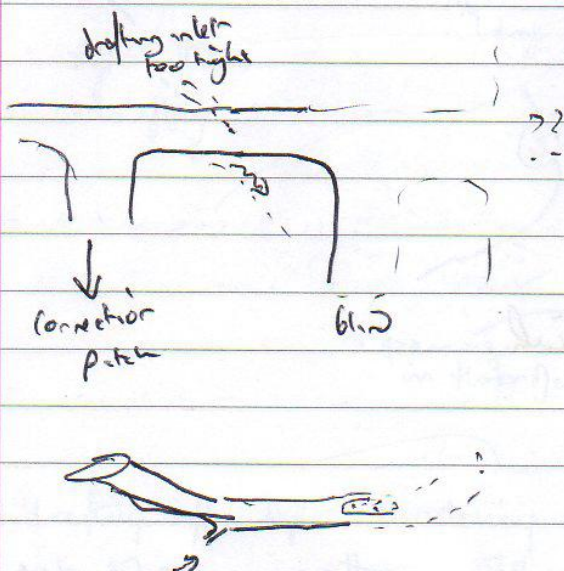
Passage opposite floor - well surveyed.

c200m surveyed - much asked before.

8/8/03 Vallin - PP + Steve 0" went - with about a 4m on the way to near passage (Albert's Passage) + course - took RTH + went - half way ready for RTH with Calalorio - left 3 ropes + 10 spits in RTH

9/8/03 Paper Noel Santi Ali Peti E Torken

~~See~~ Rigged Teamwork to connection pitch to Plaza de Concorde
Trench over top led to blind on pitch drained over to chamber
~~chamber~~ - presumed to be Plaza de Concorde



Pitch beyond soap-plate area from Easter dropped - ~~the~~ blind

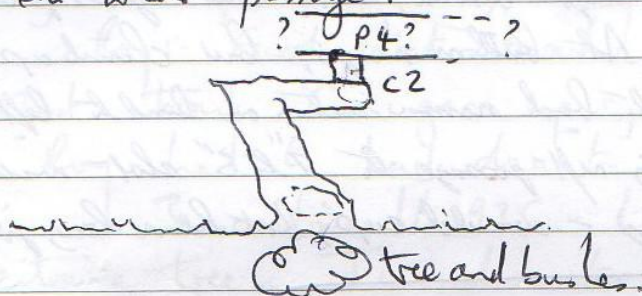
↑ Long Show Pot now Short Show Pot (Torken)

good draught at pitel Lead may
be from above.

9/8/03 Steve M. and Pete S. to dig in field up valley from Sima
del Picón. Strong draught in. The entrance was widened and rubble
removed from floor. It appears to continue down through boulders.
About 3 m deep. Needs more work, possibly capping some boulders.

10/8/03 Juan + Penny park @ Colisera car park on TV
 Mast Track and contour round to dig @ site 1929.
 Removed some sandstone boulders in entrance but with digging
 at 45° with finger tips or toes. Needs a trench
 digging in to allow more comfortable digging. Good cold drought.
 Then to site 1887 to find more bits of pottery =
 none found.

On way back to car came across cave entrance behind
 tree and bushes against 2m high limestone face. (site 1935)
 A 7m crawl turns right to meet a 2m climb down
 to the sloping head of a pitch ~ 4-5m? entering a
 3 or 4m wide "passage".



1929 re GPS @ 5192(9)9512(1).

1935 @ 5204(1)9507(3)

1936 @ 5227(3)9511(9) — this is an unexplored depression
 surrounded by square barbed wire
 fence.

10/11/03 Phil P + Steve M to OS1 Torconde Beretta
 cave a pit not gone down since 1981 — trip to survey &
 check for any passage or possibility for further work with Helli cops
 etc. V hot — going up & had problem getting to entrance due
 to cows + two ~~bulls~~ bulls in way! Put in polebats
 to avoid boulders on first slope — bottom no go, small rift — lakes
 water, but is full of boulders & stones with no gaps of any depth, rift
 (inlet) followed for some 20m to 7"8" wide squeeze with

Draught-into hill is away from you, showing it must go to bottom of hill - would cap, but at best a 1m would need to be taken off to a corner - may need a bit more!

Description: -

Hole is collapse into on all passage at-top of cove at-head of Codrera valley & slope down to TV mast on Basaltic - cone must be cut-off in both directions due to hill slope.

Slide down entrance slope to flat floor with chaled cone to SW & slope to pitch to NE - our pitch is continuation of cone - not gone into, but must be cut-off by hill v. soon. Traverse to south (right) ~~to~~ down boulder slope ^{to 6m} to two boulders (nuts on place) for 1.2m pitch to Big boulder & ledge - rope is hung on right-hand side only with falls. Next pitch is free 25m shaft behind flake that gives protection from rock from above. At bottom no go, but climb up (or swing in) to left to south, at back narrow section on hand to left - gives access to 20m of climbing right passage to 7" to 8" slot - with draught away from you (summer) - would cap, but be a long job.

100/Aug/03

CARCAVEO - MS + AP

Went to look at the OVLOV Sump in case it had drained and was no longer a Sump. Water level had gone down and there was no flow from Sump so would be a good place to dam and bail; estimated time for bailing this with bucket leaving a 'dry' Sump. First Sump would take about 1 hour to bail but then this just leads to a rift into a Sandstone and the other Sump would have to be bailed. It's approx 4-5ft deep in current conditions

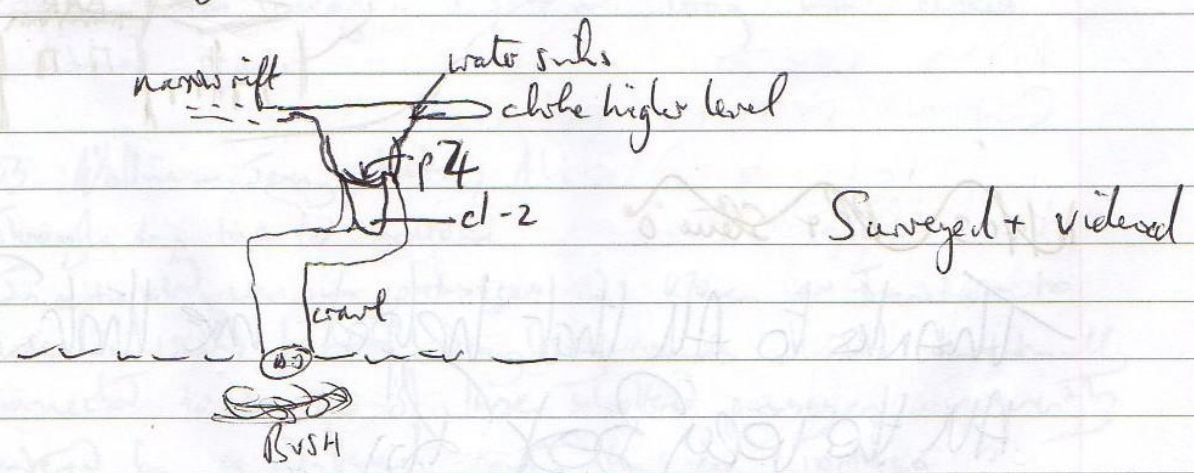
* Ladder in entrance to western series broke whilst climbing it. Therefore replaced it with similar ladder that we took in to the cave for Haymarket series. Old one still attached however as karabina has seized

9/Aug/03 - Hole in the Road - MS, AP, DS

Went to explore in new passage at bottom of boulder collapse. Squeeze down under boulders to left of last survey point (P) leads to 45° rift and with hole down (unexplored). Over top leads to boulders leading eventually to crawl under solid wall with gravel bottom. Passage then opens out and enters a reasonably big stream passage down a ramp. This is followed keeping to the left hand side into large passage. On right areas can be seen up mud slopes. Continuing cave ends at ~~large~~ large boulder collapse. Directly ^{above} ~~under~~ last survey station is an area with water dripping down. Boulder collapse can be climbed up about 15m with small hole in ceiling with small draft between boulders. At stream level a squeeze gains a small chamber with stool (2m wide) giving view down to streamway.

11th Aug. Tony + Roy (see), Andy P + Juan up in Roy's Court Estate towards site 1935 below the TV Mast track. Car gave up just above the vine yard and Roy had to back down to park.

3 continued to 1935. Ladder pitch & belayed to entrance tree. Juan down to find just enough to coax Tony down. Tony dug at bottom into squeeze through and choke. Daylight seen coming in probably from draughting hole 10m in limestone face.

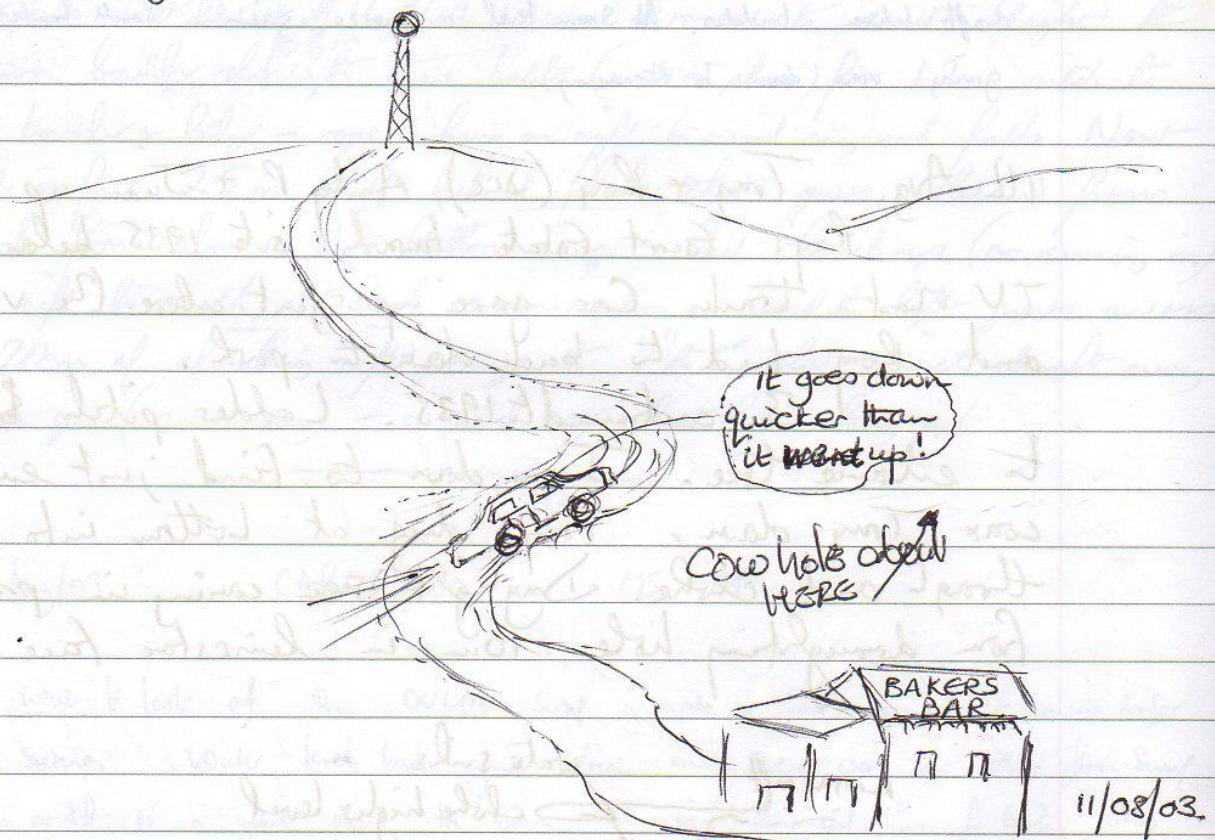


The site 1937 @ 5225(5)/9511(0). A vegetated depression has sandstone block and a limestone face. 3m deep. No draught

Site 1936 descended by Tony. Square ^{2.5m} shaft to low passage 3m long and a possible dig.

Site 1915 eyeballed - a possible hilltop. Sounds quite good below.

Back to car, left tackle and walked to Bakers where previous radio contact brought in transport and money for beers. Retrieved Roy's car - a free wheel from the vineyard to the Bakers.



11/08/03 PP & Steve "O"

Thanks to All that helped me that Day -
All the very Best Roy.

29 April Boblay.

Walk on Enasa to search for site F from 17th / 24th April still did not find it. Noted hole above 1595 needing digging.

August 10th Boblay + Ted.

Dug into hole noted from 29 April. Needs rope to remove rocks. Still could not find site F. Looked into 1603.

August 11th Boblay + Ted + Alan.

- ① Removed rocks and got into cave. Draughts in along almost horizontal crawl with slope.



561 (top).

- ② Site F turned out to be a larger than usual surface collapse in an area full of them. Noticeable because of obvious rocks covering up holes.

- ✓ ③ Cave 1881 entered. 2m deep to tight rift with flat floor ends in blank wall after 4m.

- ④ Cave in ridge of rock between lower end of 1880 and horse trough. 3-4m long with choked bedding plane.

1940

10/8/03 Mellie - Jerry, Helen, Ali.

Through top to bottom.

Investigated various passages in Otter or Junction to Hole in Wall, found draughting crawls which eventually connected to series of large sheltered passages apparently entered by a different route by the tortoise.

10/8/03 Peter + Gordon + Sam + Ki dropped ladder pitel to haymarket to look for climb, shot to high, opposite a second climb led to SQ + passage back to top of ladder pitel. m

11/8/03 Vallina II Ali, Gurti, Nigel Diben.

To uncramped passage running south from W. side of
First Abyss. 4-6 m wide 1-4 m high, v. well decorated,
ending at choke - diggable, small draught, some skeletons (? bat or
frog) near it. Tried to go back down via Thornton Force
but in situ ropes are destroyed by flooding - anyone wanting
to do this should take a 30 m rope which should
allow a pull-through off existing rope & bolts. 10 hrs.
Ali:

Vallina I - Andrew, Pope, Josep, Carol and Pete S.

Went to Catalans' Climb on left of main passage in D.D.
pitch area. They had reached the top the day before. It slopes
up steeply with a further climb up a wall of mud and
boulders. This wasn't attempted. Straight on it goes to a
narrow vadose passage. One tight bit was hammered out so
Josep could get down to the stream, but it immediately got
too small. Surveyed bank.

11/8/03 Peter, Alex (Catalans) Tarben, Louise
Christine

Rigged down to Plaza de la Concorde
Danes started rigging tumbling dirt
Pitel reach - 6 second drop, bolted ready
for a return trip.

Peter & Alex looked for pitel down
to Paper Plane. Rigged off crap and
descended to Paper Plane, visited end
and lost survey marker (Peter & Pedro 2000)
First dig too tight, second loose & no
draught was started with rebar found
near TV Mast barn. Several large
boulders removed to reveal narrow
slot with 5m drop, more digging

then it was possible for small caver to SQ down and follow wall through boulders to head of climb. Further boulders and a second climb down is to passage, which proved to be Coteron. Returned to Alex who returned for survey bit at Pitel, more digging and breaking of rock it was possible for Alex to get through SQ. Found a point in Coteron which would be easy to find left a marker and surveyed back to paper plane. Caught up to Daves on Pde la Con pitel and left cave feeling very pleased.

13/12/03 Peter, Pedro, Ali, Santi:
Connection Tour.

Descended Coteron after late start looking for cavers. Pres gauged Ali + Santi into action.

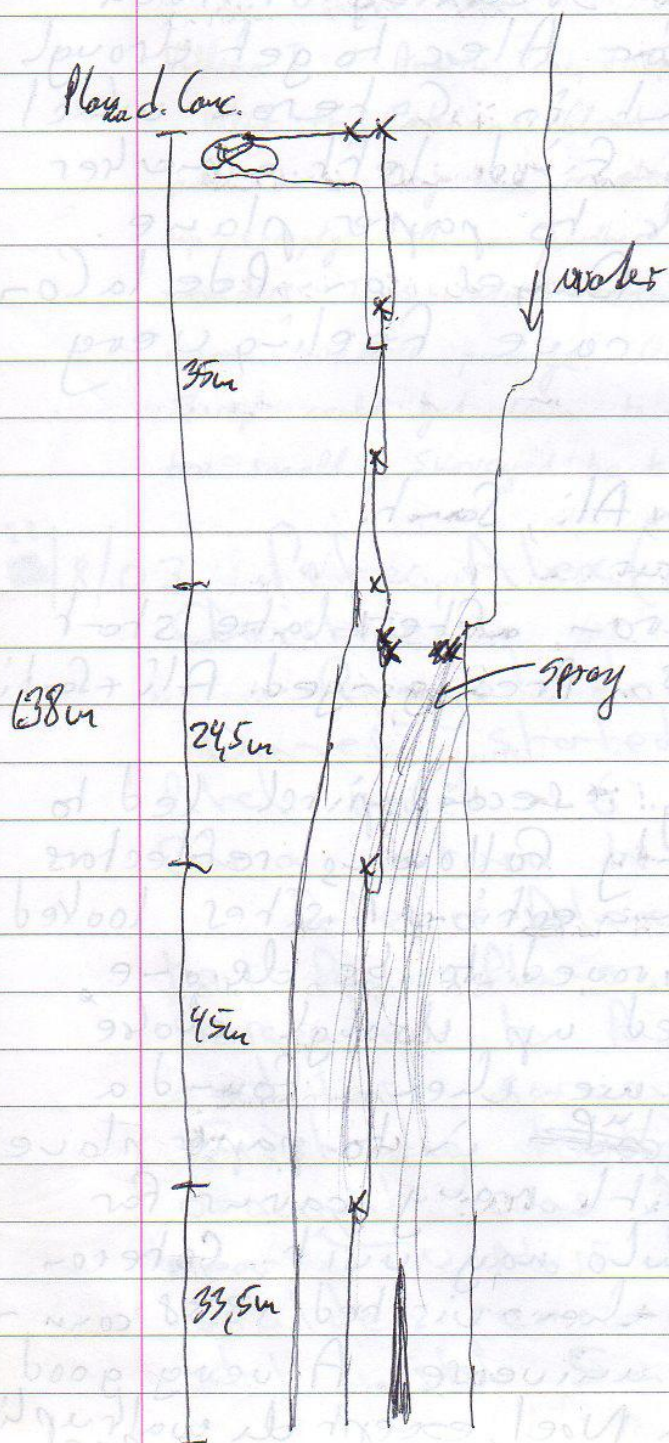
Easy walking + second pitel led to Re-ada crm, mainly following reflectors two possible connection sites looked at second one proved to be the one. All cavers climbed up through clove into Papa Noel, we then found a by pass to pitel ~~down~~^{up} it to paper plane. By pass marked with many cavers for ~~from~~ Daves who may visit Coteron via Papa Noel. We then visited 1338 connection near edge of universe. A very good trip easy way to Papa Noel, except the walk up hill.

13/8/03 Vallée - Ali, Hugh & Irish

Back to Shelter Passage entered on 10 - scurged another ~ 200m
Various ^{dragging} crabs in chamber part way along not previously entered - need to return.

14/8/03 Papa Noel - Kristine, Louise, Toker

Trip start 13/8 and end 14/8. Made connection from Papa Noel (Tumbling Dice, 138m pitch) to Renada.



The bottom was as described by Phil Popard and we found survey station put by PP + Pedro, 27/12/01 in a chamber/junction. Went through the small hole that leads into Renada.

12/8/03 439 DCC + PP, Kev, Bob + Jean & Steve "O"

Took snappers up to DCC dig. V. hot - Kev, Bob + Jean still tired after 28hr drive from Poncairé - I told them dig was near road! used 3 Snappers but rock broke ~~before~~ down to void, tried caps but after mass-fire used one more Snapper - on next trip DCC reported their hole split - the main Calabi box to allow progress.

13.8.03 Bobby, Ted, Lloyd, Alan 20/8/01 — last
 N Vega : 1 Site 1235 GPS 51558 96418

② Entrances to Rascañeja + 1271

③ Entered 354 ? GPS : 52029 96423

Found a miserable 5" slot on way down hill.

14.8.03 Bobby Ted Alan, S Vega

A GPS 51899 95177 Two entrances to

B GPS 51908 95178 same cave which

✓ matches description of 781

C Overgrown fenced shaft with trees GPS 51864 95157

Seems to be 40' shaft + boulders continue to
 roll down slope.

D Fenced shaft below, also with tree
 not as deep.

CD may be 777/778 — Grid refs do not
 match

✓ Note GR for 779 is way off map!

Below D: E/FG. E = shaft in dints 1942

1943 F/G Two shafts in dints, two adjacent rectangular
 1944 fences (with no trees apart from a small ash.

E 51847 95190 FG within 5-10 metres.

H visited cave 179 51810 95201

I On way back in fork in track just
 before barn. Hole? 52262 95107

✓ At barn (1379) There is more than one hole.

15.8.03 Bobby + Ted

found 776

Bobby

① 1942 3m deep

② 1943 4m deep to 5m light rift

③ 1944 3m deep

④ 1513 discarded. 9m deep shaft choked with oven
 (Ref 2000c summer log: An unexplored area of
 fenced off entrances. — to shakehole)

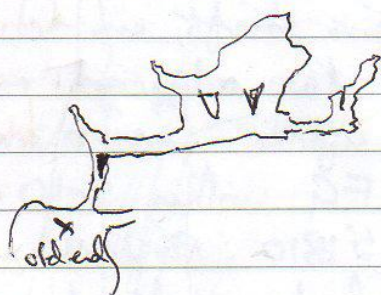
GR 52015 95352

Arenal — 12/8/03 Tim Allen | Pete Hall.

Dug at end of higher passage across from Foam Dome. Up 45° bedding angle then along strike following good draught from small fist sized hole. After 7m could see up into hading chamber. Broke through stal vault and although quite big no real way out could be found. Small hole in stal draughted and could see into space. Big Nose turned up just in time to exit-again.

13/8/03

Same team returned hammered into space and Pete pushed up calcited boulders for 20' with no real prospects. Surveyed 50m and abandoned the site.



14/08/03. Billy, Lenny, Nigel, Chris, Roy & Tony 489.

Following several days of 'blasting' (hard work), entrance made into large chamber. Approx. 15 m in length, at far end a bank leading upwards into a crawl. Through crawl - into a second chamber. Decorated with stals, etc. also hole in left side of floor with what looks to be a 10 foot ^{drop} blocked at but not checked out in any detail. However, main way in at present seems to be more likely from a draughting hole in the right hand side of the floor in the first chamber.

1941

PTO for stars of --

I can't get no --



DRAGON TEAM 0
REAL MADRID 4

SATISFACTION

Wednesday 13TH/8/03

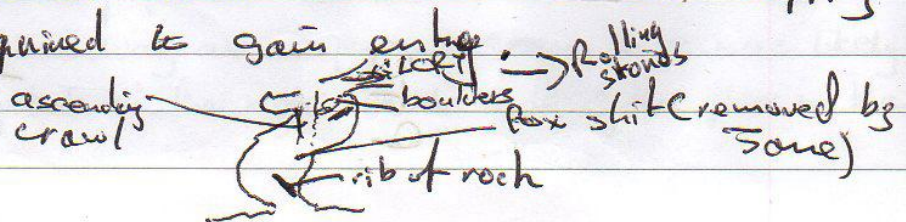
1941

Mr Prugh was contracted for a day of "wife sitting." The first clients, Mrs Allen + Mrs Palmer enjoy a guided walk from the cell at Enaro to Smoothy's Bar where drinks + lollies were consumed. Walking back down the road the next customer were encountered. Mrs Chilton was booked into a quick trip in to 1289 "little cave".

With a satisfaction rating of 5 stars, from Mrs Allen + Mrs Palmer, Mr Prugh set off to 1289. Entry into the wood wife sitters inside must have gone to his head as 1289 was missed. However another drafty hole was seen. This had a good cold draft with tree roots + mud in the entrance, indicating that it had not been entered. After a quick trip in 1289, the new site was visited again. This took Mrs Chilton's satisfaction rating was 5 gold stars. A return was planned.

Thursday 14TH/8/03 Tobz Jones + Jane A + Susan Andie P Returned to site 1941 Round yesterday. Removed mud bank + tree roots from entrance to allow Tobz sized person, ie Tobz into small chamber.

A rock ridge was then modified to allow Susan + Jane C + Andie in. An ascending crawl was dug following the draft. From the top of this a passage / chamber could be seen. However copping would be required to gain entry.



Friday 15th/8/03 Same crew as yesterday + Tim A as capping sub contractor. Tim soon capped out enough to allow everyone into passage soon yesterday. A hand line was used to get down into 40 meters of subterranean passage. At the end of this a dig in mud between boulder lead to a continuation with more nice stuff. This ended in boulders which gave us all the Blues as there was no way on. Some what unsatisfied we all went to the pub.

Audrey P.

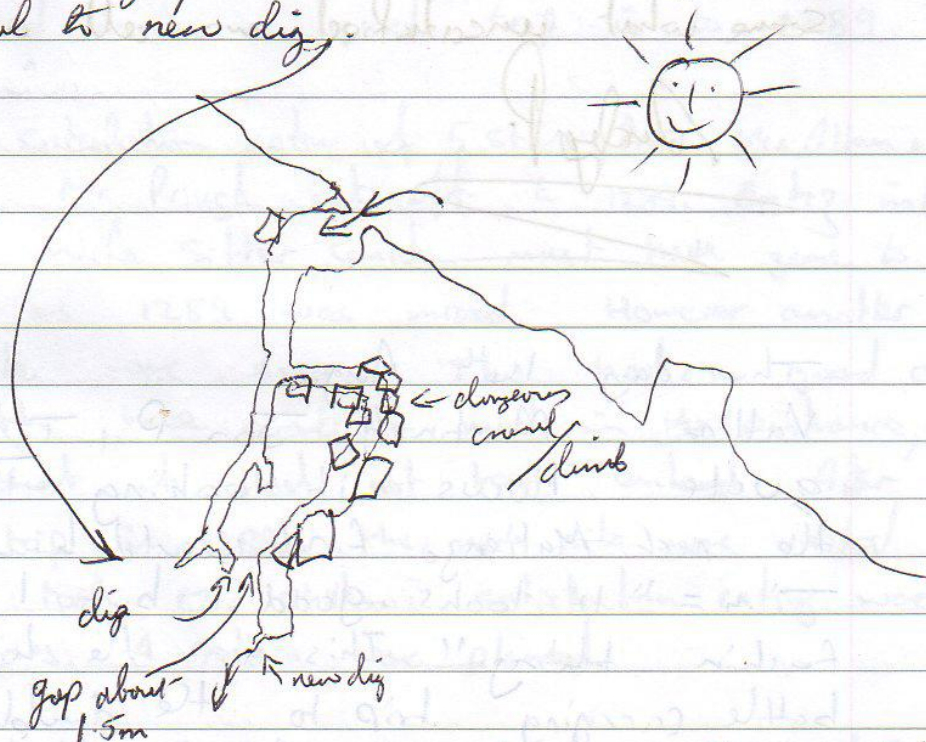
Thursday 14th August
Valline Martin H, Jon P, Tim A
quote "How's it looking Tim ??? " as the next Matienzo find would have Tim's name on it. Tim = "It looks good but I can't see a fuckin thing" This was the highlight of a bottle carrying trip to the double duck pitel with a diversion to Pete Smith's extensions in November 2002. A steeply descending tube ended at a low calcite Squeeze which was dug out over 2 hrs using 'natural' ~~digging~~ ^{HANDS} tools. Jon + Martin endured laceration to the torso in following Tim through into a skull, blackite decorated passage which ~~ended~~ joined back to previously explored cave. Fun whilst it lasted.

M.H.



13/8/03 - 1391 (Volcano) - PP; KEV; Bob Making; Jeon

After a late start - due to drink & needing oil for Kev's motor we took gear incl gen at-up new track to 1391 - Kev not happy with taking his new motor up it only looking like a 4 wheel off road motor, when it was designed for school runs & Tesco car park - telling him I took my hire car up most of it did not seem to help! Several hours later we got all gear to site & started dig from old bottom to by-pass the dangerous crawl to new dig.



Went well using snappers, but we did not take rope & bucket - so digging was slowed up. Very good inward draft - pulling grass into entrance!

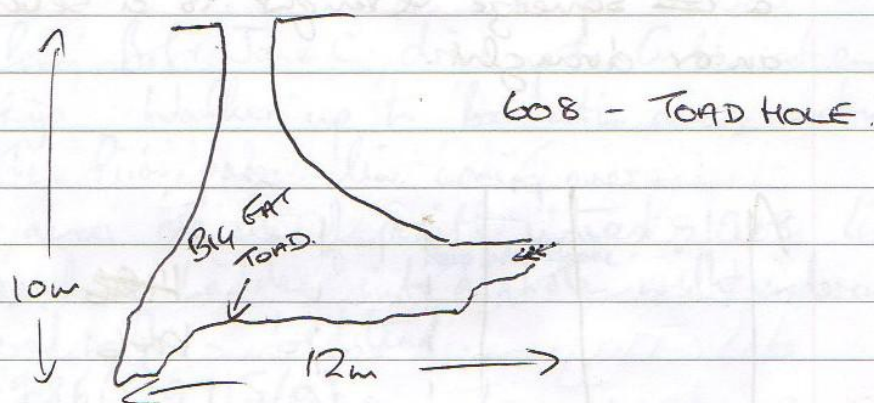
15/8/03 - 1391 (Volcano) Jeon, H. Kev; Bob - Hilary in support

Continue with dig - Gen Set would not give power, examination showed this was due to a blown capacitor, managed to radio Jeon at La Secada dig (over 3k away!) & he got Hilary to phone Kev's phone & we got her to bring batt drill up to us most track - did try

to get Hilary to get a capacitor out of a light fitting. But ~~then~~ they were not accessible. Using 9 snappers a lot of rock was removed & lost - 3 seemed to have broken down to space below, pass the new dig area! Left - come for next trip/dig when the NPC team are here!

16/8/03 DCC to 608 and other bits.

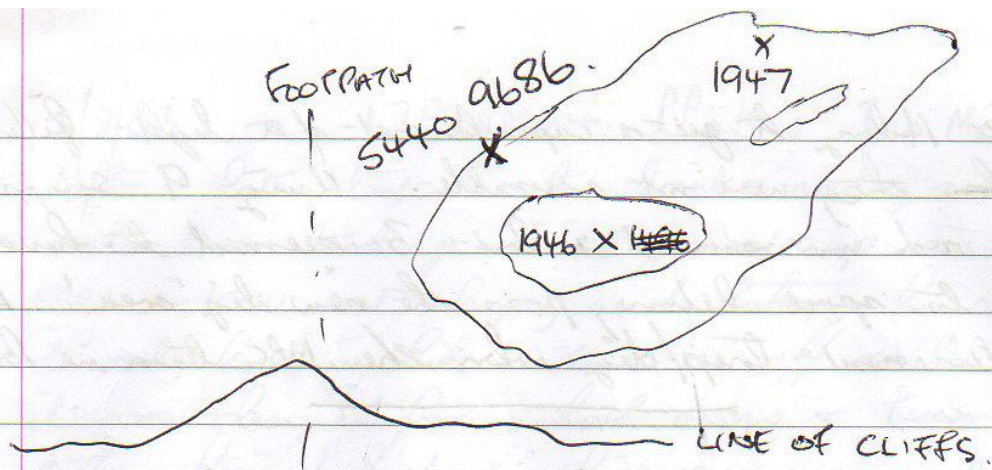
608. Underscaded 10m shaft. Now descended. Still a 10m shaft, fill at bottom. No sign of draught but a bad day to check.



large toad found hopping about a bottom of pitch showing no sign of starvation or fear of humans. Best approached by walking directly up hill from end of enclosure wall, pick up long distance red and white footpath markers and hole is on the path. GPS co-ords OK.

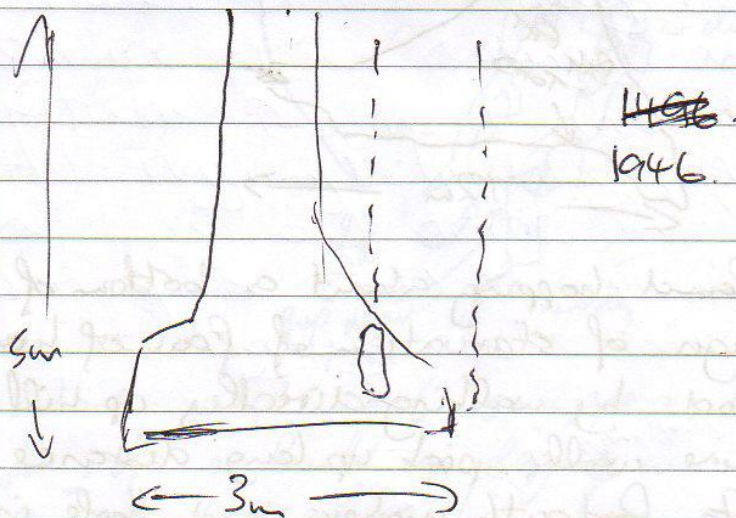
1946. Just uphill from 608 is large shakohole to right of path, containing several shafts and holes, mostly too small.

GPS batteries ran out so only one ~~coordinate~~^{bearing} was taken. - 5440 9686

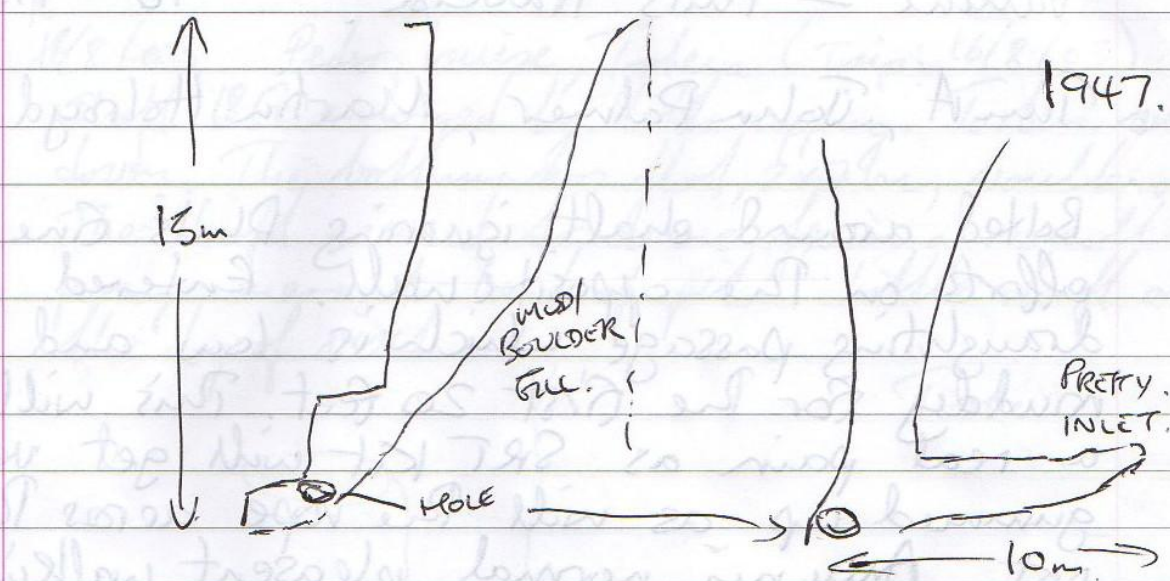


10608

1946 is a shaft near bottom of hole. 5m deep with a ~~can~~ squeeze through to a second shaft. No way on or draught.



1947 is higher in the same shakehole a large obvious shaft with fill. Possible dig in floor of mud and boulders was enlarged and needs working on a draughting day with a big bar.



17/8/03. Jan, Penny, Bob + Jane C drive up to Curbis at end of Curbis. Walked up to Bosmerlin area, reaching the col with the Piñon paper line coming over.

Came across one site of possible interest - 1948 4m ~~stiff~~ drop needs a ladder into a ^{steep sided slope} hole with undercut. Presently covered with a bedstead.

4986(5)9715(9)

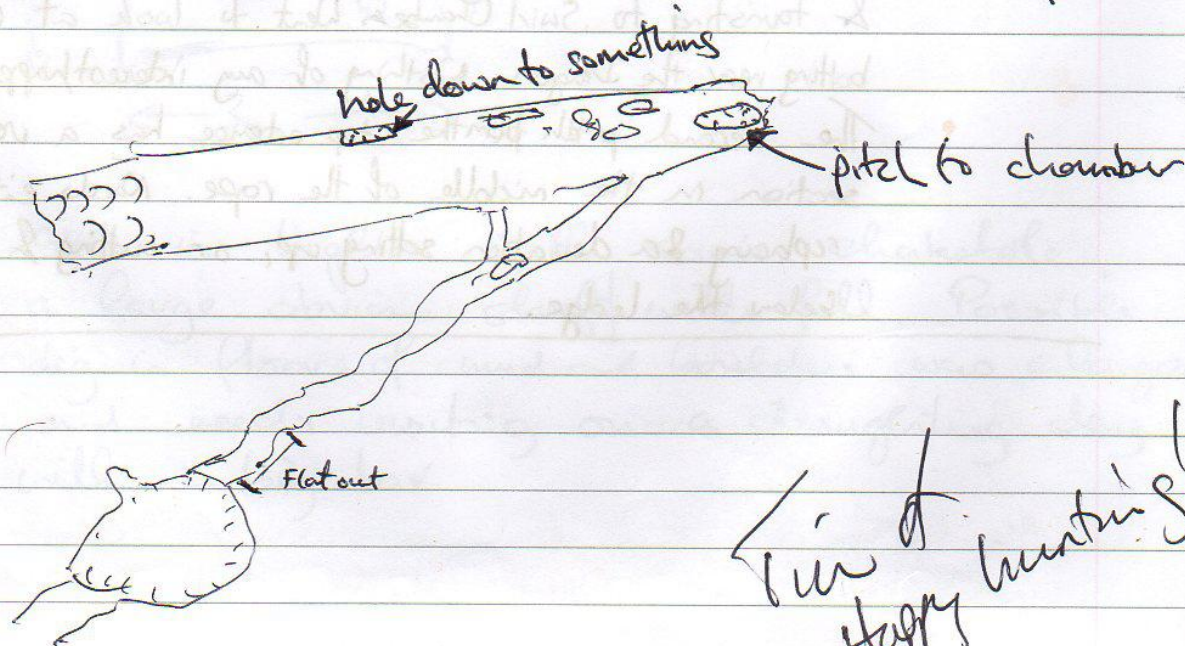
15/8/03 Jenny C, Carol, Nigel, Roy & Tony to Vallée for through trip & touring to Swirl Chamber. Went to look at Catalan's bolting near the Dragon. Nothing of any interest happened. The second pitth from the top entrance has a very worn section in the middle of the rope. Needs either replacing & a deviation setting up, or cutting & a rebelay below the ledge.

Valline — "Phil's traverse"

16th Aug.

Tim A, John Palmer, Martin Holroyd.

Belted around shaft ignoring Phil's fine efforts on the opposite wall. Entered draughting passage which is low and muddy for the first 20 feet. This will be a real pain as SRT kit will get very gummed up as will the rope across the pot. Anyway normal pleasant walking passage resumed for 40m to a junction with a much larger passage. Right soon ends with a pitch down into a chamber (undescended). Left goes 50m to total choke. Didn't really check for the source of the draught as planned to return the next day never happened. All rigging/climbing ropes derigged leaving a long loop across the pitch. There are spare tails at either end so a bit of re-rigging could save a lot of rope.

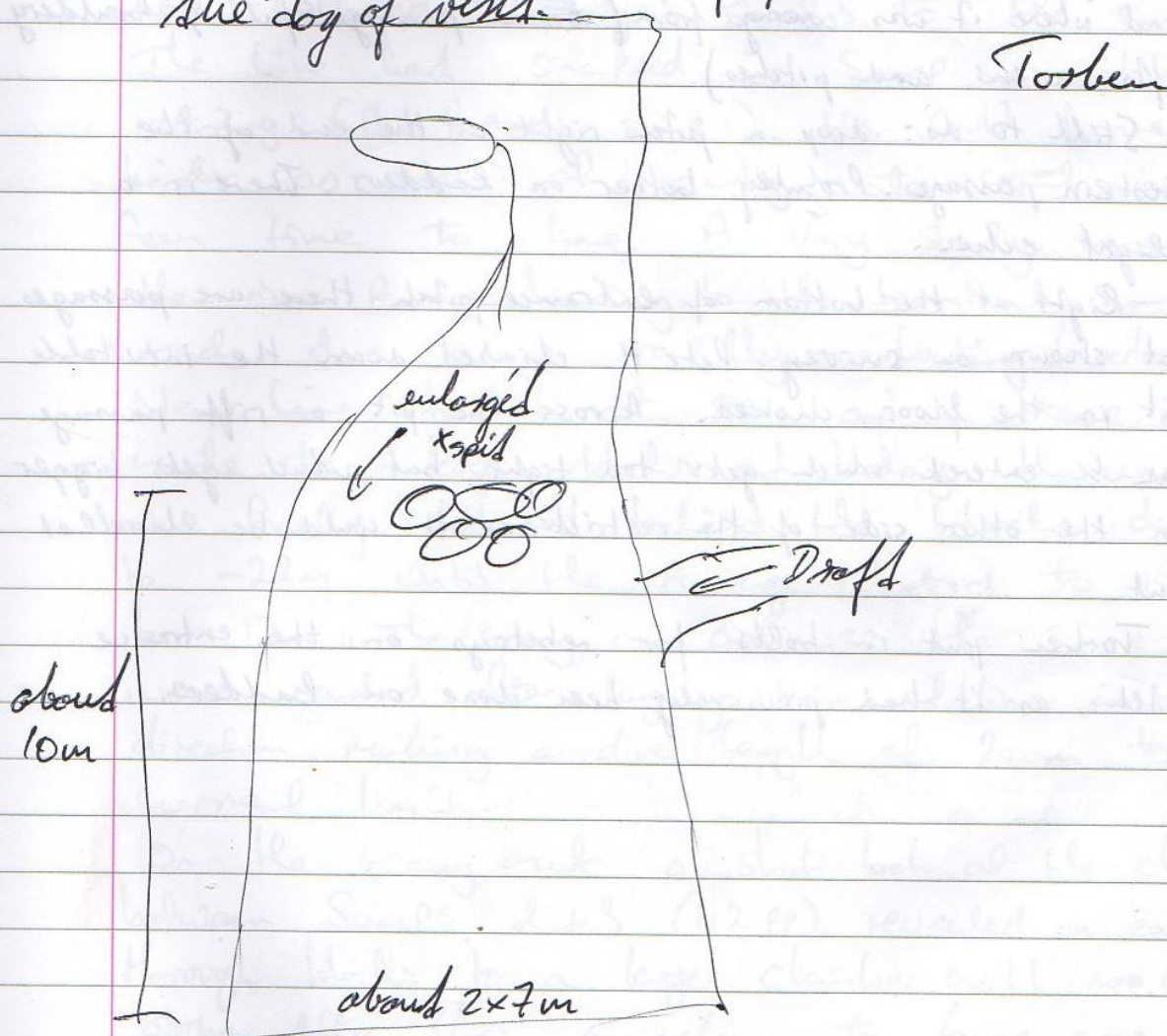


Tim & happy hunting!

16

16/8/03 Pedro, Louise, Torben (Trip: 16/8/03)

Shaft 1817 enlarged by Hilti-capping. Torben went down. The bottom was flat, 2×7 m, boulders. The draft seemed to come from a small passage, near to head of pitch. Little draft at the day of visit.



18/8/03 Emigier, Ben, David (3x500g), Louise, Torben
 1471, Papa Noel. Descended 20m pitch at
 The Rodeo. Both in a big flat black rock to
 a cairn + one ~~set~~ relay after slab. New shaft
 about 10m deep in the northern side of the
 bottom is undescended. Cave designed.
 Comment + drawing in "Maters Underground" Torben

15/8/03 Megan Moll - Torben, Peter Hall, Pete S.

Trip to re-check this cave explored 20 years ago, and descend pitches undescended then. Torben free-climbed a p10? on the left of the western passage, that was blind. The draught seemed to be coming out of eastern passage, Peter Hall had a good look round but couldn't find where it was coming from (~~the~~^{the} passage is full of bouldery rifts, avenus and pitches).

Still to do: drop a pitch right at the end of the western passage. Probably better on ladders. There is a slight echo.

Right at the bottom of entrance pitch there are passages not shown on survey. Pete H. climbed down the inevitable pit in the floor, choked. Across the pit a rift passage can be entered which gets too tight, but which gets bigger on the other side of the restriction. It could be chiselled out.

Torben put in bolts for rebelay on the entrance pitch, as it had previously been done on ladders.

15/8/03 Valline Downstream Sump

Martin Holroyd. John Palmer.

John offered Sherpa services and to wait at Sump. Biv' kit was thrown on to the never ending pile of kit. A steady trip took us to the downstream sump, grateful of the cabalans who had lashed 3' large' sacks to the sump.

The line had snapped in Sump 2 and needed repairing (Phil repaired sump 1). Vis could have been kinder as areas of rocky water ~~and~~ was entered from time to time. A very steady traverse of the river passage leading to the terminal sump was made due to a rapidly overheating / overloaded diver. New line tied on at 90m and a steep descent made to large blocks and belay, the way on was finally followed behind the blocks down to -22m until the passage started to rise gradually to -17m, the way on continues the same. 1/3rd were needed after laying 110m of line in a westward direction making a dive length of 200m to the current limit.

On the way out a short look at the choke between Sumps 2 + 3 (1+2 pp). revealed an easy walk through blocks to a large chamber with no way on. After 3hrs a return to base was made. John added brewing up to the long list of debt re-payments. Efficiently fed and watered we crammed all the gear into 5 loads and made it all the way back to the top of double ditch Pitch. A line reel for line repairs was left in the choke leading to Valline 2 for future use.

7

16/8/03 Valline

Martin Holroyd, John & Geraldine Palmer

Still eager to carry John was joined by Geraldine to help carry out the gear. The pile grew again as SGT kits from the previous day needed to be brought out.

Tim's fast one there ensured our afternoon would be no picnic. An efficient team however, soon had all the ~~tree~~ kit deposited in the car in time for beer.

18.8.03 Enaro

Bobby Lloyd + Eric work 877

- ① Hole to right of tract 100 m short of 1603 (looked at 1603 for map clues)
- ② Assorted shakeholes in field below 1603 (scene of goat rescue in 1990)

Two/3 have a respectable moisy rattle to a stone

- ③ Just below field + overlooking Torcon a hole at the base of a tiny cliff opens into a 20-30' deep hole of respectable size.

Bobby

17/8/03 Muela

Brendan + Jenny, Steve + Tim

Brendan + Jenny walked to entrance to 116, then went prospecting. A few good sites found

D02

- hole under small face in shakehole; stones drop, + roll under (R) side looking at face

1949 D03

- bearing on top of shaft with pine tree in. Climb down into shakehole, enter

passage. Pass under shaft, under area, then
crawl continues. Approx 4ft high, 2ft
across. Weaving shrubs so decided to be
soft and back off.

(1954) 004 - 1-2 s drop, + rolling for 5-6 s
Tightish entrance, but persuasion by
hammer would ease passage in. Looks
to widen below surface

005 - Large open entrance 5m x 1.5m. ?
going off towards 116, but can't see
properly from surface, + steep walls
≈ 15-20m deep

(116) Steve + Tim: Rigged down ant p. (linked mud slope at foot.
Numerous shapes at bottom. No footprints near big (2s+drop) hole.
at top

18/8/03 Brendan S., Steve T., Tim W., Ben S. (116)

Re-rigger shaft with reeking (at end of 70m rope). TW + Ben S.
share survey. Ben S dropped shaft reaper in ~3.5m, splits clearly in.
Too dangerous to sharp rub point + LOTS of choss / big pitted rocks to top find 5m.
Appears to be small descent, under at foot, looks like ~3m, heading E from
back of pitch.

18/8/03 Louise, Torben

Had a look at 1896, 1897, 1900 No progress.

18/8/03 Juan, Martin, Jane C, Dave + Jen (Suss).

Photo/video trip in picón to the helilites at
the end.

19/8/03 Yenny, Yenny, Hugh, Ben, Brendan, Trish, Louise,
264 Cokeron Torben

Went to the choke leading into Papa Noel
(Plaza de Concorde). Entrance + Slab/p13 ~~left~~ left
rigged. Bag with 45m rope (Batcher slab) + 30m rope
for pushing Papa Noel, left before connection.

3 bangers, 2 krabs and 1 sting also left. Bring robe-
protector for Batcher Slab!

Torben

19/8/03

Checking previous records: Ali / DJean / Bob + several
5.8.94 On return from Renada came out
via top old entrance. Noted hole which was

dug into. A further dig yielded a side
passage. Two small chambers with old stal

Renada Top

Check ref to 384.

1955

Renada
Normal



hedge/jungle

fence

Bobby

19.8.03

Bobby, Lloyd, Ian and Penny

Expos: To sites from 18th

- ① Cave near track matches description for 877 but not quite right.
- ② 1950 4m wide cave.
- ③ 2951 hole in shake-hole slope to a dig
- ④ 2952 Small shaft in shake hole
- ⑤ 2953 1m² entrance under cliff into 10m noted shaft

Lloyd

19.8.03. Tim Webber / Imogen Furlong / Steve Jones + David Harley.

Cueva del Agua

Fun, wet trip. Lots of life in cave. Saw two dragonflies
one large (8cm) yellow + black banded about 0.8km in. Another
smaller green/blue dragonfly. Also spiders. Took photos.

20.8.03 Tim Imogen Jenny

1569 Phreatic Tube Dig.

Prediction of easy digging was correct. Passage dug in
soft sand and loose rock in floor. Small chamber
Continuation visible in same direction

4m @ 80° - level

2m @ 120° - flatish up

Continuation 2m 90° continuation visible

2 or 3 more in 90°.

20.8.03 Tim Imogen Jenny

1581 Dig.

Boulder filled rift some 1.5m wide Extending back up
the hill 230° on same alignment 15-20m uphill.
Is another choked shaft - not cold.

Looking down between boulder reveals another rock hole
about 2m of rubble down. Cold.

Boulders too large for us to move today.

20/8/03 Brendon, Steve, Dave

Trip to try to locate 324, and visit 845, with
some prospecting thrown in for good measure.

324 - reached GPS location, and searched hillside
thoroughly. It does not exist at this location. No sign
of anything matching this description near this reference. We never

reached 845

Sites found

A $\equiv$ 1573?

- Pit under tree in shakehole

4m choked shaft, $\approx 1 \times 2$ m, no draught

2x photos

B 1956

- 3x shaft tops, along rift with tree at top

1st dropped for ~ 5 m to ledge, and window

to 2nd shaft, again 5m. Small ledge,

4 m final shaft leading to mud + rock floor

~ 14 m deep in total, 6m long

Probably extended rift. Photos x 2

C $\equiv$ 1578?

- Obvious 4m shaft by tree. Dropped to

chamber 10m long by 5m wide. Formations

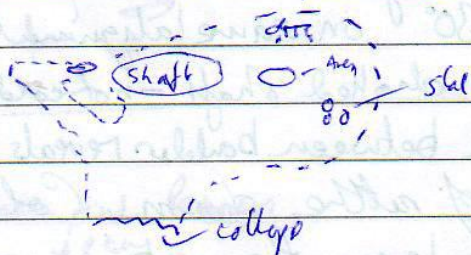
in roof, + aren to surface. Sheep skeleton

metal + plastic found. Off to right from

base of shaft leads to choked collapse,

with way to (R) leading to rift with draught

to side and from above. Photos



D 1957

Undescended choked 5m shaft - seen all the way to bottom

E 1958

Undescended 2 m shaft - choked

F 1959

Dig. In bottom of shakehole, DRAUGHT increased on digging. All in bottles, 2 solid

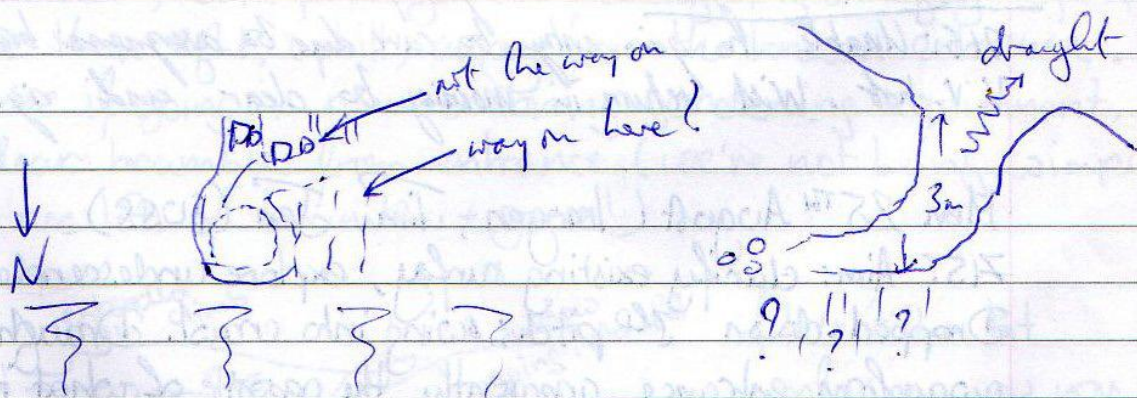
wall. Draught flowing outwards. Ukotus

19/8/03 Vallina - November Passage - Andy Q, Pete S.

Photographing trip, to see formations near end of this passage. Previous advice about taking boots off is now useless as the calcite floor has broken through and the second chamber now involves trampling through soft mud. The formations have been taped off and it's probably best to stop there. In any case they are good but not among the best in Matienzo. Most curious feature: the "insect trails" in the floor.

Friday 22nd August.

Pete, Joan + Penny to draughting dig below TV Mast track, site 1929. Dug down to where Pete could squeeze through into a place which wasn't the way on. Way on possibly seen. Needs a return trip with hammer + chisel, and something to cover the shaft with.



Saturday 23rd August

Joan + Terry up to Torca de Beraltá area to find Terry's lost shaft from 2001. Eventually found it with a few ~~stones~~ rocks at one side rather than a Gull wall. Ladders didn't reach bottom so estimate about

20m. (Site 1698).

On way down Terry pointed out site 1960 @ VNS196(5)9439(9)
Hole at base of 3m face in steep shalehole. Squeeze ~~the~~ down slope
into small chamber.

Then down to dig (1929) where Pete found us collecting
fence posts for the cover.

Farmer had thrown all the stones into the hole since
yesterday, so first job was to reinstate the dig. The view under
the right hand wall was enlarged. Possibly bigger
behind large blocks / low roof. Needs capping.

Hole now capped with fence posts and rocks and is at
least Terry-proof.

Sat ~~Friday~~ 22nd August SUSS - Jen, Imogen, Ben
Trip to Ceava Comatosa. To the lake and out.

~~23rd August~~

Sun 24th August Imogen / Tim SUSS

715: Unable to gain entry to cave due to overgrown brambles
V.V. hot. Will return in morning to clear and rig.

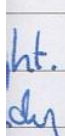
Mon 25TH August: Imogen, Tim, Jen (SUSS)

715: Aim: clarify existing survey, explore undescended pitch(es).
Dropped down 3rd pitch; swing into crawl. Draught going
away from entrance, apparently the opposite of what it was doing
at Easter. Crawl through. Immediately above + behind you now,
bolted climb, extended by 1 bolt, progress halted for now by
unsound rock. Facing back towards entrance at top of this
climb, inaccessible inlet passage on left, more rift going up + right.
Back down + continue into cave, ~~traverse~~ traverse over already
dropped P11. Traverse over next pit, dropped to a depth of
13.5m. Rock thrown forwards into extension tight rift:



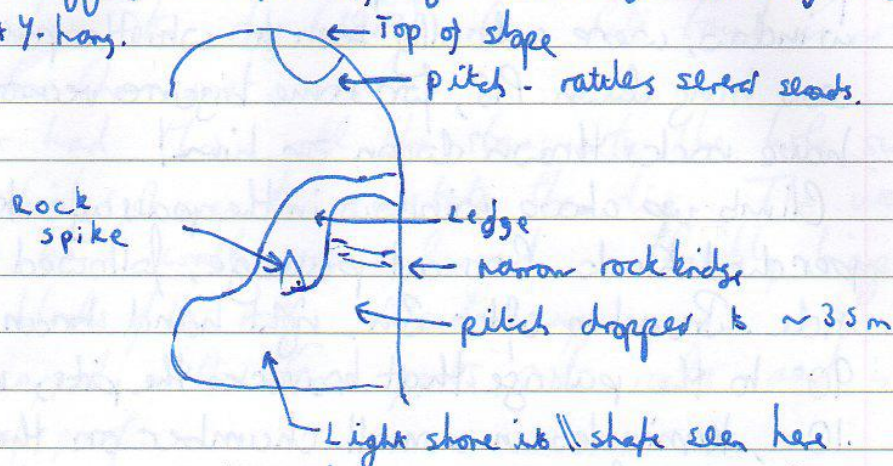
der

4



Fri 22/8/03 (116) Tim, Brendan, Dave, Steve (SVSS)

Finished survey. Dropped 'big' shaft on right near top of mud slope - p-35 to very small tube at base, and windows into \ shaft which appears to be deeper. Rigging: 2 spits off edge onto ledge. A long ledge to spike belay + y-hang.



Came out, de-rigger. Threw big rock down. Never have to go back up the hill. Yay. 5 hrs

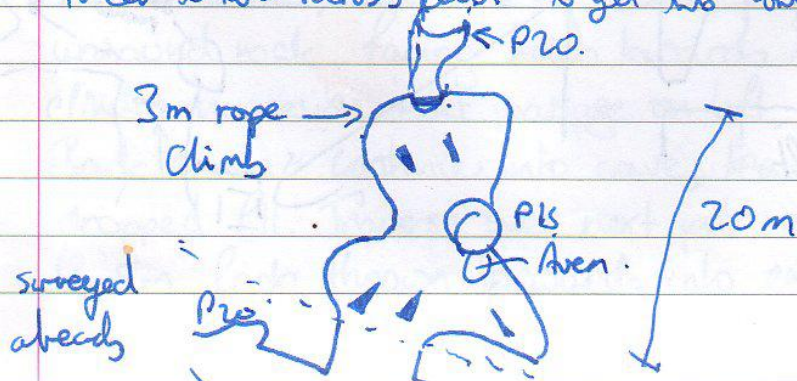
Sun-Mon 24-25/8/03 1471

Into Plaza de la Concordia from Cocoron. Ben + Brendan dropped pitch at Rodeo - see below. Steve + Dave continued to major junction on R. at end of BBQ @ Sancepan Street. Found spits (didn't see logbook.....) + regained continuation previously found (unsurveyed) in Easter '01. Re-rigger climb up, investigate pitch down (out of rope)

Took a few hours sleep in Oxbar before BBQ. Surveyed previously found passage + headed out as people were getting old.

Route through connection looks to Pefo road v. well camouflaged.

Passage is heading N, 3m wide phreatic rift, good draught. Need to bolt across pitch to get into continuation - GO LOOK!

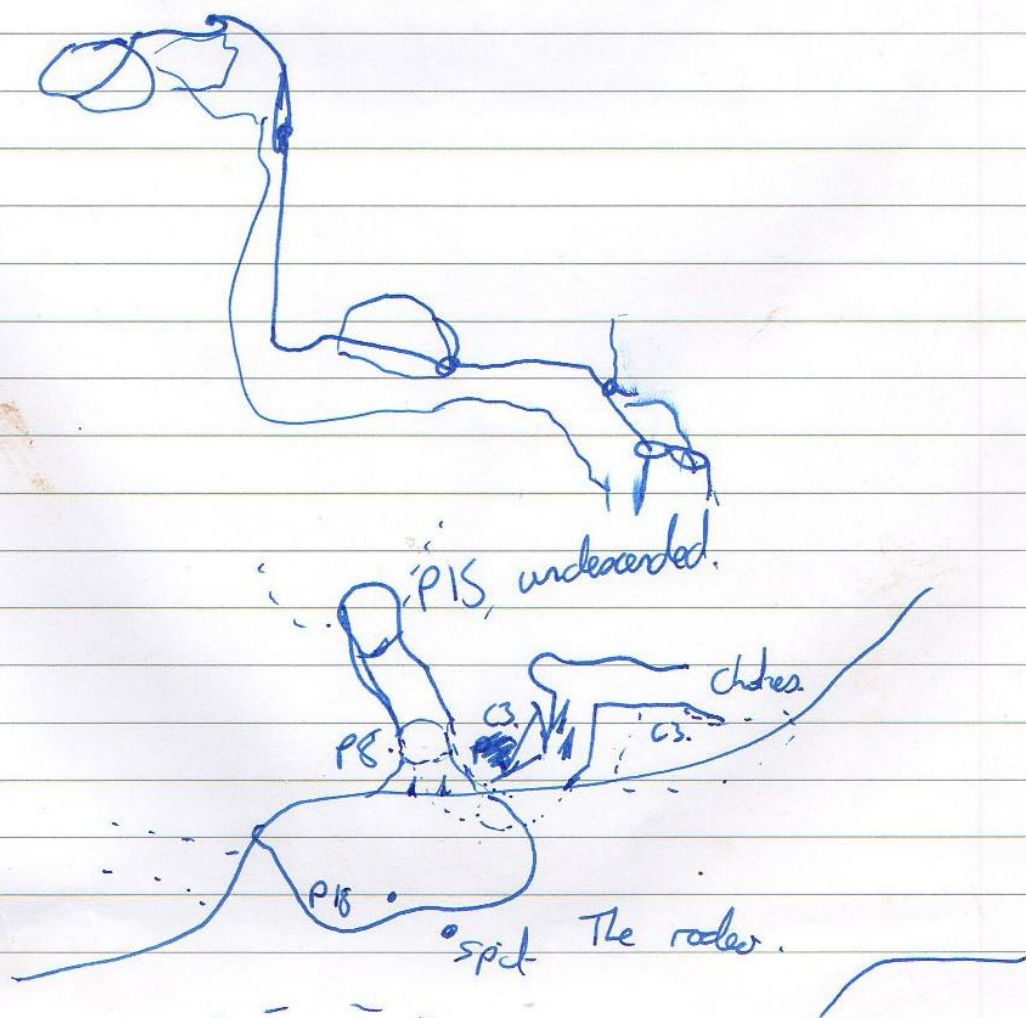


P20 at Pooleo.

Descended to previous low point reached with clares last Sunday. Another spit & a deviation dropped into $\approx 8\text{m}$ long rift by 1m wide. South. drops through window, 3m climb down to top of 10m slope in boulder choke. Strong draft present (going up pitch). Boulder choke occupied for about 20m into chamber. Way on not obvious.

Going North in rift leads after 4m to head of PIS not descended. This also drafts up the pitch. Pitch is constricted at the top (needs lump hammer) and is calcified. It is awkward to place anchors. Can see into larger chamber.

Riggins



25/8/2003.

Pete, Ivan + Ian up to sites 1698, 1962 and 1237

Seq. No. 24-25/9/04 147

Take Place 1 to 1.5 miles from bottom. B₁ + B₂ + B₃ + B₄ + B₅ + B₆ + B₇ + B₈ + B₉ + B₁₀ + B₁₁ + B₁₂ + B₁₃ + B₁₄ + B₁₅ + B₁₆ + B₁₇ + B₁₈ + B₁₉ + B₂₀ + B₂₁ + B₂₂ + B₂₃ + B₂₄ + B₂₅ + B₂₆ + B₂₇ + B₂₈ + B₂₉ + B₃₀ + B₃₁ + B₃₂ + B₃₃ + B₃₄ + B₃₅ + B₃₆ + B₃₇ + B₃₈ + B₃₉ + B₄₀ + B₄₁ + B₄₂ + B₄₃ + B₄₄ + B₄₅ + B₄₆ + B₄₇ + B₄₈ + B₄₉ + B₅₀ + B₅₁ + B₅₂ + B₅₃ + B₅₄ + B₅₅ + B₅₆ + B₅₇ + B₅₈ + B₅₉ + B₆₀ + B₆₁ + B₆₂ + B₆₃ + B₆₄ + B₆₅ + B₆₆ + B₆₇ + B₆₈ + B₆₉ + B₇₀ + B₇₁ + B₇₂ + B₇₃ + B₇₄ + B₇₅ + B₇₆ + B₇₇ + B₇₈ + B₇₉ + B₈₀ + B₈₁ + B₈₂ + B₈₃ + B₈₄ + B₈₅ + B₈₆ + B₈₇ + B₈₈ + B₈₉ + B₉₀ + B₉₁ + B₉₂ + B₉₃ + B₉₄ + B₉₅ + B₉₆ + B₉₇ + B₉₈ + B₉₉ + B₁₀₀ + B₁₀₁ + B₁₀₂ + B₁₀₃ + B₁₀₄ + B₁₀₅ + B₁₀₆ + B₁₀₇ + B₁₀₈ + B₁₀₉ + B₁₁₀ + B₁₁₁ + B₁₁₂ + B₁₁₃ + B₁₁₄ + B₁₁₅ + B₁₁₆ + B₁₁₇ + B₁₁₈ + B₁₁₉ + B₁₂₀ + B₁₂₁ + B₁₂₂ + B₁₂₃ + B₁₂₄ + B₁₂₅ + B₁₂₆ + B₁₂₇ + B₁₂₈ + B₁₂₉ + B₁₃₀ + B₁₃₁ + B₁₃₂ + B₁₃₃ + B₁₃₄ + B₁₃₅ + B₁₃₆ + B₁₃₇ + B₁₃₈ + B₁₃₉ + B₁₄₀ + B₁₄₁ + B₁₄₂ + B₁₄₃ + B₁₄₄ + B₁₄₅ + B₁₄₆ + B₁₄₇ + B₁₄₈ + B₁₄₉ + B₁₅₀ + B₁₅₁ + B₁₅₂ + B₁₅₃ + B₁₅₄ + B₁₅₅ + B₁₅₆ + B₁₅₇ + B₁₅₈ + B₁₅₉ + B₁₆₀ + B₁₆₁ + B₁₆₂ + B₁₆₃ + B₁₆₄ + B₁₆₅ + B₁₆₆ + B₁₆₇ + B₁₆₈ + B₁₆₉ + B₁₇₀ + B₁₇₁ + B₁₇₂ + B₁₇₃ + B₁₇₄ + B₁₇₅ + B₁₇₆ + B₁₇₇ + B₁₇₈ + B₁₇₉ + B₁₈₀ + B₁₈₁ + B₁₈₂ + B₁₈₃ + B₁₈₄ + B₁₈₅ + B₁₈₆ + B₁₈₇ + B₁₈₈ + B₁₈₉ + B₁₉₀ + B₁₉₁ + B₁₉₂ + B₁₉₃ + B₁₉₄ + B₁₉₅ + B₁₉₆ + B₁₉₇ + B₁₉₈ + B₁₉₉ + B₂₀₀ + B₂₀₁ + B₂₀₂ + B₂₀₃ + B₂₀₄ + B₂₀₅ + B₂₀₆ + B₂₀₇ + B₂₀₈ + B₂₀₉ + B₂₁₀ + B₂₁₁ + B₂₁₂ + B₂₁₃ + B₂₁₄ + B₂₁₅ + B₂₁₆ + B₂₁₇ + B₂₁₈ + B₂₁₉ + B₂₂₀ + B₂₂₁ + B₂₂₂ + B₂₂₃ + B₂₂₄ + B₂₂₅ + B₂₂₆ + B₂₂₇ + B₂₂₈ + B₂₂₉ + B₂₃₀ + B₂₃₁ + B₂₃₂ + B₂₃₃ + B₂₃₄ + B₂₃₅ + B₂₃₆ + B₂₃₇ + B₂₃₈ + B₂₃₉ + B₂₄₀ + B₂₄₁ + B₂₄₂ + B₂₄₃ + B₂₄₄ + B₂₄₅ + B₂₄₆ + B₂₄₇ + B₂₄₈ + B₂₄₉ + B₂₅₀ + B₂₅₁ + B₂₅₂ + B₂₅₃ + B₂₅₄ + B₂₅₅ + B₂₅₆ + B₂₅₇ + B₂₅₈ + B₂₅₉ + B₂₆₀ + B₂₆₁ + B₂₆₂ + B₂₆₃ + B₂₆₄ + B₂₆₅ + B₂₆₆ + B₂₆₇ + B₂₆₈ + B₂₆₉ + B₂₇₀ + B₂₇₁ + B₂₇₂ + B₂₇₃ + B₂₇₄ + B₂₇₅ + B₂₇₆ + B₂₇₇ + B₂₇₈ + B₂₇₉ + B₂₈₀ + B₂₈₁ + B₂₈₂ + B₂₈₃ + B₂₈₄ + B₂₈₅ + B₂₈₆ + B₂₈₇ + B₂₈₈ + B₂₈₉ + B₂₉₀ + B₂₉₁ + B₂₉₂ + B₂₉₃ + B₂₉₄ + B₂₉₅ + B₂₉₆ + B₂₉₇ + B₂₉₈ + B₂₉₉ + B₃₀₀ + B₃₀₁ + B₃₀₂ + B₃₀₃ + B₃₀₄ + B₃₀₅ + B₃₀₆ + B₃₀₇ + B₃₀₈ + B₃₀₉ + B₃₁₀ + B₃₁₁ + B₃₁₂ + B₃₁₃ + B₃₁₄ + B₃₁₅ + B₃₁₆ + B₃₁₇ + B₃₁₈ + B₃₁₉ + B₃₂₀ + B₃₂₁ + B₃₂₂ + B₃₂₃ + B₃₂₄ + B₃₂₅ + B₃₂₆ + B₃₂₇ + B₃₂₈ + B₃₂₉ + B₃₃₀ + B₃₃₁ + B₃₃₂ + B₃₃₃ + B₃₃₄ + B₃₃₅ + B₃₃₆ + B₃₃₇ + B₃₃₈ + B₃₃₉ + B₃₄₀ + B₃₄₁ + B₃₄₂ + B₃₄₃ + B₃₄₄ + B₃₄₅ + B₃₄₆ + B₃₄₇ + B₃₄₈ + B₃₄₉ + B₃₅₀ + B₃₅₁ + B₃₅₂ + B₃₅₃ + B₃₅₄ + B₃₅₅ + B₃₅₆ + B₃₅₇ + B₃₅₈ + B₃₅₉ + B₃₆₀ + B₃₆₁ + B₃₆₂ + B₃₆₃ + B₃₆₄ + B₃₆₅ + B₃₆₆ + B₃₆₇ + B₃₆₈ + B₃₆₉ + B₃₇₀ + B₃₇₁ + B₃₇₂ + B₃₇₃ + B₃₇₄ + B₃₇₅ + B₃₇₆ + B₃₇₇ + B₃₇₈ + B₃₇₉ + B₃₈₀ + B₃₈₁

3. In the same way, we can find the value of $\sin \theta$ and $\cos \theta$.

[Faint handwriting]

MATIENZO CAVES PROJECT