HIGHLAND CAVING GROUP

December 1976

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CONTENTS

JOURNAL COMMITTEE - G. HOPKINS, J. HOPKINS, E. CRABB

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INNOVATIVE PROJECTS '76

E. CRABB

Although rubbish has been dumped in caves at Bungonia in a random fashion for many years, October 1975 saw a start of deliberate filling of cave entrances, not within the Reserve, but on the "Carne" property.

In September 1975, the Rose Cave entrance became exposed by the collapse of the overlying soil into a well developed stream passage. By November 1975, this entrance had been filled with refuse from the reseve. In January 1976, the Orpheus Cave was discovered; by March this doline was filled with both farm & reserve refuse. And so the story continued.

In April 1976 the following submission was made, via B. Nurse, to the Bungonia Park Trust.

" H.C.G. has recently become extremely concerned at the random (presumably) disposal of both putrescible & solid waste materials from the Bungonia Caves Reserve. Garbage has been dumped generally into dolines or depressions mainly along the lower face of the upper limestone, between cave B36 (grid ref. 0088.0133), right through in a southerly direction to B103. (Area ref. 9900 Bungonia Sheet.)

The most recent dumping has occured at B103 & an un-numbered cave entrance approx. 40M. SE of B99 (grid ref. 001.004 Caoura Sheet). Visually, the most objectionable dump is on the steep slope on the western side of caves B71 & B72.

It is well known that the Highland Caving Group has been extremely active in speleological research in the Bungonia area, & tending recently to specialize in the zone mentioned; a result has been the discovery of some new caves, & further determination of postulations in the fields of speleogenisis & geomorphology.

It is anticipated that these caves will be extended much further, & should produce high yields of scientific value; accordingly it is felt that this area should be afforded the highest possible protection.

It is our attitude that with the area about to be developed as a State Recreation Reserve, & with a higher than ever sporting caving population, this area could be regarded as a replacement or alternate sporting area once the research work is absolutely complete. This could relieve the load on the present popular area, enabling a degree of regeneration.

The nature of the damage can best be defined as; deterioration of visual scenic value on approach to the reserve; serious adverse effect on cave biology; encouragement of verminous species; negation of value of any attempt at original scientific research.

An alternative procedure would be to use garbage materials for landfill in a projected amenities or camping area, as is so popular in metropolitan areas to reclaim waste land for sporting activities."

No reply or acknowledgement has yet been received, but B. Nurse has indicated (pers. comm.) that the farmer, Mr. Jones (who is a member of the Bungonia Park Trust & is also responsible for removal of rubbish from the Reserve) had promised to discontinue filling cave entances. Although the practice has not ceased, the only location used recently is the Orpheus Cave.

Investigation has revealed that as the caves are on freehold property, & the property owner himself is the offender (morally), then there is no enabling state legislation or regulation to stop the dumping. The solution lies in introduction of suitable legislation (or ignoring the issue), & to this end further investigation of other N.S.W. areas has commenced.

PLANT MIGRATION

Early in 1974, it was noticed that a plant colony, situated high on a bluff above the Becks Gully efflux, bore a resemblance to a colony of larger plants flourishing about 4Km. south west, on the banks of Bungonia Creek. Colonies of the same species have since been located on creek banks in other river systems.

The lichen covered group at Becks Gully suffer arrested development (pers. obs.), but specimens relocated into an environment with more moderate climate & higher soil moisture rapidly assumed growth patterns similar to creek side colonies. This has led to speculation that those at Becks Gully are a remnant colony, surviving from a former creek course, since no method of wind or animal borne propogation has been detected.

Over a three year period, there has been no flower or spore development, & there has been completely negative results in propogation attempts by leaf & stem cuttings, layering & grafting. Natural reproduction appears to be by root development only, supporting the theory of migration by stream action.

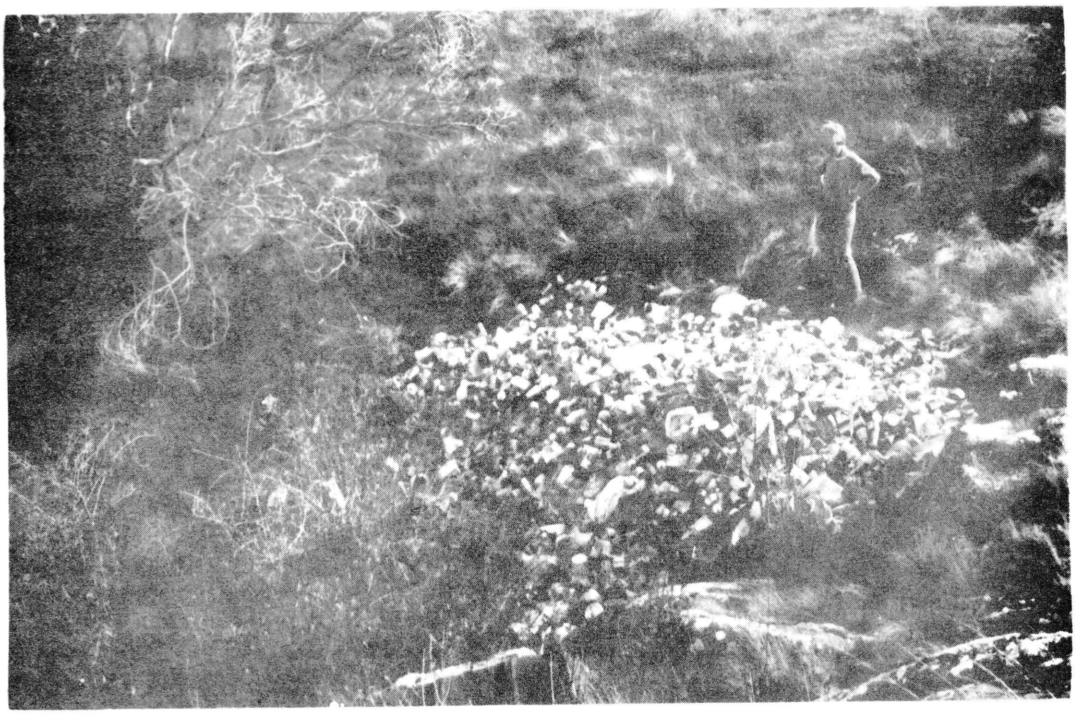
This study program is continuing but cannot be finalised for a few years yet; an eventual positive result may provide another line of observation in geomorphological research.

SHEETING PROCESS

S. Bunton has undertaken some preliminary study of cave breakdown development processes. This has followed attempts to explain the cause of several pockets of severely fractured limestone, with very loose humic fill. He has ascribed these features at Bungonia to a sheeting process, i.e. pressure fracture subsequent to rapid removal of overburden. This study is in its infancy & will undoubtedly be subject to eventually to formal publication.

GEOMORPHOLOGICAL CARTOGRAPHY

B. Cooper has studied the use , internationally of geomorphic symbols on maps & the appropriate survey methods. To introduce the subject & to provide an example, he has chosen to attempt to illustrate "preliminary notes on speleogenisis" (Crabb HCGJ No. 1) with a genetic map. This has involved reversing the effect of slope processes, stream downcutting & capture, etc. As the final presentation of this will consist of a base with four overlays (in register), with the use of approx. 30 colour printings it will take some time to complete the field surveys & evolve suitable printing procedures.



Wayne Crabb at dumped rubbish covering Orpheus Cave

Photo: E. Crabb

CAVE DESCRIPTIONS

Revised Phoenix Cave Description B60
Depth 70 M.
Length 440 M.

The cave lies in a small doline near the road in the Grille Cave catchment area. (See Bungonia Caves - Surface map.) The entrance lies in the base of a 2M. excavation (dug by Gerry Hopkins, Geoff Jonas & Evalt Crabb April 1974).

The cave is entered via a squeeze then through a gate which opens at the top of a metre wide rift 7 metres deep which can be readily freeclimbed, although a ladder and/or belay is recommended for the beginner. At the base of the rift a low passage with a soil floor leads to a small chamber with a domed roof. The cave continues west down a wider but flat descending passage with a bedrock floor which passes through a narrower region with a soil floor, into an enlargement in the with a small loop section. It is here the passage drops rapidly into a stream passage. A small passage (not negotiable) enters on the right. This stream passage develops into a floor canyon & drops 3M. to a descending flat passage which again develops into stream passage that enters a north-south rift(which is more easily traversed along the top & descending at the north end). Some formation is found in the roof here & fossils as usual are abundant.

Descending to the west the passage enters 'The Squeeze' which is about 15M. in length with a soil floor. At the end of this there is a bifurcation in the passage. Both passages rejoin at the junction, but to conserve the cave only the left hand passage should be used. It is here at the junction & in the passage from the squeeze that the first of the magnificent sediment banks, characteristic of Phoenix Cave first appear. These consist of layers of mud of different colour & texture which have been exposed in cross-section by a more recent stream action.

From the Junction Chamber the main route drops 5M. in a difficult climb to a gravel floored chamber which drops 2M. again into a large gravel floored stream passage with the best sediment banks in the cave. These have not been vandalised & should not be touched at all. At the bottom of this passage there is a fine bedrock slope with unusual weathering; however the boots of cavers have ruined much of this already even though it can be minimised by travelling on the left hand side. The passage now enters an uncomfortable 12M. squeeze/crawl & this opens into a complex rockfall chamber.

The 'Viva-section' enters from the southwest & is best described as a muddy & unstable stream passage at the chamber's rear end. However at its far end there is a magnificent 8-10 M. aven in a chamber with a rock & gravel floor. A small sediment filled passage enters at the base of this aven but is not negotiable. This chamber contains some finely etched fossils as well as bone fragments. There is a small rockfall chamber up one wall with no hope of extension.

Back at the rockfall chamber, the stream passage from the 'Viva-section' continues underneath while the main route is via a narrow passage to the left near the entrance of the 'Viva-section'. This is a clay walled passage & has a small side branch to the previously mentioned stream passage. It enters the stream passage in a chamber with a gravel floor & continues via a passage with an unusual square cross-section to a small chamber. The small chamber has a tight bedrock passage called affectionately the 'Sewer Pipe'. This descends at about 10 degrees & terminates in a gravel/sand floored enlargement. The 'Sewer Pipe' takes much of the cave water during flood.

From this chamber a 1M. climb brings us to the passage from the 'Grand Canyon' section. At the other side of this passage the stream passage continues past a calcite shelf with a sandy stream passage meandering through white clay banks into the 'Helectite Chamber' which exhibits an exquisite display of helectites up to .4M. in length. The 52 aven passage enters at the Northern end of this chamber, above a hole with pool sediments at the bottom. One side of this passage is flowstone and the roof has stalictites, so great care must be taken to avoid soiling or breaking formation. Once this is negotiated a rockpile region with some small holes exiting is met. From this an 8M. aven rises to a narrow and ever tightening stream passage which disappears into the distance beyond a tight constriction.

From the 'Helectite Chamber' the main passage drops through rockpile several metres to a wet floor with excellent pool deposits and then the passage goes north east down a tight bedrock flattener which becomes too tight after about 11M. and takes the remainder of Phoenix water.

Back at the junction a short passage **across** the 5M. climb leads to the 'Grand Canyon' section which has a large canyon cut in the sediment. A tight muddy passage enters on the right. The main passage drops 4M. down an easy climb and turns back under itself into a tight squeeze which enters a chamber 2M. up the wall. This chamber has a hole in the floor which drops 5M. to the passage leading to the 'Helectite Chamber

This cave presents dangers such as difficult climbs & squeezes. CO_2 is usually present in uncomfortable concentrations & 'The Squeeze' has been seen half full of water. The almost impossible task of rescueing an accident victim from the depths of this cave should be a warning to all cavers.

The cave is relatively undamaged & contains a colony of cave silverfish that rapidly decline in numbers after the cave has been used by people. This, plus the sediment banks, fossils, stream passage, formations & the largest cave cricket population in a cave at Bungonia as for now, makes this a cave to be preserved & not destroyed by selfish usage. It is hoped that people will not use this cave except for scientific research.

Graeme Smith

B16 - 50

Members visiting B16 in the past have discovered people in a small chamber in the east side of the rift which forms the entrance pitch to B16. (Documentation of this chamber appears here since the people who we have met here are not in a currently publishing club.)

A voice connection exists between this chamber & a section of B50. The section in B50 is marked in the Bungonia book as having a draught coming from it. The voice connection through an estimated only 1-2M. of rock would explain this airflow. The connection is not negotiable since it is blocked by phreatic scolloped rock. Very little solution is evident in the area & the chamber is just a continuation of the rift.

S. Bunton

B17

Members have visited this cave & known it to have been visited by other people but again documentation seems beyond them.

A small chamber through a tight squeeze, at the back of the known extent of B17 has an interesting dig in it, if viewed in the light of Pratt's Series 1 Caves.

S. Bunton

B34

The Serpentine Cave, B34 was re-surveyed due to the inadequacy of the map in Bungonia Caves, so that a comparison could be made between it & Serpentine II. Serpentine II was discovered & excavated by members of H.C.G. 9-10/02/75, & pushed to an estimated depth of 2M. above the lowest point in the known Serpentine Cave. B34 is deeper than shown in Bungonia Caves, however, the dig started by P.S.G. (B. Welch pers. comm.) is mentioned. Serpentine II exists as a void between the bedrock & boulder fill in the largely silted, B34 doline. The cave has silted up in the last 2 years to yield only a shallow depth of 6.3M.

S. Bunton

B41

Originally excavated by W. Crabb & B. Patrick (HCG children) to a depth of 2M. in April 1970. Subsequently excavated by HCG to approx. 4M. in 1970 & by St.G.A.C.T. in April 1974, to a depth of 7M.. Recent siltation has resulted in a current depth of 5.4M..

The cave consists of a near vertical joint controlled rift, showing some evidence of solution, & has an earth floor on the eastern side. The entrance is 5M. north , & 2M. above, the low point of a large humic filled depression.

E. Crabb

B54

A vertical, silt filled , joint controlled stream swallet, excavated from 2 to 9M. (and still going) over a period of 6 months by G & J Hopkins, B. Cleaver & HCG members.

J. Hopkins

B57

This was originally identified as B17, & as such was first excavated by HCG in February 1965. At that time, discovery of nearby Junior Cave (B59) , diverted interest & excavation was not resumed until May 1975. The negotiable section appears to have formed by solution action, & subsequently captured part of the B44 catchment.

S. Bunton

NE53

Previously identified as B12 & B13, excavation was resumed in May 1976 by B. Cleaver & S. Brown (HCG) in response to water inflow into B7-14. Much shatter material has been removed, but attention has now been focused on nearby B54.

S. Bunton

B58

Length 10M.
Depth 5.3M.
The cave lies near the corner of the road & the road to the Grille, & takes much of the water in this area of the Grille catchment. The entrance lies at the bottom of a shallow depression, there is a short climb in, to a rift which is divided in the middle by a bedrock wall. To the east there is a drop of 3M. in a very tight rift to a rock debris floor. This section takes the large water flow observed. To the west, the rift becomes both horizontally & vertically contracted to a small passage.

G. Smith

B44 Grille Extension

Length 74M.

This extension joins the rest of the cave near the base of the largest iron ladder & takes the form of a sizeable chamber region in which water apparently collects & then goes into the main cave, via the stream passage. The terminal chamber is divided into two main sections, the main portion consisting of a dirt & bedrock floor with some sizeable rocks (approx 1M.). This leads down to a bedrock canyon which descends to a 3M. drop. At this point the other section of the chamber joins. This is a much broken region of large collapsed boulders, & a small stream passage enters from the north. There are a number of holes through to the underlying chamber, which marks the start of an obvious stream passage.

Above the 3M. drop there was a tight passage into a low chamber, through which contact could be made to the main passage in the Daylight Hole Chamber, this has since collapsed.

At the base of the pitch a sloping, fluted, bedrock floor descends to a region where a small stream passage enters from the north. There is a short loop in the passage at this stage but the water now flows along the southern passage. The two ways re-unite at the top of a 4M. climb. This climb is beautifully fluted & ends in a small pool of water. From here the passage becomes low & wet, flowing south east to meet the main passage at the base of the large pitch.

The survey has been taken to the base of the metal rod connecting the hand-line cable, to the large boulder.

G. Smith

DBYCC

Stands for the Day Before Yesterday Cave Catchment.

A small but promising looking hole in a large depression west of B20, between it & the road.

S. Bunton

CACTUS CAVE

So named because it shows the Bungonia Caves surface plan to be cactus.

This is a doline to the north-west of B60 & in a dendritic gully to the B60 swallow, not a separate gully draining to the Grille as shown.

S. Bunton

FISH TRAP CAVE

A void in boulders at the south eastern end of the B71/72 doline. It has innumerable holes in the surrounding rocks which could be pushed, pointlessly, to join with the Fish Trap Cave. The cave is well silted.

S. Bunton

B106

A dig started by B. Cleaver in a depression 1M. north of that tagged as B106. Much removal of rock has yielded a still promising dig. B106 is the only swallow, of a gully draining in from the north-east with a large catchment area.

S. Bunton

B154

A dig started in February 1976 by M. Finger & D. Stenson in a limestone lens west of the upper limestone. The dig is of monstrous proportions & looks very promising.

S. Bunton

B145

Excavation by G & J Hopkins (June 1975) has revealed a low flattener 6M. plus long, in the Becks Gully Catchment area.

S. Bunton

G.C.1 & G.C.2

Located in a gully 100M. south of B44, these holes capture water runoff to B44. It is believed that this water does not join the Grille Cave system.

E. Crabb

Rose Cave

Situated approx. 40M. east of B99, the two entrances became exposed subsequent to earth collapse into a well developed stream passage. It has now been filled with rubbish. (ref. P 2.)

E. Crabb

MCG Dig

A joint controlled solution development excavated to 4.5M. deep by MCG during 1976.

S. Llewellyn

Erebus Cave

Excavated by B. Cooper in November 1975. This was originally explored by R. Russell & N. Poulter (HCG 1966), entry being gained by the more recently tagged entrance B103. It was originally called "Frog Cave". Subsequently the entrance was filled with rubbish (see P 2), and the new entrance approx. 12M. north provided new access. It is sometimes referred to as "Coops' Scoop".

It consists of well developed stream passage along joint & bedding planes, with rock collapse at the entrance & at the junction. Barely negotiable in places due to dumped rubbish, particularly broken bottles, & vermin are an added hazard.

E. Crabb

LIST OF BUNGONIA CAVES SURVEY PARTIES.

B:16	SWB. GH. JH.
B:17	SWB. GH. JH.
B:34	SWB. KB. GBS.
Serpentine II	SWB. KB. GBS.
B:41	SWB. GH. JH.
G.C.1	SWB. GH. JH.
G.C.2	SWB. GH. JH.
Cactus Cave	SWB. GH. JH.
B:54	SWB. GH. JH.
B:57	SWB. GH. JH.
NE.53	SWB. GH. JH.
Fish Trap Cave	SWB. JL. GBS.
B:60	SB. SWB. GH. JH. JAH. JL. SM. GBS. GJS. AA. BC. DC.
B:106	SWB. KB. GBS.
B:145	SWB. GH.
B:148	SB. SWB.
B:154	SWB.
DBYC.C.	SWB. GBS.
Coop's Scoop	EC.

Highland Caving Group.

SB.	Stuart Brown
SWB.	Stephen Bunton
KB.	Katherine Bunton
EC.	Evalt Crabb
GH.	Gerry Hopkins
JH.	Jenny Hopkins
JAH.	Judi Hayes
GBS.	Graeme Smith

Sydney Speleological Society.

SM.	Stuart Mc Cann

St. George Area Caving Team.

JL.	Jenny Lette
GJS.	Greg Smith

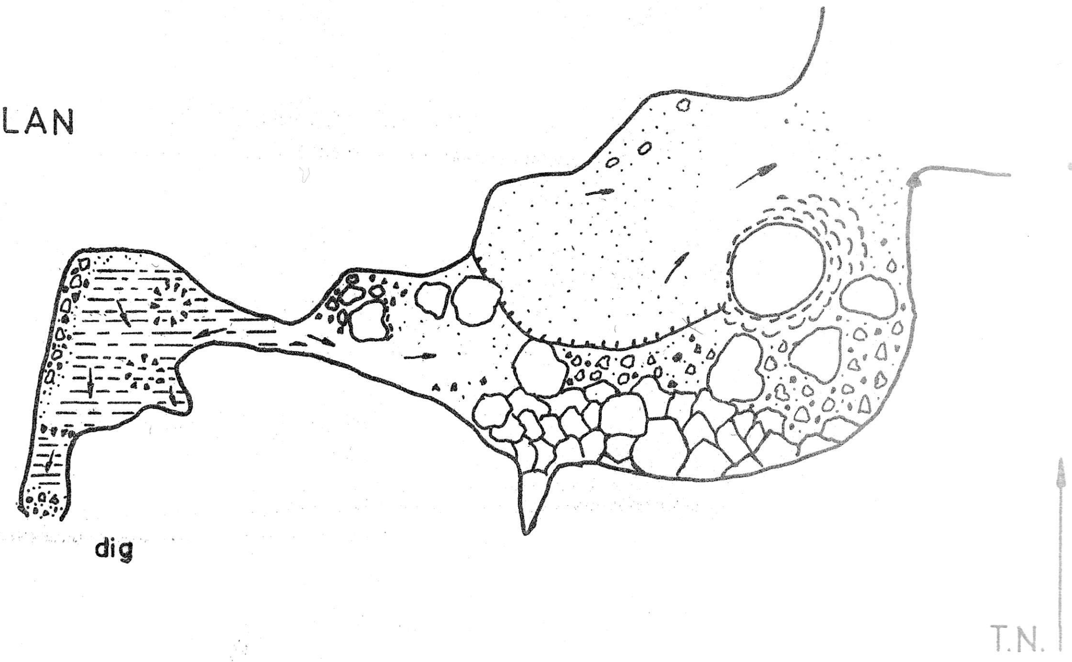
Sydney University Speleological Society.

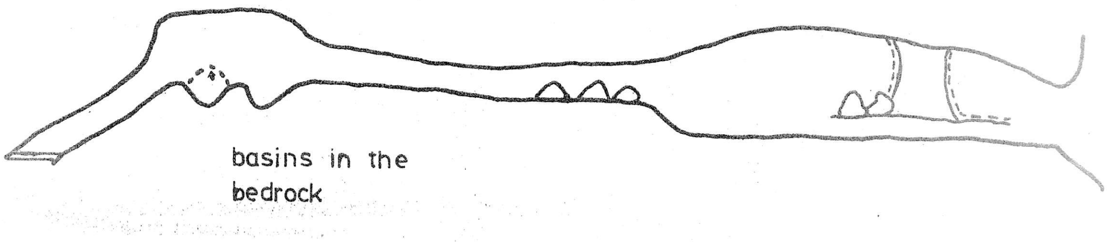
AA.	Tony Austin
BC.	Brian Cooper
DC.	Duncan Coles

B:17

FLYING FORTRESS

PLAN





ELEV.

DEVELOPED L.S.

SCALE 1.100

C.R.G. 4 GRADE	SURVEY BY H.C.G.	DRAWN BY S.BUNTON

27·11·76

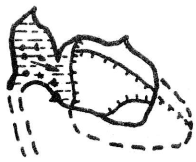
B:41

STGACT DIG

ELEV.

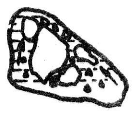
PROJECTED L.S.

LOOKING WEST



PLAN

UPPER LEVEL



PLAN

LOWER LEVEL

T.N.

SCALE 1.100

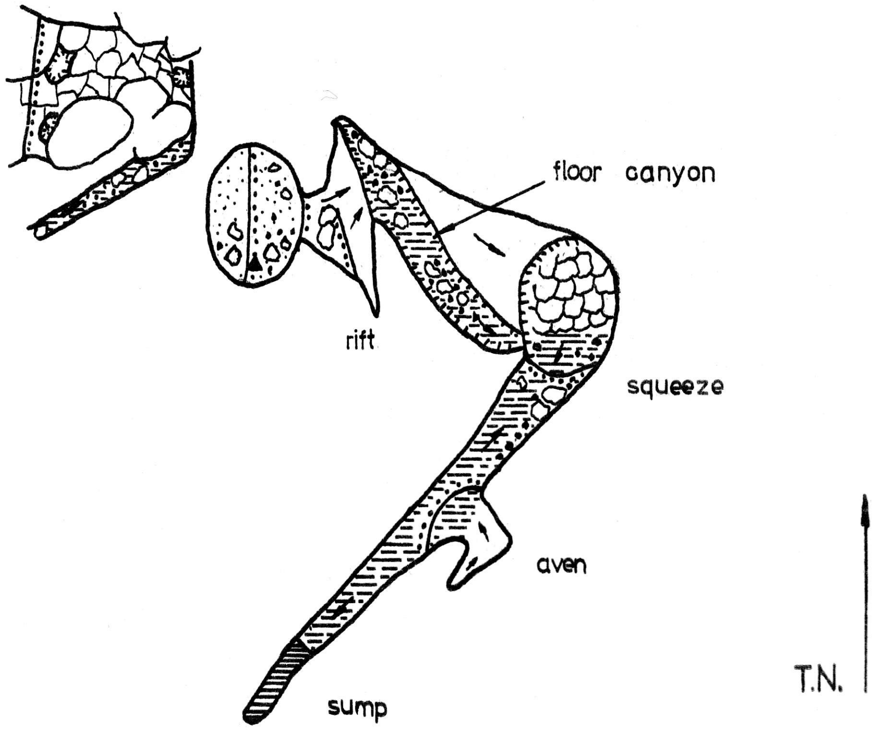
C.R.G.	SURVEY BY	DRAWN BY
3 GRADE	H.C.G.	S.BUNTON

27.11.76

B:34

SERPENTINE & SERPENTINE II

PLAN



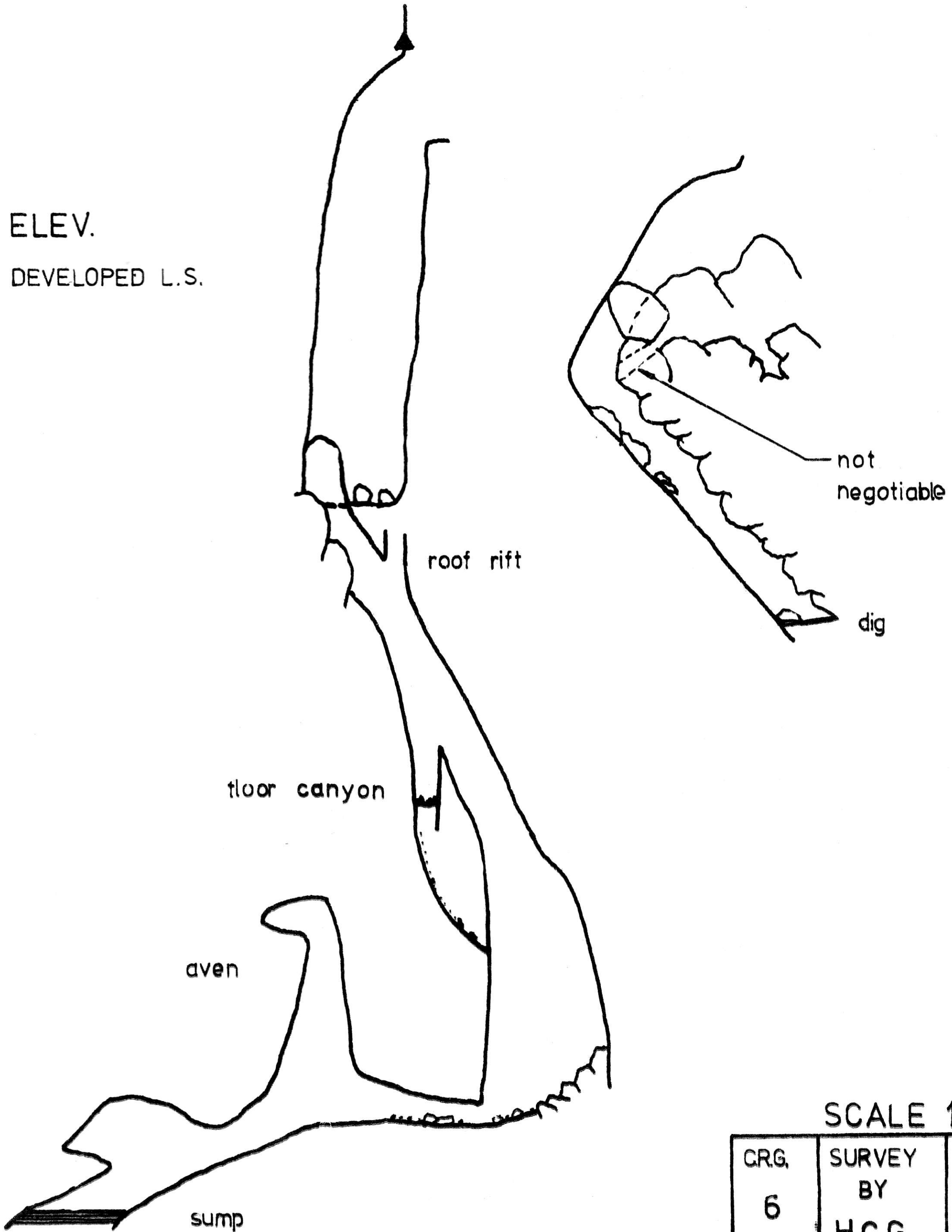
SCALE 1.100

G.R.G.	SURVEY BY	DRAWN BY
6 GRADE	H.C.G.	S.BUNTON

5.12.76

B:34

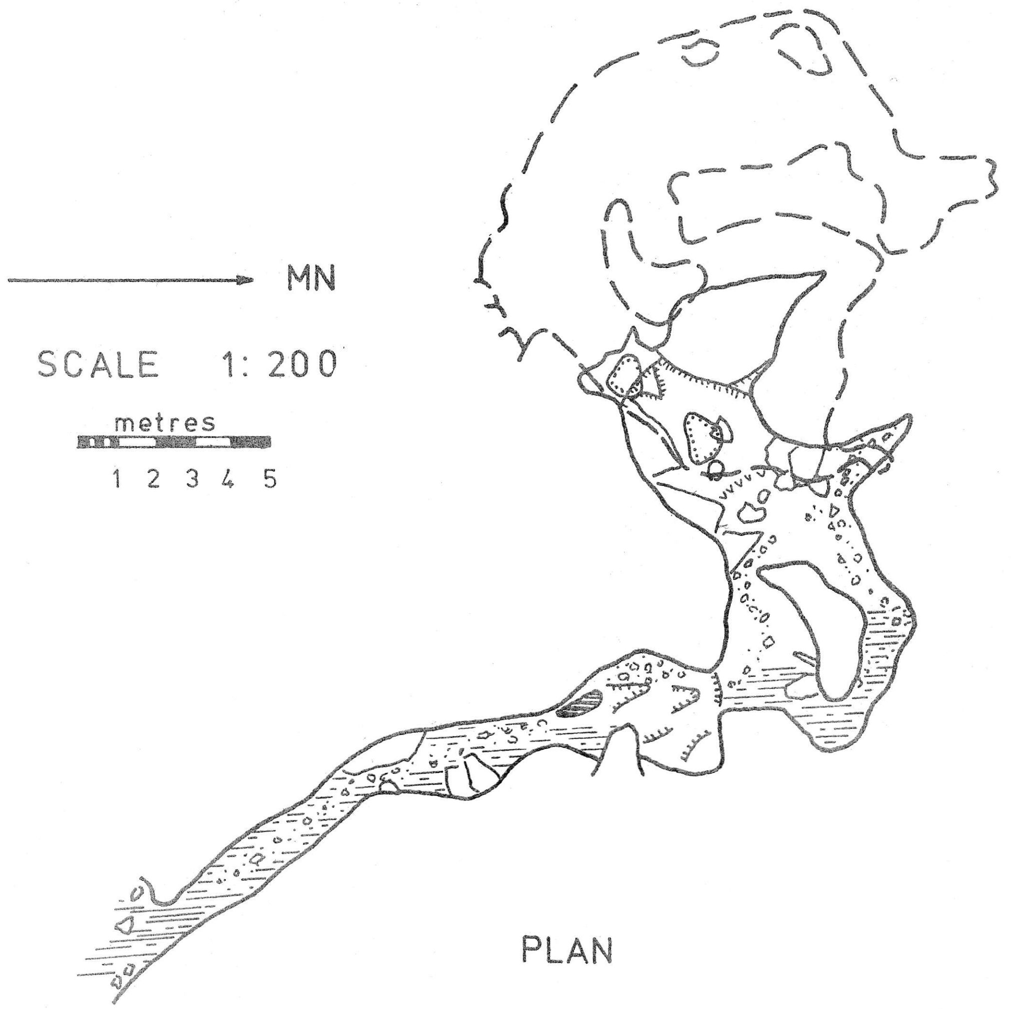
SERPENTINE & SERPENTINE II



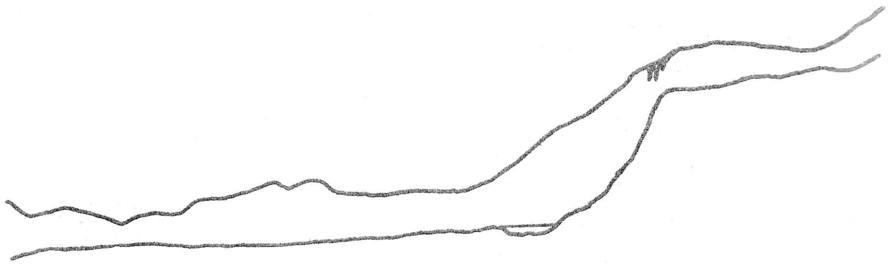
SCALE 1.100

C.R.G. GRADE	SURVEY BY	DRAWN BY
6	H.C.G.	S.BUNTON

GRILLE CAVE - EXTENSION



PLAN

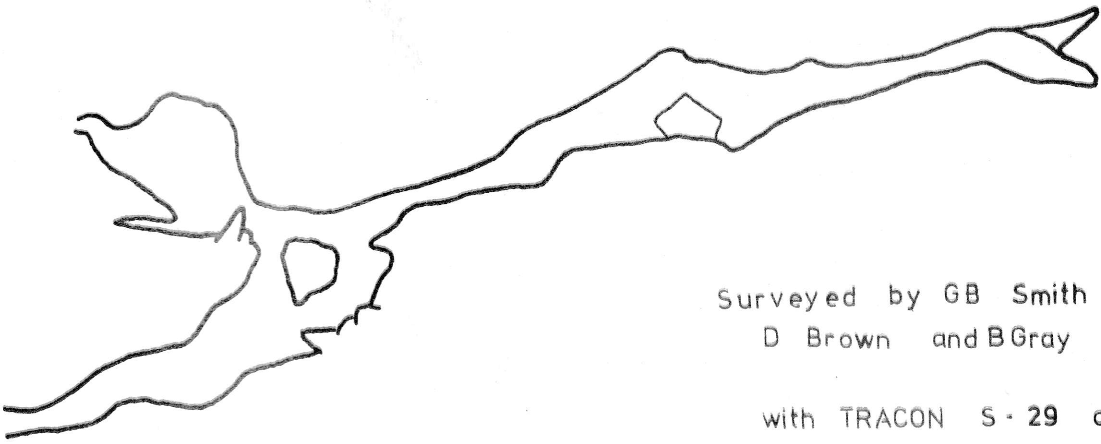


DEVELOPED

BELOW LARGE LADDER

A section exists through this rockpile that made a voice connection to the main passage near the third ladder but has recently collapsed.

PLAN OF HIGHER LEVEL

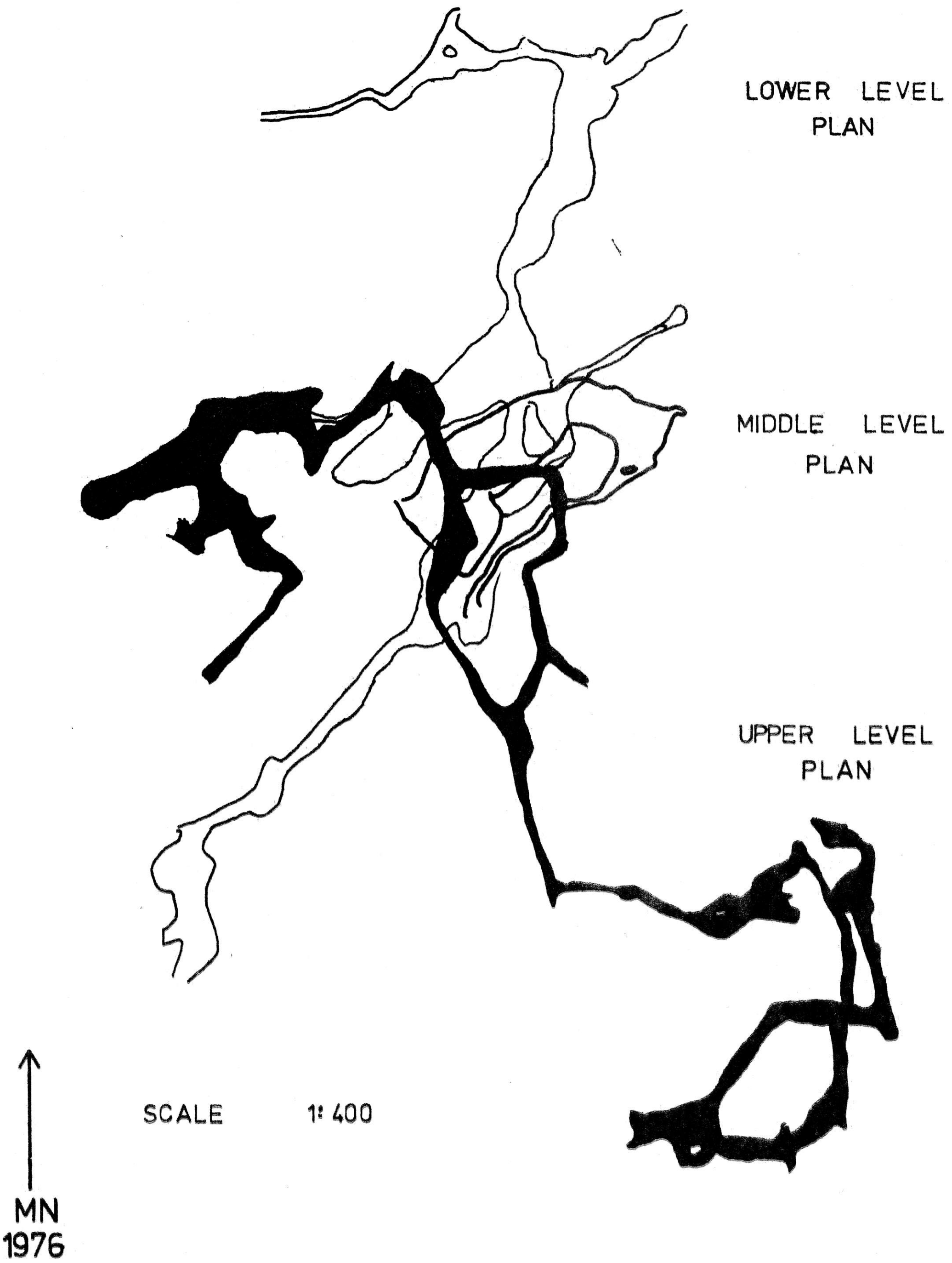


Surveyed by G B Smith , R Reid
D Brown and B Gray St GACT
CWMACTT
with TRACON S - 29 and fibreglass
tape. June 1976.
Drawn by G B Smith.
A SF Grade 63

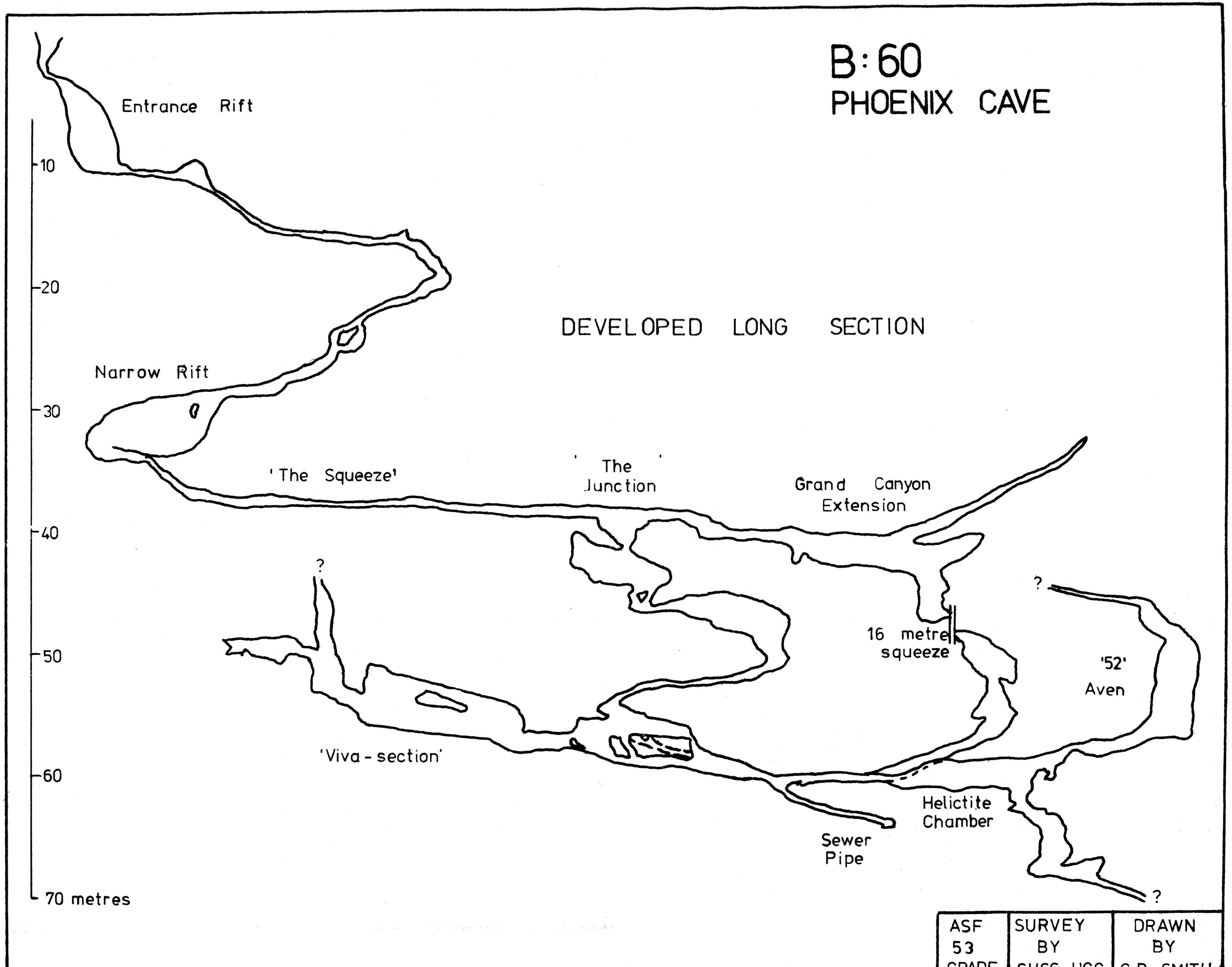
LONG SECTION

B:60
PHOENIX CAVE

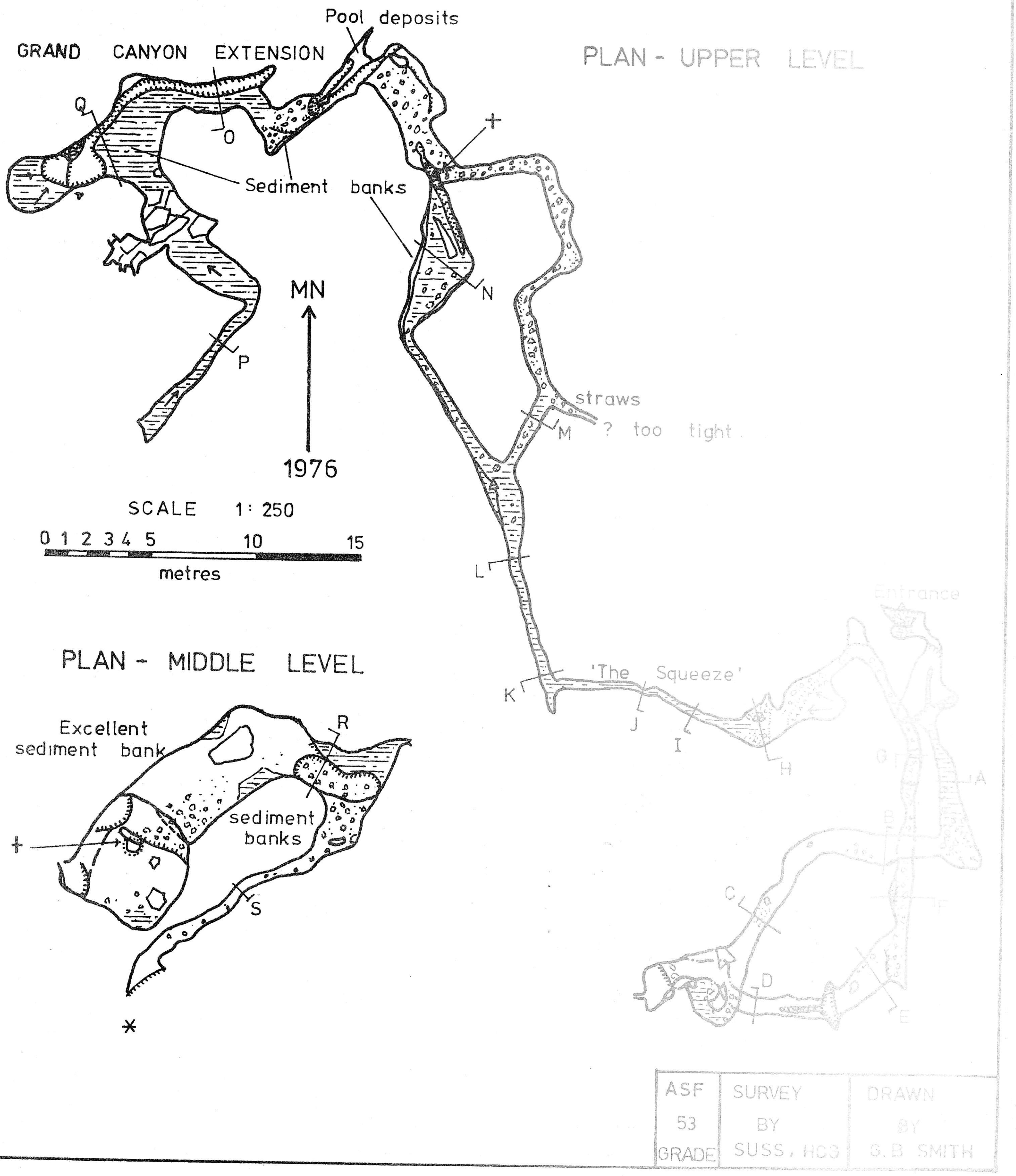
KEY TO THE LEVEL DISSECTED PLANS

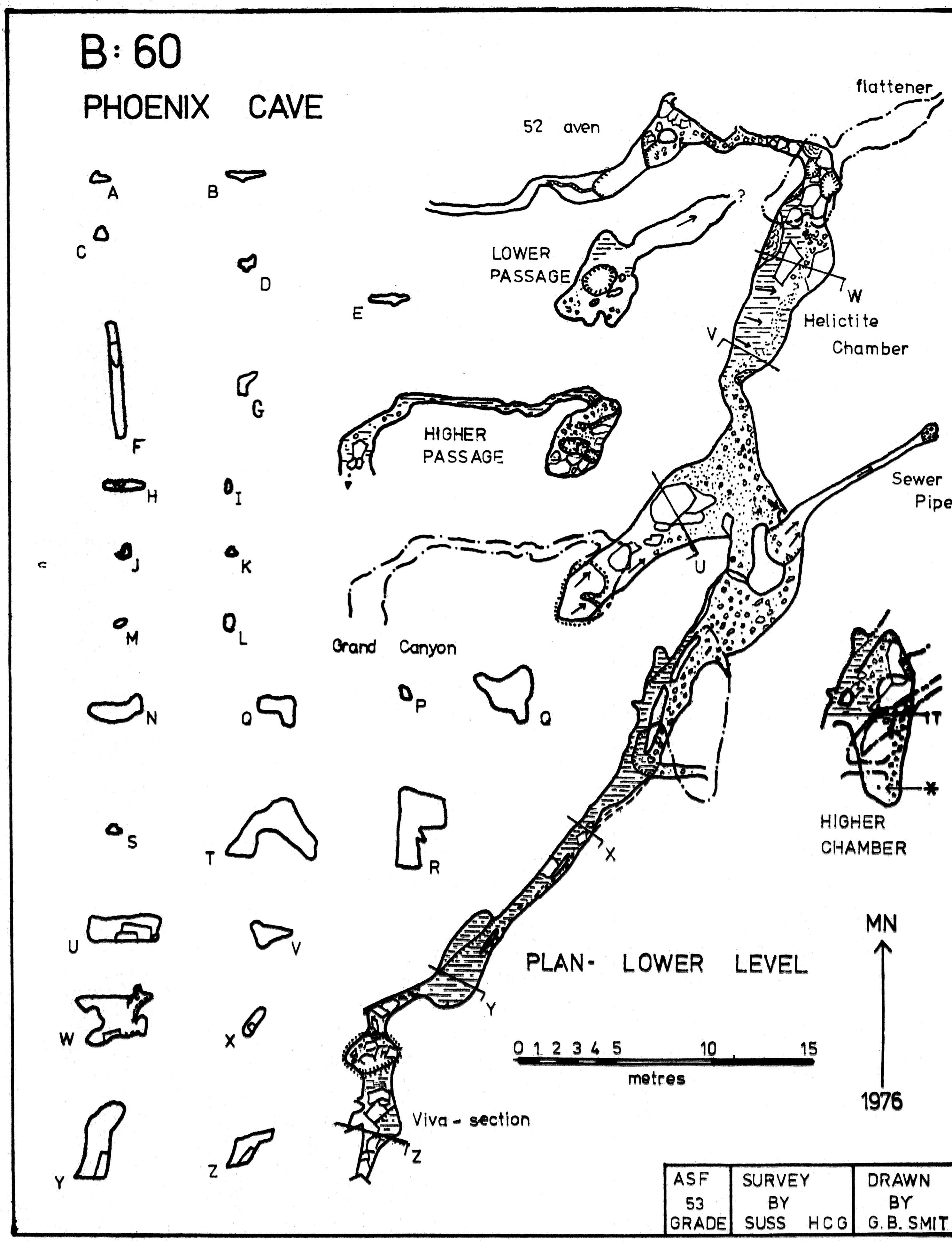


ASF 53 GRADE	SURVEY BY SUSS, HCG	DRAWN BY G.B. SMITH


B:60
PHOENIX CAVE
DEVELOPED LONG SECTION
Entrance Rift
Narrow Rift
'The Squeeze'
The Junction
Grand Canyon Extension
16 metre squeeze
'52' Aven
'Viva-section'
Helictite Chamber
Sewer Pipe
?
?
?
10
20
30
40
50
60
70 metres
ASF
53
SURVEY
BY
DRAWN
BY

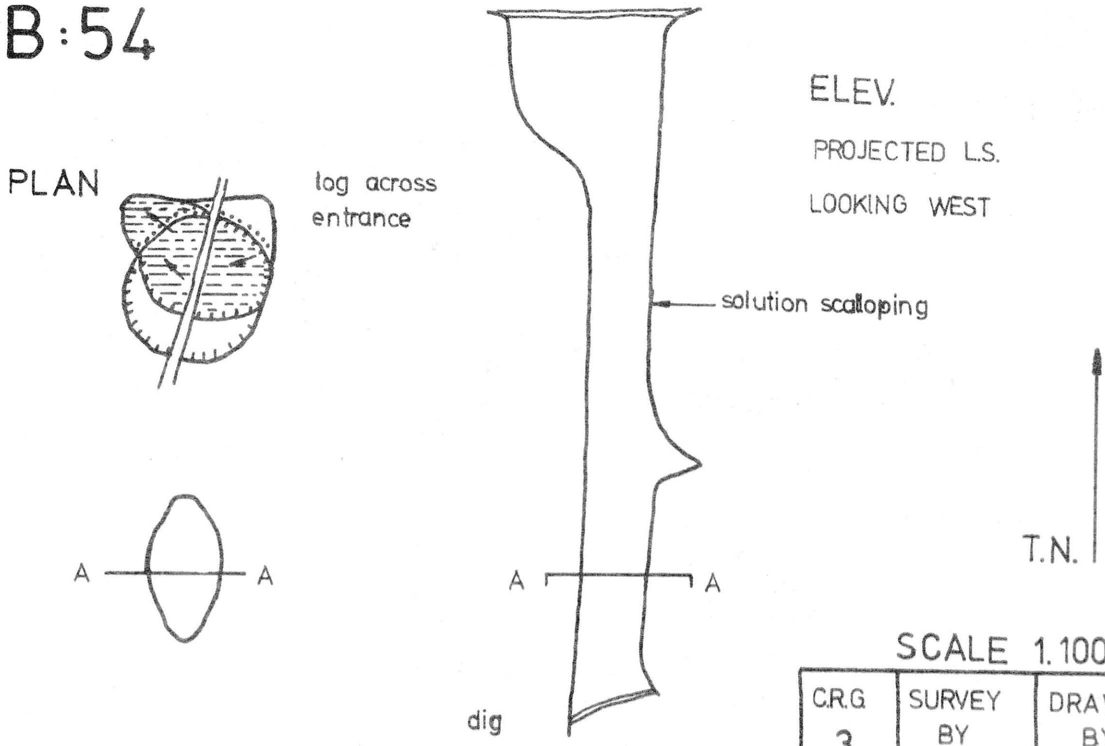
B:60
PHOENIX CAVE





B: 60
PHOENIX CAVE
52 aven
flattener
LOWER PASSAGE
Helictite Chamber
HIGHER PASSAGE
Sewer Pipe
Grand Canyon
HIGHER CHAMBER
PLAN- LOWER LEVEL
MN
0 1 2 3 4 5 10 15
metres
1976
Viva - section
ASF 53 GRADE
SURVEY BY SUSS HCG
DRAWN BY G.B. SMIT

B:54

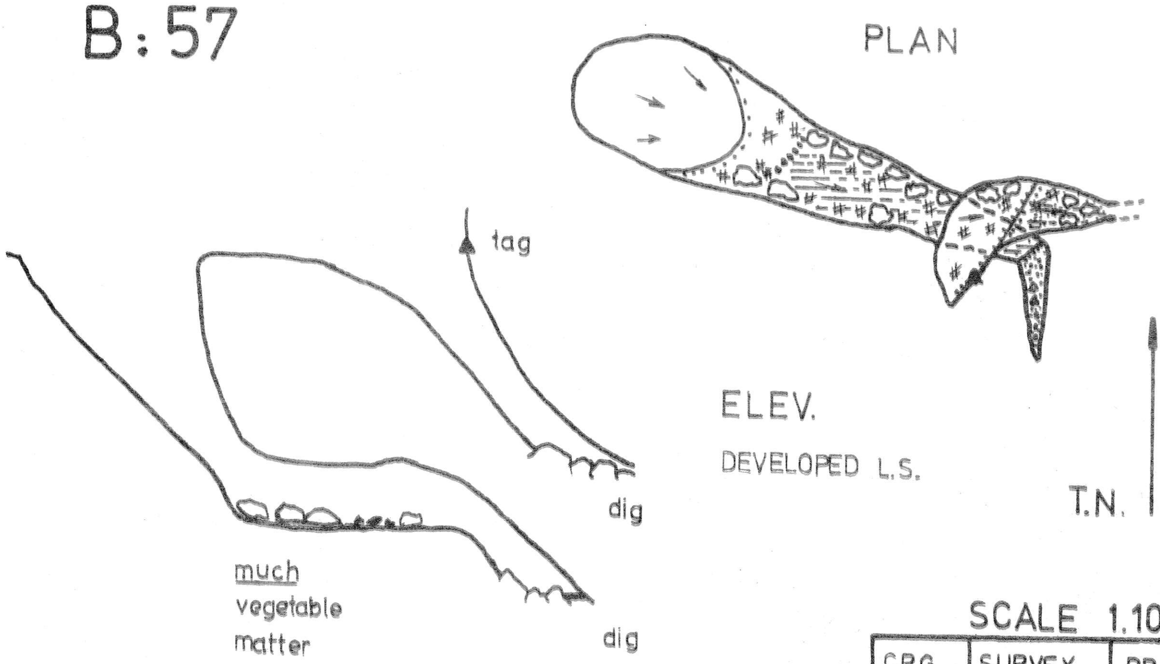


SCALE 1.100

C.R.G. 3 GRADE	SURVEY BY H.C.G.	DRAWN BY S. BUNTON

27·11·76

B:57



SCALE 1.100

C.R.G. 4 GRADE	SURVEY BY H.C.G.	DRAWN BY S.BUNTON

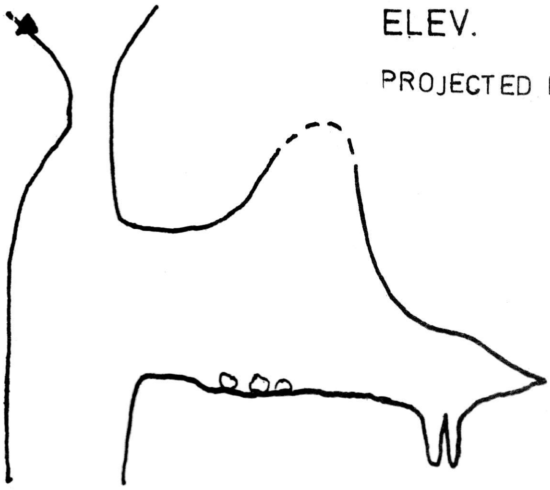
27·11·76

B:16 - 50

BLOWFLY CAVE

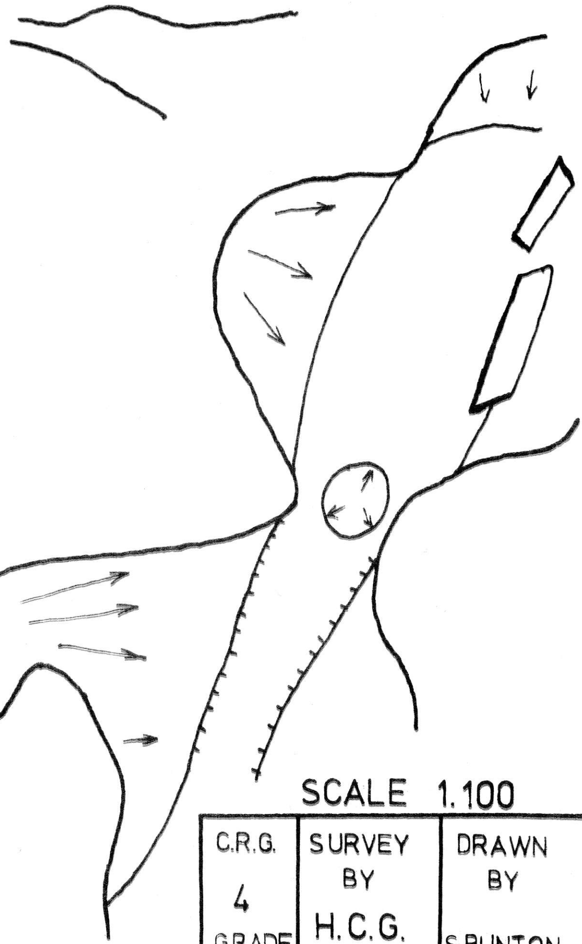
ELEV.

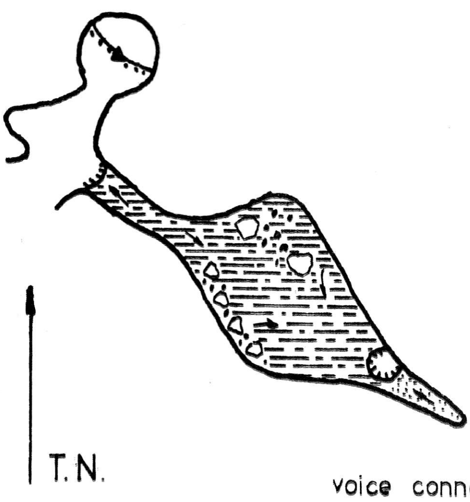
PROJECTED L.S.



B:50 SECTIONS

from Map by A.Pavey
in BUNGONIA CAVES.





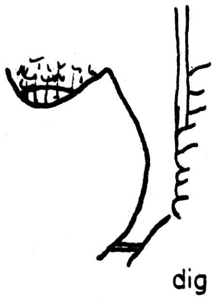
PLAN

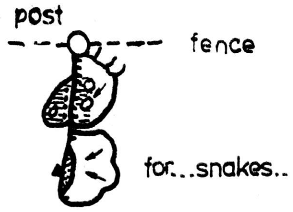
SCALE 1.100

C.R.G. 4 GRADE	SURVEY BY H.C.G.	DRAWN BY S.BUNTON

27.11.76

B:106





PLAN

ELEV.

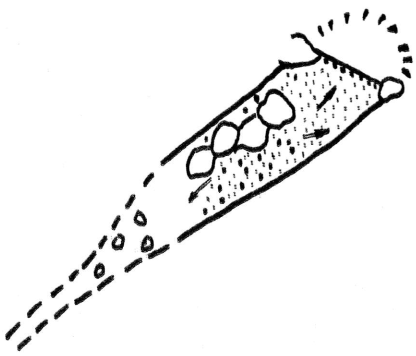
DEVELOPED L.S.

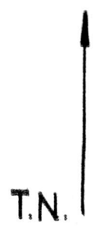
SCALE 1.100

C.R.G. 3 GRADE	SURVEY BY H.C.G.	DRAWN BY S. BUNTON

5·12·76

B:145





PLAN

ELEV.

DEVELOPED L.S.

SCALE 1.100

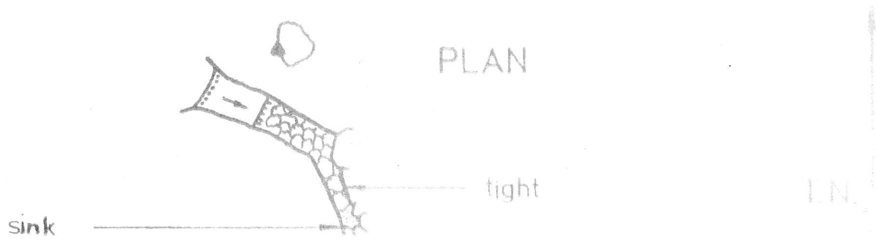
C.R.G. 3 GRADE	SURVEY BY H.C.G.	DRAWN BY S.BUNTON

27·11·76

CORRIDOR CAVE B:148

ELEV.
DEVELOPED L.S.

PLAN

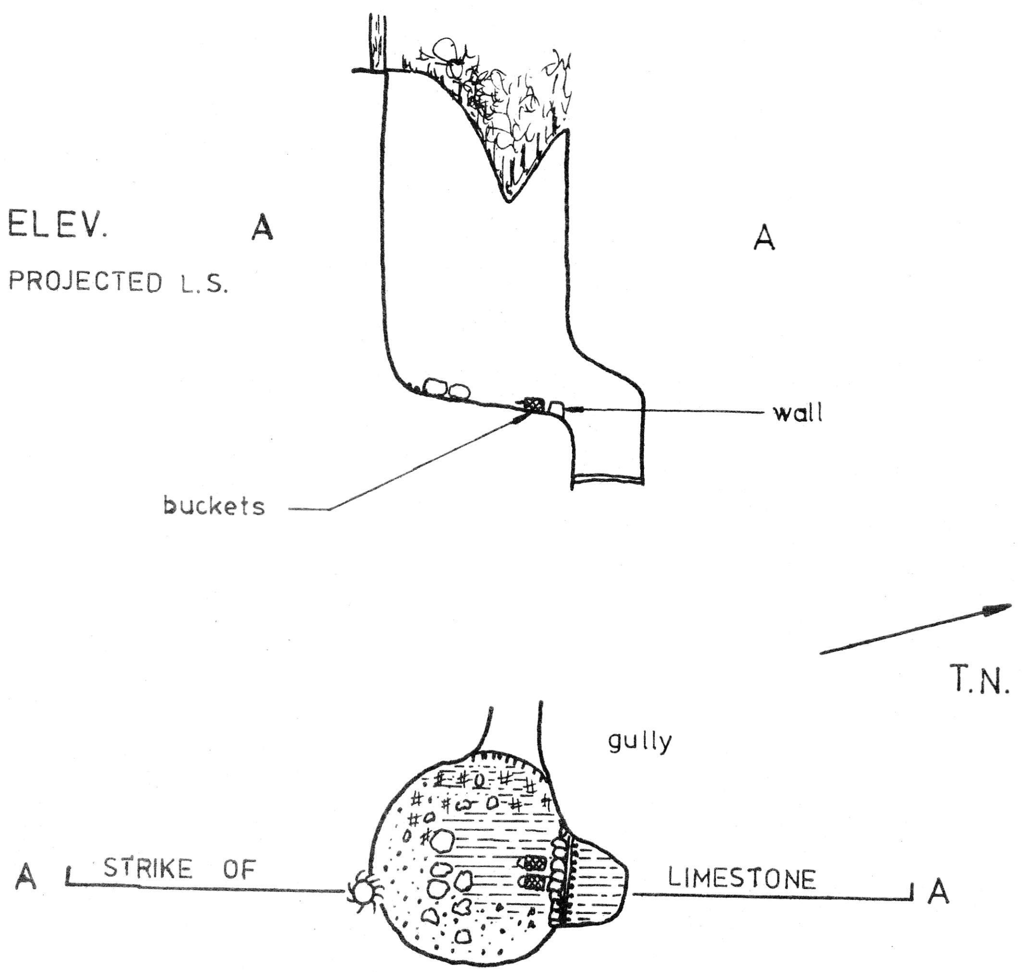


SCALE 1:100

C.R.G.	SURVEY BY	DRAWN BY
6 GRADE	H.C.G.	S.BUNTON

28.11.76

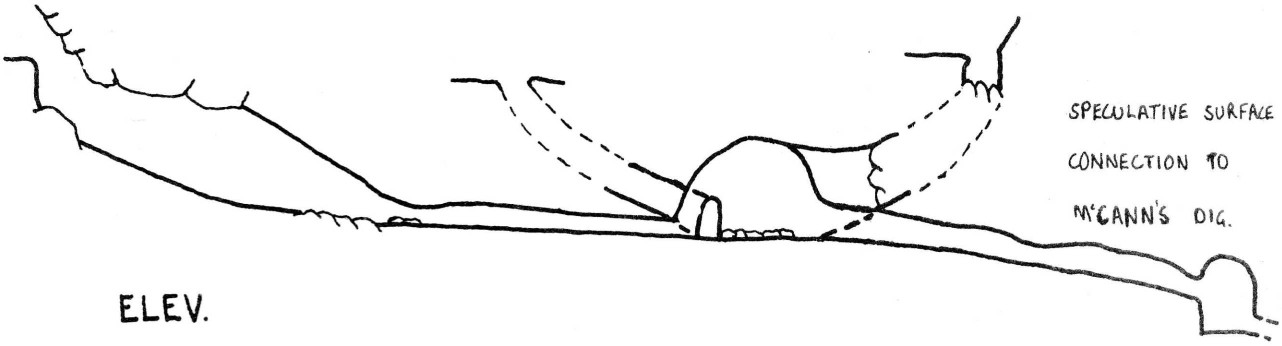
B:154



SCALE 1~200

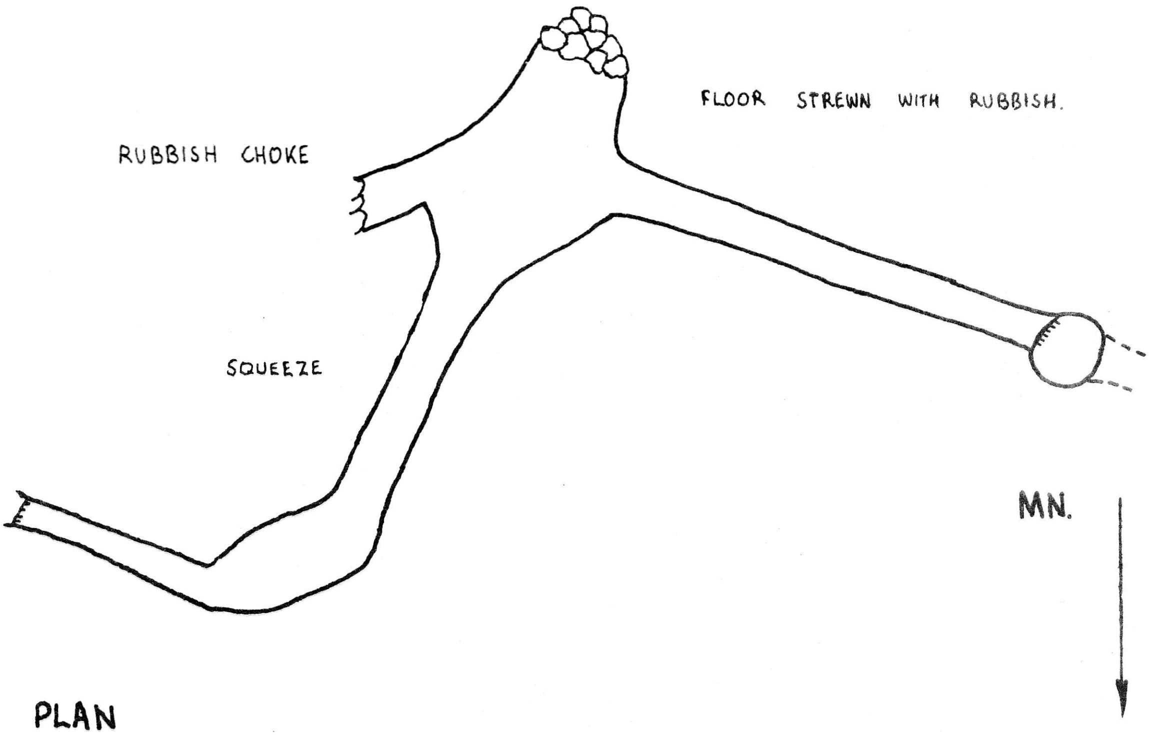
C.R.G. 1 GRADE	SURVEY BY H.C.G.	DRAWN BY S.BUNTON

EREBUS CAVE



ELEV.

DEVELOPED L.S.



PLAN

SCALE 1:200

C.R.G. 1 GRADE	SURVEY BY H.C.G.	DRAWN BY E.CRABB + R.TUNNEY

GC: 1

ELEV.

DEVELOPED L.S.

PLAN

T.N.

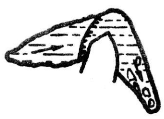
SCALE 1.100

C.R.G. 3 GRADE	SURVEY BY H.C.G.	DRAWN BY S. BUNTON

27·11·76

GC: 2

PLAN

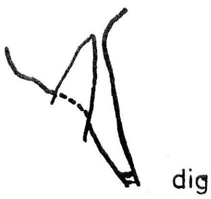


T.N.

ELEV.

PROJECTED L.S.

LOOKING NORTH



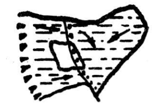
SCALE 1.100

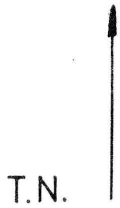
C.R.G. 3 GRADE	SURVEY BY H.C.G.	DRAWN BY S. BUNTON

27·11·76

CACTUS CAVE

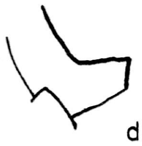
PLAN





ELEV.

DEVELOPED L.S.

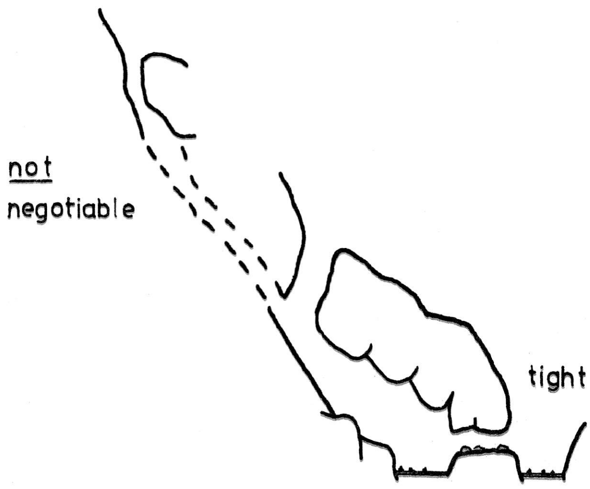


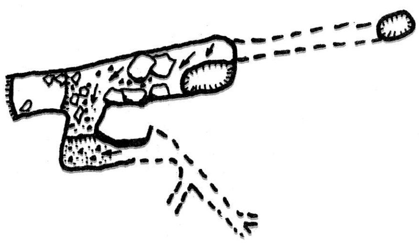
SCALE 1.100

C.R.G. 3 GRADE	SURVEY BY H.C.G.	DRAWN BY S.BUNTON

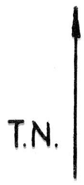
27·11·76

FISH - TRAP CAVE.





PLAN



ELEV. DEVELOPED L.S.

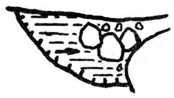
SCALE 1.120

C.R.G. 2 GRADE	SURVEY BY H.C.G.	DRAWN BY S.BUNTON

20.11.76

NE / 53

PLAN



ELEV.

DEVELOPED L.S.

T.N.

SCALE 1. 100

C.R.G. 3 GRADE	SURVEY BY H.C.G.	DRAWN BY S. BUNTON

27·11·76

DBYCC

PLAN

T.N.

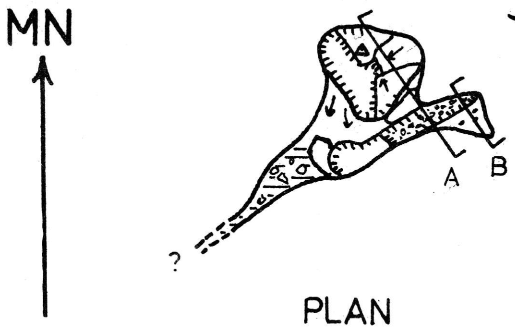
ELEV.

DEVELOPED L.S.

SCALE 1.100.

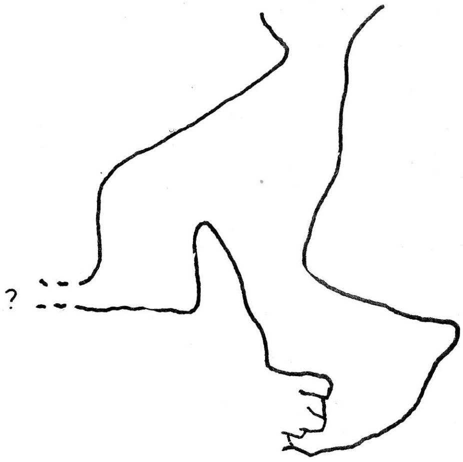
C.R.G. 3 GRADE	SURVEY BY H.C.G.	DRAWN BY S. BUNTON

5·12·76



PLAN

JULY 1976



DEVELOPED LONG SECTION

Surveyed by GB Smith, GJ Smith
and KA Brown with TRACON S28
and fibreglass tape. ASE Grade 64
Drawn by GB Smith

SCALE 1 : 100

metres

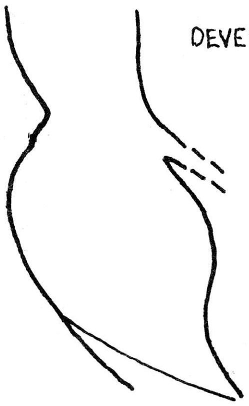
SECTIONS

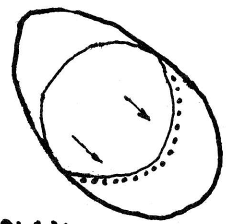
B. 58

M.C.G. DIG

ELEV.

DEVELOPED L.S.





PLAN

SCALE 1.100

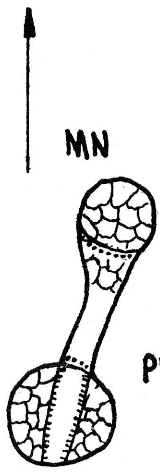
MN

C.R.G. 1 GRADE	SURVEY BY H.C.G.	DRAWN BY E. CRABB

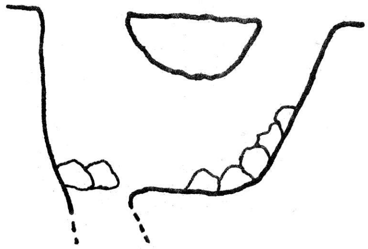
ROSE CAVE

ELEV.

PROJECTED L.S. 26°



PLAN



SCALE 1.100

C.R.G 2 GRADE	SURVEY BY H.C.G.	DRAWN BY G. HOPKINS

MARBLE ARCH ~ HYDROLOGY

S. BUNTON

Marble Arch is a small but none the less fascinating area. As its name suggests, the Arch and Caves are in significantly metamorphosed limestone. This makes it difficult to assess strike and dip angles within the area. Added to this is the substantial solution work which leaves little evidence of the nature of bedding.

The Arch, Caves and Canyon, however, closely follow the strike of the 'Limestone' as can clearly be seen from the diagram i.e. 'The Limestone Strikes Roughly North/South'.

The most striking feature of Marble Arch as an area is the canyon, which shows the various levels of stream down cutting. This is reflected inside the Arch where vadose channels are visible and higher-level passages have died. There are entrances to caves at varous levels in the south side of the canyon and the caves show internal stream downcutting.

Stream downcutting in the caves must have occurred at a comparable rate to that shown in the canyon. Surface features of solution due to the streams action have since been modified by secondary surface solution and breakdown.

However, the overhangs come due to the stream incised meandering, all correspond to a level inside caves themselves.

At present the bulk of the water flowing in the area is subterranean. The water flowing onto the Marble sinks in the gravel just inside the entrance to the Arch and is visible as a waterfall down a side passage to the south. Before viewing the waterfall a stagnant pool of water is visible as a waterfall down a side passage to the south. Before viewing the waterfall a stagnant pool of water is encountered on a comparable level to the plunge pool of the waterfall, this is presumably a backwater.

The stream reappears flowing with comparable velocity in the bottom of a chasim inside one of the caves downstream. It then effluxes at MA4 again with a comparable velocity. (Unfortunately, I have never learned the guesswork involved in flow rate of cave streams).

In the Canyon water does flow as a trickle through several plunge pools etcetra in the bottom of the canyon. I postulate that this water is not surface derived but resurges from gravel (due to collapse of the Arch). At the down stream end of the Arch itself. This trickle is added to by various 'Dribbling-Joints' which efflux just enough water to wet the limestone and are about 1metre above the floor of the canyon and continue the length of it.

The floor of the Canyon is very smooth and shows no joints and thus no evidence of infiltration. The section of Canyon with the stream has a base width of only ½ that of the rest of the Canyon, indicating more rapid down cutting. It is unlikely that the stream in the Canyon is just eroding. At half the width, so to speak, since the solution features shown on the bottom of the Canyon are indicative of a faster flow rate - presumably flood conditions. Of striking interest in the caves is the Chasm (which is untagged but has been visited). This 6 metre floor Canyon shows the complete life cycle of a cave, as a progression from bottom to top. The lower level is undergoing solution as the stream erodes it away.

The next level upwards is fresh unmodified but shows stranded solution features.

The next level upward shows calcite deposition.

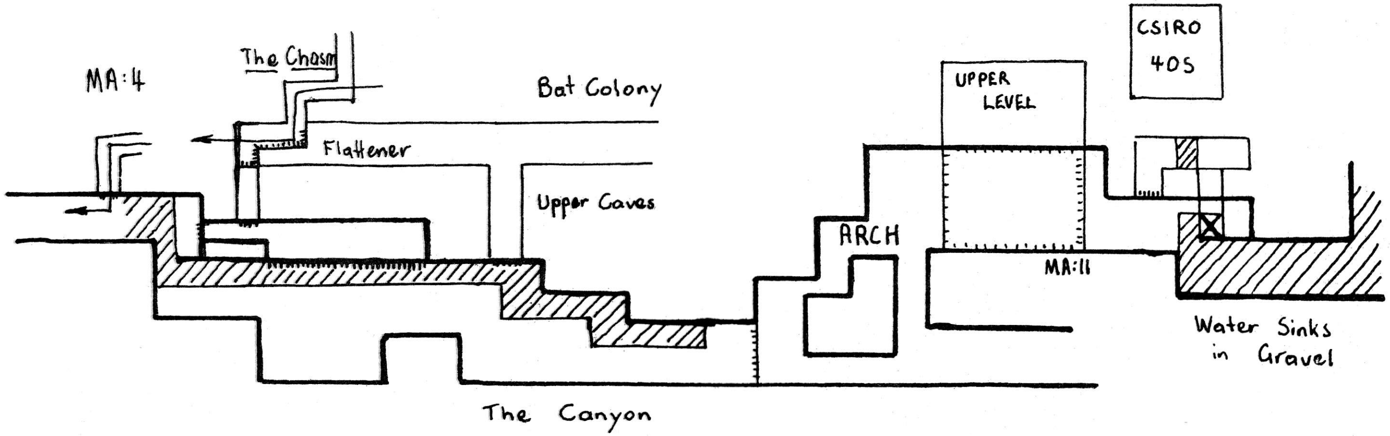
The very top level shows the breakdown of walls and calcite deposits.

Such a sequence is present but not as strikingly obvious in other sections of the caves.

Since I have stated that the cave development has kept pace with the stream down cutting, I feel I should expand by explaining the apparent sequence. This would best be achieved by postulating the next steps in the sequence.

This being the Canyon floor would be lowered thus causing the insurgence to drop giving rise to cave development at a lower level.

Why all cave development is to the west of the Canyon is unknown. It could be possibly be explained by the actual formation of the Canyon itself - presumably by the tributary stream down cutting beside the caves and arch to the north east.



PLAN.

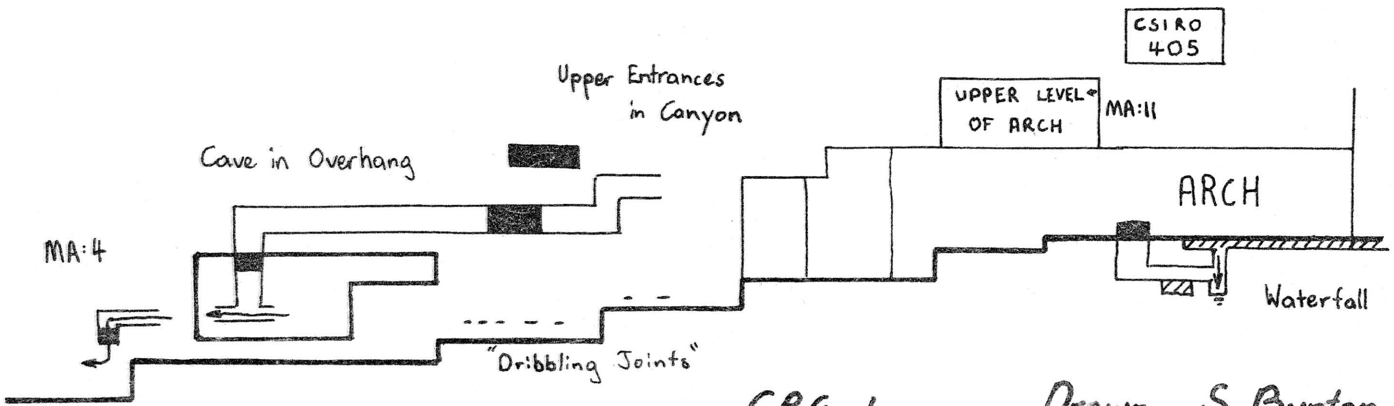
Diagramatic Representation of

MARBLE ARCH N.S.W.

Not to Scale.

North

EAST'N ELEV.



C.R.G. 1

Drawn S. Bunton 16·6·76

BIOLOGY

DISTRIBUTION OF SILVERFISH IN CAVES AT BUNGONIA, N.S.W.

G. B. SMITH

In the last Journal the presence of a cave dwelling, Nicoletiid Silverfish, at Bungonia (in Phoenix Cave B60) was documented. Since that time specimens have also been collected from UNSWSS Hole B43 and Argyle Hole B31.

No Silverfish have been seen in Phoenix Cave since that article was written, but the cave has been sealed and only entered once by myself and other HCG members since that date.

In early January this year, I entered Argyle Hole and found a juvenile male in the small chamber of the Roundabout near the turnoff to Coroners Cavern. Carbon Dioxide concentration was about 1-2% (estimate) so only a minor search was carried out for more specimens.

On the 15th May, 1976, Bryan Cleaver entered Argyle Hole and found another speciment (adult female) at the top of Coroners Cavern also in dry conditions with about 1% Carbon Dioxide. Bryan brought the specimen home to me and this allowed me to conclude that the juvenile I had previously collected from Argyle Hole was a member of the same species despite the much smaller cerci and antennae (relative to body size).

More information as regards distribution appeared on 13th June, 1976 when Bryan returned from a trip into UNSWSS Hole with another adult female collected from the deepest part of this cave (see Bungonia Caves pg. 91).

No specimens of these Silverfish have been collected from muddy locations despite extensive searches in Grille Cave B44, but have been found on bedrock or areas with sandy floor or loose rocks in sand. They have been found in areas which periodically flood but, apparently, can survive this, or else they have been washed into the cave during flood. This seems unlikely as searches of the entrances and surrounding surfaces have not revealed any Silverfish; but many predatory Arthropods such as insects, myriapods and arachnids were found, and so it seems unlikely that a soft bodied insect which can easily dehydrate would flourish here.

Another possibility is that these Silverfish live in termite or ants nests as inquilines or in rotting logs. However, their delicate nature and large size poses problems.

Mention was made in the last Journal of paplllae on the cerci of the males. These are not present in any other Australian Nicoletiid (J. A. L. Watson - pers comm) and Dr. G. Cox of the Sydney University Electron Microscope Unit (also president of SUSS) has prepared scanning electronmicrographs of these structures using the critical point drying technique.

The structures revealed are as shown in Fig.1. Their function is unknown but appears, by its delicate structure, to be detectors of airbourne or ground deposited chemicals released by the female (pheromones), something which may overcome the difficulty of finding a mate in the large open spaces of a cave.

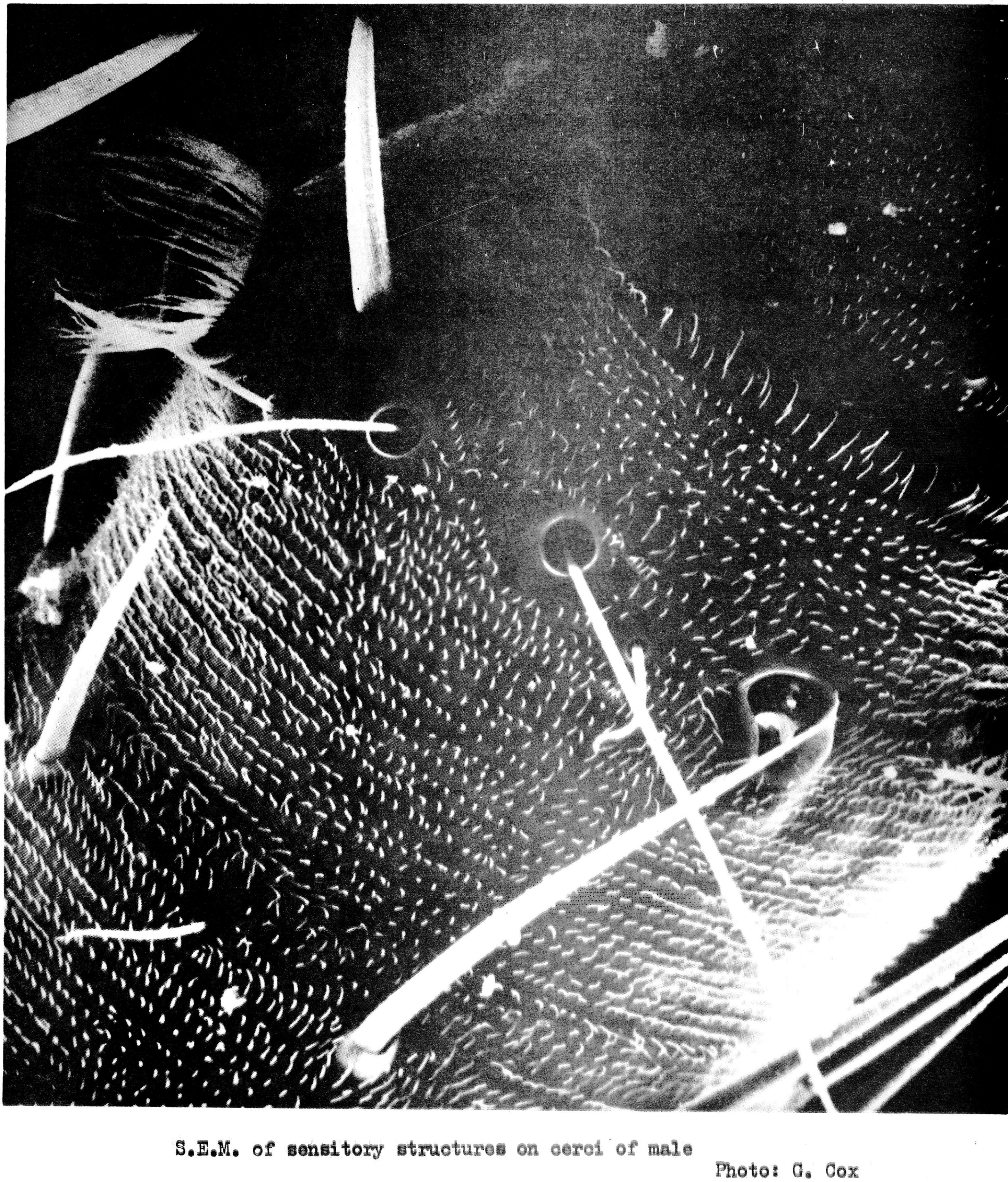
Another point of note is the relative numbers of adults and juveniles:- four females, two males and only one juvenile. Apparently these insects are long lived as adults and slow breeding, which should be considered as a deterent, to the collection of specimens.

Thus these insects appear to be well established at Bungonia with a wide distribution despite extensive use of the caves. I have no doubt that more specimens will be found in the caves of the area and so more data on the abundance and ecology can be collected.

References

Bungonia Caves - SSS Occasional Paper No. 4

Journal of the Highland Caving Group - January, 1976 pg. 17-18



S.E.M. of sensitory structures on cerci of male

Photo: G. Cox

PRELIMINARY REPORT OF BIOLOGICAL SURVEY AT JAUNTER

G. B. SMITH

BIRDS

The following species have been recorded since 11th January, 1975. This list is not nearly complete and further observations will yield many more species:-

Rhipidura leucophys	Willie Wagtail
Rhipidura fuliginosa	Grey Fantail
Gymnorhina tibicen	Black-backed Magpie
Strepera versicolor	Grey Currawong
Acrocephalus australis	Reed Warbler
Malurus cyaneus	Superb Blue Wren
Sericornis frontalis frontalis	White-browed Scrub Wren
Coracina novaehollandiae	Black-faced Cuckoo-shrike
Anthus novaeseelandiae	Australian Pipit
Aegintha temporalis	Red-browed Finch
Carduelis carduelis	Goldfinch
Colluricincla harmonica	Grey Shrike-thrush
Petroica multicolor	Scarlet Robin
Passer montanus	Tree Sparrow
Microeca leucophaea	Brown Flycatcher
Smicrornis brevirostris	Weebill
Acanthiza pusilla	Brown Thornbill
Eopsaltria australis	Southern Yellow Robin
Psophodes olivaceus	Eastern Whipbird
Neisitta chrysoptera	Orange-winged Sitella
Meliphaga leucotis	White-eared Honeyeater
Meliphaga chrysops	Yellow-faced Honeyeater
Hirundo rustica	Welcome Swallow
Dacello gigas	Laughing Kookaburra
Cacatua galerita	Sulphur-crested Cockatoo
Platycercus eximius	Eastern Rosella
Platycercus elegans	Crimson Rosella
Alisterus scapularis	King Parrot
Eolophus roseicapillus	Galah
Calyptorhynchus funereus funereus	Yellow-tailed Cockatoo
Callocephalon fimbriatum	Gang-gang Cockatoo
Threskiornis spinicollis	Straw-necked Ibis
Phalocrocorax melanoleucos	Little Pied Cormorant
Anas gibberifrons	Grey Teal
Anas castanea	Chestnut Teal
Anas superciliosa	Black Duck

Chenonetta jubata	Wood Duck
Gallinulla tenebrosa	Dusky Moorhen
Ardea novaehollandiae	White-faced Heron
Accipiter cirrocephalus	Collared Sparrowhawk
Aquila audax	Wedge-tailed Eagle
Falco cenchroides	Nankeen Kestral
Ninox strenus	Powerful Owl

Fourtythree species of birds are listed but this is not truly indicative of the possibilities, as many birds arrive on the flat after prolonged wet spells and I have only been to Jaunter lately during dryer spells.

The Powerful Owl was not seen but its characteristic call has been heard on successive nights in May, so I have included it in the list. The Welcome Swallows are often seen in and around cave entrances and probably offer most significance to speleologists.

MAMMALS

The following species have been observed in 1975:-

Ornithorynchus anatinus	Platypus
Vanbatus ursinus	Wombat
Petrogale penicillata	Brush-tailed Rock Wallaby
Wallabia bicolor	Swamp Wallaby
Macropus rufogriseus	Rednecked Wallaby
Pseudocheirus perigrnus	Ringtail Possum
Miniopterous schreibersii	Bent wing Bat
Mus musculus	House mouse

Also:-

Bos taurus	Cattle
Orycytolagus cuniculus	Rabbit
Vulpes Vulpes	Fox

Native mammals have been observed. Of special interest is the large number of platypus seen in the creek downstream of the hut. These have been sighted in early morning but not in May when the temperature fell to below zero or the wind was extremely fierce. It is hoped that they have not been effected by the upstream felling of all trees.

Of interest to the speoleologist is the use by Vambatus ursinus of caves as dwellings. Also the sighting of Bats in JA29 and Bourchier Cave; believed to be Minopterus schreibersii. These are not breeding caves but appear to be occassionally occupied in winter/autumn.

LADDER CONSTRUCTION

M. Finger.

What to do! When you find out you have to acquire, by some means or other, 457metres of cable ladder.

Now the price of such a length, over the counter, is prohibitive, and such a length not generally available in one place.

So the answer, construct the ladders ourselves.

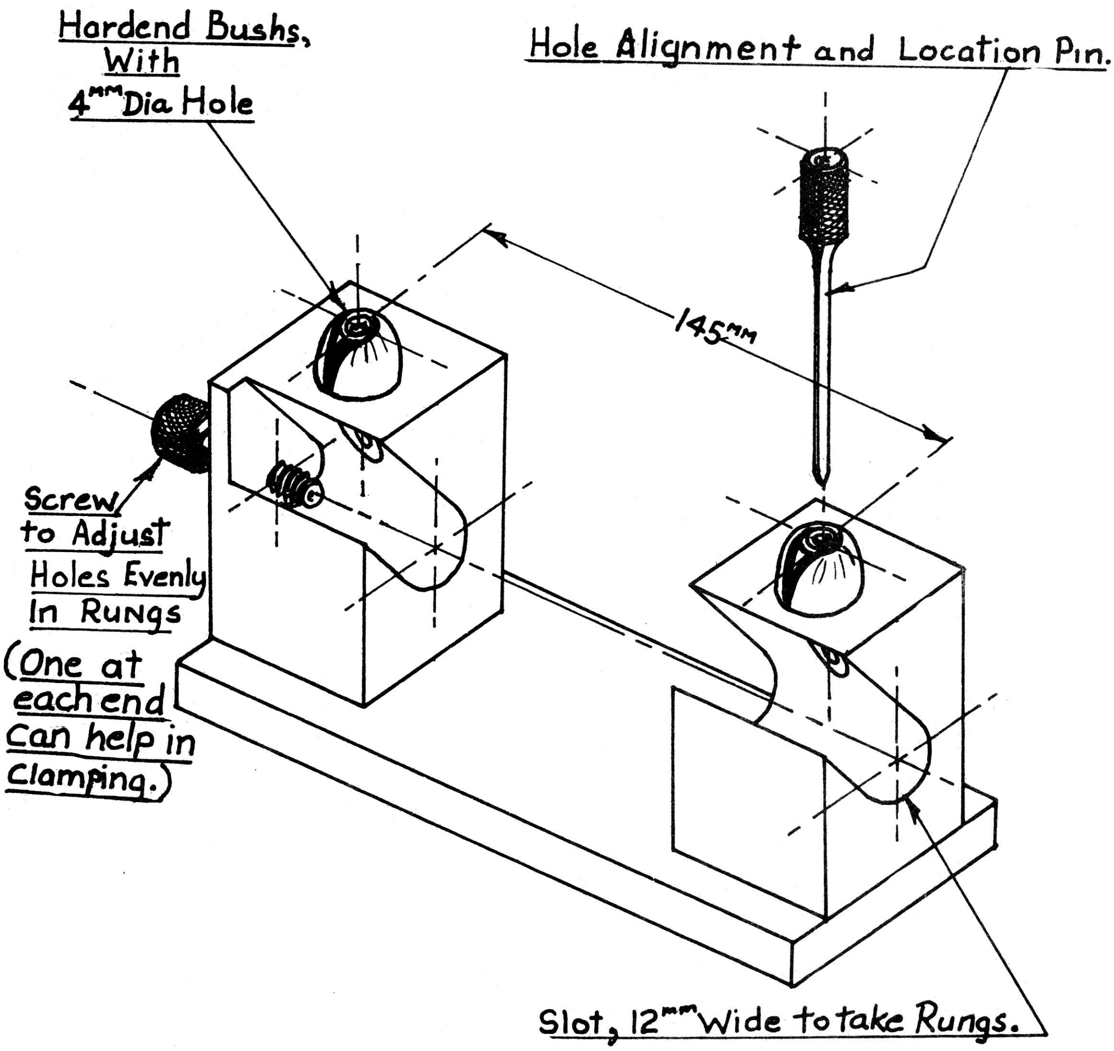
Now if you say it fast enough, it is an easy task, but not so when you set yourself to the physical task of doing it!

So after examining all known means of cable ladder construction, it was decided to use a slightly different method of crimping the rungs directly onto the cable.

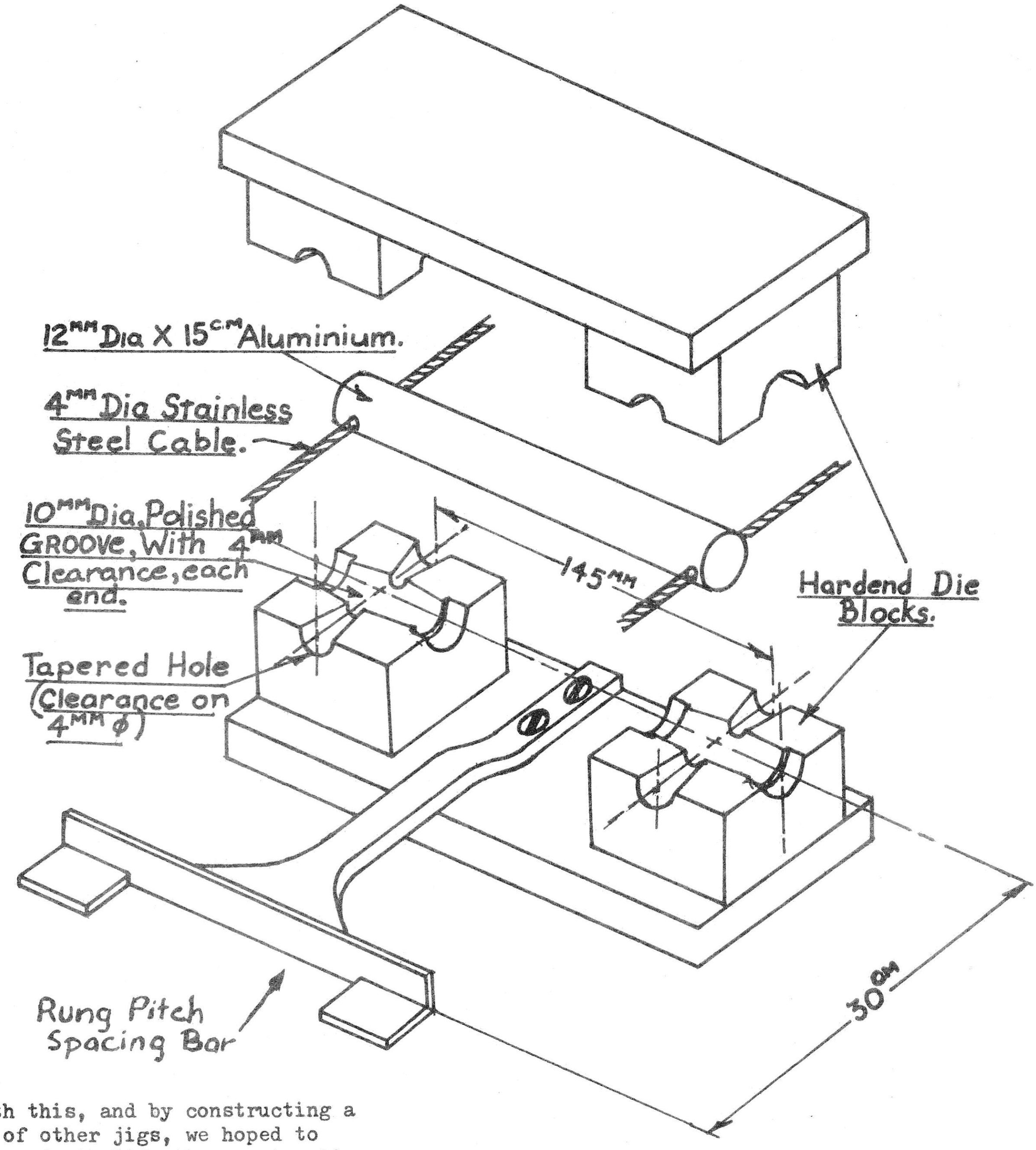
The only example of crimping rungs onto wire cable, that we had seen, was done by J. Bonwick and it appeared as if he crimped the rungs by first cutting a 'V' in the end and then rolling the end of the rung around the cable thus closing the 'V' and clamping the rung onto the cable.

Now this method requires a rather complex jig, and as we did not intend to produce commercially, and our jig had to fit a variety of presses, we decided on a simple compression jig.

CABLE LADDER DRILLING JIG



Cable Ladder
Rung Crimping Jig



With this, and by constructing a variety of other jigs, we hoped to speed up and simplify the construction of our own ladders.

THE JIGS:-

1) A cutting jig for uniform rung length;

2) A drilling jig for uniform hole spacing and alignment;

3) A crimping jig, to secure rungs to the cable, with a rung spacing attachment for correct rung pitch;

4) A crimping jig for securing the 'C' clips on to the heads and tails of the ladder.

With these in hand all we needed was a press capable of supplying the necessary pressure, to squeeze a 13mm diameter aluminium bar onto and around the 4mm stainless steel aircraft cable.

A variety of presses were tried, the hydraulic type gave the best results in terms of uniformity and speed.

The rungs are 15cm long, and have 4mm diameter holes drilled 5mm in from the ends of the rungs. A drilling jig was constructed, that would give quick uniform hole spacing and alignment (refer Fig. 1).

The cable was cut 9.1metres long, the ends of which were soldered and ground to a point so as to enable us to pass the cable through the holes in the rungs, care had to be taken at this point to ensure the cable did not kink, as this causes the centre strand to slip out, thus writing off a length of cable. However, once the rungs are crimped onto the cable, the cable is immobilised.

The whole lot is then fed through the crimping jig and crimped at 16tonnes (refer Fig. 2).

The first rung is crimped 20cm from the end of the cable. It is then located on the rung pitch spacing stop, which is 30cm from the crimping die blocks.

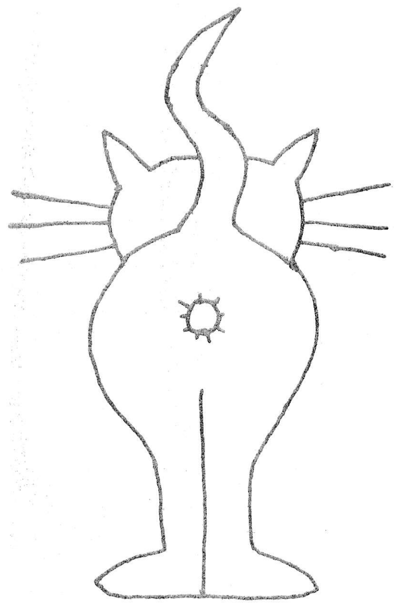
All 30 rungs are crimped 30cm apart along the 9metre length of cable with 20cm of cable kept at the head and tails of the ladder.

The ferrules are then threaded onto the cable, then the cable bent around the thimbles and back through the ferrules which are the crimped to secure the end assembly.

The 'C' links are then put through the eyes of the head and tail cables of the ladder and closed up, the excess cable being cut away to finish off the ladder.

In this manner, we managed to assemble 49X9metre ladder, plus 45 traces in 4 months of weekends and late nights that merged into early mornings.

Our advice to anybody contemplating making even 10 ladders by this method is, although they have proven to be more than strong enough for their purpose, unless you have access to a workshop and press, and an infinite amount of patience and, or colourful language, try some other method or buy them. It's too much hastle!



SEE YOU NEXT ISSUE