

Vol. 9. No. 5.

Nov. 1972.

SPELEOGRAFFITI.

The Newsletter of the

NATIONAL UNIVERSITY CAVING CLUB.

S P E L E O G R A F F I T I

VOLUME 9. NUMBER 5.

NOVEMBER 1972.

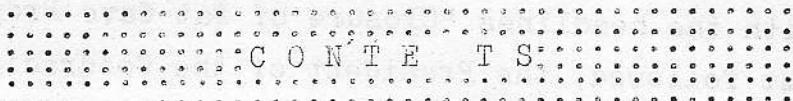
The Newsletter of the National University
Caving Club

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...entitled F'ooo.

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. E D I T O R I A L .

Well, Wee Jasper is in the news again. Not about accidents, or rescues, or scouts this time, but about a fungus - Histoplasma capsulatum, to be precise.

Some weeks ago, several cavers became ill after visiting Church Cave. It was later learned that the illness was Histoplasmosis, a fungal disease of the lungs.

In the numerous newspaper articles that followed, perhaps the most striking was one on the front page of the Canberra Times 21:10:72 with the headlines "Closure of Bat Cave Proposed". In the article that followed, the President of the Goodradigbee Shire Council said that if the cave proved to be a source of infection, the Council would be compelled to close it off, no other course of action could be considered.

While it is understandable that the Council is concerned about the bad publicity the area is receiving in the matter of this disease, with its possible effects on its tourist cave (Carey's), I think they should have a good look into the situation, before, in a moment of panic, they decide to fill it in.

Church cave is an important breeding cave of Miniopterus schreibersi, in fact it is one of the few breeding caves for the bent-winged bat on the East coast. Thus its closure could have a devastating effect on the bat population. Alternative breeding sites may be found, but chances of finding an area where the necessary conditions are duplicated are indeed remote.

Surely the more sensible course of action would be to erect a fence(rather than a gate) around the entrance, together with a sign warning of the possible dangers. This should be sufficient to stop most people entering what is, well let's face it, not a very attractive cave (for cavers) anyway. There is no formation to speak of, it is not very extensive, is very hot and dusty and occasionally has foul air. In normal circumstances the cave should not be visited for much of the year anyway - during the bat breeding season (Nov.-Mar.). Thus its closure would have little effect on cavers, it would however, have a disastrous effect on the bats. Thus in the interests of conservation this cave should not be filled in, and as a club we should do all we can to prevent this occurring.

...EDITOR.

OBITUARY.

With deep regret, we report the death of Noel Lake, who died in an accident on October 13th, 1972. Noel was a new member to this club, having been on only two outings (Jenolan and Wyanbene-Big Hole). He was known for some time to a few members for his effort on the recent dig at Dogleg.

His introduction to caving was with the 1st Macquarie Senior Scouts, and in scouting Noel was well known and respected. He would have gained his Queens' Scout Award in November of this year. Noel joined N.U.C.C. so that he could further his interests in caving when he reached "retirement" age for Senior Scouts in December of this year.

The Ninth Biennial Convention of the Australian Speleological Federation will be held at New College, University of New South Wales, from December 26th - 30th, 1972.

SYMPOSIA.

BIOLOGY METEOROLOGY
GEOMORPHOLOGY HYDROLOGY

ANTHROPOLOGY
SPELEOCHEMISTRY

SEMINARS.

SPELEO Publications	Overseas Caving Areas
Cave Physics	Electronic Communications
Maps and Diagrams for Cavers	Survey Techniques
Photography in Speleology	Caving Techniques (vertical)
Systematic Exploration	Conservation

CAVEMANS DINNER. The event of the year! Was to have been held on the SS Lady Scott, but a recent fire burnt this vessel to the water-line. It has not been stated where the dinner will now be held, but should be great fun no matter where it is held.

APPLICATION FORMS, together with details of cost, are given in the ASF Newsletter No. 57. (Sept. 1972).

FIELD TRIPS. Some details are given in the ASF Newsletter.

PROBLEMS IN THE GROWTH OF SPELEOTHEMS.

Maurice W. Bell

Part 3: Observation and Explanation of Helictites.Introduction.

Many observations were made of helictites growing, and fragments which were found in various caves in the Canberra area. Although none of the spectacular forms were removed, observations were made and by combining these with the fragments found, a reasonable account can be made of the mode of growth and the symmetry of crystallisation.

Crystallography.

As all the helictites studied were identified as calcite, it is this mineral with which I will largely deal.

Calcite usually crystallises in the Trigonal system as perfect ditrigonal scalohedral (class $\bar{3}m$) crystals. However it is well to remember that calcite has been described in at least 900 different characters, and although this form is present in some crystals observed, several faces and therefore interfacial angles, can be explained if another form is developed. (See Figure I¹). This form is developed by combining forms; {h01̄l}, {0K1̄l}, (note two types of {h01̄l} namely {101̄l} and {404̄l} together with their composites {101̄l}, and {112̄0}. The last of these being seen commonly externally on many formations as a "feather-like" structure. It is these forms or part thereof, which explain all formations seen.)

By plotting these forms as a stereogram I was able to obtain expected values of angles between faces, which enabled me to confirm which part or form was present in the structure when only pieces of it were developed.

For Example:

$$\begin{aligned}\{40\bar{4}l\} &: \{02\bar{2}l\} = 57^\circ \\ \{10\bar{1}l\} &: \{40\bar{4}l\} = 31^\circ \\ \{02\bar{2}l\} &: \{11\bar{2}0\} = 37^\circ \\ \{02\bar{2}l\} &: \{10\bar{1}l\} = 50^\circ\end{aligned}$$

Although the angles determined are only approximate, (± 2 degrees), they are sufficient in most cases for determination of the form, or at least indicate the faces, when several forms were present.

I. For figures 1. and 2. see Speleograffiti, Vol.9 No.4, pages 62 & 63.

Examples:

For simplification in the following examples actual faces will not be called, but rather the form present.

$$\{h\bar{h}l\} = A$$

$$\{O\bar{K}\bar{l}\} = B$$

$$\{h\bar{h}l\} \{40\bar{4}l\} = C$$

$$\{I\bar{O}\bar{I}O\} = D$$

$$\{I\bar{I}20\} = E$$

$$\{2\bar{I}3I\} = F$$

1. Figure 5.1.

This is a small "helical" type helictite approximately 5cm. long and 5cm. in diameter. It shows cleavage common in all formations parallel to "A" form. As drawn, the helictite should not be interpreted as one crystal, but a row of that form, as seen in figure 6.2. Curves are a result of overgrowth or propagation of one direction or face formed by a combination of factors or a single factor mentioned earlier in the section on growth.

2. Figure 5.2.

This helictite is approximately 8cm. long and 3mm. in diameter. The crossection is a perfect rhomb., which begins with the propagation of a form such as figure 6.1. and develops the "E" faces after approximately 1cm., a point at which the helictite bends from a horizontal path to one sloping downwards at approximately 35° . This form grew under controls such as a combination of gravity effect and crystal propagation.

(Note: A capillary tube is prominent in all specimens.)

3. Figure 5.3.

This small helictite only 4cm. in length and 2mm. in width, has a clearly defined capillary tube running along its centre. Its upper surface is smooth while the lower has well developed crystals.

4. Figures 8, 9, 10 are self explanatory and I feel further description is of little use. It is sufficient to say that by comparing each formation with the proposed forms in figure 6 and figure 7 a reasonable account can be obtained for the mode of growth of the formation.

5. Figures 3, 4, and 7.

These show the proposed form of curving and branching. Figure 7.1., was proposed to explain the symmetric curves observed in many formations. This form requires a movement of the c-axis with relation to that of the crystal directly

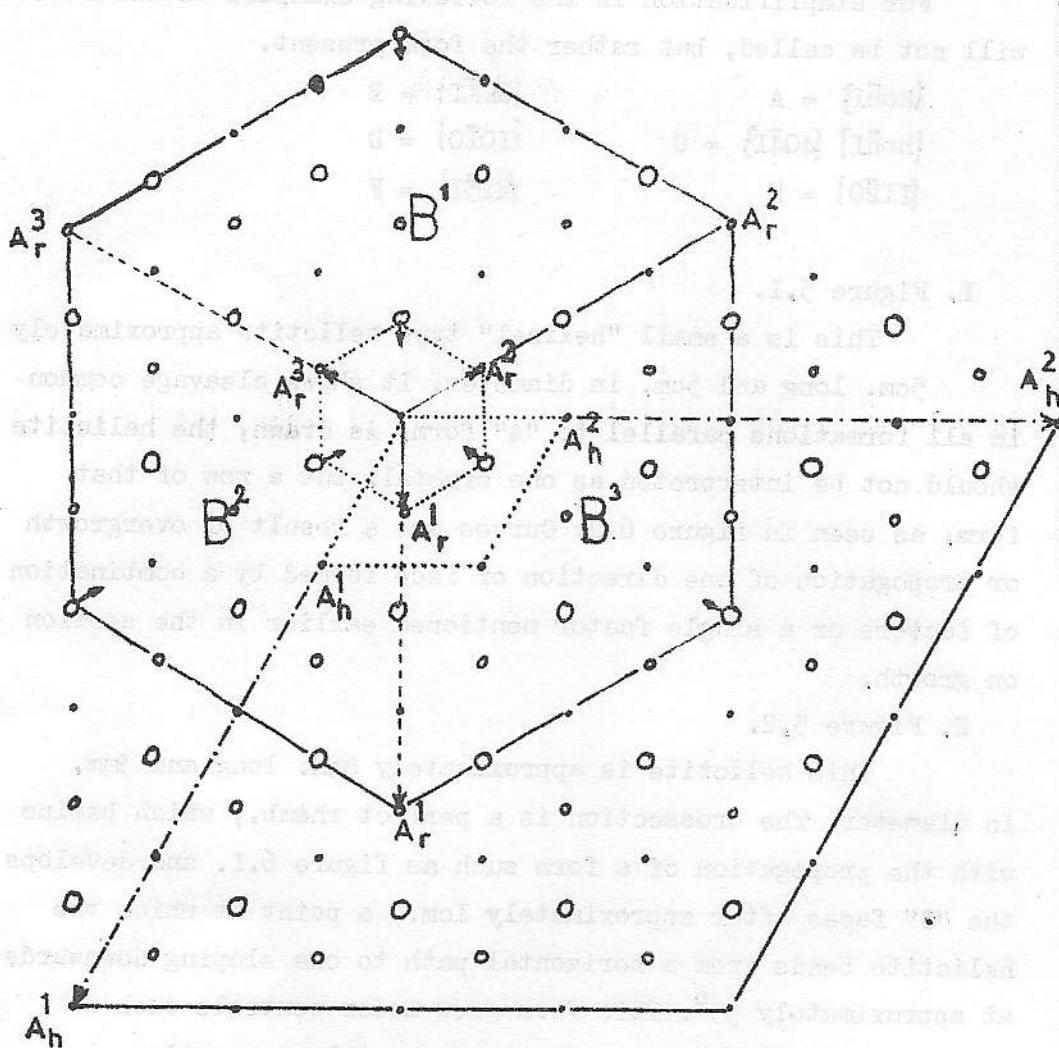


Fig. 3. Part of a rhombohedral lattice. Solid circles represent points in the lowest, or origin plane; small and large open circles represent points in the first and second lattice planes above the origin; the third plane has points directly over the solid circles, but is omitted for clarity. Axes A_r define the smallest, or structural rhombohedral unit cell; A_h (and C , not shown, normal to the page at O) define the corresponding hexagonal unit cell. Similarly, A_r^3 and A_h^2 (and C , not shown) define the rhombohedral and the hexagonal unit cells corresponding to the cleavage rhombohedron, as {1011}, of crystals with the calcite structure. (Winchell 1956).

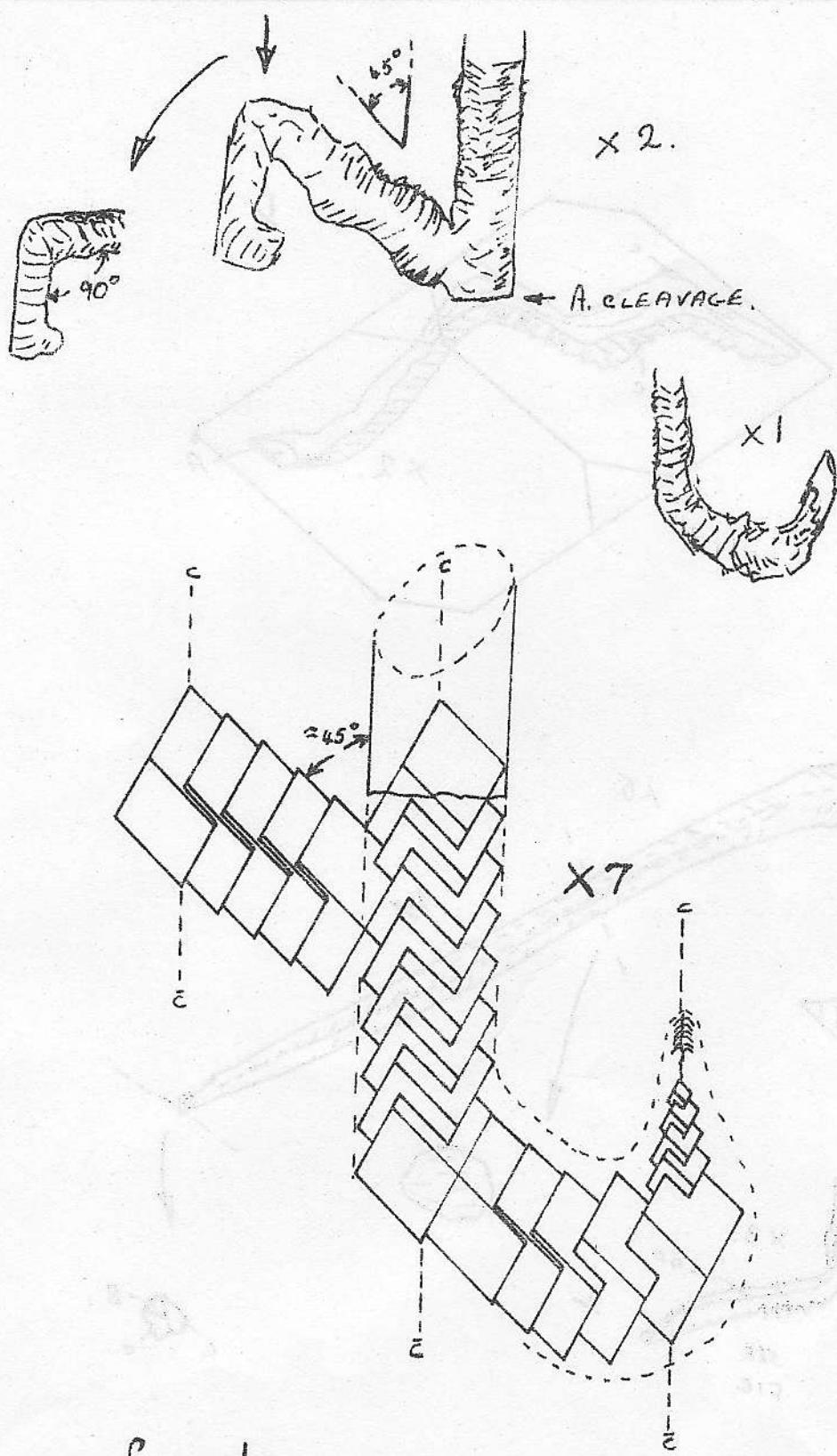
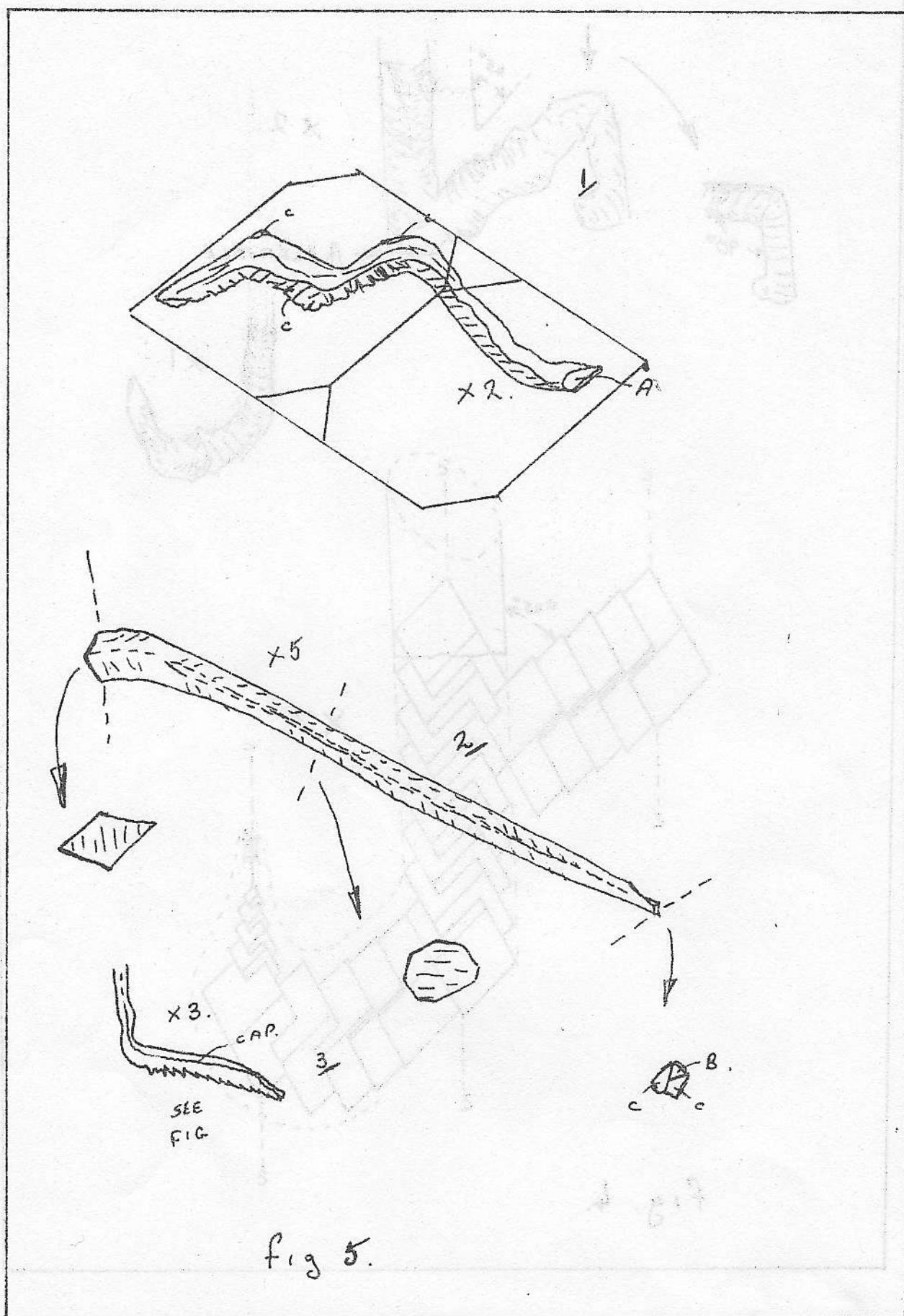


fig. 4.



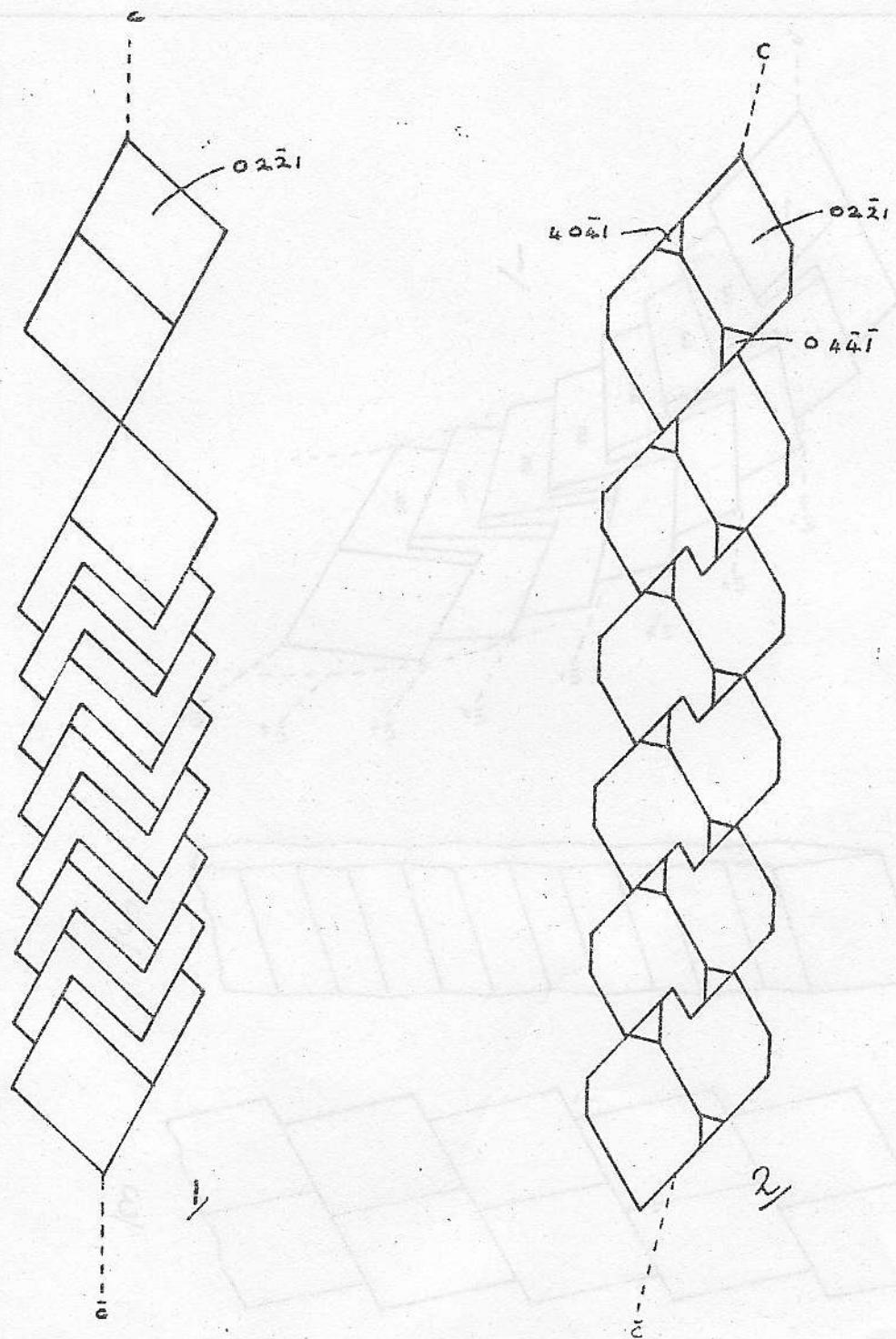
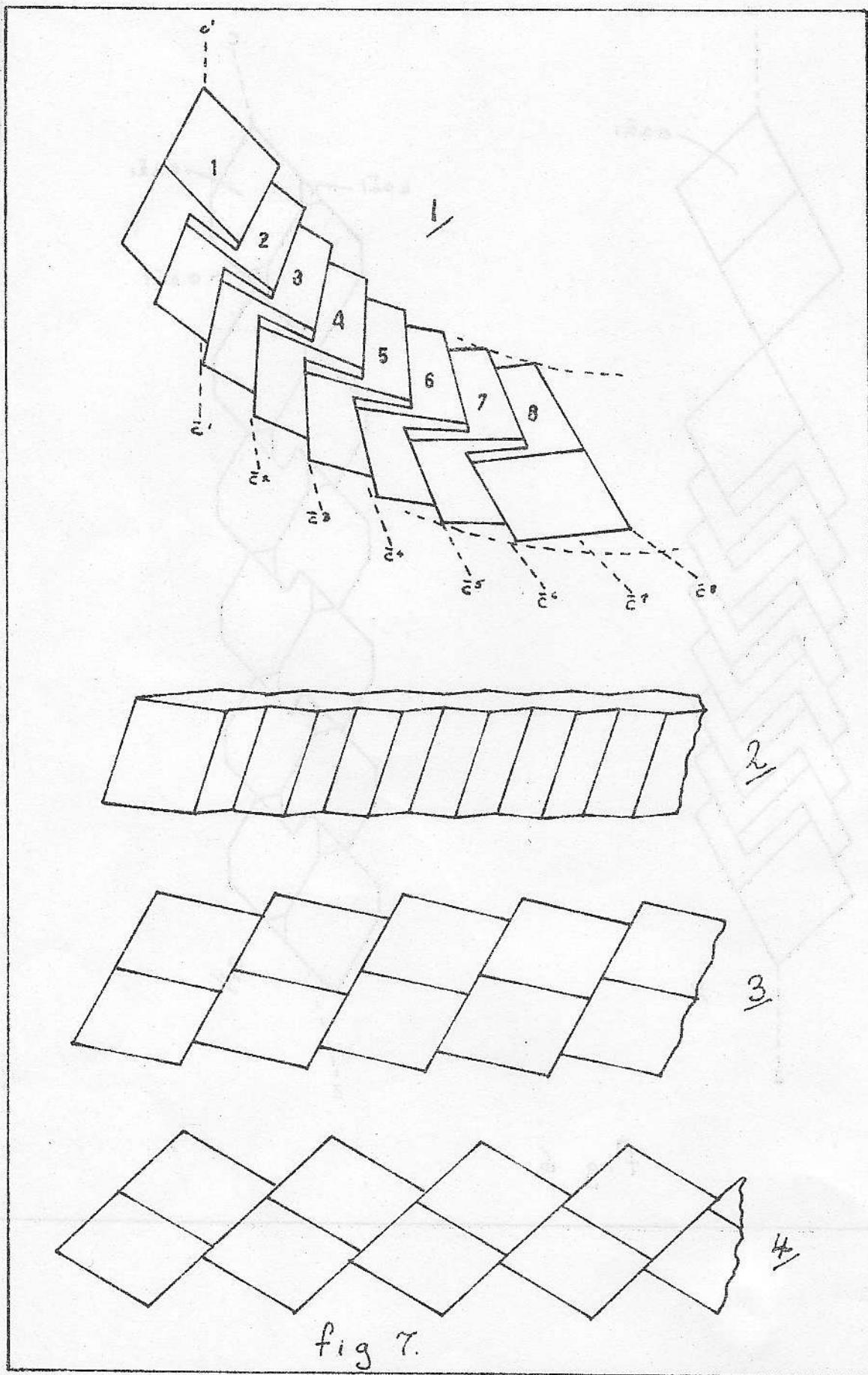


fig. 6.



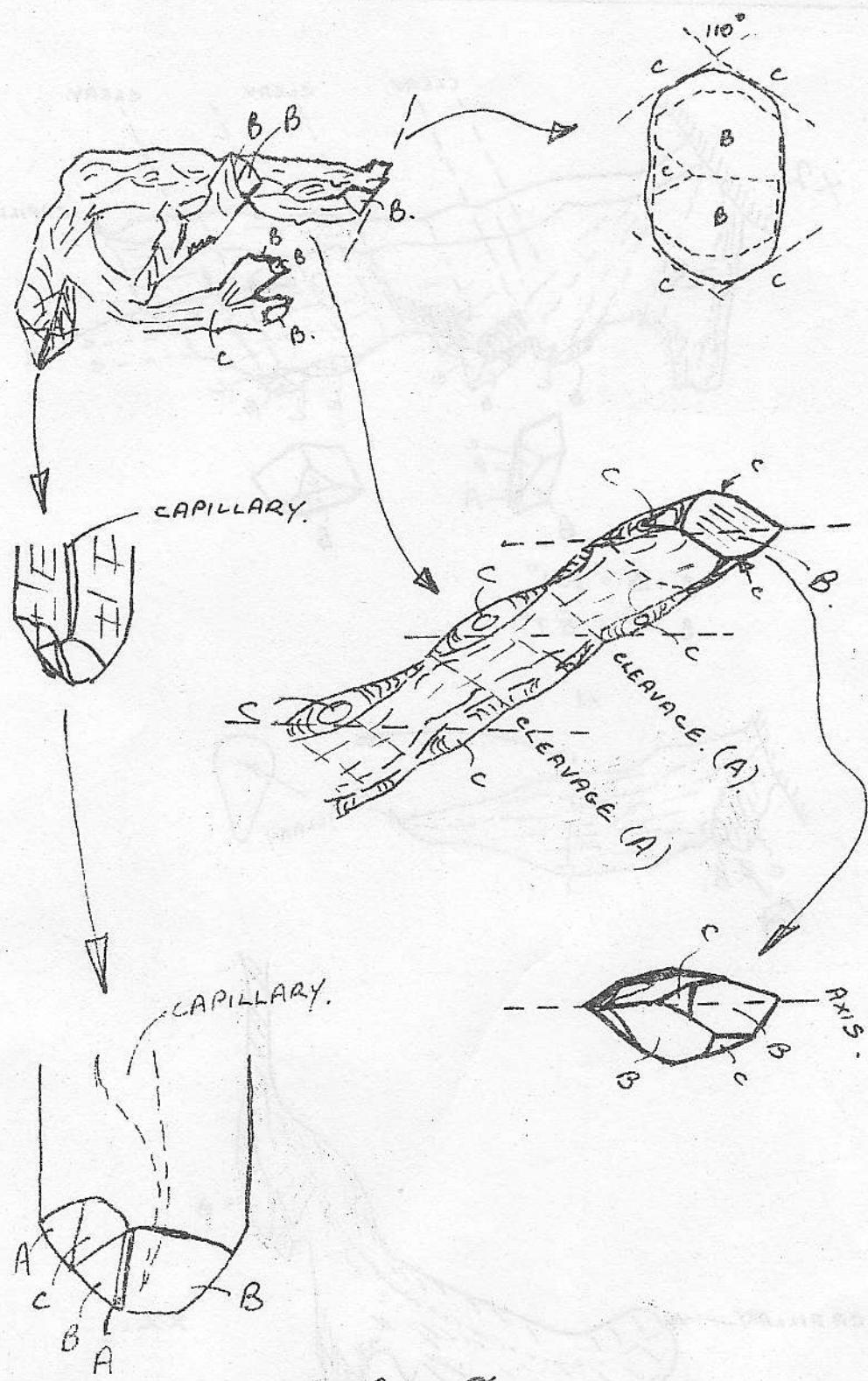
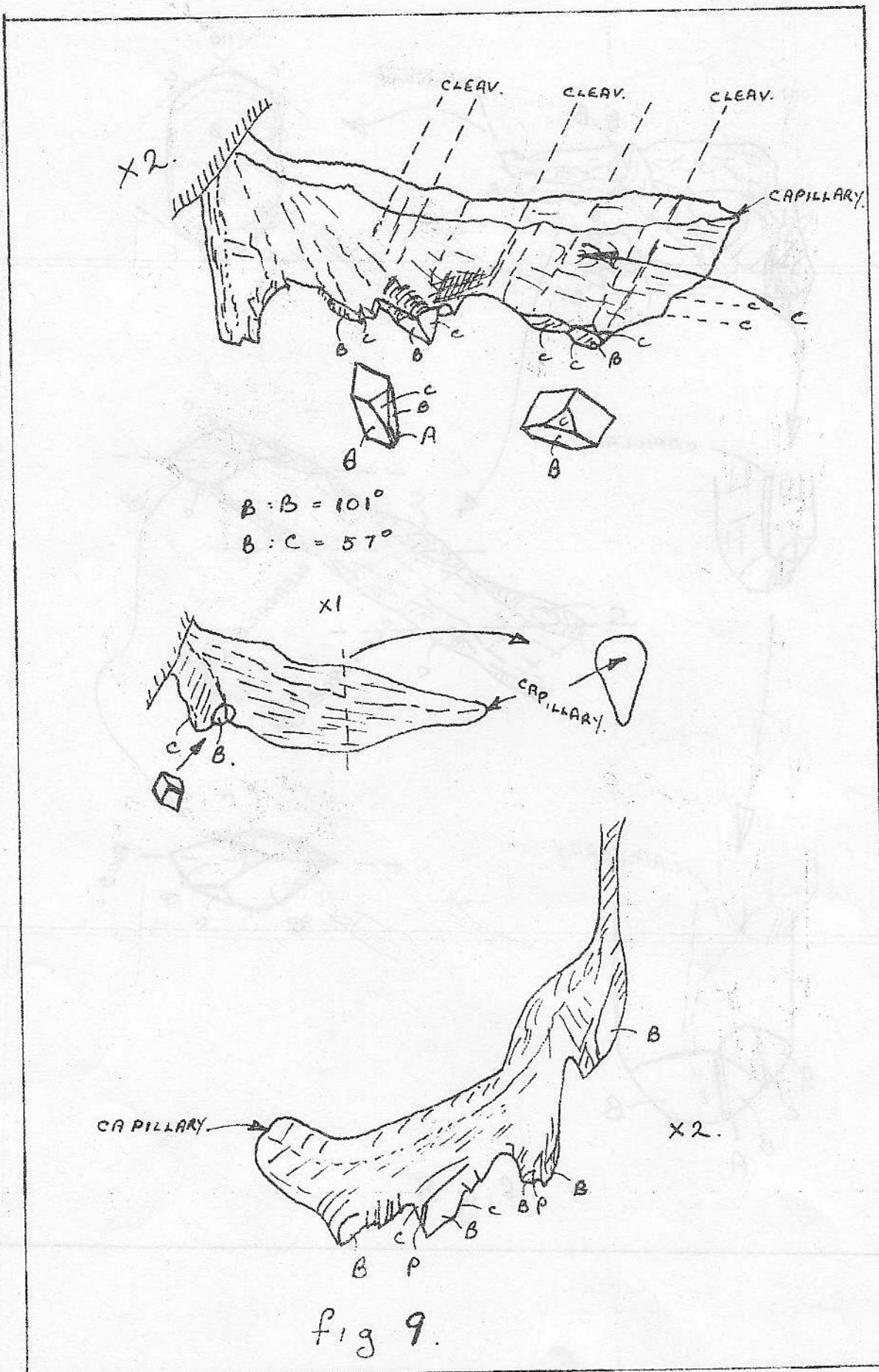


fig 8.



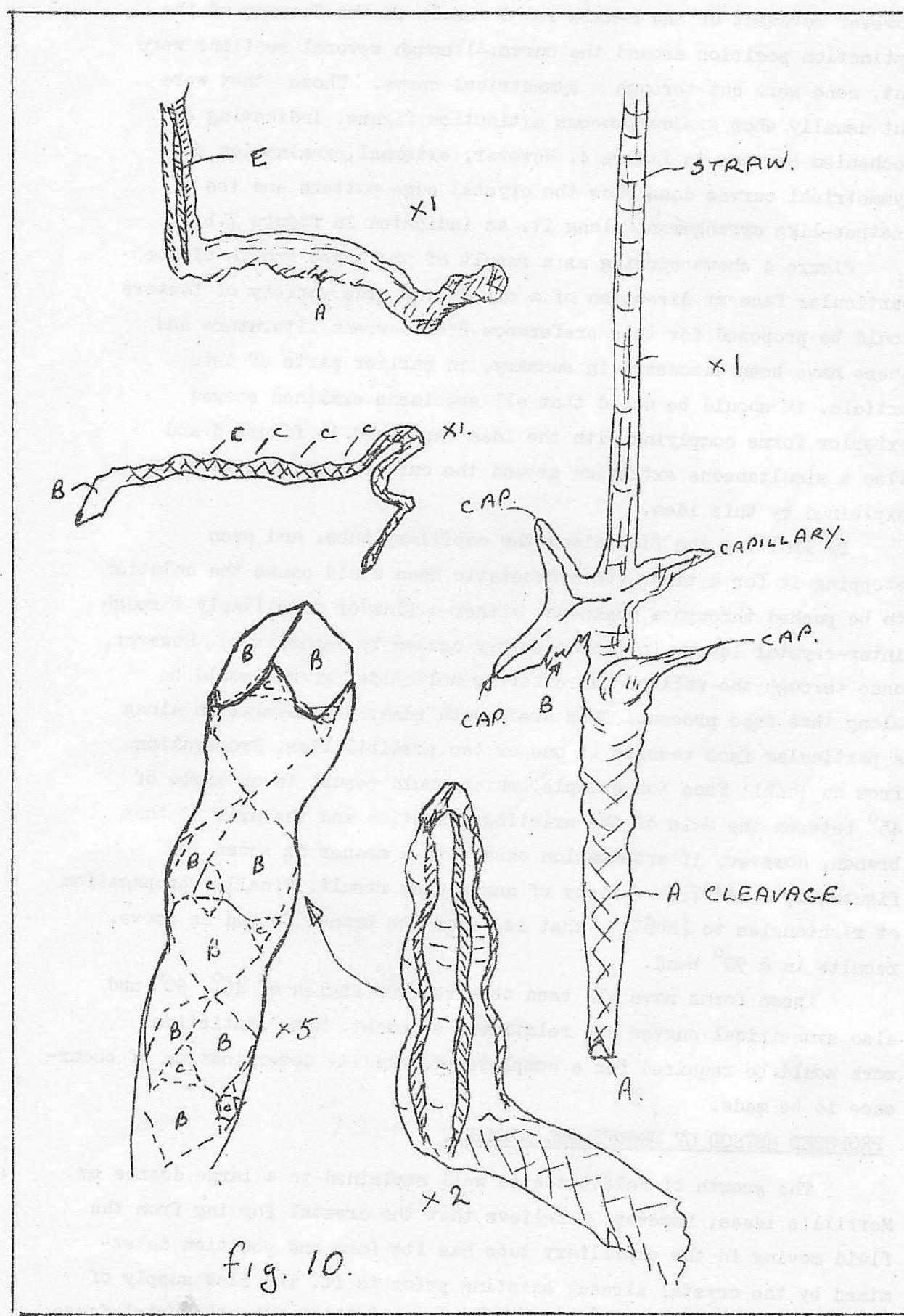


fig. 10.

from page 82.

before it. Propagation is still along the preferred c-axis direction, however movement of the c-axis would result in the fanning of the extinction position around the curve. Although several sections were cut, none were cut through a symmetrical curve. Those that were cut usually show a simultaneous extinction figure, indicating a mechanism as seen in figure 4. However, external examination of symmetrical curves does show the crystal edge pattern and the feather-like arrangement along it, as indicated in figure 7.I.

Figure 4 shows curving as a result of prolonged growth of one particular face or direction of a crystal. A wide variety of factors could be proposed for this preference from current literature and these have been discussed in summary, in earlier parts of this article. It should be noted that all specimens examined showed exterior forms complying with the idea expressed in figure 4 and also a simultaneous extinction around the curve. Branching is also explained by this idea.

By limiting the flow along the capillary tube, and even stopping it for a time, the hydrostatic head would cause the solution to be pushed through a weakness, either a flaw or more likely through inter-crystal layers (a flaw possibly caused by impurities). However, once through the wall of the existing helictite, growth would be along that face present. This overgrowth idea, of propagation along a particular face results in one or two possibilities. Propagation from an {h01} face for example, which would result in an angle of 45° between the axis of the existing formation and the axis of that branch. However, if propagation occurs in a manner as shown in figures I, 2 and 7, a variety of angles may result. Finally, propagation at right angles to {h01}, that is, from the branch formed as above, results in a 90° bend.

These forms have all been observed and angles of 45°, 90° and also symmetrical curves are relatively abundant. More statistical work would be required for a complete probability determination of occurrence to be made.

PROPOSED METHOD OF GROWTH AND SUMMARY.

The growth of Helictites is well explained to a large degree by Merrill's ideas, however, I believe that the crystal forming from the fluid moving in the capillary tube has its form and position determined by the crystal already existing prior to it. The slow supply of solution through the capillary allows the full growth of crystal faces by a standard procedure of "crystal growth" and because of this the forms

are monocrystalline and in many places perfect morphological symmetry is externally expressed. If a crystal completely blocks the capillary tube the hydrostatic head causes branching at a higher position which propagates along a particular face or orientation, again controlled by the crystal faces already present.

In summary then, crystal growth is controlled by rate of flow of solution down the capillary tube whilst direction of growth is symmetrical and controlled by the crystal faces already present.

NOTE: A further application of this idea, similar in most respects, except the movement of the solution is probably along the surface, is the formation of the acicular aragonite helictites formed particularly well in Lake Chamber of Wyambene. The growth of these is highly orientated along the c-axis such that bundles of acicular crystals grow together and diverge, all at small angles to the main axis of growth of the parent direction. A close similarity exists in the method of formation though little or no similarity exists in form. Because of the mechanism of the bundling of the acicular crystals and the presence of an exceedingly fast preferred growth along the c-axis, curves or bends are extremely rare. However, "spiralling" in a "cartwheel" fashion results from the continued addition of new acicular crystals (bundles) in the one direction.

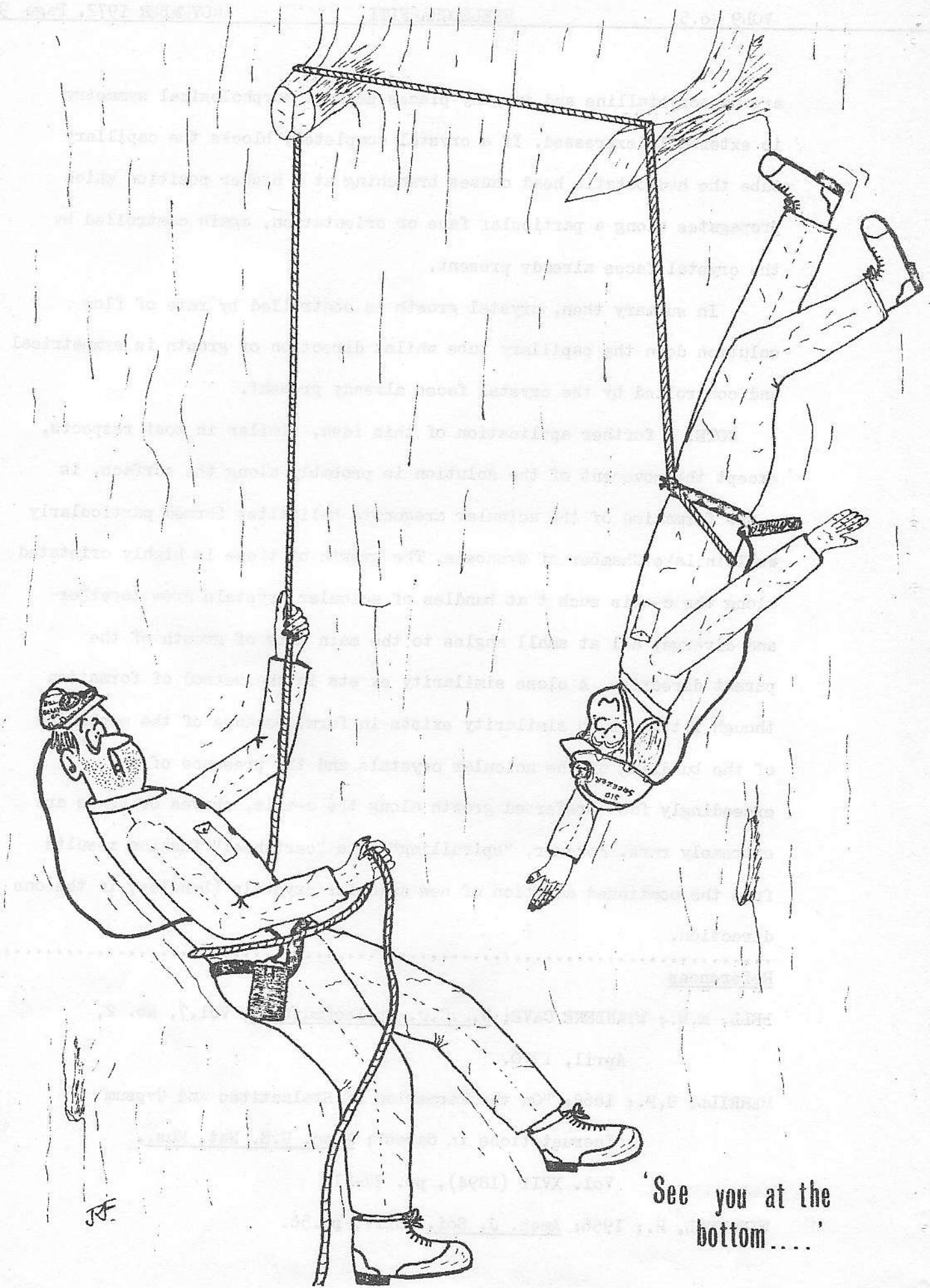
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'See you at the
bottom....'

TRIP REPORTSMount Fairy, 2/9/72.

Present; Noel, Paulette and Amanda Call, Ken Palmer, John Furlonger.

Arriving at the property at about 10.30 am., we were informed that Major Broadbent was now among the dear departed and that the caves were on a section of the property now being leased by some pastoral company or other. So we drove back to the manager's house where, after a curt "Brigadier Broadbent" and after convincing the manager that we had no guns or dogs or other weapons of destruction, we were rather reluctantly allowed to proceed to the caves.

Entering the cave at about midday, Noel, Ken and myself proceeded straight to the most obvious of the two sumps. Here the water was found to be stagnant with an air gap of about 5cm leading of into the unknown. Discretion getting the better part of valour yet again we decided to commence mapping at this point and map back toward the entrance.

The cave is quite complex at this level and goes around in a number of circles which become rather disorienting when you are trying to map them. Having reached the main entrance by about 4.00pm we decided that this might be an appropriate time for lunch.

Ken and I then reentered the cave via the mine adit and mapped through to the lower level which had been completed before lunch. It was dark by the time we had finished doing this so we packed up and left, leaving the rest of the area to be examined on another occasion.

The map, (CRG. Grade 4) should be completed in a few weeks time, over a thousand feet of cave was mapped.

...John Furlonger

AN INDEX TO CAVE MAPS IN NEW SOUTH WALES.

An index of all known cave maps in NSW has now been compiled with the help of many clubs (including NUCC) and a number of individuals. This list has now been published by the A.S.F. NSW Liason Council, and is available from them for one lousy buck*. Any surplus proceeds will go into funding the Council, thereby avoiding, for the present, any financial levies on member societies.

The index has over 40 pages with details of over 700 maps, listing much information about them.

Only a limited number are being printed, so order yours today! Order forms are in ASF 57 (sept '72) or see John Brush for one.

* Remember, only \$1.00(cheap) incl. postage.

BIG HOLE

11/9/72.

Party. John Furlonger (TL), Jim Curtis, Gail Howard, Bart Ormay, David Hughes, Jenny Clark, John Brush, Marj Coggan Mick Ellis, Eugene Collins, Chris Collins, Wayne Allen, John Holland, Frank Bergersen.

We all met at the usual rendez-vous point in the Zoo parking lot prior to heading out in/on two bikes and three cars.

Various routes out there were taken and we regrouped on the Braidwood road before going on to the hole via Dempsey's.

The pitch was quickly rigged (and with all our own gear too, unlike our last trip there in 1970) on the uphill side, resulting in a 500' ladder pitch, the bottom 270' of which were free hanging. Fearless leader was then tied on and thrown over. He was followed by Bart, Jim, Mick, Eugene, and Marj, though not necessarily in that order. The visitors book was signed by them all after the climb down. One wonders whether it would not be better to place the book at the top to record their comments after the climb up!

Due to failing daylight other willing fools did not get a chance to climb the pitch, so it was decided to run another trip in the near future.

The trip home was punctuated by a short visit to the Captains Flat Pub, quickly filling the small lounge to capacity.

JOHN BRUSH.

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WYANBENE

23/9/72.

Party. John Brush, John Furlonger, Mick Ellis and Eugene Collins.

The aim of this trip was to continue the survey down the stream passage from the wet stretch, as well as indulge in a little photography.

We arrived out there to find three other groups viz. Canberra Bush Rescue Group (trying hard not to recognise us for some strange reason); Oodnagalarbie (or somewhere) Rovers and UNSWSS.

Before heading underground we paid a visit on Greg Hurst and co. from UNSWSS and gave them a map and directions on how to get to the Lake.

We went straight through to the wet stretch and commenced surveying in the dry passages (including upper levels), then JB, ME and EC

went in and did the remaining outer end of the wet crawl while JF protected the food and cameras in a nice dry chamber. JF thought he was getting out of this easily, but the rest of us had other ideas (looking back you could call it foresight).

It was decided that on this trip we would go as far as possible down the main stream passage, leaving any large side passages until next time.

Near Helictite Chamber we met the Rovers(on their way in?), they seemed rather worried that they might get trapped in there if both UNSWSS and us decided to remove our ladders, which they had used to come in on.

Soon after the UNSWSS guys passed us on their way out. They had apparently been unsuccessful in their attempt to reach the lake. They took a fair while finding the way into Caesar's Hall from Rockfall and were finally stopped by the pitch the other side of Anderson's Wall. The problem being caused by a small misunderstanding on ladder lengths.

The survey was continued out to Sump One, and here it was (almost) unanimously decided to send Jf to the end with one end of the tape measure. The water was apparently cold, wet and deep (about $\frac{3}{4}$ of a Fred). The bottom was apparently very slippery with some hidden obstacles ready to spring out and trip the unwary.

At this stage it was decided to call it a day, being around 11pm and JF complaining about the cold or something.

After changing, an invitation to absorb some of the heat generated by UNSWSS's fire was gratefully accepted.

JOHN BRUSH.

N.B. The ford has been graded recently, and is now only a few inches deep and the bottom is smooth. (But for how long I wonder!).

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REEPLUGSFREEPLUGSFREEPLUGSFREEPLUGSFREEPLUGSFREEPLUGSFREEPLUGSFRE

BUNGONIA CAVES.

SSS has announced publication of its book on Bunonia Caves. Objects of the book are (i) to provide a compendium of knowledge of the area, and (ii) to promote conservation of the area. The book itself has over 240 pages, 55 photos in 24 plates, 8 of them in full colour. There is also a complete set of cave maps, more than 100, occupying 45 pages and a triple fold-out. A large composite surface and underground plan of the area is also included. Cost is \$6.50, plus \$0.50 postage and packing. Order forms are in ASF 57 (sept. '72), or see John Brush for one.

WYANBENE-BIG HOLE.30/9-2/10/72.

Party: Ken Palmer, John Holland, John Furlonger (TL),
Marj Coggan, John Brush, David Hughes, Alan
Harding and Noel Lake.

Well, the idea of leaving on Saturday morning, so that we could get out there early and get underground quickly, broke down. JF was late leaving his place and when he got to JB's, he found him still in bed. The next problem was getting all the gear to fit into the car. This was eventually solved and all appeared well until JF announced "I haven't bought any meat yet". So we stopped in Queanbeyan on the way out. Here however, the car would not restart. It had to be push started down the middle of the main street - in the midst of the saturday morning traffic. To top it all off, it started to rain.

At Wyanbene we had considerable difficulty in finding JH's car amongst the 600 other cars there. It was eventually found, and it appeared that JH and KP had gone underground, so we decided to put up the tent. The only remaining flat grassed area being that used by a group of Rovers the previous weekend, and what a hell of a mess they left behind!

About 2pm two grubby creatures emerged after what was to be there only trip into the cave this weekend. Soon after JB, JF and Marj went underground to survey Mud Chamber, and what a hell of a job it was. Several obviously rarely entered bits were found, some of which could be looked at more closely in future, especially in the area entered through the vertical helical squeeze.

We surfaced about lam, it was still raining, and everyone had gone to bed. Dave had apparently arrived some time during the afternoon.

SUNDAY Alan and Noel arrived from the coast early in the morning with all the gear needed to do Big Hole. Don and Peter arrived just as we were leaving. They had come out for the day specifically to do the climb. See separate trip report on Big Hole.

Ken and John H. left for home that evening.

After a feed back at camp it was decided to do some more surveying, with Johns B&F., Alan and Noel going under around 7pm. In the 3 or 4 hours that followed we managed to do from the Blowhole out to the lower entrance, up the hill, and back in the main entrance and

back down to stream level. At the entrance a torch was found ("Hey it still works").

MONDAY. The campsite was now quite deserted, most of the other groups having left on Sunday. A YMCA group returned from the hut near the river to pick up there tents and solitary guard or tent keeper or caretaker or something.

After saying goodbye to Dave and packing up our tent, we headed underground once more (something of a record, I feel) to survey the remaining bits. We started with the chamber at the foot of the ladder pitch near the blowhole. Here JF experienced some trouble with falling mud. This was diagnosed as being due to knowing about a grotty little hole and not telling the others about it before he sent them in to map it.

Cleopatra's Bath was next on the list. The bath itself being found to be completely dry - most unusual. At this stage Noel and Alan Left as they had to be in Canberra before dark.

Helictite chamber soon followed, and here JB scored his second torch of the trip. It was found between some large rocks whilst trying to retrieve his biro (no biro - no map). This task completed, we surfaced and headed for home around 8.30pm.

The actual surveying of the cave has now been more or less completed. All that now remains is to draw up the map. Two sheets have been completed (and copies are available) and there will be another two sheets to cover the remaining areas (at 1:250).

JOHN BRUSH.

|||||

BIG HOLE

1/10/72.

Party: As for Wyambene Long Weekend trip plus

Don Nicholson and Peter Ritson.

We met Don and Peter on the track and then proceeded to the Hole. Once again the pitch was quickly rigged and people thrown over the edge. Fools that made the climb this time were Don, Peter, Alan, Noel and John B.. Once again the visitors book was signed, photos taken, falling rocks avoided and so on.

During the day numerous groups of yokels came up to view the hole. One such group nearly losing their dog which ran up to the edge and very nearly slid in.

Contrasting with the last trip, it was not lack of daylight, but lack of willing ladder climbers, thus it was in broad daylight that all the gear was wound up. At this stage Ken and John H. left for Canberra. followed soon after by Don & Peter. The rest returned to Wyambene.

JOHN BRUSH.

C O M I N G T R I P S .

- NOV. 25th. TAEMAS. Pleasant day's boating on Burrinjuck dam while searching for caves in this not often visited area. Chances of finding caves quite good, but will probably be fairly small. A boat must be ordered, so contact J. Brush as soon as possible. Ph. 956610.
- DEC. 2nd. BUNYAN. Large cave near Cooma, rarely visited by cavers. May do a map of the cave as well as having a look for other caves. The cave has apparently got very good formation in parts. Contact Alan Harding. Ph. 492079 (work).
- DEC. 9th. MICHELAGO. Half way between here and Cooma. Area only visited once previously by members of the club. A few small caves reported. Lets see if we can find a few more as well as mapping and numbering the ones already known. Contact Frank Bergersen. Ph. 462013 (work).
- DEC. 16-17th. YARRANGOBILLY. Hopefully, an active weekend, with a dig near Coppermine, an attempt to push North Deep Creek and possibly some mapping. Contact Frank Bergersen. Ph. 462013. (work).
- DEC 23rd. Free. Possibly another Taemas trip.
- DEC 26-30th. NIBICON. ASF Ninth Biennial Convention in Sydney. Details given elsewhere.
- JAN. 1-14th. NIBICON field trips to Yarrangobilly, Bungonia and Jenolan, as well as to other areas as demand dictates.

In the next SPELEOGRAFFITI watch out for feature articles on Histoplasmosis, and a method of underground stream tracing using Lycopodium spores. Also possibly included may be an article on joint analysis in Wyanbene cave.

